MEADOWBANK GOLD MINE

2016 WATER MANAGEMENT REPORT AND PLAN UPDATE

NOVEMBER 2017

VERSION 02

EXECUTIVE SUMMARY

Agnico-Eagle Mines Ltd. Meadowbank Division (AEM) 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_MEA1525 issued on July 23, 2015 (NWB, 2015).

This report presents an updated version of the Water Management Plan 2015 and provides a revised site-wide Water Balance. The revised Water Balance determines the demand and storage requirements of water over the life of the mine. The storage strategies and required transfers will be discussed at large. Certain concepts within the water balance, including pit flooding, remain at the conceptual stage for now and will be further detailed in the Final Mine Closure and Reclamation Plan to be submitted one year prior to final closure in accordance with the current Type A Water License.

The necessity of this particular water management update follows the Water Licence 2AM_MEA1525 Modification Request initiated by AEM regarding the modification of the tailings management strategy which includes the deposition of tailings inside the Goose and Portage Pits. This modification to the plan is part of the mitigation plan developed regarding the situation of the Central Dike Seepage and the recommendations of the Meadowbank Dike Review Board (MDRB, 2017b).

The principal additions to this update are:

- Earlier closure of the South Cell TSF
- Disposal of the Meadowbank tailings inside Goose Pit
- Disposal of the potential Whale Tail Pit tailings inside Portage Pit
- Review of the flooding activities in accordance with new deposition strategy
- The tailings deposition parameters used for the model following the results of the 2016 bathymetries analysis and consolidation analysis performed by SNC-Lavalin;
- The Central Dike seepage status update;

The 2016 Water Management Plan Update also includes the In Pit deposition Water Balance and Water Quality Forecast Update (Appendix B). The Freshet Action Plan and Ammonia Management Plan will be reviewed following the approbation of the modification request by the Nunavut Water Board (NWB).

The Water Management Plan will be updated on a yearly basis as required by the Nunavut Water Board Water License 2AM-MEA1525. Recommendations obtained during the 2016 Meadowbank Annual Report Review will be included in the 2017 Water Management Plan to be issued in March 2018.

DOCUMENT CONTROL

Version	Date (YM)	Section	Page	Revision
1	March 2014	ALL	-	Revision for the 2012 Water Management Plan (by SNC) according to the updated Life of Mine and water management strategies
2	March 2015	ALL	-	Revision for the 2013 Water Management Plan (by AEM) according to the updated Life of Mine and water management strategies
3	October 2015	ALL	-	Update of sections according to Water License renewal conditions
4	March 2016	ALL	-	Revision of the 2014 Water Management Plan (by AEM) according to the updated Life of Mine and water management strategies
5	March 2017	ALL	-	Revision of the 2015 Water Management Plan (by AEM) according to the updated Life of Mine and water management strategies
6	November 2017	ALL	-	Revision of the 2016 Water Management Plan (by AEM) according to Water Licence Modification Request related to in-pit disposal

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Engineering Department

Approved by:

Environmental Department

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Section 1.0 - INTRODUCTION AND BACKGROUND INFORMATION

1.1 INTRODUCTION

Agnico-Eagle Mines Ltd. (AEM) has been operating its 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 Licence No. 2AM-MEA1525 issued on July 23, 2015 (NWB, 2015).

This report presents an updated version of the Water Management Plan 2016 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 will be discussed at large. Certain concepts within the water balance, including pit flooding, remain at the conceptual stage for now and will be further detailed in the Final Mine Closure and Reclamation Plan which is to be submitted one year prior to mine closure in accordance with the Type A Water License.

The necessity of this particular water management update is related to the Nunavut Water Board Water Licence No. 2AM-MEA1525 (NWB, 2015) modification request regarding the integration of in-pit tailings deposition practice to the global Meadowbank tailings management plan. This modification will trigger changes in the surface water management strategy, tailings deposition parameters, tailings management and pit reflooding strategies. This management plan presents the impacts of these modifications on the water management strategy.

Over the summer 2017, AEM assessed that the deposition of tailings inside Goose and Portage Pits was a feasible mitigation measure regarding the current situation observed with the Central Dike seepage. In 2016, following the recommendation of the Meadowbank Dike review Board (MDRB, 2016), AEM evaluated different alternatives for disposing tailings in Meadowbank Mine by performing a Multiple Account Analysis (SNC, 2016) with the support of SNC-Lavalin. In-Pit disposal was designated as the best deposition technic and prefeasibility engineering study was completed in September 2017. AEM is requesting the inclusion of this practice to the NWB through this license modification request as a mitigation measure to continue the operation of the Meadowbank mine under the safest conditions.

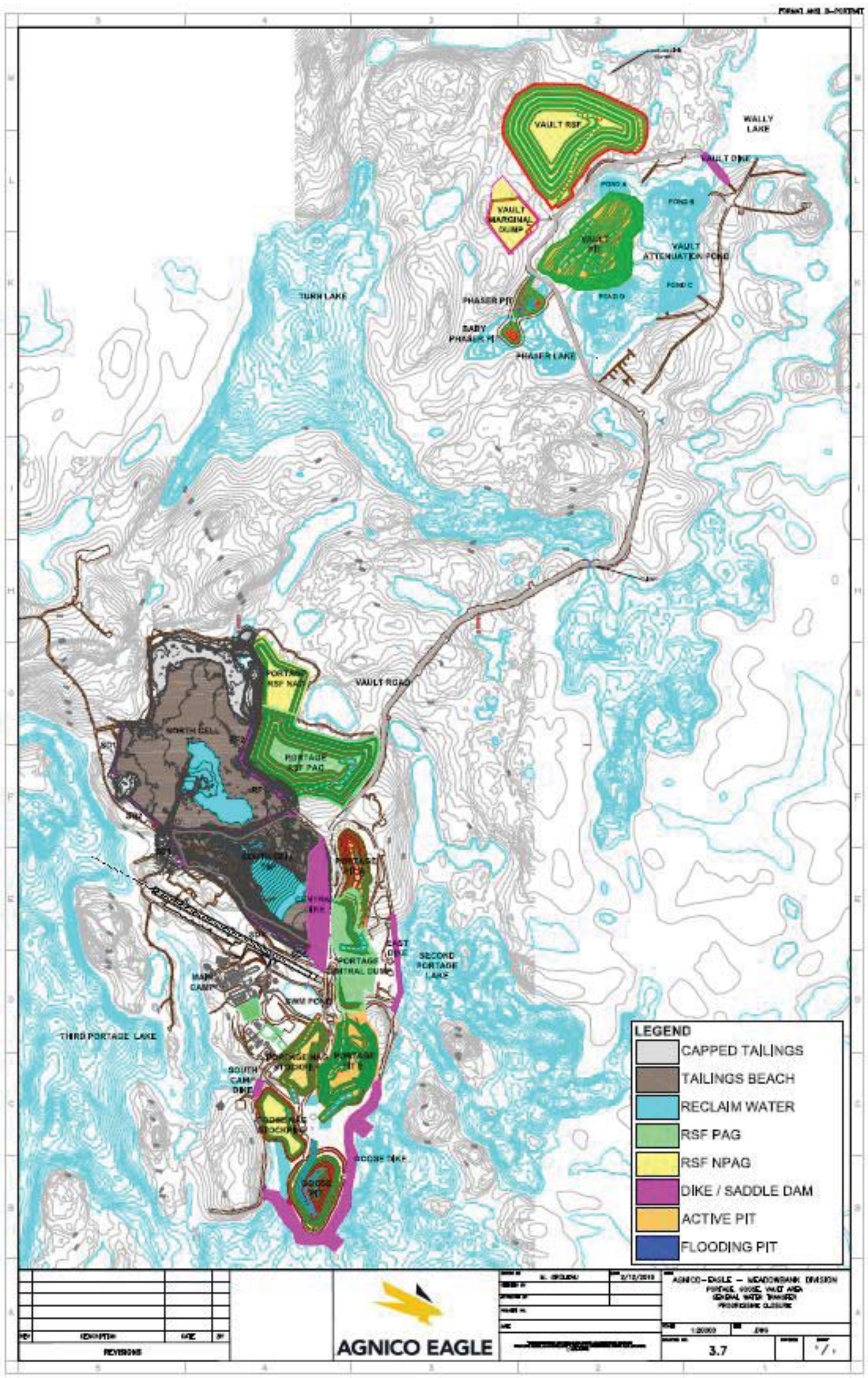
Recommendations from the NIRB following their review of the 2016 Annual report will be addressed in the 2017 Annual Reports. This document is presenting the updated water balance from January to September 2017 and the water management strategy until the end of mine life. The Water Management Plan will be updated on a yearly basis as required by the Nunavut Water Board Water License 2AM-MEA1525 (NWB, 2015).

This modification request is also in line with the Whale Tail project under evaluation. This management plan reflects the integration of this deposition technique for the tailings produced following the mining of the Whale Tail Pit. This section of the Water Management Plan would only be applicable in the case where AEM receives the project certificate from the Nunavut Impact Review Board.

As there is no interaction between the watersheds of the Whale Tail Pit and the Meadowbank site, this report does not include the Whale Tail Project site water management, which is provided in the Whale Tail Pit Water Management Plan (AEM, 2016b). Figure 1.1 shows the Meadowbank Mine and Whale Tail Pit site locations and the Figure 1.2 present the general Meadowbank Mine site layout.

Figure 1.1: Meadowbank and Whale Tail Pit (Amaruq) Mines Site General Location

Figure 1.2: Meadowbank Mine Site Plan



1.2 IN-PIT TAILINGS DISPOSAL STUDY

Following the development of the Whale Tail Pit Project, a first phase of the Tailings Facility Extension Project (TSFE) was conducted by SNC-Lavalin in 2015 (SNC, 2015a). The objective was to evaluate the potential expansion of the Meadowbank Tailings Storage Facility (TSF) - North Cell by the construction of internal structures to increase the total storage capacity associated to the mining of the Amaruq ore deposit. The addition of these structures proposed by O'Kane Consultant (OKC, 2016) was sufficient to increase the storage capacity of 8.3M tonnes of tailings into the North Cell.

The second phase of the project was to evaluate at a conceptual level, different options for the storage of additional tailings on site coming from the Whale Tail Pit. Three options were evaluated which included in-pit tailings deposition in Portage Pits A & E, construction of internal structures over the actual TSF and the construction of filtered tailings plant to stored filtered tailings over the North Cell TSF. AEM selected a 28M tonnes of tailings produced scenario's to compare these difference storage technologies together. This scenario was determined as the best estimate of tailings production associated with the potential approved Whale Tail Pit and any further reasonably foreseeable future development at that time. A Multi-Account Assessment (MAA) session was conducted and the in-pit tailings deposition option was selected as the preferred option (SNC, 2016).

The third phase of the TSFE project consists in developing at a prefeasibility study (PFS) level the In-Pit tailings deposition. In the conceptual study, only Portage Pit A and Portage Pit E were considered for tailings deposition. For the prefeasibility study, Goose Pit is also considered as a potential location for tailings deposition. The in-pit disposal prefeasibility study was done assuming a full capacity scenario where Portage Pit A, Portage Pit E and Goose Pit were filled up to a maximum tailings elevation of 125.6 masl and covered by 8m thick water layer at closure. Through this mandate SNC-Lavalin issued the following technical notes:

- Field Investigation Scope of Work (SNC, 2017b);
- Hydrogeological Field Investigation Factual Report (SNC, 2017c);
- Thermal Modeling Memorandum (SNC, 2017d);
- Hydrogeological Modelling Technical Note (SNC, 2017e);
- Water Balance and Water Quality Forecast (SNC, 2017f)
- Consolidation Memorandum (SNC, 2017g);
- Pit Walls Stability Memorandum (SNC, 2017h);
- Groundwater Monitoring Program (SNC, 2017e).

The appendix B is presenting the Water Balance and Water Quality Forecast associated with this full capacity scenario. However, this water management plan is presenting a scenario where the pits are partially filled with tailings as the tailings produced by the completion of the actual Meadowbank Life of Mine (LOM) and the potential Whale Tail Pit LOM are not sufficient to fill the pits. However the different strategies developed through the prefeasibility study are meticulously integrated in this management plan.

1.3 MINING OPERATION DESCRIPTION

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

The South Portage deposit is located on a peninsula, and extends northward under Second Portage Lake (2PL) and southward under Third Portage Lake (3PL). The North Portage deposit is located on the northern shore of 2PL. The South, Center and North Portage deposits are mined as a single pit, termed the Portage Pit, which extends approximately 2 km in a north-south direction. The Goose deposit lies approximately 1 km to the south of the Portage deposit, and beneath 3PL. The Vault deposit is located adjacent to Vault Lake, approximately 6 km north of the Portage deposits. A series of dewatering dikes (East, West Channel, Bay-Goose, South Camp and Vault dikes) were required to isolate the mining activities from the lakes. Additional dikes (the Central Dike, Stormwater Dike and Saddle Dams) are required to manage tailings within the dewatered 2PL Arm. East Dike, West Channel, Bay-Goose, South Camp, Vault Dike, Stormwater Dike, Saddle Dam 1, Saddle Dam 2 and the start of Central Dike were all constructed from 2009 - 2014. Regarding the Central Dike; the Coffer Dam was built in 2011 up to 110masl, raised to 112masl in 2012, to 120masl in 2013, to 132masl in 2014, then raised to 137masl in 2015, and finally brought to 143masl in 2016. The Saddle Damns 3-4 were constructed up to 140masl in 2015, raised to 143masl in 2016, and finally to 145masl in 2017, (note that SD5 was done in two seasons raised up to 143masl in 2016) and finally to 145masl in 2017. Final elevations will be at 145masl if the current license modification request is approved by NWB. The dikes were and will be constructed primarily using materials produced on site.

1.3.1 Portage Pit Area

The Portage area located between the Third Portage Lake (3PL) and Second Portage Lake (2PL) contains most of the infrastructure of the Meadowbank mine site including but not limited to the Portage Rock Storage Facility (RSF), North and South Tailings Storage Facilities (NC & SC TSF), the mill, the camp and the Stormwater Management Pond. The East Dike was constructed to isolate the north portion of the Portage Pit from the 2PL. Subsequent renaming of the pits led to the nomenclature for each pit (A, B, C, D and E). Mining in Pits B, C, and D (representing the old Central Portage area) is now completed and they are currently subject to pit infilling operations (which will form part of fish habitat compensation). Mining is still active in Pits A and E. Figure 1.3 shows the current Portage Pit and surrounding infrastructures and Figure 1.4 below presents the evolution of the Portage pit terminology.

Figure 1.3: Portage Pit area map

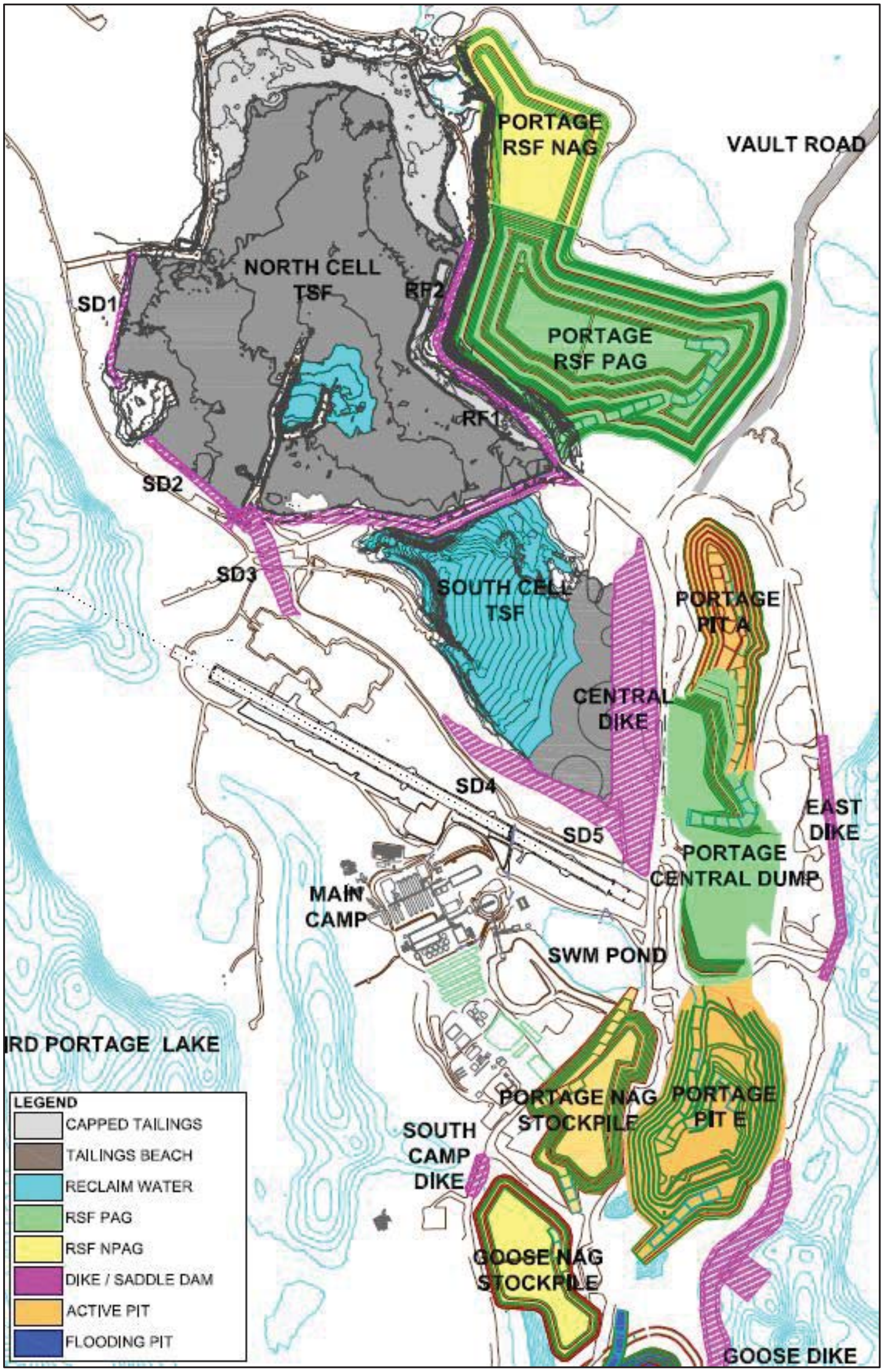
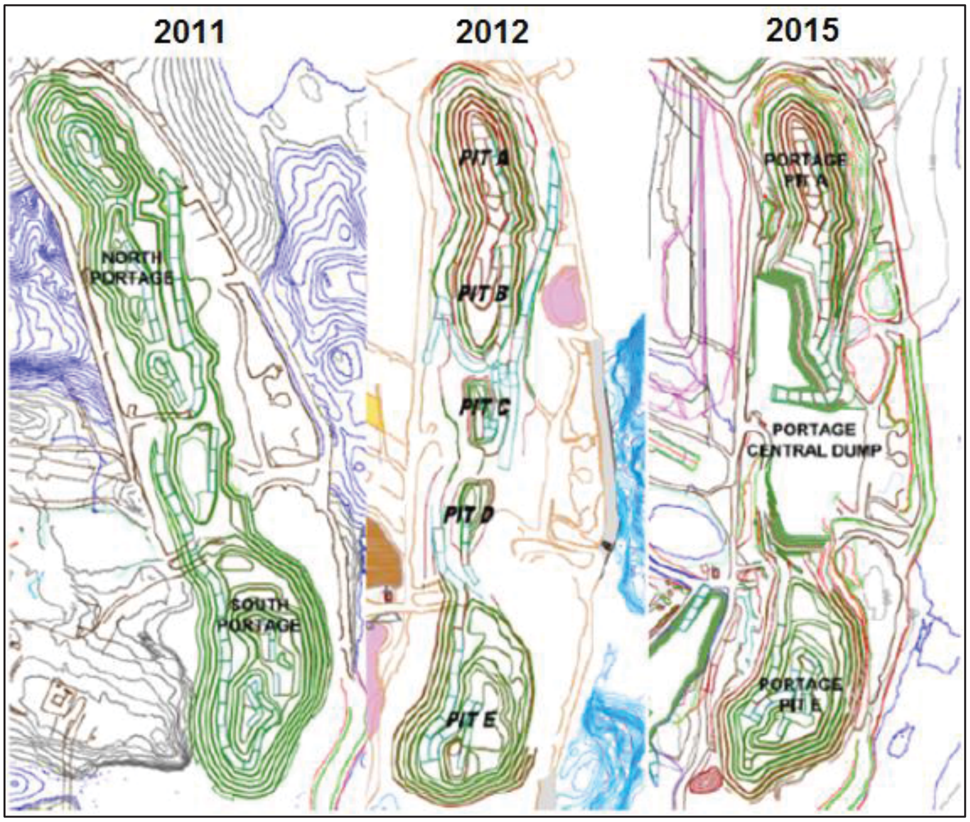


Figure 1.4: Portage Pit terminology



Main water inflow observed in Portage Pit is from the East Dike wall which is associated to the East Dike seepage. This seepage is controlled via two seepage collection points. From the collection points, the water is pumped to a common pipe and discharged back into 2PL since 2014. The discharge is subject to MMER and Water License effluent criteria. The water is discharged through a diffuser located in 2PL. If the seepage does not meet criteria (mainly related to TSS), the pumping is redirected toward the Portage Pit, specifically in the Portage Central Waste Rock area, where the water flows in the rock backfill pores towards Pit B and Pit E in two sumps located at the northern and southern toe of the dump (sampling locations ST-17 and ST-19 respectively). The water is pumped to the South Cell (SC) reclaim pond from those two sumps. Exceptionally, during the summer 2017, water was transferred from Pit A to Pit E as no mining activities was ongoing and AEM wanted to limit the water volume in the South Cell as a mitigation measure of the Central Dike seepage. Another source of pit water was observed in the bottom benches of Pit C and D. These two pits are located in an inferred talik area and also cross a regional fault (Golder, 2009). There are several areas in these pits which are not in permafrost which infers a talik. The water is likely a combination of ground and surface water. AEM is currently monitoring all water quality in sampling locations ST-17 and ST-19 in accordance with the Water License. Pits A and B are located in the permafrost and a minimal amount of water has been observed historically. Some water inflows have been observed from the Pit E south wall during the last years. A major rock fall occurred in September 2015 which was thought to be related to the talik conditions in the shear zone observed on this wall. Water pumped from this area of the Portage Pit was directed to the operational South Cell TSF until the summer 2017 where the water has been stored in the bottom of Pit E, away from the active mining area. Starting in April 2018, all inflow water from Portage Pit will be stored in the Pit A where mining will be completed.

Once the mining of Portage Pit is completed, all dewatering operations will stop and the associated water inflows will contribute to the operation of the tailings deposition process in Portage Pit. The East Dike seepage and any water inflow originating from Pit C and D will also contribute to the in-pit tailings deposition and pit reflooding process during the closure period.

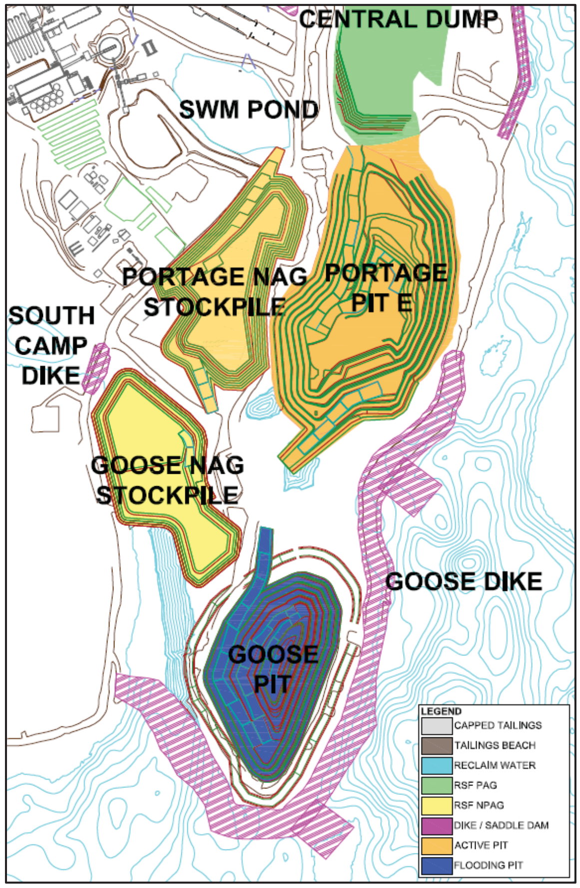
1.3.2 Goose Pit Area

The Goose Pit is under 3PL which required the construction of the Goose Dike to isolate the lake from the mining area. Mining in Goose Pit commenced in 2012 and was completed by the end of April 2015. After mining was completed, Goose Pit is being passively re-flooded (only natural runoff and inflow) as part of the closure (refer to the flooding section 2.3 for further details). The Goose Pit area and surrounding infrastructure are illustrated in Figure 1.5.

The majority of the water entering Goose Pit has been observed coming from the South and West wall due to natural inflow from the fractured quartzite rock formation. No major water inflow is observed on 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). Most of this pit is located in a talik zone which can explain the water inflow. Some areas of the lower part of the pit are not in permafrost which infers a talik zone. Until mining was completed in April 2015, the water was managed with a system of sumps and trenches along the pit ramp, on the 5109 catch bench and on the working elevation. All water pumped from the Goose Pit was directed to the South Cell Reclaim pond. Since mining has been completed, the inflows are collected in the pit as part of the natural flooding process. Pit water quality is also been monitored during reflooding with sampling station ST-20. The beginning of the active flooding (water transferred from Third Portage Lake) of the Goose pit is planned in 2020. Section 2.3.1 discusses the Goose Pit reflooding.

In 2014, seepage from Central Dike was observed. The seepage is contained at the downstream toe of the dike and a permanent pumping system was installed in 2015. In September 2015, 50,431m^3 of water from the Central Dike D/S Pond were transferred to the Goose pit. This transfer was part of a steady state pumping test performed at that time to understand the nature of the seepage flows. Another water transfer of 284,066m^3 was done from August to September 2017. This transfer was part of the action plan developed by AEM following the Central Dike Trigger Action Response Plan (TARP) alarm level raised from yellow to orange in July 2017. More details about the Central Dike seepage are presented in the section 2.2.4.

Figure 1.5: Goose Pit area map



1.3.3 Vault Pit Area

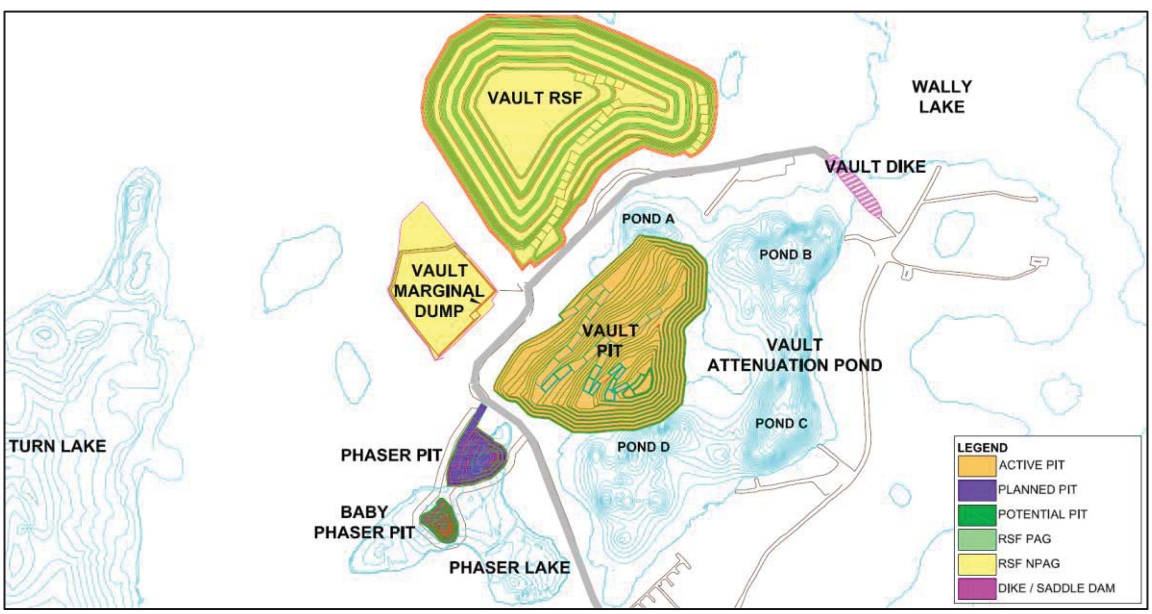
The Vault Pit area contains its own independent infrastructure including but not limited to the Vault RSF, ore and marginal pads, Vault dike, Vault pit, Vault attenuation pond, service building and emergency shelter. The Vault Pit, located under the former Vault Lake required the construction of Vault dike in order to isolate the mining area from Wally Lake and allow dewatering. Dewatering was undertaken in 2013 and 2014. This allowed mining of Vault Pit and the creation of the Vault Attenuation Pond (ATP). The Vault Pit began pre-mining operations in 2013 with active mining starting in 2014. Mining is expected to be completed by the end of the third quarter of 2018. Figure 1.6 illustrates the Vault Pit area and surrounding infrastructure.

The majority of the water migrating into Vault Pit has been observed to be runoff from the surrounding area during the freshet period. Water inflow has been observed on the east wall and most of it is collected in a sump located at the toe of the wall and then pumped into the Vault Attenuation pond. AEM is currently monitoring water quality of the sump in sampling locations

ST-23 in accordance with the Water License to manage that inflow. In 2016 a sump was established in the pond D location to ease runoff water management. Occurrences of small, pressurized, isolated pockets of water are sometimes found while conducting production drilling. The water is managed with a system of sumps and trenches along the pit crest, the main ramp and on the working bench. All water pumped from the Vault Pit is directed to the Vault Attenuation Pond (ATP). The water is subsequently treated for total suspended solids removal (TSS) during summer months (if necessary) and discharged into Wally Lake in accordance with the Water License and the MMER. AEM is currently monitoring water quality of the Vault Attenuation Pond and discharge at sampling locations ST-25 and ST-10 respectively in accordance with the Water License It is worth mentioning that as of 2017, no water treatment for TSS has been required prior to discharging in Wally Lake as the water met the MMER and Water license criteria.

In 2015, the footprint of the Vault pit was extended following a Life-of-Mine (LOM) exercise. This footprint extension required AEM to review the water management of the Vault Attenuation Pond and change the maximum operation elevation of the different ponds – specifically pond D. The configuration of the Vault Attenuation Pond is presented on Figure 1.6. There are four internal ponds named Pond A, B C & D respectively, which promote natural settling of the suspended solids and contribute to the low TSS levels confirmed by effluent sampling in accordance with MMER and the Water License. The LOM presented in this document includes the mining of Phaser and BbPhaser Pits in 2017-2018. The dewatering of Phaser Lake occurred during summer 2016 to prepare for mining operations initiated in 2017.

Figure 1.6: Vault Pit area map



1.3.4 Whale Tail Pit Operations

AEM is currently advancing the plans to develop the new Whale Tail Pit as a satellite deposit to the nearby Meadowbank mine. AEM is working closely with the Nunavut Impact Review Board (NIRB) and the Nunavut Water Board (NWB) on the Whale Tail Pit Project joint permitting process. NIRB/NWB has coordinated the technical review of Whale Tail Pit Project, which is underway; technical meetings, prehearing conference and public hearing conference were held in Baker Lake, Nunavut. The Whale Tail Pit permitting is on schedule, and project certificate is expected to be delivered by Q3 2018.

Following an internal technical study, the Whale Tail satellite deposit at Meadowbank was approved in February 2017 for development, pending the reception of the required permits, which are expected to be received in Q3 2018. In the internal technical study, a conventional open pit mining operation is contemplated to begin extraction of the Whale Tail satellite deposit in Q3 2019. Development of Whale Tail Pit Project would extend the Meadowbank mine life, allowing additional time for AEM to develop and implement an exploration strategy to expand the Whale Tail deposit and to evaluate additional opportunities on the property.

The current management plan is presenting the potential addition of the Whale Tail satellite deposit to the Meadowbank mine life in order to appreciate the impact of the modification of the tailings deposition strategy proposed in this Water Licence Modification Request. However water management of the Amaruq site will not be covered in this report. Refer to the Whale Tail Pit Water Management Plan (AEM, 2016b) for more detail concerning this aspect. This management plan cover only the water management strategy related to the tailings in-pit disposal of the potential Whale Tail Pit ore at the Meadowbank Mine site.

The Whale Tail Pit production plan extend from 2019 to 2022 for a total mill throughput of 8,279,144 tonnes of ore at an average grade of 2.92 g/t. Mining of Whale Tail Pit is a truck-and-shovel open pit operation. Ore will be hauled from Whale Tail Pit to the Meadowbank mill on a road of more than 72.5km. More precisely, three types of ore based on their grade qualities will be milled through a stockpile management process comparable to what is being accomplished at Meadowbank. Milling of the ore will be done at the Meadowbank site and tailings will be stored within the footprint of the approved Meadowbank TSF and potentially inside the Goose and Portage Pits as presented in this management plan.

1.4 LIFE OF MINE DESCRIPTION

The current life-of-mine (LOM) has been updated with the mining surfaces, operational fleet, stockpile situation and milling forecasts. The specifics of the expected monthly milling tonnage are summarized in Table 1.1 seen below. AEM is also presenting the realized processed ore tonnage from January to September 2017 in this table as well as the potential Whale Tail Pit ore tonnage to be processed if AEM receives the Whale Tail Pit project certificate.

Table 1.1: Current official Meadowbank LOM figures combine with potential Whale Tail Pit LOM – Processed ore tonnages

	2017	2018	2019	2020	2021	2022
January	331,887	279,000	-	273,750	273,750	66,644
February	314,269	252,000	-	273,750	273,750	-
March	279,684	279,000	-	273,750	273,750	-
Q1	***925,840***	***810,000***	***-***	***821,250***	***821,250***	***66,644***
April	328,392	270,000	-	273,750	273,750	-
May	344,962	279,000	-	273,750	273,750	-
June	322,937	270,000	-	273,750	273,750	-
Q2	***996,291***	***819,000***	***-***	***821,250***	***821,250***	***-***
July	336,222	227,530	273,750	273,750	273,750	-
August	326,409	227,530	273,750	273,750	273,750	-
September	275,754	220,191	273,750	273,750	273,750	-
Q3	***938,385***	***675,251***	***821,250***	***821,250***	***821,250***	***-***
October	348,657	-	273,750	273,750	273,750	-
November	337,410	-	273,750	273,750	273,750	-
December	348,657	-	273,750	273,750	273,750	-
Q4	***1,034,724***	***-***	***821,250***	***821,250***	***821,250***	***-***
Total	3,895,240	2,304,251	1,642,500	3,285,000	3,285,000	66,644

1.4.1 Changes from the Water Management Plan 2016

As previously stated, updates to the LOM will lead to additional adjustments of the water management plan. Changes in the LOM plan that affect water management include but are not limited to:

- Updated truck mining fleet;
- Updated stockpile status;
- South Cell (SC) and North Cell (NC) TSF NAG capping volumes (progressive reclamation) and timeframe.

In this water management plan version, revisions/modifications were made to the water balance to integrate the addition of the in-pit deposition process inside Goose and Portage Pits that leads to this update. These include:

- Fresh water consumption revision;
- Total daily mill water requirements;
- Updated tailings deposition plan affecting the North Cell and South Cell deposition calendar;
- Addition of in-pit deposition inside Goose and Portage Pits to the deposition calendar;
- Inclusion of potential Whale Tail Pit processed ore to the deposition calendar;
- Pit water inflow revision based on observed flowmeter data as well as a revision of the pits and TSF run off inflows related to their underlying watersheds (performed by SNC, 2013);
- Flooding sequence and volumes update to take into account the updated run off inflows as well as to optimize flooding activities to reduce the impact on wall stability;
- Seepage section update;
- Changes in tailings dry density as observed through latest bathymetric analysis.

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

Section 2.0 - WATER MANAGEMENT PLAN AND WATER BALANCE

2.1 GENERAL WATER MANAGEMENT STRATEGY

At Meadowbank, five major water inflows are considered in the site water management system: freshwater pumped from Third Portage Lake, natural run off, natural pit groundwater inflow, seepage inflow from the East Dike and freshet water. This water is either utilized or removed from the inflow by the following means: water treatment plant effluent (if treatment necessary to meet discharge criteria) or non-treated effluent from the Vault attenuation pond, water trapped in the capillary voids of the tailings fraction (including ice entrapment for winter months) at the TSF, East Dike seepage discharge into Second Portage Lake, water trapped within the in-pit rock storage facilities area voids and natural flooding (Goose & Portage Pits).

The water balance is subdivided into the following sections: Fresh Water from Third Portage, Reclaim Tailings Water, Mill Water, North and South Cell TSF, Portage Pit, Goose Water Transfers, Model Parameters, East Dike Seepage, Vault Pit, Phaser & BbPhaser Pits and Lake, Vault Pond D, Vault ATP and Vault water transfers. The following sections will discuss each item and their inherent parameters.

The Water Balance is presented in Appendix A of this report.

As per the requirements concerning the water balance in the Water License 2AM-MEA1525 (Part E, condition 7), the Water Management Plan will be updated on an annual basis. The Water Management Plan will include a yearly updated water balance according to the water management strategy and the applicable LOM.

2.1.1 Updated Tailings Deposition Strategy

The in-pit deposition consists of the deposition of tailings into Goose Pit, Portage Pit A and Pit E following the approval of this modification request. The approval of the modification request will trigger the end of the deposition of tailings in the North and South Cell TSF. The deposition strategy considered for this management plan is divided into the following distinct periods:

- Period 1: Portage/Vault tailings deposition in South Cell TSF and in Goose Pit
- Period 2: Whale Tail tailings deposition in Portage Pit
- Period 3: Pit Closure at the end of operations
- Period 4: Monitoring period
- Period 5: Post closure

Period 2 relies on the submission of the Whale Tail Project Certificate by NIRB and on the approval of the current modification request. In the event AEM does not move forward with the Whale Tail Project, Period 3 will be triggered after the completion of Period 1. Water management global strategy of each period will be presented in the following sections.

2.1.1.1 Period 1: Portage/Vault tailings deposition in South Cell TSF and Goose Pit

Based on the experience acquired during the closure of the North Cell TSF, AEM developed an internal operation guideline related to the minimal water volume required to operate a TSF in Meadowbank. High turbidity levels were observed in the reclaim water when the North Cell TSF water volume – volume of unfrozen water – was below 250,000 m^3. This situation was observed two times in November 2014 and in October 2015. Back then, these situations lead AEM to switch deposition of tailings from the North Cell TSF to the South Cell TSF in order to continue the operation of the process plant.

When the alarm level of the Central Dike was raised to orange in July 2017, AEM completed water balance sensitivity analyses to evaluate the potential operation of the TSF with a lower water volume over the next year. AEM evaluated that a transfer of 300,000 m^3 would balance the operational risks related to the seepage situation and the operation of the South Cell TSF over the 2017-2018 winter with a lower water volume.

The sensitivity analyses showed that the total water volume of the South Cell TSF will decrease around 540,000 m^3 in April 2018 and more than 60% of this volume will be frozen solid leading to a free water volume of 210,000 m^3. AEM will need to operate the South Cell TSF below the 250,000 m^3 free water volume self-imposed limit.

AEM established a mitigation plan to reduce the impact of this low free water volume in the South Cell TSF. This action plan is consisting of the:

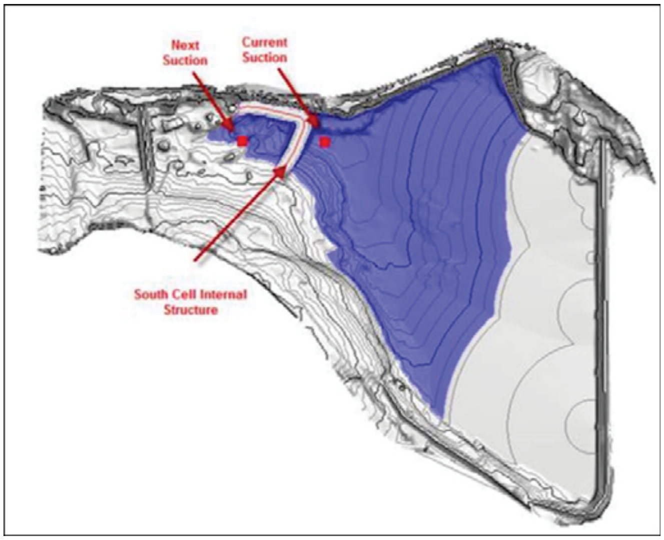
- Construction of the South Cell Internal Structure during the fall 2017 to prevent tailings beach to reach the reclaim pump during winter 2018;
- Evaluation of the possibility to initiate tailings deposition in Goose Pit in April 2018.

The South Cell Internal Structure layout is presented on the Figure 2.1. This permeable rockfill internal structure in front of the reclaim pump suction will block the migration of tailings toward the reclaim pump area and allow the water to reach the pumping area. Similar structures were built in 2014 in the North Cell TSF and proved their effectiveness.

In the circumstance where the South Cell Internal Structure is not efficient to secure the deposition of tailings in the South Cell TSF, AEM will need to discharge tailings in another storage area. AEM identified the Goose Pit as the best available location.

In order to reflect this strategy, this water management plan presents tailings deposition inside the South Cell TSF until the end of March 2018 and tailings deposition in the Goose Pit from April 2018 to September 2018. During that period of time, 1.5M tonnes of tailings will be stored in the Goose Pit and the water volume inside the Goose pit will vary from 1.5Mm^3 to 2.6Mm^3. AEM plans on operating the mill during that period of time by consuming 100% of freshwater. This 2.6Mm^3 will be transferred to Portage Pit E during the Period 2 and used during the deposition of the Whale Tail pit tailings in the Portage Pit E. This transfer will reduce the freshwater required at that time. However, if AEM needs to initiate the closure process of Meadowbank mine in 2018, the water contained inside the Goose Pit will be treated prior to resuming Goose Pit reflooding. Treatment objectives will be to meet CCME or other site specific criteria prior to complete the breaching of the Goose Dike.

Figure 2.1: South Cell Internal Structure



2.1.1.2 Period 2: Whale Tail tailings deposition in Goose Pit

According to Whale Tail Pit project presented to the NIRB and NWB previously in 2016 and 2017, AEM was planning the raise of the actual Meadowbank TSF capacity to store the additional 8,279,144 tonnes of tailings produced during the mining of the Whale Tail Pit ore. The geotechnical infrastructures of the South Cell were planned to be raised from elevation 145 to 150m and an upstream dike was planned to be built above the North Cell TSF tailings up to elevation 154m. Following the evaluation of the Central Dike operational risk related to the seepage event and the recommendation of the MDRB, AEM now plans to store the additional tailings inside the Portage Pit.

This new tailings management approach is a modification to the Whale Tail Pit Tailings Management Meadowbank Tailings Storage Facility Management Plan Addendum (AEM, 2016c) presented within the submission documents of the Whale Tail and Haul Road project and will be only applicable upon the reception of the project certificate.

AEM is planning to alternate deposition of tailings in between Portage Pit A and Portage pit E. during Period 2. The Portage Pit is divided in two ponds by the Portage Pit Central Dump as presented on the Figures 2.2 and 2.3. The water balance assumed that the Portage Central Dump is permeable and allows water to travel freely through the rockfill. The waste rock contained inside this dump has a 30% void ratio, and these voids will be filled by water during the deposition of tailings. The Portage Central Dump voids must be filled at the same rate then the Portage Pit A and E in order to keep a constant water cover over the tailings beach and achieve the deposition of tailings properly. AEM is planning on using 7.5Mm^3 fresh water from 3rd Portage Lake (3PL) to achieve this objective during the operation. Flooding of Goose Pit will also be initiated with a 2Mm^3 water transfer from 3PL planned in 2020. Prior to executing this specific transfer, water quality forecasts of the Goose Pit will be evaluated to determine treatment requirements prior to water transfer.

Figure 2.2: Profile View of Portage Pit A, Pit E and Central Dump

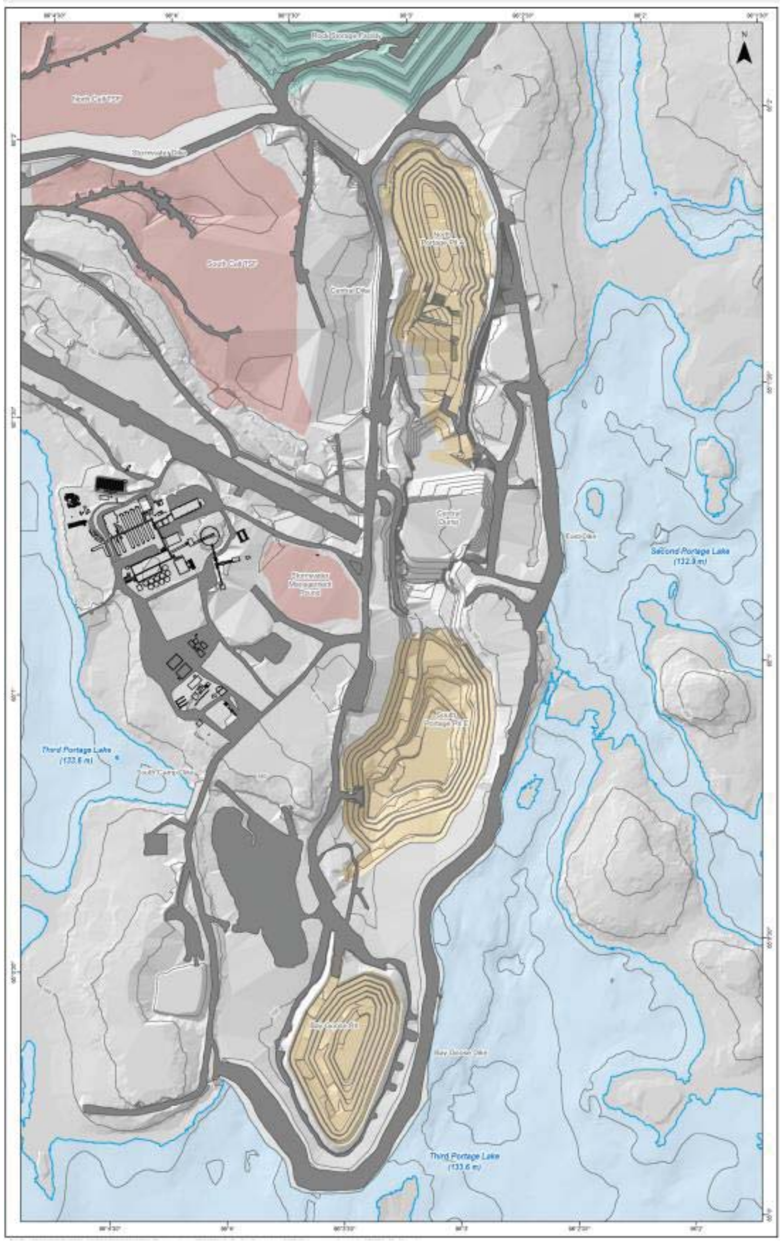
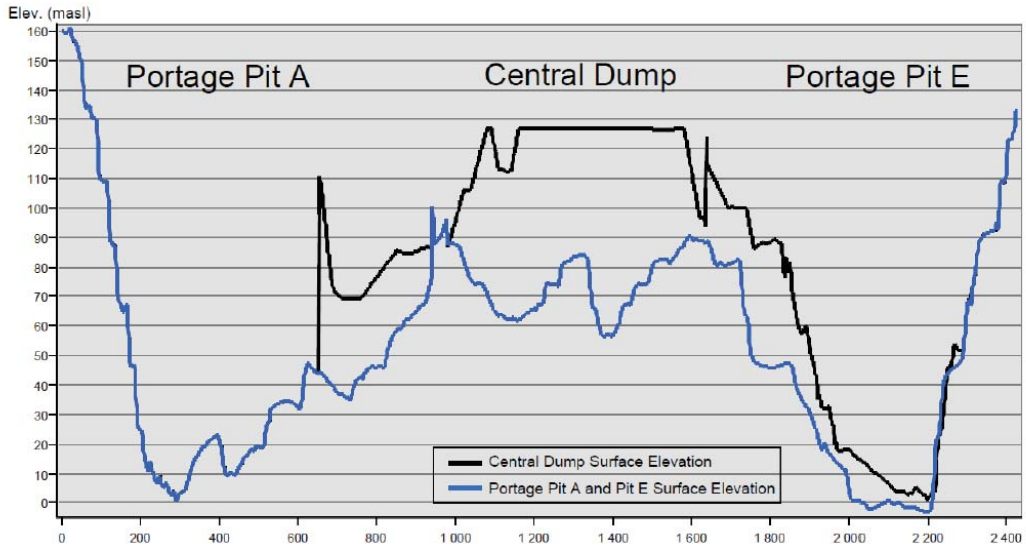


Figure 2.3: Profile View of Portage Pit A, Pit E and Central Dump



2.1.1.3 Period 3: Pit Closure at the end of operations

The in-pit deposition activities are planned to cease in January 2022. Flooding of the Goose and Portage Pits will be resumed during the summer 2020 with the transfer of 24.6Mm^3 of water from 2020 to 2027. Water quality forecasts for the pit water will be evaluated prior to initiating the flooding process and treatment requirements evaluated and executed, if required at that time. Section 3.2 is presenting additional details of the flooding activities and Section 4 is presenting the findings of the water quality forecast completed for the in-pit deposition scenario.

2.1.1.4 Period 4: Monitoring period

Natural flooding of the Goose and Portage Pits will continue from 2027 to 2031. During these four years, AEM will evaluate water quality of the pits prior to Goose Dike breaching in 2031.

2.1.1.5 Period 5: Post closure

Monitoring of the water quality within the pits will be done according to the approved Final Closure Plan.

2.1.2 Fresh Water from Third Portage Lake

Fresh water from Third Portage Lake is pumped, utilizing a fresh water barge, in order to service the camp, mill, maintenance shop and all other fresh water users at Meadowbank. The amount pumped from the barge is tracked and reported in the water balance and as a requirement of the Type A Water License. The two main consumers of fresh water are the mill with an average of 43,046 m^3/month since the beginning of 2017 (expected average 43,324m^3/month in 2017) and the camp that averaged 3,373m^3/month in 2017.

It is important to take note that 2017's freshwater consumption at the mill are lower than prior years which was part of a strategy to reduce the volume of free water volume in the reclaim pond to put less pressure on the Central Dike seepage mechanism by reducing the hydraulic gradient in between the South Cell TSF and the Central Dike downstream pond. As mentioned above, this practice increased the level of risk related to the reclaim system operation during winter 2017/2018 as seen in 2013 at the North Cell.

The freshwater going to the mill is used in the milling process and will be discharged with the tailings as slurry. Once in the South Cell TSF, the total water used in the process is made up of 40-70% of reclaim water, 30% of entrapped water within the capillary void space of the tailings and up to 30% of entrapped water within the TSF as ice. The water entrapment within the TSF represents the volume of water loss in the deposition process. The 2016 bathymetry analysis of the South Cell revealed that the annual water entrapment increased to 39% and subsequently to 40% in 2017. According to AEM analysis, these results are the consequence of the tailings deposition mechanism in the South Cell. The annual water entrapment was set at 40% until the end of the operation of the South Cell TSF in March 2018.

To evaluate the capacity of the pits for tailings storage, a one dimensional (1D) geotechnical modelling was carried out by SNC-Lavalin to assess the tailings consolidation in the short and long term as tailings are being deposited in the Portage Pit E (SNC, 2017g). The 1D model was built using the expected tailings production as provided by AEM and the tailings storage volumes developed for Portage Pit E and translated to Pit A and Goose. The model was set up using the existing data obtained from the project site and data from the gold tailings mine with similar properties. Based on the consolidation laboratory testing data obtained from the gold mine with similar tailings properties, the 1D consolidation modelling shows that during in-pit filling the average solid content ranges from 61.2% to 63.7 % with the equivalent tailings dry density ranging from 1.03 tonne/m^3 to 1.11 tonne/m^3. The water balance presented in this Water Management Plan assumed that tailings, after consolidation, will have a 67% water content during the in-pit deposition process in Goose and Portage Pits. This parameter is considered conservative as it is triggering higher consumption of freshwater during the operation.

The fresh water used in the camp includes laundry facilities, cleaning, cooking and drinking water consumption. The majority of the camp fresh water is returned as sewage treatment effluent to the Stormwater Management Pond which ultimately gets transferred to the active TSF (currently the South Cell and later Goose Pit) and to the Portage Pit from 2020 to 2031 as part of the flooding process at closure.

The total expected fresh water utilization planned from October 2017 to mine closure varies from 60-370m^3/hr during mill operation, and drops gradually during closure to 4m^3/hr once the mill has closed or during the 9 months production gap in 2018-2019 prior to Whale Tail Pit ore processing (represents water used by the camp only and does not include pit flooding). The variation seen in the fresh water consumption during the mill operation is optimized to prevent a water deficit in the TSF and allows for adequate reclaim volumes while minimizing the reclaim water transfers from the TSF to the pits at closure. The higher freshwater consumption flows are planned during the tailings deposition inside Goose Pit. The objective is to build up a 2Mm^3 water volume inside Goose Pit in order to ease the startup of the in-pit deposition of Goose Pit in April 2018 and reduce freshwater consumption during the summer 2019 by transferring this volume in Pit A instead of pumping water from the 3PL.

The ice cover during the winter months on the reclaim pond will vary between 0.0-1.7m in thickness which may represent up to 61% (April 2018) of the total reclaim water volume compared to the 32% ratio observed in April 2015. This shows the large impact of Arctic climate on tailings and water management at Meadowbank. Tables 2.1 and 2.2 present, respectively, the targeted water consumption until the end of the Period 1 and the average yearly water consumption forecasted until the end of the mine life. More details are included in the water balance presented in Appendix A.

Adjustments at the mill and in the water management strategies have led to a revision in fresh water consumption as presented in previous section. Figure 2.4 presents the process plant water consumption per month until the production gap and yearly values are summarized in Table 2.2 for 2017 to 2031, excluding pit reflooding volumes. Refer to Section 2.3 for the pit flooding activities description and freshwater needs.

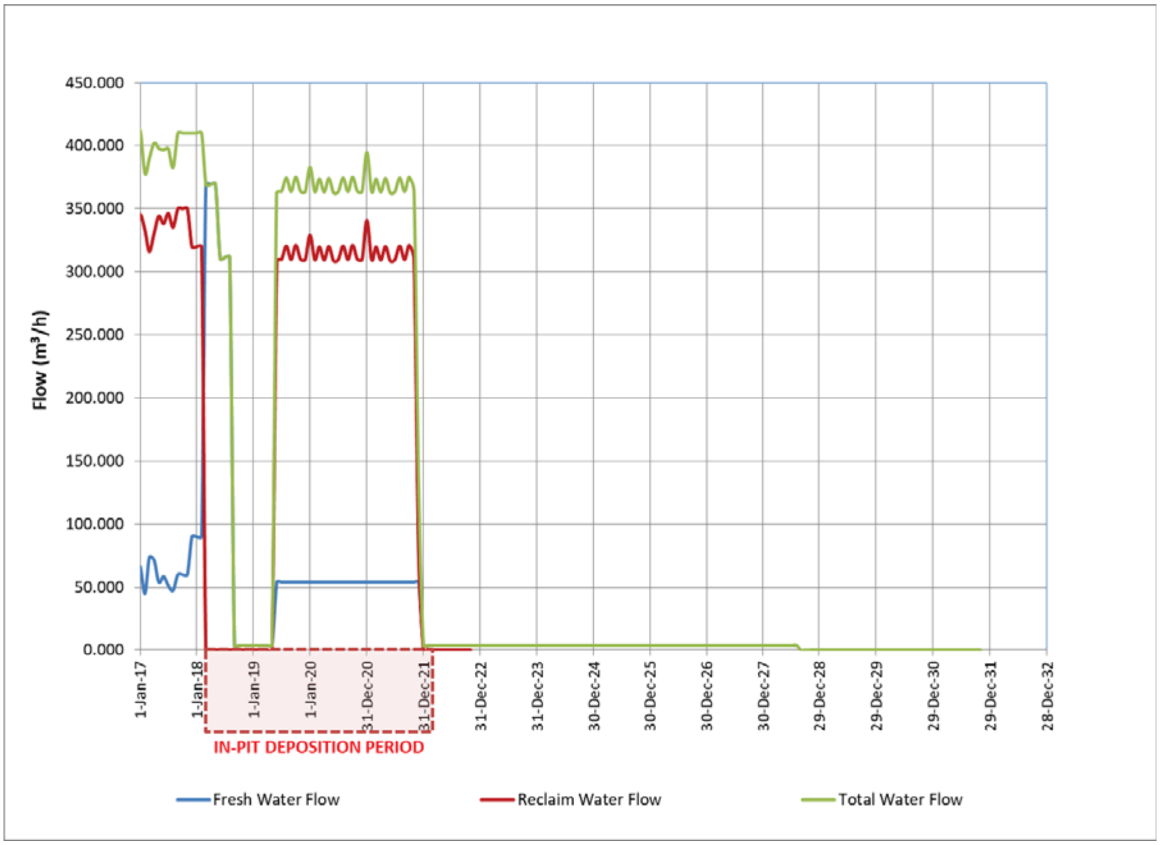
Table 2.1: Targeted water hourly consumption per month until end of Period 1 – for Mill and Camp Usage

Month	Fresh Water Flow (m^3/h)	Reclaim Water Flow (m^3/h)	Total Water Flow (m^3/h)
October/17	60	350	410
November/17	60	350	410
December/17	60	350	410
January/18	90	320	410
February/18	90	320	410
March/18	90	320	410
April/18	369	0	369
May/18	369	0	369
June/18	370	0	370
July/18	310	0	310
August/18	311	0	311
September/18	312	0	312
Average	**208**	**168**	**375**

Table 2.2: Yearly water consumption summary – Mill and Camp Usage

Year	Average Fresh Water Flow (m^3/h)	Total Fresh Water (m^3)	Average Reclaim Water Flow (m^3/h)	Total Reclaim Water (m^3)
2017	59	519,683	340	2,977,431
2018	194	1,697,229	80	691,200
2019	29	383,262	157	255,4751
2020	54	473,970	315	2,764,060
2021	54	472,675	315	2,756,507
2022	8	71,875	6	56,118
2023-2031	4	34,675	-	-

Figure 2.4: Flow to the mill



2.1.3 Reclaim Tailings Water

Reclaim tailings water represents the water reclaimed from the TSF during mill operation. Currently, the pumping system utilizes a mobile pumphouse on skids which retreats on a road as the water level rises in the South Cell TSF. AEM is planning using the same kind of equipment for the operation of the in-pit deposition. The suction line will be placed at the bottom of the ramp and extended as needed according to raise of the water level in the pit. A summary of the reclaim water sent to the mill on an annual basis can be seen in Table 2.2.

Presently the reclaim pumping system installed in the South Cell will continue to supply the mill with reclaim water until end of March 2018. Once in-pit deposition will be initiated, North Cell TSF runoff water inflow will be transferred yearly during summer months into the South Cell, and then from the South Cell to the pits, to maintain a 2m freeboard in the North Cell TSF as required by the TSF designer, the OMS manual and the Water License. This action will be performed yearly (even after the North Cell is capped during closure operations) until 2031 (planned dike breaching if CCME criteria/site specific criteria are met). It should be understood that run off water (non-contact water) from the surrounding North Cell TSF watershed area is captured in the diversion ditches and conveyed to the Interception Sump. From there, it is planned to be transferred into the North Cell or release to the environment if meeting discharge criteria.

The South Cell TSF water management is based on same principles as the North Cell. After the summer of 2017, the reclaim water volume will decrease slowly until the tailings deposition is completed. Some water will need to be transferred to the Portage Pit during the in-pit deposition for the closure phase (i.e. reflooding) and to properly dewater the tailings pond for closure capping. Those reclaim water transfers are included in the pit flooding process. The impact on final pit water quality is considered in the yearly water quality forecast model presented in the section 3.

2.1.4 Mill

The LOM figures depicted in Table 1.1 were used to calculate the monthly mill throughput. Based on this, AEM has determined the historical average ore moisture content associated with the mill feed which represents this source of water within the water balance. Table 2.3 illustrates the average moisture content over time until closure. The forecasted average moisture content for 2017-2022 is the average of the measured volume of 2013 to 2015. Note that the moisture content is established as a percentage of mill throughputs.

Table 2.3: Monthly average moisture content at the mill

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

2.1.5 North Cell

The North Cell TSF has been in operation since January 2010. Deposition ceased temporarily in the North Cell in November 2014 as the South Cell TSF became operational. Tailings deposition resumed in the North Cell from June to October 2015 to accomplish summer deposition as part of the closure of the North Cell. Progressive closure and capping of the North Cell TSF started in winter 2015. Table 2.4 is presenting the volume of Non Potential Acid Generating (NPAG) material placed over the North Cell TSF since 2015.

Table 2.4: Monthly average moisture content at the mill

Year	NPAG material (m^3)
2015	296,129
2016	280,644
2017	151,116
Total	**727,889**

Capping will continue to occur progressively during the mining of Portage Pit depending on material availability. As per the design specifications and regulatory requirements, the level of the North Cell reclaim pond must be maintained with a two meter freeboard, with the peripheral structures at 150.0masl elevation. For the North Cell, the reclaim water must respect a maximum elevation of 148.0masl. A total of 238,762m³ of water from the North Cell was transferred to the South Cell reclaim pond from June to September 2017.

2.1.6 South Cell

The South Cell area was the Portage Attenuation Pond prior to the November 2014 commencement of tailings deposition. The attenuation pond was designed to contain mine contact water as well as freshet runoff and was discharged to Third Portage Lake via the Water Treatment Plant (WTP) in accordance with the Water License and MMER. In May 2015, AEM proceeded with the dismantlement of the Portage WTP as no additional water was planned to be discharged into 3rd Portage Lake through the mine life. As presented earlier, AEM is always looking forward to adapt its water management strategy to reduce freshwater consumption by directing runoff water into the tailings pond. During the in-pit deposition phase, runoff water from the South Cell will be redirected to Goose and Portage Pits. This process will continue during the closure phase, where runoff water will be collected in the Goose and Portage Pits as part of the pit flooding process. The South Cell TSF commenced operation in November 2014 and will be receiving tailings from the mill until March 2018. Closure and capping will be finalized during the closure phase.

2.1.7 Portage Pit

The Portage Pit is divided in sub-pits (A, B, C, D & E) and their associated pushback areas. Currently, Portage Pit contains a central waste rock storage area which extends from Pit C to D with a second section located in Pit B. The Portage Pit natural inflow has been revised from the 2012 SNC Water Management Plan (SNC, 2013) with measured on site data from 2013 to 2015. This inflow includes runoff water, groundwater and the part of the East Dike seepage water which is pumped back to Second Portage Lake when discharge criteria are met. Field observations revealed an inflow observed originating from the bottom benches of Pit C and D. Since these areas are completed and backfilled with rockfill, water can accumulate in the rockfill porosity voids thus leading to a reduction in Portage Pit water outflow. AEM believes that the water inflow is filling up the porosity voids of the Portage Central Dump to some extent. It is anticipated that additional inflow could occur at the bottom of Pit A and E as there will be an increased hydraulic gradient compared to the surrounding water (from possible groundwater and surface water from Second Portage Lake). Furthermore, water inflows were observed from the Pit E south wall during the year 2015. A major rockfall occurred in September 2015 which was thought to be related to the talik conditions of the shear zone observed on this wall.

During the summer 2017, all water pumped from the Portage Pit A was transferred to the bottom of Portage Pit E. This modification to the water management strategy was part of the Central Dike seepage mitigation plan. The objective was to reduce water inflow in the South Cell TSF to reduce the hydraulic gradient through the Central Dike as much as possible and limit seepage flow.

Tailings deposition is planned to be initiated in July 2019 in Portage Pit E according to the reception of the Whale Tail Pit project certificate. AEM assumed that the runoff water, Stormwater Management Pond water, East Dike Seepage, South Cell TSF reclaim water and runoff water will be accumulated in the Portage Pit. These water transfers will be done according to the location of the tailings deposition. Tailings will be discharged in Portage Pit E from July 2019 to June 2020, then in Portage Pit A from July 2020 to December 2020 and finally in Potage Pit E until the end of the actual life of mine in January 2022. Other water transfers from Third Portage Lake (3PL) will be required to initiate progressive Portage Pit flooding during operation. The objective of the 3PL water transfers during operation is to always to keep a 20m water cover over the tailings beach at all time. As the Portage Central Dump is permeable, AEM is expecting that the reclaim water cover over Pit A and Pit E tailings beach will flow inside the Portage Central Dump if the rockfill voids are not already filled with water. A 2Mm^3 water transfer from Goose Pit and 4Mm^3 from 3PL will be required to initiate the progressive flooding of the Portage Pit to mitigate that risk. The Table 2.5 is presenting the Portage Pit annual water inflow planned from July 2019 to January 2022.

Table 2.5: Annual water inflow in Portage Pit during Period 2

	South Cell Runoff (m^3)		Stormwater Management Pond (m^3)		Runoff (m^3)		Infiltration (m^3)		East Dike Seepage (m^3)		Goose Pit transfer (m^3)		3rd Portage Lake (m^3)		Net Process water (m^3)	
	Pit A	Pit E	Pit A	Pit E	Pit A	Pit E	Pit A	Pit E	Pit A	Pit E	Pit A	Pit E	Pit A	Pit E	Pit A	Pit E
2019	221,969	-	-	11,590	31,531	35,232	14,720	10,672	-	89,784	2,000,000	-	-	-	-	304,167
2020	486,864	-	11,590	23,085	55,308	61,799	29,280	21,228	89,784	89,784	-	-	-	2,000,000	304,167	304,167
2021	486,864	-	23,085	11,590	55,308	61,799	29,200	21,170	74,820	104,748	-	-	-	2,000,000	253,472	354,864
2022	-	-	-	-	-	-	2,480	1,798	-	14,964	-	-	-	-	-	12,341
Total	**1,195,697**	**-**	**34,675**	**46,265**	**142,147**	**158,830**	**62,680**	**54,752**	**164,604**	**299,280**	**2,000,000**	**-**	**-**	**4,000,000**	**557,639**	**975,539**

This new version of the water balance is presenting an infiltration volume that varies based on elevation of the water inside the pit. Half of the infiltration volume is measured above 129masl and no flow observed above 129.9mals.

Table 2.6 is presenting the Portage Pit annual water outflow from July 2019 to January 2022. The two outflows identified in the water balance are the water reclaimed to the process plant and the water entrapped within the tailings based on the water content of the tailings after consolidation (67%). Reclaim water will always be pumped from the pit were tailings are not discharged. For example, if tailings are discharged inside Portage Pit E, water will be reclaimed from the Portage Pit A. This strategy was put in place in order to optimize reclaim water quality and use the Portage Central Dump as a natural filter to promote settlement of fine particulates of the slurry in the active deposition pit.

Table 2.6: Annual water outflow in Portage Pit during Period 2

	Reclaim Water (m^3)		Entrapped Water (m^3)	
	Pit A	Pit E	Pit A	Pit E
2019	1,383,262	-	-	1,095,000
2020	1,380,798	1,383,262	1,095,000	1,095,000
2021	1,613,746	1,150,314	912,500	1,277,500
2022	56,118	-	-	44,430
Total	**4,433,924**	**2,533,576**	**2,007,500**	**3,511,930**

Tailings beach elevation will reach elevation 76masl in January 2022. Once flooding will be complete the water cover above the tailings will be 57m thick.

During the closure phase, active pit flooding will be triggered. The pumping systems will be decommissioned and replaced by the infrastructure required for the pit flooding process. Refer to Section 2.3 for the pit flooding activities description.

2.1.8 Goose Pit

Mining in the Goose Pit was completed in April 2015. The inflow values have been revised from the 2012 SNC Water Management Plan (SNC, 2013). It was observed that the pit inflow diminishes during the winter due to the freezing of the pit walls. The volume cannot be measured but is reconciled with the water level measured by survey at each month end. The values for the 2017 Goose Pit inflow have been adjusted based on SNC revised run off inflows update (SNC 2015). When referring back to the initial estimates originating from the 2012 SNC Water Management Plan (SNC 2013), an increase was observed in the water inflow during the mining of the bottom benches of Goose which could be attributable to an increased hydraulic head as vertical mining progressed. This new version of the water balance is presenting an infiltration volume that varies based on elevation of the water inside the pit. Half of the infiltration volume is measure above elevation 129mals and no flows observes above elevation 129.9masl.

No more water is pumped from Goose Pit to the South Cell as the mining of this pit is completed and the inflows (runoff and groundwater) are collected in the pit as part of the pit flooding process. As mentioned previously, AEM has monitored (and will continue to do so) the flooding rate since Goose Pit mining was completed. Pit water quality is also been monitored during reflooding with sampling station ST-20.

A total of 365,575 m^3 of runoff and groundwater inflows were stored in the pit so far in 2017. A water transfer of 284,954 m^3 was done from the South Cell TSF in August and September 2017. More detail regarding the Central Dike seepage mitigation plan is presented in the section 2.2.4.

AEM is planning to store Meadowbank tailings in the Goose Pit from April to September 2018. This change to the tailings management plan is done is accordance with the Central Dike Seepage mitigation plan and the recommendation of the MDRB. Reclaiming activity of the process water will be stopped during the deposition of tailings inside Goose Pit. The water volume contained in the pit will then increase from 1.5M to 2.6Mm^3 in six months and the water elevation will increase from 82 to 104m. Tailings beach elevation will reach elevation 83m in September 2018. Once flooding will be completed, the water cover above the tailings will be 51m thick.

The Table 2.7 and 2.8 are presenting the Goose Pit water inflow and outflow from April to September 2018. After the completion of the Period 1, 90% of the inflow will have been entrapped inside the tailings according to the consolidation model developed by SNC (SNC, 2017g). AEM is planning to transfer 600,000m^3 of water from the South Cell TSF from April to June 2018. This water will be needed to keep the water cover at a minimum of 20m thick during the deposition process.

Table 2.7: Annual water inflow in Goose Pit during Period 1

	Stormwater Management Pond (m^3)	Runoff (m^3)	Infiltration (m^3)	South Cell transfer (m^3)	Net Process water (m^3)
2018	34,675	23,187	160,674	600,000	276,713

Table 2.8: Annual water outflow in Goose Pit during Period 1

	Reclaim Water (m^3)	Entrapped Water (m^3)
2018	-	996,167

Once the deposition of tailings will be completed, residual water inside the Goose Pit will be transferred to Portage Pit A prior to resuming deposition of tailings. These transfers are planned during the warmest months of the year to avoid operational issues. First transfer of 200,000m^3 is planned in October 2018 and a second transfer of 2.4Mm^3 is planned from May to October 2019. In the event that AEM does not received the project certificate for the Whale Tail Project, residual process water inside the Goose Pit will be treated as per water quality forecasting requirements in order to meet CCME criteria or other site specific criteria at closure, prior to initiate reflooding activities. Refer to Section 2.3 for the pit flooding activities description.

2.1.9 Vault Pit & Phaser Pit

This section has not been updated for this Water Management Plan version as this modification request does not impact Vault and Phaser Pits water management.

2.1.10 Water Transfers

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

2.1.11 TSF Water Transfers

In order to optimize the tailings deposition sequence, maintain an adequate reclaim pond (operating volume, dike structure protection and water quality), minimize freshwater consumption and perform closure of each cell, water transfers within the tailing storage facilities and pits are required throughout their operating life and in closure. Table 2.9 summarizes the water transfers required around the North Cell and South Cell TSF for adequate water management of these infrastructures from 2017 to 2022.

In 2018, water transfers from the South Cell to the pit (Gosse Pit and Portage Pit A) will be undertaken to promote freeze back of the tailings. The Central Dike seepage, Interception Sump, WEP, SD3-4-5, and ST-16 water are included as transfers into the TSF. All these transfers were recorded in previous years in order to improve the accuracy of the water balance and maintain adequate reclaim pond levels. These transfers are planned through time until the end of operation.

Water transfers from SD3-4-5 to the TSF are required to keep the dike downstream toes free of water. These transfers added to 45,638m^3 in 2017 and are expected to be stable in the upcoming years.

Water transfers from the Stormwater Management Pond (SMP) to the South Cell TSF will stop in 2017 and future transfer will be done in the pit were tailings will be discharged. Regular transfers from the SMP take place twice yearly from 2016 to the closure in 2022. These transfers ensure there is always capacity in the pond to contain runoff water as well as the onsite Sewage Treatment Plant effluent. The transfers from SMP will be directed to the Portage Pit until planned camp closure to play part in the pit flooding process.

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 water shed. The ditches are divided in two sections – the west and east sections, to divert non-contact water respectively to Third Portage Lake and to NP1 Lake. On the west end of the diversion ditches, an interception sump was constructed in March 2014 and was completed in 2015. The interception sump has been put in place mainly to control the water quality, in terms of total suspended solids. The interception sump aims to collect runoff water from the west section of the diversion ditches and to retain it until the total suspended solids have reached the criteria allowing discharge to the environment. AEM plans, as per the water balance to pump until end of mine life the entire water accumulation from the Interception Sump into the North Cell. This was done in order to plan the maximum transfers required from North to South Cell and to properly design the required pumping station. However, AEM will promote natural drainage of non-contact water into 3rd Portage Lake as much as possible to reduce the overall pumping activities on site, ensuring that water quality meets the required Water License criteria. Water volumes ponding in Waste

Extension Pool (WEP) and Waste Rock Seepage Pond (ST-16) are also planned to be transferred to the North Cell TSF until closure of the mine site.

The Central Dike seepage is included in the water balance in accordance with the 1:1 ratio (South Cell reclaim water to seep water) based on the conclusion of the steady flow test performed during the 50,431m^3 water transfer to Goose Pit in October 2015 and the mass balance exercise completed on a yearly basis by AEM. At the end of each month, the volumes pumped back from the downstream seep location to the South Cell are accounted and compared to the seep volumes leaking out of the South Cell. These seep volumes are calculated through a mass balance based on the South Cell TSF surveyed water elevation. The actual real ratio is monitored through time and used to validate the 1:1 ratio currently used. The Central Dike Seepage mitigation plan is including the complete dewatering of the South Cell in September 2018. AEM is expecting to see the seepage flow to seize at this point in time.

Table 2.9: North Cell TSF and South Cell TSF water transfers

North Cell and South Cell TSF Water Transfers - During Operations (m^3)												
Source	Interception Sump	WEP + SD1	ST-16	North Cell	SD3 + SD4-5	Portage Pit	CD D/S	South Cell	SMP	South Cell	South Cell	South Cell
Discharge	North Cell	North Cell	North Cell	South Cell	South Cell	South Cell	South Cell	CD D/S	South Cell	Goose Pit	Pit A	Pit E
2017	189,560	16,020	50,206	251,666	45,638	144,758	3,623,739	3,763,519	71,433	284,954	0	0
2018	171,214	15,569	19,236	387,053	0	0	Assumed 1:1 ration		0	600000	523,615	0
2019	171,214	15,569	19,236	387,053	0	0	0	0	0	0	486,864	0
2020	171,214	15,569	19,236	387,053	0	0	0	0	0	0	486,864	0
2021	171,214	15,569	19,236	387,053	0	0	0	0	0	0	486,864	0
2022	171,214	15,569	19,236	387,053	0	0	0	0	0	0	486,864	0

Table 2.10 is presenting the water transfer required during the deposition of tailings inside Goose and Portage Pits. This table summarizes the information presented in the previous section.

Table 2.10: Goose Pit and Portage Pit TSF water transfers

Goose Pit and Portage Pit TSF water transfers - During Operations (m^3)						
Source	SMP	SMP	SWP	Goose	South Cell	3PL
Discharge	Pit A	Pit E	Goose	Pit A	Pit A	Pit E
2017		0	32,461	200,000	0	
2018			34,675	2,400,000	523,615	
2019		11,590	23,085		486,864	
2020	11,590	23,085			486,864	2,000,000
2021	23,085	11,590			486,864	2,000,000
2022		34,675			486,864	

2.1.12 Portage Water Treatment Plant

In May 2015, the Portage water treatment plant (WTP) was dismantled as no more transfers from the former Portage Attenuation Pond will need to be treated and discharged into Third Portage Lake (3PL).

2.1.13 Vault Treatment Plant

This section has not been updated for this Water Management Plan version as this modification request does not impact Vault and Phaser Pits water management.

2.1.14 Phaser Lake dewatering

This section has not been updated for this Water Management Plan version as this modification request does not impact Vault and Phaser Pits water management.

2.1.15 Stormwater Management Pond

The Stormwater Management Pond (SWP) is a small, shallow and fishless, water body that can be seen in Figure 1.5, adjacent to Portage Pit. Treated sewage effluent is discharged to this lake before being transferred to the active TSF (South Cell). The pond also collects freshet flows within its catchment area. A snow dump is located beside this pond since 2016 and an increase in runoff water has been observed since then. Table 2.9 and 2.10 are summarizing the water transfer planned during operation. It was assumed that SWP water will be transfer to the Portage Pit until the closure of the mine site.

2.2 SEEPAGE COLLECTION SYSTEMS

2.2.1 Mill Seepage Collection system

In November 2013, AEM observed seepage discharging west of the access road in front of the Assay lab shown on Figure 2.5. After an investigation, which included initial sampling, drilling of wells and monitoring, contaminants, namely cyanide and copper were identified. The source was determined to be leaking from internal containment structures within the mill. Third Portage Lake (3PL), approximately 200 m to the west, was identified as a possible sensitive receptor. Remedial measures were undertaken immediately and this included construction of an impermeable interception/collection trench downstream of the seepage flow path. A comprehensive monitoring network and plan was implemented which included installation of monitoring wells, a recovery well (MW 203) and a sampling program (including Third Portage Lake). To date no contaminants have been detected in 3PL. Repairs (sealing) were completed within the mill (containment structures) in 2014 to eliminate the source of contaminants. Seepage collected in the trench and recovery well is pumped back to the mill to be used as process water (much the same as reclaim water from the TSF's). The pumping occurs in the warmer months beginning when freshet commences. The recovery well is pumped year round when water available. No flow of water has been pumped during winter months in the trench because of frozen conditions. Table 2.11 shows the pumped volumes for 2017. AEM observed an increase of the flow to the trench in 2017 (22,428 m^3) compared to 2016 (11,078 m^3). AEM is currently investigating the situation.

Figure 2.5: Mill Seepage Area

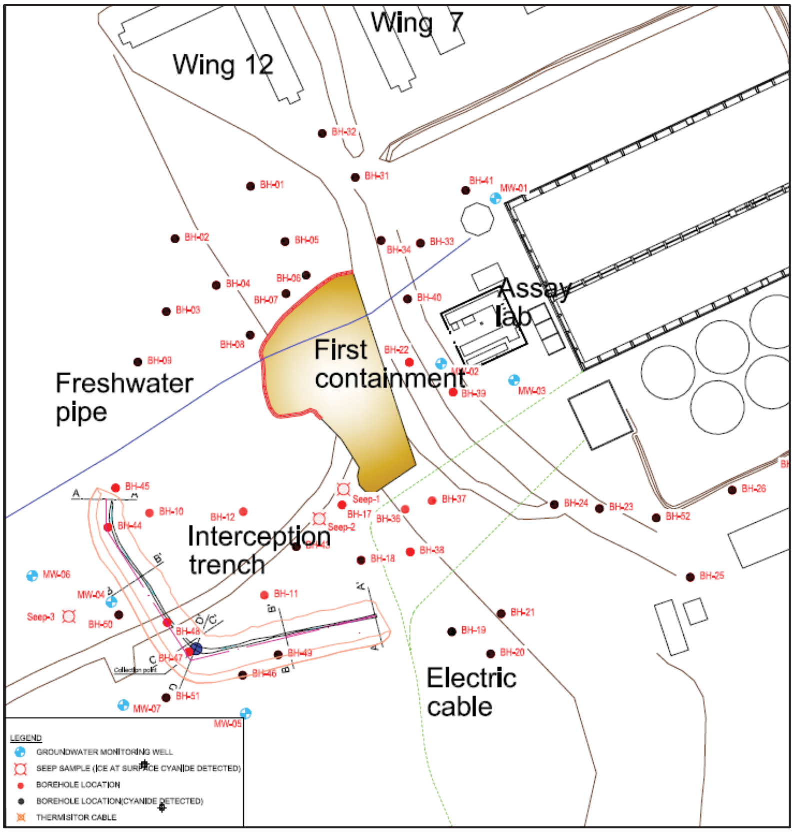


Table 2.11: Mill Seepage 2017 pumped volumes

Month	2017 Mill seepage pumped volumes back to the mill (m^3)
January	0
February	0
March	0
April	0
May	3,025
June	3,973
July	4,961
August	3,782
September	6,687
October	-
November	-
December	-
Total	**22,428**

2.2.2 ST-16 RSF Seepage management

Refer to the Freshet Action Plan (Appendix D) for the history, long term monitoring plan and remedial actions for this seepage location. The pumping system installed in 2014 is still in operation. Seepage was monitored in accordance with the Freshet Action Plan and 50,206m³ was pumped back to the North Cell TSF in 2017. Table 2.12 presents the volume of water pumped back to the North Cell TSF from the ST-16 location. There was a higher volume pumped in 2017 (50,206m³), compared to 2016 (26,340m³). According to AEM, this volume increase is related to higher rainfall observed in 2017. The Figure 2.6 presents the water management strategy developed in 2016 developed to deal with the contact water from the Portage Rock Storage Facility. The infrastructure added in 2016 consists of the two sumps located behind the Portage waste dump (WEP-1 and WEP-2) to collect contact water. All water collected from these sumps is pumped back in the ST-16 sump system and then transferred to the North Cell reclaim pond. Low contaminant levels are still observed by the sampling program. More details will be provided in the 2017 Freshet management plan update.

Figure 2.6: RSF seepage area

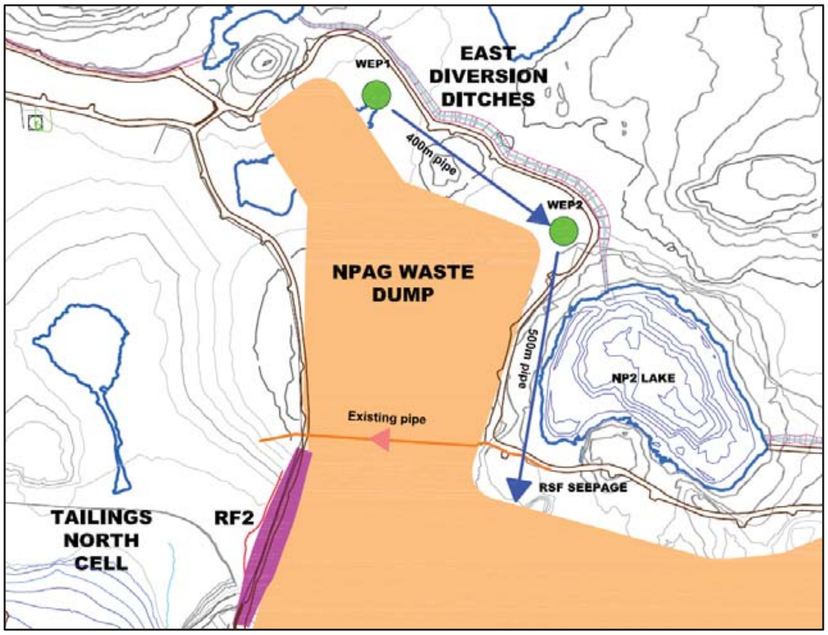


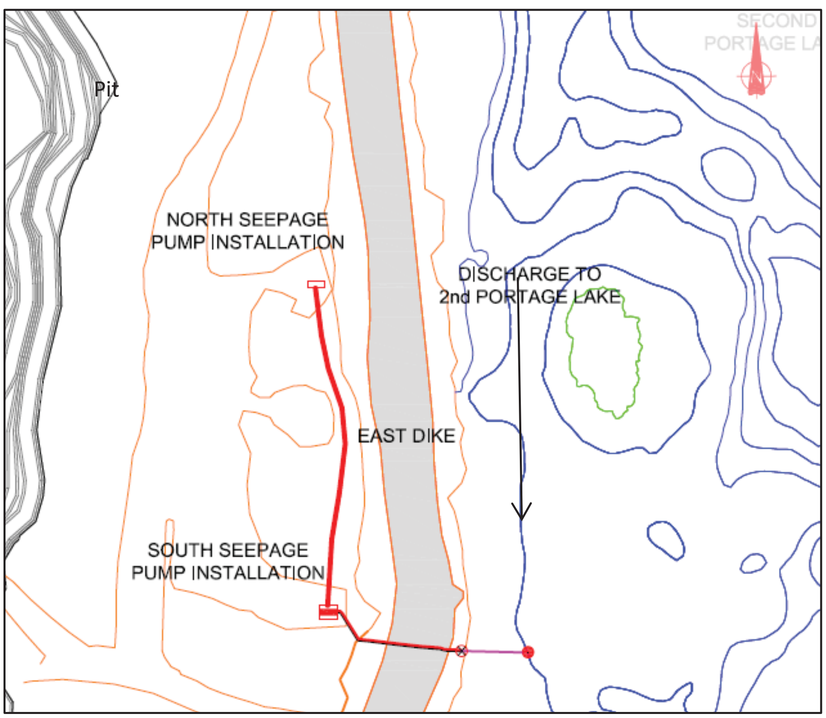
Table 2.12: ST-16 RSF Seepage 2017 pumped volumes

Month	2017 RSF seepage pumped volumes back to NC TSF (m^3)
January	0
February	0
March	0
April	0
May	16,692
June	20,881
July	5,025
August	4,804
September	2,804
October	
November	
December	
Total	**50,206**

2.2.3 East Dike Seepage Collection

As previously stated, the East Dike Seepage Collection system collects seepage originating from Second Portage Lake (2PL). Seepage from 2PL traverses through the East Dike in two discrete locations and is collected and discharged back, as a combined flow, through a diffuser, to 2PL (in accordance with the Water License and the MMER criteria). Once mining of South Portage Pit area is completed, the East Dike seepage will remain in the Portage Pit as part of the in-pit disposal and pit flooding operations (closure plan). The monthly flow observed in Table 2.13 indicates the 2017 monthly volume discharged to 2PL. If water quality does not meet license or MMER criteria, due to increased TSS during freshet period and large precipitation events in summer, the seepage water is pumped to the mined out areas of the Portage Pit. In 2017, seepage water did not met license and MMER criteria from May to August 2017 and discharge to 2PL was stopped during that period of time. The total volume returned to Second Portage Lake in 2017 was 66,995m^3. The historical monthly average of 14,964m^3 has been applied in the water balance until 2031. The discharge into 2PL is planned to cease in September 2018 after Portage Pit mining will be completed. This seepage water volume is included as water inflow during the in-pit deposal process or considered as part of natural reflooding during the closure phase.

Figure 2.7: East dike pumping system



As stated in section 2.2 and above, when the discharge is redirected towards the Portage Pit, it is done so specifically in the Portage Central Waste Rock area, where the water flows through the deposited rock of the Portage Central Dump. The "voids" in the rock store some of this water; any remaining water flows to the two sumps located at the toe of the Portage Central Dump (which are respectively named sampling locations ST-17 and ST19). From this point, the water is considered Portage Pit inflow regardless of the proportion coming from East Dike Seepage as it is mixed with contact water and groundwater.

Table 2.13: East Dike Seepage 2017 pumped volumes

Month	2017 East Dike seepage pumped volumes back to 2PL (m^3)
January	12,848
February	11,162
March	12,321
April	12,141
May	4,435
June	0
July	0
August	0
September	14,087
October	-
November	-
December	-
Total	**66,995**

2.2.4 Central Dike Seepage

Once tailings deposition started in the South Cell in November 2014, daily inspections of the downstream toe of Central Dike were undertaken as part of the geotechnical inspection program. A small volume of water located against the downstream toe of Central Dike was noticed at that time. This water was contained between the West road and the Central Dike downstream toe. AEM utilized piezometers, thermistors and a ground water well to monitor the dike integrity, the foundation temperatures and the piezometric levels within the structure and its foundation.

On April 14th 2015, AEM started pumping at the D/S toe of the dike to lower the water level. The water was pumped back to the South Cell TSF. Water quality was closely monitored to foresee any changes from initial conditions in terms of turbidity and clarity. A flowmeter was also installed to monitor the volume of water pumped. By July 7th, 2015 pumping was still on going with a larger pump. The water quality (clarity/turbidity) at the D/S toe is also visually assessed by the Engineering technical personnel during their daily inspection.

Monthly samples are collected as per the Water license (station STS-5) and include analysis for metals, cyanide and major anions. The concentration of some parameters, namely copper, cyanide, sulfates, to name a few, confirms a link between the water ponding at the D/S and the SC reclaim water.

Following the annual site visit of the Meadowbank Dike Review Board in July 2015, steady flow test was performed as recommended by the Board (MDRB, 2015a). SNC performed two specific chemical mass balances to evaluate the ratio of reclaim water, ground water and runoff in the water pumped from the Central Dike D/S pond back into the South Cell TSF (SNC, 2015b). A transfer to Goose Pit was also done to evaluate the same ratio by monitoring the drawdown in the South Cell during the transfer. SNC identified that 50,000 m^3 of seepage transfer from the downstream toe to Goose Pit was possible without compromising water quality at closure (using CCME guidelines for the protection of aquatic life). The 1:1 ratio was confirmed by this test inferring that the seepage water source was the South Cell reclaim water. Other recommendations from the Boards was to assess that the South Cell can be filled as intended, review the seepage model and identify at a conceptual level the mitigation option for the tailings future discharge (MDRB, 2015a).

In September 2015, a second meeting was held with the MDRB to reassess the situation and present result of the seepage model developed by Golder and steady flow pump test performed with SNC. A series mitigation measures were defined and it was confirmed that the Central Dike could be operated safely under certain conditions and agrees that tailings deposition in the South Cell can be resumed (MDRB, 2015b).

In early November 2015, the downstream pond operational level was to be set at 115masl following Golder’s recommendations (Golder, 2015). At the same time, a permanent and winterized pumping system was put in place to manage and track the water volumes through the winter. The deposition in South Cell TSF restarted on October 28th, 2015. Within the first two weeks of deposition, the seepage flow dropped from 800m^3/h to 400m^3/h and then has been stable between 400 to 600 m^3/h since that time.

In November 2015, Golder conducted a revision of the Central Dike seepage model as mentioned above. AEM observed that the seepage flow was not decreasing as predicted and new information needed to be integrated to the model following field investigation campaigns realized in 2015. The findings of the model were presented to the MDRB in September 2016 (MDRB, 2016). The Board was pleased by the work done and recommended to proceed with a new field investigation campaign to confirm the assumption of the new model which was completed in June 2017.

In the meantime, a new electric pumping system was installed in 2016 to replace the diesel unit previously installed to increase robustness of the pumping installation. Pumping has continued until present day and will continue until TSF closure.

During winter 2017, Golder reviewed seepage model with the updated information from the last year and reevaluate the seepage flow assumption trough time (Golder, 2017a). Field instrumentation campaign was designed following this model update to fill some data gaps identified. Model was presented to the MDRB in March 2017 (MDRB, 2017a).

On July 15th, 2017 a sudden rise in turbidity was observed at the Central Dike Downstream Seepage Pond (sampling station ST-S-5). In the following days, turbidity readings continued to be high. An increase in turbidity was observed on the field and a sludgy orange deposit was identified on shoreline rock. A review of all instrumentation data was conducted following the July 18th inspection and only one instrument was showing unexpected behavior; a piezometer directly in the seepage pond showing temperature spikes. On July 22nd, AEM sampled the orange precipitate at the bottom of the pond for mineralogy and chemical analysis. Aerial investigation of the South Cell TSF was performed during the morning of July 23rd. A large deformation in the tailings beach was identified in front of SD4 with smaller depressions surrounding this deformation. The Portage Pit was inspected and no seepage reporting to the pit wall or change in coloration or turbidity inside pit sumps was observed. The average seepage flow measured was around 575m^3/h in July 2017 compared to 450m^3/h predicted by the Central Dike seepage model updated by Golder in 2017. AEM organized a meeting with the MDRB on July 28th to revaluate the alert level of the Central Dike in accordance with the Tailings Storage Facility Operation Maintenance and Surveillance Manual (TSF OMS) and the Central Dike Trigger Action Response Plan. The alert level was raised from yellow to orange during this meeting and an action plan was developed to address the situation. The communication plan set in the TSF OMS has also been respected to notify applicable stakeholders.

AEM identified the risk of tailings migration out of the South Cell TSF and established a sampling monitoring program to evaluate the nature of the Central Dike D/S pond orange precipitate. This program consisted of:

- Sampling, on a weekly basis, the South Cell reclaim water, Central Dike D/S pond and Portage Pit A sump;
- Sampling the orange precipitate in the Central Dike D/S pond and perform mineralogy and chemical analysis, and:
- Sampling of the tailings in front of SD4 and compare it to the grey sediment in the Central Dike D/S pond in order to evaluate the nature of the sediment.

Visual inspections were done on a daily basis couple with daily instrumentation interpretation. AEM also performed a bathymetry of the depressions in front of SD4 to evaluate its size and proliferation. This major depression was inspected on a weekly basis via aerial inspections.

Following the recommendation of the MDRB, AEM initiated the evaluation of changing the global water and tailings management strategy of the South Cell TSF. The Board was pleased with the short term action plan developed by AEM and recommended promoting tailings deposition in front of SD4 as soon as possible.

The bathymetry of the tailings depression by Saddle Dam 4 was completed on July 28th. The depression has dimensions of 30x36x1m for a volume of 1,080 m^3. Tailings deposition in the deformation area was successfully completed around mid-August 2017. It was observed during the aerial inspection of August 14th that a significant tailings beach covered the toe of SD4 and the depression area.

An update on the Central Dike Dike seepage situation was done during the MDRB annual meeting #22 held in Meadowbank from September 4th to 7th. Given the concern with the under-seepage at Central Dike, the Board reiterated that the preferred option for the Whale Tail operation will be in-pit disposal in the mined out Portage and Goose Pits. The Board also agreed to reduce the volume of water inside the South Cell TSF in order to reduce the hydraulic gradient towards the Central Dike downstream pond and consequently the seepage flow rate (MDRB, 2017b).

AEM moved forward with a water transfer from the Central Dike downstream pond towards Goose Pit. A total of 284,065 m^3 was pumped from August 29th to September 19th. The Central Dike seepage flow rate reduced from 525 to 475m^3/h following the water transfer, remaining above the Golder seepage model forecast (Golder, 2017).

On September 28th, the analysis of the data collected during the sampling program revealed that the orange precipitate was the result of a biological process leading to the production of a ferric precipitate. Rises in turbidity and new ferric precipitate events will likely continue to happen in future years until pit flooding is completed.

The Central Dike seepage situation is under control as AEM has the pumping capacity to deal with the seepage flow rate, the integrity of the infrastructure has not been compromised, no tailings was found outside the perimeter of the South Cell TSF and the nature of the orange precipitate was identified as a biological iron precipitate. Variations of temperature observed on the piezometer in the Central Dike downstream pond were explained also be the occurrence of the biological reaction. The sustained tailings beach in front of SD4 shown that the depression was localized and non-sustained event. AEM is considering the opportunity of discharging tailings in Goose Pit as recommended by the MDRB in April 2018 and stop operation of the South Cell TSF.

Table 2.14 presents the water pumped from the Central Dike D/S pond to the South Cell TSF so far in 2017. The figure 2.8 shows the Central Dike seepage pumping flow rate compared to the Golder seepage analysis (Golder, 2017).

Figure 2.8: Central Dike seepage pumping system

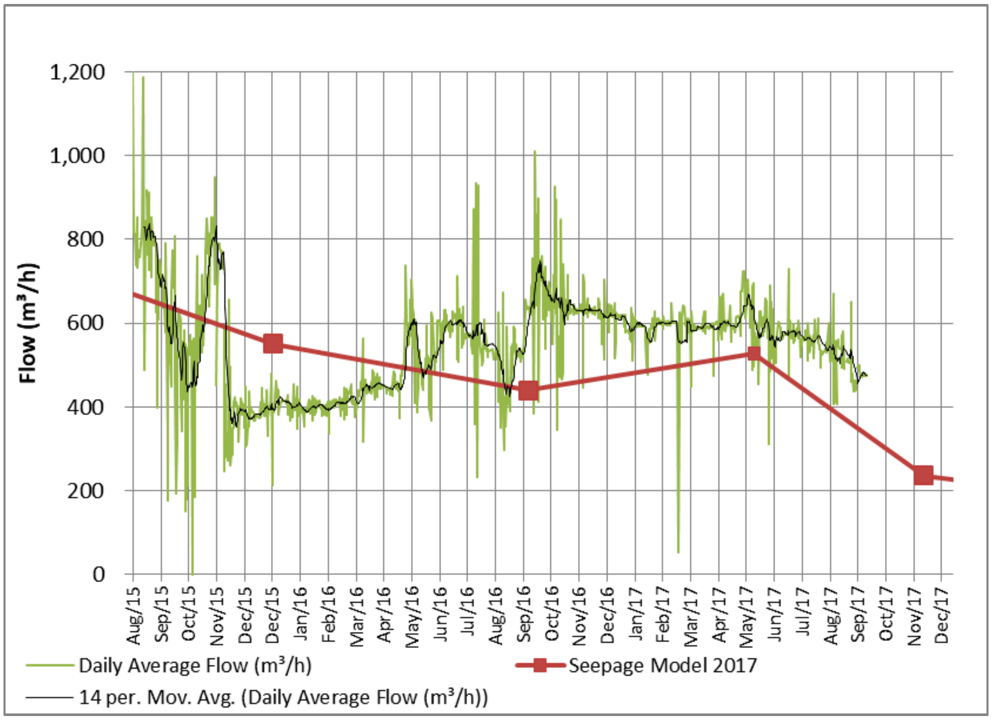


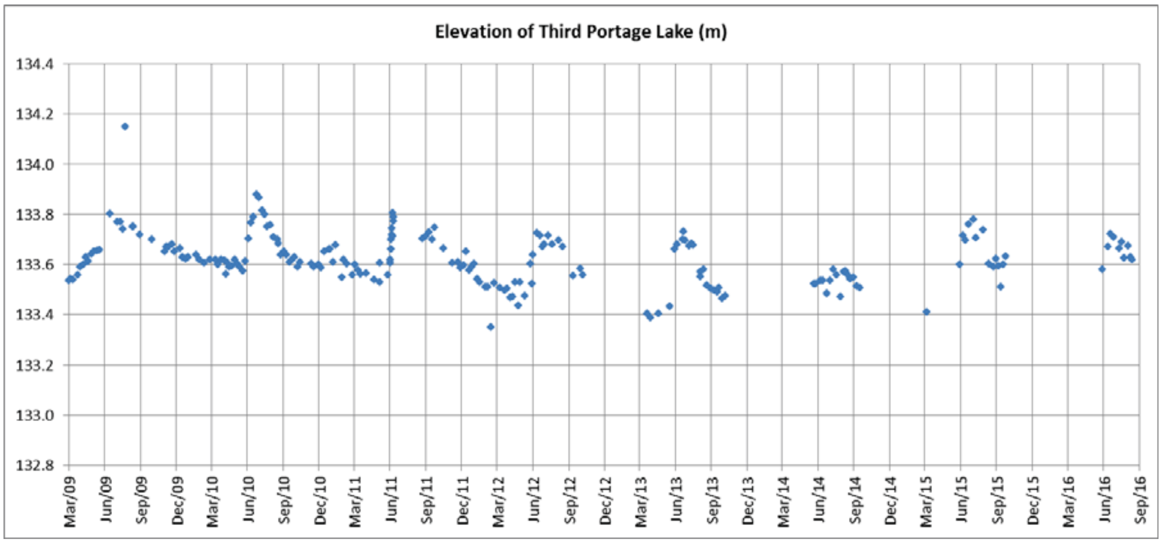
Table 2.14: Central Dike Seepage 2017 pumped volumes

Month	2017 Central Dike seepage pumped volumes back to SC TSF (m^3)	2017 Central Dike seepage pumped volumes back to Goose Pit (m^3)
January	514,587	0
February	406,884	0
March	536,263	0
April	453,079	0
May	372,155	0
June	648,114	0
July	422,908	0
August	329,029	26,889
September	80,500	258,065
October	-	-
November	-	-
December	-	-
Total	**3,763,519**	**284,954**

2.3 PIT FLOODING

The volumes of water needed for pit flooding, part of the overall closure plan, is dependent on the water elevation of Third Portage Lake (3PL). The Goose dike can only be breached when the level of the flooded pits reaches the same elevation as 3PL and pit water quality meets CCME/site specific criteria concentrations. According to 3PL elevation data from 2013-2016 this elevation would be 133.6masl. Figure 2.9 shows the elevation data recorded since 2009.

Figure 2.9: Distribution of TPL elevation surveyed data



The current flooding technique proposed for Portage and Goose Pits is to use a combination of pumps and siphons to achieve the pumping rates prescribed by the water balance which conforms to the approved volume stipulated in the Water License. Details of the complete flooding system will be available in the Final Reclamation and Closure Plan. In the previous Water Management Update, AEM was considering a total of 32.0Mm^3 of freshwater to be transferred from 3rd Portage Lake to accomplish the required pit flooding for Portage and Goose Pits. By implementing the tailings deposition practice in Meadowbank, water required for flooding decreases to 24,6Mm^3 including the water used during the operation to flood the Portage Pit and operate in-pit deposition with a constant water cover over the tailings beach. This is representing a global reduction of 7.4Mm^3 of freshwater.

As Goose Pit tailings deposition is completed in September 2018, 2.6Mm^3 of water from Goose Pit will be transfer to Portage Pit to initiate in-pit deposition. Active flooding of Goose Pit is planned to commence in 2020 with a transfer of 2.0Mm^3. In-pit deposition will cease in the Portage Pit in January 2022. Pit flooding of the Portage Pit will commence in June 2022. At water elevation 131.0 masl both Portage and Goose Pits will join to become one waterbody. Reflooding will continue to the natural Third Portage Lake water elevation at approximately 133.6masl. At this level the dikes can be breached; however this is dependent on pit water quality. The current objective is to ensure the water meets CCME Guidelines for the Protection of Aquatic Life and/or site specific criteria for parameters not listed in the CCME guidelines before the dike is breached. The first phase of the flooding sequence is planned to be completed in June 2027. Four years of monitoring is planned at that point to evaluate the water quality in the pits. During this time, water runoff will be diverting into the pits to finish the flooding to the 3PL elevation. Breach of the Goose Dike is planned for 2031.

The treatment requirements of the reclaim water will be determined as per the In-Pit Tailings Deposition Water Balance and Water Quality Forecast completed by SNC (September, 2017 – See Appendix B) This report is presenting the water quality under a full capacity scenario where all the pits are filled up to elevation 125.6m. However, SNC reviewed the water quality forecast for this water management plan and predicts that arsenic, chromium, copper, selenium, fluoride, ammonia and total $N_{equivalent}$ may require treatment to reach CCME criteria based on the completely mixed assumption.

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

To reach the water elevation of 133.6m, a volume of 45,6Mm^3 needs to be filled. As previously stated, 24,6Mm^3 originates from 3rd Portage Lake, 11.3Mm^3 balance will be made up from the natural pit water inflows including runoff and precipitation combined with reclaim water, and the residual volume of 9,7Mm^3 would be occupied by tailings. The difference from the 2016 Water management plan (AEM, 2016a) is related to storage of tailings in each pit and by postponing the closure date which allows storage of runoff water for a longer period of time. Note that AEM feels that this approach is conservative, with respect to TSF runoff, as water quality of the runoff should be able to be re-directed to Third Portage Lake five years after capping which is consistent with the initial function of the diversion ditch system (however please note that the runoff from the capped TSF's will be directed to the pits until the water quality meets closure criteria). Please refer to Table 2.15 for the reflooding sequence per year for all pits. Nothing has changed for Vault, Phaser and BB Phaser Pits.

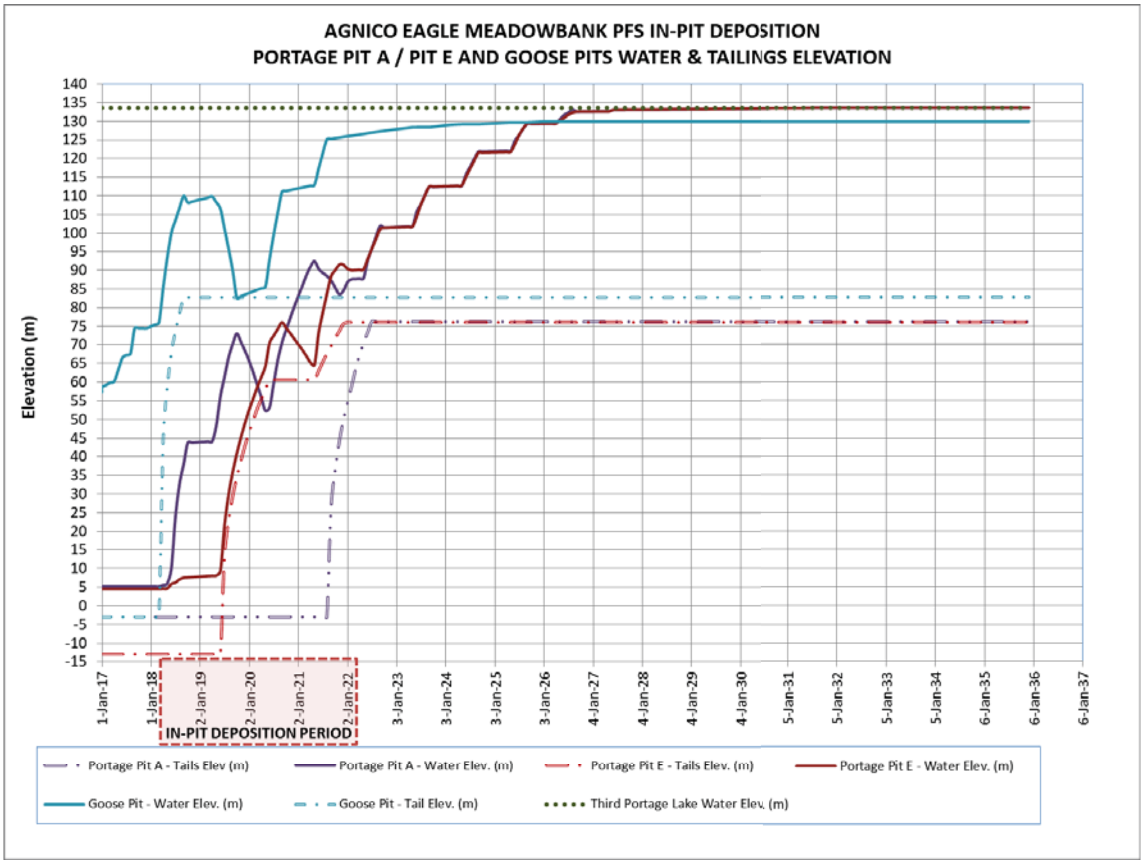
Table 2.15 : Pit flooding profile

Pit Flooding profile									
Year	Volumes pumped from 3rd Portage lake				Volumes pumped from Wally lake				Total flooding water (m³)
	To Portage Pit A (m³)	To Portage Pit E (m³)	To Goose pit (m³)	From 3PL (m³)	To Vault pit (m³)	To Vault Attenuation Pond (m³)	To Phaser pit (m³)	From Wally Lake (m²)	
2016	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	806,275
2019	0	0	0	0	4,131,994	0	0	4,131,994	9,032,319
2020	0	2,000,000	2,000,000	4,000,000	4,131,994	0	0	4,131,994	9,525,428
2021	0	2,000,000	1,500,000	3,500,000	4,131,994	0	0	4,131,994	9,032,319
2022	1,600,000	2,400,000	0	4,000,000	4,131,994	0	0	4,131,994	9,032,319
2023	1,600,000	2,400,000	0	4,000,000	4,131,994	0	0	4,131,994	9,032,319
2024	1,600,000	2,400,000	0	4,000,000	0	0	0	4,131,994	9,032,319
2025	1,600,000	2,400,000	0	4,000,000	0	476,342	0	3,735,476	5,062,105
2026	1,600,000	2,400,000	0	4,000,000	0				
2027	165,000	535,000	0	700,000	0				
Total	**8,165,000**	**16,535,000**	**3,500,000**	**28,200,000**	**28,051,098**	**476,342**	**0**	**28,527,440**	**60,555,403**

As prescribed in the Nunavut Water Board Water License No. 2AM-MEA1525 (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 total 2,350,000 m^3 per year from the License approval date to December 31 2017, followed by a maximum 4,935,000 m^3 starting in 2018 through to the expiry of the License 2AM-MEA1525. 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-MEA1525. As per the recommendations and requirements concerning the water use, the Meadowbank Water Management Plan will be updated on an annual basis. The Water Management Plan includes a pit flooding strategy meeting the requirements outlined in the Nunavut Water Board Water License No. 2AM-MEA1525.

AEM 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.

Figure 2.10: Goose pit and Portage Pit re flooding



2.3.1 Goose Pit Flooding

Goose Pit flooding started in 2015 by allowing the natural inflow volume (runoff, groundwater, precipitation and possible Bay Goose dike seepage) of 383,800m³ to remain within the pit. Goose Pit flooding continued in 2016 by again allowing the inflow volume of 352,431 m³ to remain within the pit, 8% more than the our model (SNC, 2015b) for this particular year. AEM expects that future yearly run offs fall under the model values because the model does not account for lowering the hydraulic gradient which should lower groundwater flows. In April 2018, dewatering of the South Cell will be initiated with a transfer of 600,000 m³ toward Goose Pit. Transfers from 3PL to Goose Pit are planned from 2020 to 2021 in order to reach 130.0masl at the same moment than the Portage Pit. At this point, the Goose water will join the Portage Pit water to form one water body. Figure 2.10 depicts the Goose Pit flooding curve. Goose Pit volumes between 131masl and 133.6masl are included as part of Portage flooding volumes.

Artificial flooding – from 3PL – will end in August 2021 after which natural pit inflow will allow for the level to reach the 3PL lake elevation in 2031. If water quality meets all closure criteria including CCME guidelines and site specific criteria, the Goose dike will then be breached. Refer to Section 3 for the pit water quality forecast model.

2.3.2 Portage Pit Flooding

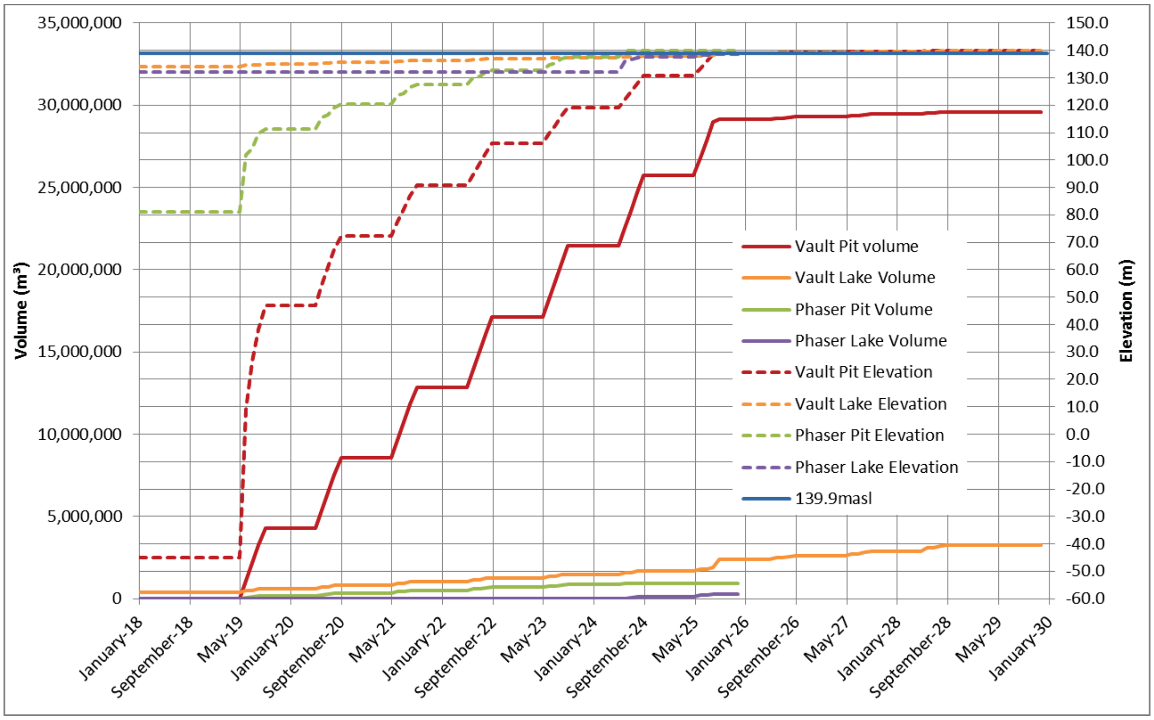
Portage Pit A reflooding will begin in July 2018 with 523,615m^3 transferred and treated (if required) from the South Cell. All runoff water from the North and South Cell TSF will be tranfered in Portage Pit A from 2019 to 2031. In 2020, 2Mm^3 transferred from 3PL to the Portage Pit E will be done in order to flood the Portage Pit and keep the tailings beach covered by a 20m water cover during the tailings deposition inside Portage Pit. A second transfer from 3PL toward Pit E of 1.5Mm^3 will be required in 2021 for the same reason. Table 3.15 presents transfers planned from 3rd Portage Lake to the Portage Pit from 2020 to 2027 to complete the total artificial flooding to elevation 131masl. From this point, runoff water and other pit inflows will be used to complete flooding of both pits until elevation 133.6masl is reached at the end of 2031. See Figure 2.10 to view the pit reflooding curve which includes all water sources used to reflood the pit, including both South Cell reclaim transfers and 3rd Portage lake transfers. Refer to Section 3 for the pit water quality forecast model.

2.3.3 Vault Pit Flooding

The Vault pit area is composed of many basins in the former lake and different pit elevations that are all linked togheter. The flooding of Vault and Phaser is more complex and requires water transfers from basin to basin. Reflooding from Wally Lake of the Vault area will commence in 2019 and will continue until the end of summer 2024 using a siphon system similar to the one planned in Goose and Portage. This active flooding will occur at an annual rate of 4,131,994m^3 and finally 3,259,134m^3 in 2025. Like Portage and Goose, from 2025 to 2029 the natural inflow will then allow Vault pit to reach 139.9masl (natural Wally Lake water level). The reflooding of Vault area with natural inflow consists of approximatively 0.5Mm^3 yearly from freshet, precipitation, groundwater inflow. The flooding curves for the Vault area are represented in Figure 2.11. The final elevation of the reflooding will be 139.9masl for Phaser and Vault Lake. At this point the Vault dike will be breached provided the water meets CCME criteria and/or site specific criteria for parameters not included in the CCME Guidelines. Refer to Table 2.15 for the yearly cumulative volumes required to complete the flooding process. Refer to section 3 of this present report for the pit water quality forecast model.

Unlike Vault Pit, Phaser Pits and Lake are planned to be flooded exclusively from their watershed run off inflows until the target elevation of Wally is reached in summer 2027. From there, those same inflows will be used conjointly with the Vault ATP inflows to flood to the same target elevation as the Vault ATP area – 139.9masl (Wally Lake level).

Figure 2.11: Vault and Phaser Pits flooding



2.4 WATER MANAGEMENT STRUCTURES

As per the Water License 2AM-MEA1525 (Part E, Condition 10) AEM will conduct weekly inspections of all water management structures during periods of flow. This program commenced in 2016 and was added to the weekly inspections already undertaken as per the Freshet Action Plan (Appendix D) at water conveyance structures during flow periods. Records of the inspections will be available for review by an Inspector upon request.

Section 3.0 - MEADOWBANK WATER QUALITY FORECASTING UPDATE

The water balance and water quality forecast report was prepared by SNC-Lavalin (SNC, 2017f) was initially done using the full capacity scenario presented in the section 1.2. This report is also presented in the appendix B. AEM requested to SNC to update in a second time the water quality forecast with the actual Meadowbank LOM and with the addition of the potential Whale Tail Pit Project. This update was completed in respect with the continuation of a series of yearly water quality modelling forecast reports that commenced in 2012. AEM is planning continuing this practice until mine closure as per the Water License part E item 7. The purpose is to identify through a mass balance approach the contaminants of concern during the pit flooding process and determine if water treatment will be required on site for closure activities when comparing the final contaminant levels to the CCME guidelines and/or site specific criteria for parameters that are not included in the CCME Guidelines. Each yearly update builds on the previous year as new monitoring data is added at the site. Forecasted model values of the prior years are compared with the actual sample results from the following years for model calibration purposes.

This management plan is presenting two different water quality forecast. The one presented in the table 3.1 is showing the water quality forecast associated with the LOM and water balance used in this water management plan. SNC-Lavalin developed this water quality forecast especially for the case presented in this management plan.

Considering the scenario presented in this Water management plan, SNC identified seven contaminants: arsenic, chromium, copper, selenium, fluoride, chromium, ammonia and total $N_{equivalent}$ as parameters which may require treatment. These parameters may be of concern prior to dike breaching, treatment options for their removal during or after the pit flooding process will need to be examined and will be assessed in greater detail during the preparation of the final closure and reclamation plan These contaminants originate from the process water transferred in the pits in 2018 and also from products of the milling process of Whale Tail Pit ore.

SNC-Lavalin also developed a water quality forecast that present a full capacity scenario. This scenario includes tailings deposition inside Portage and Goose Pit up to elevation 125.6m with a water cover of 8m. This report is presented in the Appendix B and presents the water balance and water quality forecast associated with the full capacity scenario.

Table 3.1: Water Quality Forecast of Reclaim Water in Portage Pit A, Pit E and Goose Pit

				FORECASTED CONCENTRATIONS								
				AT END OF DEPOSITION JANUARY 2022				AT END OF MONITORING PERIOD DEC. 2031				
PARAMETERS	UNITS	CCME GUIDELINES	3rd PORTAGE LAKE (avg. Summer 2015)	PORTAGE PIT A	PORTAGE PIT E	MIXED PORTAGE PIT	GOOSE PIT	PORTAGE PIT A	PORTAGE PIT E	MIXED PORTAGE PIT	GOOSE PIT	MIXED PITS
Alkalinity	mg $CaCO_3$/L	n/a	9.1	89	76	n/a	21	20	22	21	25	22
Hardness	mg $CaCO_3$/L	n/a	12.05	836	718	n/a	67	109	134	124	66	116
Total dissolved solids	mg/L	n/a	22.1	2123	1744	n/a	233	264	322	299	243	291
Total Aluminium (Al)	mg/L	0.10	0.0075	0.26	0.21	n/a	0.04	0.04	0.04	0.04	0.03	0.04
Total Silver (Ag)	mg/L	0.00025	0.0000	0.00050	0.00020	n/a	0.00042	0.00006	0.00006	0.00006	0.00057	0.00014
Total Arsenic (As)	mg/L	0.005	0.0005	0.621	0.579	n/a	0.002	0.071	0.098	0.088	0.001	0.074
Total Barium (Ba)	mg/L	n/a	0.003658	0.1340	0.1198	n/a	0.0094	0.0188	0.0236	0.0217	0.0101	0.0200
Total Cadmium (Cd)	mg/L	0.00004	0.0000	0.00006	0.00003	n/a	0.00010	0.00001	0.00001	0.00001	0.00016	0.00003
Total Chromium (Cr)	mg/L	0.001	0.0001	0.008	0.007	n/a	0.000	0.001	0.001	0.001	0.000	0.001
Total Copper (Cu)	mg/L	0.002	0.000595	0.767	0.608	n/a	0.077	0.087	0.106	0.098	0.061	0.093
Total Iron (Fe)	mg/L	0.30	0.0173	1.47	1.30	n/a	0.18	0.20	0.24	0.23	0.24	0.23
Total Lead (Pb)	mg/L	0.001	0.0000	0.002	0.002	n/a	0.000	0.000	0.000	0.000	0.000	0.000
Total Manganese (Mn)	mg/L	n/a	0.0016	0.114	0.086	n/a	0.100	0.020	0.021	0.020	0.172	0.043
Total Mercury (Hg)	mg/L	0.000026	0.000003	0.000018	0.000012	n/a	0.000012	0.000007	0.000005	0.000006	0.000018	0.000008
Total Molybdenum (Mo)	mg/L	0.073	0.0002	0.110	0.069	n/a	0.027	0.013	0.013	0.013	0.023	0.014
Total Nickel (Ni)	mg/L	0.025	0.0006	0.068	0.061	n/a	0.003	0.009	0.011	0.010	0.003	0.009
Total Selenium (Se)	mg/L	0.001	0.0000	0.011	0.004	n/a	0.004	0.001	0.001	0.001	0.004	0.001
Total Strontium (Sr)	mg/L	n/a	0.013225	0.431	0.310	n/a	0.076	0.062	0.066	0.064	0.060	0.064
Total Thallium (Ti)	mg/L	0.0008	0.0000	0.0005	0.0003	n/a	0.0009	0.0003	0.0003	0.0003	0.0016	0.0005
Total Uranium (U)	mg/L	0.015	0.000049	0.002	0.001	n/a	0.001	0.000	0.000	0.000	0.001	0.000
Total Zinc (Zn)	mg/L	0.03	0.001500	0.005	0.003	n/a	0.003	0.003	0.002	0.002	0.004	0.002
Chloride	mg/L	120	0.7925	96	70	n/a	14	12	13	12	12	12
Fluoride (F)	mg/L	0.12	0.07925	0.30	0.22	n/a	0.14	0.11	0.10	0.11	0.15	0.11
Sulphate (SO4)	mg SO4/L	n/a	5.1	1717	1371	n/a	179	198	242	225	156	214
Total Cyanide (CNt)	mg/L	0.005	0.0005	1.028	2.462	n/a	0.000	0.000	0.000	0.000	0.000	0.000
Total Ammonia (NH3 + NH4)	mg N/L	1.83	0.015	15.1	10.7	n/a	2.3	1.7	2.1	1.9	1.9	1.9
Nitrate (NO3)	mg N/L	2.94	0.033	2.66	1.83	n/a	0.43	0.48	0.39	0.43	0.36	0.42
Total N equivalent	*mg N/L*	*0.35*	*0.048*	*17.8*	*12.6*	*n/a*	*2.8*	*2.2*	*2.5*	*2.4*	*2.2*	*2.3*
Dissolved Aluminium (Al)	mg/L	0.1	0.0018	0.123	0.093	n/a	0.019	0.021	0.019	0.020	0.020	0.020
Dissolved Silver (Ag)	mg/L	0.00025	0.0000	0.00046	0.00019	n/a	0.00020	0.00006	0.00005	0.00005	0.00018	0.00007
Dissolved Arsenic (As)	mg/L	0.005	0.0005	0.6198	0.5780	n/a	0.0015	0.0707	0.0981	0.0873	0.0013	0.0742
Dissolved Barium (Ba)	mg/L	n/a	0.0037	0.1330	0.1191	n/a	0.0092	0.0187	0.0235	0.0216	0.0100	0.0198
Dissolved Cadmium (Cd)	mg/L	0.00004	0.0000	0.00005	0.00003	n/a	0.00010	0.00001	0.00001	0.00001	0.00016	0.00003
Dissolved Chromium (Cr)	mg/L	0.001	0.0001	0.0020	0.0020	n/a	0.0002	0.0003	0.0004	0.0004	0.0001	0.0003
Dissolved Copper (Cu)	mg/L	0.002	0.0005	0.696	0.552	n/a	0.070	0.079	0.096	0.089	0.056	0.084
Dissolved Iron (Fe)	mg/L	0.3	0.0050	1.3	1.1	n/a	0.0	0.2	0.2	0.2	0.0	0.2
Dissolved Lead (Pb)	mg/L	0.001	0.0000	0.001	0.001	n/a	0.000	0.000	0.000	0.000	0.000	0.000
Dissolved Manganese (Mn)	mg/L	n/a	0.0012	0.107	0.082	n/a	0.066	0.020	0.018	0.019	0.113	0.033
Dissolved Mercury (Hg)	mg/L	0.000026	0.0000	0.000016	0.000011	n/a	0.000012	0.000006	0.000005	0.000005	0.000018	0.000007
Dissolved Molybdenum (Mo)	mg/L	0.073	0.0002	0.106	0.066	n/a	0.026	0.012	0.012	0.012	0.023	0.014
Dissolved Nickel (Ni)	mg/L	0.025	0.0005	0.022	0.019	n/a	0.002	0.004	0.004	0.004	0.003	0.004
Dissolved Selenium (Se)	mg/L	0.001	0.0000	0.011	0.004	n/a	0.004	0.001	0.001	0.001	0.004	0.001
Dissolved Strontium (Sr)	mg/L	n/a	0.0135	0.422	0.304	n/a	0.074	0.061	0.065	0.063	0.059	0.062
Dissolved Thallium (Ti)	mg/L	0.0008	0.000005	0.0005	0.0003	n/a	0.0009	0.0003	0.0003	0.0003	0.0016	0.0005
Dissolved Uranium (U)	mg/L	0.015	0.000045	0.0021	0.0011	n/a	0.0006	0.0003	0.0003	0.0003	0.0005	0.0003
Dissolved Zinc (Zn)	mg/L	0.03	0.000625	0.0035	0.0022	n/a	0.0025	0.0016	0.0011	0.0013	0.0039	0.0017

AEM is committed to implementing the recommendations provided in the SNC Water Modelling Report in 2017 submitted with the 2016 Water Management Plan (AEM, 2016a) in March 2016 and beyond. These are:

- Continue the current monitoring program of the water in the South Cell TSF Reclaim Pond in 2017 for cyanide, total and dissolved metal scan, ammonia, nitrate, chloride, sulfates, total dissolved solids (TDS) and total suspended solids. It is understood that this recommendation is required as per the water license.

- Regular monitoring of pit water quality (Portage and Goose) should also be undertaken, when the site can be safely accessed, and analyzed for cyanide, total and dissolved metals, ammonia, nitrate, chloride, fluoride, sulfates, total dissolved solids (TDS) and total suspended solids. This information will be useful in developing and calibrating a water quality forecast model of the pit water quality based on loadings from surface runoff and possible underground water seepage.

- If possible quantify the seepage flows or volumes entering the Portage and Goose Pits. The study should also attempt to evaluate the seepage rate into the pits as a function of the hydraulic difference between the water level in the pit and in Third Portage Lake.
- Once transfer of South Cell Reclaim Water begins to the Portage Pit, regular (at least monthly) monitoring of all outflows of the TSF Reclaim Pond for all parameters should be undertaken, including TSS to ensure low level during transfer.
- In order to validate the assumption of a well-mixed system in Portage and Goose Pits, it is recommended to sample and analyze the water at different depths before, during and after the pits are filled with water from South Cell TSF and/or Third Portage Lake, when or if it is safe to do so. Furthermore, it may be useful to evaluate the assumption of a well-mixed versus stratified pit water quality prior to mixing Portage and Goose Pits.
- 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.
- Continue to sample and analyze as per the Water License requirement the Vault Pit and Vault Attenuation Pond and include ammonia and nitrate in the list of parameters to analyze for.
- Perform a bench scale water treatment test to evaluate the contaminant removal efficiency using treatment approaches such as lime neutralization, coagulation/flocculation with aluminium sulphate or ferric sulphate, and coagulation/flocculation with proprietary coagulants designed for metal removal.

This version of the Meadowbank Water Management Plan Report as part of the Water Licence modification request includes in appendix the updated water quality model and the comparison of predicted and measured water quantity and quality.

Section 4.0 - 2016 INTEGRATED DEPOSITION PLAN

A Tailings Deposition Plan prepared by AEM has been used to update last year's model until the completion of the deposition in the South Cell in March 2018. The 2017 bathymetry was compared to the 2013 to 2016 bathymetries. The analysis revealed that ice entrapment and tailings dry density observed during the winter 2015-2016 was consistent with what was observed during winter 2016-2017. Average tailings dry density measured was down to 1.30t/m³ instead of the average of 1.43t/m³ observed in the South Cell during the previous year. Sub-aerial and sub-aqueous beach angles are also consistent meaning that the global deposition strategy implemented in 2015 is still efficient.

A simplified deposition plan was produced for the in-pit deposition phase and a flat geometry assumption was used for the disposal of the tailings inside Goose and Portage Pits. An extensive deposition plan will be submitted upon the approval of the Water License modification request. This assumption was considered acceptable as AEM planned a minimum water cover of 20m above the tailings beach during the in-pit deposition process which should compensate for any slopping of the tailings beach is observed during that period.

The deposition strategy considered for this management plan is divided into the following distinct periods:

- Period 1: Portage/Vault tailings deposition in South Cell TSF and in Goose Pit
- Period 2: Whale Tail tailings deposition in Portage Pit
- Period 3: Pit Closure at the end of operations
- Period 4: Monitoring period
- Period 5: Post closure

The deposition strategy was described in detail in the section 3.1.1 to ease the reading of the report and will not be covered again in this section. Closure water management for the TSF was updated to optimize the pit flooding process. These activities are detailed in the section 3.2. The deposition plan associated with this Water Management Plan update is presented in the 2016 Mine Waste Rock and Tailings Management Report & Plan Update (AEM, 2017).

Section 5.0 - CONCLUSION

This report presents an updated/revised water management plan for the Meadowbank mine based on the AEM 2016 Water Management Plan (AEM, 2016a) submitted to the NWB as part of the AEM 2015 Annual Report. This Water Management Plan updated is part of a Water Modification requested by AEM to the Nunavut Water Board (NWB) concerning the Meadowbank project. AEM wants to initiate deposition of tailings inside the Goose and Portage Pits and start the closure of the South Cell TSF earlier than planned. These modifications to the management plan are done in accordance with the recommendation of the Meadowbank Dike Review Board (MDRB, 2017b) related to the situation of the Central Dike Seepage.

The Alert Level of the Central Dike was raised to orange following the following observations in July 2017:

- A sudden rise in turbidity was observed at sampling station ST-S-5;
- An orange precipitate settled at the bottom of the Central Dike Downstream Pond;
- A 1,080 m^3 depression was observed in the tailings beach located in front of SD4;

In addition to these observations, the seepage flow did not follow the one predicted in the Golder Central Dike seepage model reviewed in 2017. An increase of 45% of the Central Dike seepage flow was measured year to date in between data collected in 2016 and 2017.

AEM initiated an action plan to address the situation after presenting the situation to the MDRB. The nature of the precipitate was determined after several chemical and mineralogical analyses. AEM concluded that a bacterial reaction occurred in the seepage water leading to the orange ferric precipitate inside the Central Dike downstream pond. It was also determined that the turbidity events correlated with the precipitate formation. AEM also modified the deposition of tailings in the SD4 area and covered the depression. No future depressions were observed after this action.

The MDRB visited the site in September 2017 and were pleased by how AEM addressed the situation. Given the concern with the under-seepage at Central Dike, the Board concluded that the preferred option for operations would be in-pit disposal in the mined out Portage and Goose Pits. The Board also agreed to the reduction in water volume inside the South Cell TSF in order to reduce the hydraulic gradient toward Central Dike downstream pond and consequently the seepage flow rate.

Moving forward with these recommendations, AEM evaluated the potential of including the in-pit disposal as early than April 2018 to store Meadowbank Mine tailings inside Goose Pit from April to September 2018 and initiate closure of the South Cell TSF by dewatering the reclaim pond in summer 2018. This change to the plan will promote freeze back of the South Cell TSF and will reduce and stop the Central Dike seepage. Finally, following the reception of the Whale Tail Project Certificate, AEM is now planning storage of the 8.2M tonnes of Whale Tail Pit tailings inside the Portage Pit.

Validation and updates of the site parameters (i.e. runoff and pit inflows) was conducted with the data collected so far in 2017. In addition, further updates/modifications/revisions to the mine plan (LOM), site wide water management, tailings deposition plans and operating schedule were evaluated in preparing this report.

The water balance presented has been optimized to reduce freshwater consumption as much as possible, secure operation of the tailings pond during winter 2018 and minimize water treatment requirements at closure.

Pit flooding volumes and sequencing (including Portage and Goose Pits) was reviewed according to deposition of tailings inside Goose and Portage Pits. To reach water elevation 133.6m, a volume of 45,6Mm^3 needs to be filled. As previously stated, 24,6Mm^3 originates from 3rd Portage Lake, 11.3Mm^3 balance will be made up from the natural pit water inflows including runoff and precipitation combined with reclaim water, and the residual volume of 9,7Mm^3 is occupied by the tailings. This represents a global freshwater consumption reduction of 7.7Mm^3 compared to the flooding volumes forecasted in the 2016 Water Management Plan (AEM, 2016a).

The entire pit flooding process will be completed by the end of 2027. Once water quality in the flooded pits meet CCME Guidelines for the Protection of Aquatic Life and/or site specific criteria for parameters not listed in the CCME Guidelines, dike breaching of the surrounding structures will occur to reconnect the Portage and Goose areas to Second Portage Lake (2031) and Vault area to Wally Lake (2029). AEM plans at least four years of monitoring to assess the pit water quality prior to breaching. It should be understood that the dikes will not be breached unless the water quality meets the CCME or other site specific criteria.

A water quality forecasting model was completed by SNC Lavalin for the life of mine presented in this report. The mandate of this report is to analyze the water quality during the operating life of the mine and at closure after the pit are flooded to determine the needs of treating the potential contaminants of concern. Based on current water quality and the updated water balance including in-pit dispoal, the report identifies that arsenic, chromium, copper, selenium, fluoride, chromium, ammonia and total $N_{equivalent}$ may require removal treatment in order for the pit water quality to meet CCME criteria in 2031. AEM is committed to updating this forecast on a yearly basis.

Section 6.0 - RECOMMENDATIONS

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

- Continue to monitor and include any new flow monitoring locations/devices for any additional or new inflows observed in 2017.
- Develop detailed tailings deposition plan for Goose and Portage Pits following the approval of the modification request.
- Continue to update the deposition plans of the North and South Cell TSF as needed to maximize water use and availability as well as increasing the accuracy of the models including but not limited to bathymetric readings.
- Validate new tailings parameters with 2017 North and South Cells bathymetries.
- Conduct the water quality modelling analysis on a yearly basis based on updated water quality results and water balance through the life of mine.
- Continue development of the sediment flux model to evaluate erosion of geotechnical structures on site for the closure, primarily for TSS control: diversion ditches, rock storage facilities, capping of the tailings storage facilities, dikes and dams.
- Evaluate opportunities to reduce contaminants concentration in the reclaim pond prior to closure.
- Continue follow up of the Central Dike seepage flow and adjust pumping station capacity in function of the flow variation.
- Implement 2016 Meadowbank water quality forecasting (SNC, 2017j) recommendations.

Section 7.0 - REFERENCES

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APPENDIX A – WATER BALANCE

MILL — 1 MILL

Period	Month-Year	# Days /mth	Year	Mth	S/W	Mill Throughput (t/mth)	Mill daily throughput	Cumulative Mill Throughput (t)	TAILINGS DEPO. POINT: NORTH CELL	TAILINGS DEPO. POINT: SOUTH CELL	TAILINGS DEPO. POINT: PORTAGE PIT A	TAILINGS DEPO. POINT: PORTAGE PIT E	TAILINGS DEPO. POINT: GOOSE PIT	Tailings Slurry solid conc.	Total Mill Process Water	Moisture Content in Ore (%)	Total water per ton
		Days /mth				t/month	TPD	t						% w/w	m3/mth	%	m3/t
PERIOD 1: MBK TAILINGS DEPOSITION	January/17	31	2017	1	winter	331,887	10,706			1				52.5%	299,820	0.76%	0.90
	February/17	28	2017	2	winter	314,269	11,224			1				53.2%	276,161	0.79%	0.88
	March/17	31	2017	3	winter	279,684	9,022			1				49.9%	280,367	0.92%	1.00
	April/17	30	2017	4	winter	328,392	10,946			1				54.1%	278,761	0.48%	0.85
	May/17	31	2017	5	winter	344,962	11,128			1				53.6%	298,780	0.96%	0.87
	June/17	30	2017	6	winter	322,937	10,765			1				53.0%	286,082	0.99%	0.89
	July/17	31	2017	7	summer	336,222	10,846			1				53.2%	295,612	1.30%	0.88
	August/17	31	2017	8	summer	326,409	10,529			1				52.5%	295,753	0.98%	0.91
	September/17	30	2017	9	summer	275,754	9,192			1				50.1%	274,665	0.89%	1.00
	October/17	31	2017	10	winter	348,657	11,247			1				53.3%	305,547	0.99%	0.88
	November/17	30	2017	11	winter	337,410	11,247			1				53.4%	294,779	0.72%	0.87
	December/17	31	2017	12	winter	348,657	11,247			1				53.3%	305,338	0.93%	0.88
	January/18	31	2018	1	winter	279,000	9,000			1				47.8%	304,829	0.98%	1.09
	February/18	28	2018	2	winter	252,000	9,000			1				47.7%	276,716	1.53%	1.10
	March/18	31	2018	3	winter	279,000	9,000			1				47.8%	304,997	1.04%	1.09
	April/18	30	2018	4	winter	270,000	9,000						1	54%	230,000	1.09%	0.85
	May/18	31	2018	5	winter	279,000	9,000						1	54%	237,667	1.08%	0.85
	June/18	30	2018	6	winter	270,000	9,000						1	54%	230,000	0.99%	0.85
	July/18	31	2018	7	summer	227,530	7,340						1	54%	193,822	1.30%	0.85
	August/18	31	2018	8	summer	227,530	7,340						1	54%	193,822	0.98%	0.85
	September/18	30	2018	9	summer	220,191	7,340						1	54%	187,570	0.89%	0.85
GAP PERIOD	October/18	31	2018	10	winter	0	0						1	54%	0	0.99%	0.00
	November/18	30	2018	11	winter	0	0						1	54%	0	0.72%	0.00
	December/18	31	2018	12	winter	0	0						1	54%	0	0.93%	0.00
	January/19	31	2019	1	winter	0	0						1	54%	0	0.98%	0.00
	February/19	28	2019	2	winter	0	0						1	54%	0	1.53%	0.00
	March/19	31	2019	3	winter	0	0						1	54%	0	1.04%	0.00
	April/19	30	2019	4	winter	0	0						1	54%	0	1.09%	0.00
	May/19	31	2019	5	winter	0	0						1	54%	0	1.08%	0.00
	June/19	30	2019	6	winter	0	0						1	54%	0	0.99%	0.00
PERIOD 2: WHALE TAIL TAILINGS IN-PIT DEPOSITION	July/19	31	2019	7	summer	273,750	8,831	273,750			0	1		54%	233,194	1.30%	0.85
	August/19	31	2019	8	summer	273,750	8,831	547,500			0	1		54%	233,194	0.98%	0.85
	September/19	30	2019	9	summer	273,750	9,125	821,250			0	1		54%	233,194	0.89%	0.85
	October/19	31	2019	10	winter	273,750	8,831	1,095,000			0	1		54%	233,194	0.99%	0.85
	November/19	30	2019	11	winter	273,750	9,125	1,368,750			0	1		54%	233,194	0.72%	0.85
	December/19	31	2019	12	winter	273,750	8,831	1,642,500			0	1		54%	233,194	0.93%	0.85
	January/20	31	2020	1	winter	273,750	8,831	1,916,250			0	1		54%	233,194	0.98%	0.85
	February/20	29	2020	2	winter	273,750	9,440	2,190,000			0	1		54%	233,194	1.53%	0.85
	March/20	31	2020	3	winter	273,750	8,831	2,463,750			0	1		54%	233,194	1.04%	0.85
	April/20	30	2020	4	winter	273,750	9,125	2,737,500			0	1		54%	233,194	1.09%	0.85
	May/20	31	2020	5	winter	273,750	8,831	3,011,250			0	1		54%	233,194	1.08%	0.85
	June/20	30	2020	6	winter	273,750	9,125	3,285,000			0	1		54%	233,194	0.99%	0.85
	July/20	31	2020	7	summer	273,750	8,831	3,558,750			1	0		54%	233,194	1.30%	0.85
	August/20	31	2020	8	summer	273,750	8,831	3,832,500			1	0		54%	233,194	0.98%	0.85
	September/20	30	2020	9	summer	273,750	9,125	4,106,250			1	0		54%	233,194	0.89%	0.85
	October/20	31	2020	10	winter	273,750	8,831	4,380,000			1	0		54%	233,194	0.99%	0.85
	November/20	30	2020	11	winter	273,750	9,125	4,653,750			1	0		54%	233,194	0.72%	0.85
	December/20	31	2020	12	winter	273,750	8,831	4,927,500			1	0		54%	233,194	0.93%	0.85
	January/21	31	2021	1	winter	273,750	8,831	5,201,250			1	0		54%	233,194	0.98%	0.85
	February/21	28	2021	2	winter	273,750	9,777	5,475,000			1	0		54%	233,194	1.53%	0.85
	March/21	31	2021	3	winter	273,750	8,831	5,748,750			1	0		54%	233,194	1.04%	0.85
	April/21	30	2021	4	winter	273,750	9,125	6,022,500			1	0		54%	233,194	1.09%	0.85
	May/21	31	2021	5	winter	273,750	8,831	6,296,250			1	0		54%	233,194	1.08%	0.85
	June/21	30	2021	6	winter	273,750	9,125	6,570,000			0	1		54%	233,194	0.99%	0.85
	July/21	31	2021	7	summer	273,750	8,831	6,843,750			0	1		54%	233,194	1.30%	0.85
	August/21	31	2021	8	summer	273,750	8,831	7,117,500			0	1		54%	233,194	0.98%	0.85
	September/21	30	2021	9	summer	273,750	9,125	7,391,250			0	1		54%	233,194	0.89%	0.85
	October/21	31	2021	10	winter	273,750	8,831	7,665,000			0	1		54%	233,194	0.99%	0.85
	November/21	30	2021	11	winter	273,750	9,125	7,938,750			0	1		54%	233,194	0.72%	0.85
	December/21	31	2021	12	winter	273,750	8,831	8,212,500			0	1		54%	233,194	0.93%	0.85
	January/22	31	2022	1	winter	66,644	9,000	8,279,144			0	1		54%	56,771	0.98%	0.85
PEROD 3 PIT FILLING	February/22	28	2022	2	winter	0		8,279,144						54%	0	1.53%	0.00
	March/22	31	2022	3	winter	0		8,279,144						54%	0	1.04%	0.00
	April/22	30	2022	4	winter	0		8,279,144						54%	0	1.09%	0.00
	May/22	31	2022	5	winter	0		8,279,144						54%	0	1.08%	0.00
	June/22	30	2022	6	winter	0		8,279,144						54%	0	0.99%	0.00
	July/22	31	2022	7	summer	0		8,279,144						54%	0	1.30%	0.00
	August/22	31	2022	8	summer	0		8,279,144						54%	0	0.98%	0.00
	September/22	30	2022	9	summer	0		8,279,144						54%	0	0.89%	0.00
	October/22	31	2022	10	winter	0		8,279,144						54%	0	0.99%	0.00
	November/22	30	2022	11	winter	0		8,279,144						54%	0	0.72%	0.00
	December/22	31	2022	12	winter	0		8,279,144						54%	0	0.93%	0.00
	January/23	31	2023	1	winter	0		8,279,144						54%	0	0.98%	0.00
	February/23	28	2023	2	winter	0		8,279,144						54%	0	1.53%	0.00
	March/23	31	2023	3	winter	0		8,279,144						54%	0	1.04%	0.00
	April/23	30	2023	4	winter	0		8,279,144						54%	0	1.09%	0.00
	May/23	31	2023	5	winter	0		8,279,144						54%	0	1.08%	0.00
	June/23	30	2023	6	winter	0		8,279,144						54%	0	0.99%	0.00
	July/23	31	2023	7	summer	0		8,279,144						54%	0	1.30%	0.00
	August/23	31	2023	8	summer	0		8,279,144						54%	0	0.98%	0.00
	September/23	30	2023	9	summer	0		8,279,144						54%	0	0.89%	0.00
	October/23	31	2023	10	winter	0		8,279,144						54%	0	0.99%	0.00
	November/23	30	2023	11	winter	0		8,279,144						54%	0	0.72%	0.00
	December/23	31	2023	12	winter	0		8,279,144						54%	0	0.93%	0.00
	January/24	31	2024	1	winter	0		8,279,144						54%	0	0.98%	0.00
	February/24	29	2024	2	winter	0		8,279,144						54%	0	1.53%	0.00
	March/24	31	2024	3	winter	0		8,279,144						54%	0	1.04%	0.00
	April/24	30	2024	4	winter	0		8,279,144						54%	0	1.09%	0.00
	May/24	31	2024	5	winter	0		8,279,144						54%	0	1.08%	0.00
	June/24	30	2024	6	winter	0		8,279,144						54%	0	0.99%	0.00
	July/24	31	2024	7	summer	0		8,279,144						54%	0	1.30%	0.00
	August/24	31	2024	8	summer	0		8,279,144						54%	0	0.98%	0.00
	September/24	30	2024	9	summer	0		8,279,144						54%	0	0.89%	0.00
	October/24	31	2024	10	winter	0		8,279,144						54%	0	0.99%	0.00
	November/24	30	2024	11	winter	0		8,279,144						54%	0	0.72%	0.00
	December/24	31	2024	12	winter	0		8,279,144						54%	0	0.93%	0.00
	January/25	31	2025	1	winter	0		8,279,144						54%	0	0.98%	0.00
	February/25	28	2025	2	winter	0		8,279,144						54%	0	1.53%	0.00
	March/25	31	2025	3	winter	0		8,279,144						54%	0	1.04%	0.00
	April/25	30	2025	4	winter	0		8,279,144						54%	0	1.09%	0.00
	May/25	31	2025	5	winter	0		8,279,144						54%	0	1.08%	0.00
	June/25	30	2025	6	winter	0		8,279,144						54%	0	0.99%	0.00
	July/25	31	2025	7	summer	0		8,279,144						54%	0	1.30%	0.00
	August/25	31	2025	8	summer	0		8,279,144						54%	0	0.98%	0.00
	September/25	30	2025	9	summer	0		8,279,144						54%	0	0.89%	0.00
	October/25	31	2025	10	winter	0		8,279,144						54%	0	0.99%	0.00
	November/25	30	2025	11	winter	0		8,279,144						54%	0	0.72%	0.00
	December/25	31	2025	12	winter	0		8,279,144						54%	0	0.93%	0.00
	January/26	31	2026	1	winter	0		8,279,144						54%	0	0.98%	0.00
	February/26	28	2026	2	winter	0		8,279,144						54%	0	1.53%	0.00
	March/26	31	2026	3	winter	0		8,279,144						54%	0	1.04%	0.00
	April/26	30	2026	4	winter	0		8,279,144						54%	0	1.09%	0.00
	May/26	31	2026	5	winter	0		8,279,144						54%	0	1.08%	0.00
	June/26	30	2026	6	winter	0		8,279,144						54%	0	0.99%	0.00
	July/26	31	2026	7	summer	0		8,279,144						54%	0	1.30%	0.00
	August/26	31	2026	8	summer	0		8,279,144						54%	0	0.98%	0.00
	September/26	30	2026	9	summer	0		8,279,144						54%	0	0.89%	0.00
	October/26	31	2026	10	winter	0		8,279,144						54%	0	0.99%	0.00
	November/26	30	2026	11	winter	0		8,279,144						54%	0	0.72%	0.00
	December/26	31	2026	12	winter	0		8,279,144						54%	0	0.93%	0.00
PEROD 4 MONITORING (5 YEARS)	January/27	31	2027	1	winter	0		8,279,144						54%	0	0.98%	0.00
	February/27	28	2027	2	winter	0		8,279,144						54%	0	1.53%	0.00
	March/27	31	2027	3	winter	0		8,279,144						54%	0	1.04%	0.00
	April/27	30	2027	4	winter	0		8,279,144						54%	0	1.09%	0.00
	May/27	31	2027	5	winter	0		8,279,144						54%	0	1.08%	0.00
	June/27	30	2027	6	winter	0		8,279,144						54%	0	0.99%	0.00
	July/27	31	2027	7	summer	0		8,279,144						54%	0	1.30%	0.00
	August/27	31	2027	8	summer	0		8,279,144						54%	0	0.98%	0.00
	September/27	30	2027	9	summer	0		8,279,144						54%	0	0.89%	0.00
	October/27	31	2027	10	winter	0		8,279,144						54%	0	0.99%	0.00
	November/27	30	2027	11	winter	0		8,279,144						54%	0	0.72%	0.00
	December/27	31	2027	12	winter	0		8,279,144						54%	0	0.93%	0.00
	January/28	31	2028	1	winter	0		8,279,144						54%	0	0.98%	0.00
	February/28	28	2028	2	winter	0		8,279,144						54%	0	1.53%	0.00
	March/28	31	2028	3	winter	0		8,279,144						54%	0	1.04%	0.00
	April/28	30	2028	4	winter	0		8,279,144						54%	0	1.09%	0.00
	May/28	31	2028	5	winter	0		8,279,144						54%	0	1.08%	0.00
	June/28	30	2028	6	winter	0		8,279,144						54%	0	0.99%	0.00
	July/28	31	2028	7	summer	0		8,279,144						54%	0	1.30%	0.00
	August/28	31	2028	8	summer	0		8,279,144						54%	0	0.98%	0.00
	September/28	30	2028	9	summer	0		8,279,144						54%	0	0.89%	0.00
	October/28	31	2028	10	winter	0		8,279,144									
	November/28	30	2028	11	winter	0		8,279,144									
	December/28	31	2028	12	winter	0		8,279,144									
	January/29	31	2029	1	winter	0		8,279,144									
	February/29	28	2029	2	winter	0		8,279,144									
	March/29	31	2029	3	winter	0		8,279,144									
	April/29	30	2029	4	winter	0		8,279,144									
	May/29	31	2029	5	winter	0		8,279,144									
	June/29	30	2029	6	winter	0		8,279,144									
	July/29	31	2029	7	summer	0		8,279,144									
	August/29	31	2029	8	summer	0		8,279,144									
	September/29	30	2029	9	summer	0		8,279,144									
	October/29	31	2029	10	winter	0		8,279,144									
	November/29	30	2029	11	winter	0		8,279,144									
	December/29	31	2029	12	winter	0		8,279,144									
	January/30	31	2030	1	winter	0		8,279,144									
	February/30	28	2030	2	winter	0		8,279,144									
	March/30	31	2030	3	winter	0		8,279,144									
	April/30	30	2030	4	winter	0		8,279,144									
	May/30	31	2030	5	winter	0		8,279,144									
	June/30	30	2030	6	winter	0		8,279,144									
	July/30	31	2030	7	summer	0		8,279,144									
	August/30	31	2030	8	summer	0		8,279,144									
	September/30	30	2030	9	summer	0		8,279,144									
	October/30	31	2030	10	winter	0		8,279,144									
	November/30	30	2030	11	winter	0		8,279,144									
	December/30	31	2030	12	winter	0		8,279,144									
	January/31	31	2031	1	winter	0		8,279,144									
	February/31	28	2031	2	winter	0		8,279,144									
	March/31	31	2031	3	winter	0		8,279,144									
	April/31	30	2031	4	winter	0		8,279,144									
	May/31	31	2031	5	winter	0		8,279,144									
	June/31	30	2031	6	winter	0		8,279,144									
	July/31	31	2031	7	summer	0		8,279,144									
	August/31	31	2031	8	summer	0		8,279,144									
	September/31	30	2031	9	summer	0		8,279,144									
	October/31	31	2031	10	winter	0		8,279,144									
	November/31	30	2031	11	winter	0		8,279,144									
	December/31	31	2031	12	winter	0		8,279,144									

Period	Month-Year	# Days /mth	Year	Mth	S/W	Reclaim Water Flow	Total Reclaim Volume	From SC	From Pit A	From Pit E	From Goose Pit	Water in ore	Fresh Water for Camp	Fresh Water to Make 54% w/w slurry	Fresh Water for Mill Process	Fresh Water Flow	Total Fresh Water Volume for Mill and Camp	Total Water Flow
						RECLAIM AND FRESH WATER												
		Days /mth				m3/hr	m3/mth					m3/mth	m3/mth	m3/mth	m3/mth	m3/hr	m3/mth	m3/hr
PERIOD 1: MBK TAILINGS DEPOSITION	January/17	31	2017	1	winter	339	252,232	1				2,522	3,623	45,066	0	65	48,689	404
	February/17	28	2017	2	winter	346	232,324	1				2,483	3,144	41,354	0	66	44,498	412
	March/17	31	2017	3	winter	333	247,752	1				2,573	3,444	30,042	0	45	33,486	378
	April/17	30	2017	4	winter	316	227,667	1				1,576	3,490	49,518	0	74	53,008	390
	May/17	31	2017	5	winter	331	246,010	1				3,312	3,692	49,458	0	71	53,150	402
	June/17	30	2017	6	winter	344	247,773	1				3,197	3,697	35,112	0	54	38,809	398
	July/17	31	2017	7	summer	338	251,576	1				4,371	3,818	39,665	0	58	43,483	397
	August/17	31	2017	8	summer	347	257,796	1				3,199	3,433	34,758	0	51	38,191	398
	September/17	30	2017	9	summer	335	241,501	1				2,454	3,389	30,710	0	47	34,099	383
	October/17	31	2017	10	winter	350	260,400	1				3,452	2,945	41,695	0	60	44,640	410
	November/17	30	2017	11	winter	350	252,000	1				2,429	2,850	40,350	0	60	43,200	410
	December/17	31	2017	12	winter	350	260,400	1				3,243	2,945	41,695	0	60	44,640	410
	January/18	31	2018	1	winter	320	238,080	1				2,734	2,945	64,015	0	90	66,960	410
	February/18	28	2018	2	winter	320	215,040	1				3,856	2,660	57,820	0	90	60,480	410
	March/18	31	2018	3	winter	320	238,080	1				2,902	2,945	64,015	0	90	66,960	410
	April/18	30	2018	4	winter	0	0	1				2,943	2,850	227,057	36,000	369	265,907	369
	May/18	31	2018	5	winter	0	0	1				3,013	2,945	234,653	37,200	369	274,798	369
	June/18	30	2018	6	winter	0	0	1				2,673	2,850	227,327	36,000	370	266,177	370
	July/18	31	2018	7	summer	0	0	1				2,958	2,945	190,864	37,200	310	231,009	310
	August/18	31	2018	8	summer	0	0	1				2,230	2,945	191,592	37,200	311	231,737	311
	September/18	30	2018	9	summer	0	0	1				1,960	2,850	185,610	36,000	312	224,460	312
GAP PERIOD	October/18	31	2018	10	winter	0	0	1				0	2,945	0	0	4	2,945	4
	November/18	30	2018	11	winter	0	0	1				0	2,850	0	0	4	2,850	4
	December/18	31	2018	12	winter	0	0	1				0	2,945	0	0	4	2,945	4
	January/19	31	2019	1	winter	0	0	1				0	2,945	0	0	4	2,945	4
	February/19	28	2019	2	winter	0	0	1				0	2,660	0	0	4	2,660	4
	March/19	31	2019	3	winter	0	0	1				0	2,945	0	0	4	2,945	4
	April/19	30	2019	4	winter	0	0	1				0	2,850	0	0	4	2,850	4
	May/19	31	2019	5	winter	0	0	1				0	2,945	0	0	4	2,945	4
	June/19	30	2019	6	winter	0	0	1				0	2,850	0	0	4	2,850	4
PERIOD 2: WHALE TAIL TAILINGS IN-PIT DEPOSITION	July/19	31	2019	7	summer	309	229,636		1	0		3,559	2,945	0	37,200	54	40,145	363
	August/19	31	2019	8	summer	310	230,512		1	0		2,683	2,945	0	37,200	54	40,145	364
	September/19	30	2019	9	summer	320	230,758		1	0		2,436	2,850	0	36,000	54	38,850	374
	October/19	31	2019	10	winter	310	230,484		1	0		2,710	2,945	0	37,200	54	40,145	364
	November/19	30	2019	11	winter	321	231,223		1	0		1,971	2,850	0	36,000	54	38,850	375
	December/19	31	2019	12	winter	310	230,649		1	0		2,546	2,945	0	37,200	54	40,145	364
	January/20	31	2020	1	winter	310	230,512		1	0		2,683	2,945	0	37,200	54	40,145	364
	February/20	29	2020	2	winter	329	229,006		1	0		4,188	2,755	0	34,800	54	37,555	383
	March/20	31	2020	3	winter	310	230,347		1	0		2,847	2,945	0	37,200	54	40,145	364
	April/20	30	2020	4	winter	320	230,211		1	0		2,984	2,850	0	36,000	54	38,850	374
	May/20	31	2020	5	winter	309	230,238		1	0		2,957	2,945	0	37,200	54	40,145	363
	June/20	30	2020	6	winter	320	230,484		1	0		2,710	2,850	0	36,000	54	38,850	374
	July/20	31	2020	7	summer	309	229,636		0	1		3,559	2,945	0	37,200	54	40,145	363
	August/20	31	2020	8	summer	310	230,512		0	1		2,683	2,945	0	37,200	54	40,145	364
	September/20	30	2020	9	summer	320	230,758		0	1		2,436	2,850	0	36,000	54	38,850	374
	October/20	31	2020	10	winter	310	230,484		0	1		2,710	2,945	0	37,200	54	40,145	364
	November/20	30	2020	11	winter	321	231,223		0	1		1,971	2,850	0	36,000	54	38,850	375
	December/20	31	2020	12	winter	310	230,649		0	1		2,546	2,945	0	37,200	54	40,145	364
	January/21	31	2021	1	winter	310	230,512		0	1		2,683	2,945	0	37,200	54	40,145	364
	February/21	28	2021	2	winter	341	229,006		0	1		4,188	2,660	0	33,600	54	36,260	395
	March/21	31	2021	3	winter	310	230,347		0	1		2,847	2,945	0	37,200	54	40,145	364
	April/21	30	2021	4	winter	320	230,211		0	1		2,984	2,850	0	36,000	54	38,850	374
	May/21	31	2021	5	winter	309	230,238		0	1		2,957	2,945	0	37,200	54	40,145	363
	June/21	30	2021	6	winter	320	230,484		1	0		2,710	2,850	0	36,000	54	38,850	374
	July/21	31	2021	7	summer	309	229,636		1	0		3,559	2,945	0	37,200	54	40,145	363
	August/21	31	2021	8	summer	310	230,512		1	0		2,683	2,945	0	37,200	54	40,145	364
	September/21	30	2021	9	summer	320	230,758		1	0		2,436	2,850	0	36,000	54	38,850	374
	October/21	31	2021	10	winter	310	230,484		1	0		2,710	2,945	0	37,200	54	40,145	364
	November/21	30	2021	11	winter	321	231,223		1	0		1,971	2,850	0	36,000	54	38,850	375
	December/21	31	2021	12	winter	310	230,649		1	0		2,546	2,945	0	37,200	54	40,145	364
	January/22	31	2022	1	winter	75	56,118		1	0		653	2,945	0	37,200	54	40,145	129
PERIOD 3 PIT FILLING	February/22	28	2022	2	winter	0						0	2,660	0	0	4	2,660	4
	March/22	31	2022	3	winter	0						0	2,945	0	0	4	2,945	4
	April/22	30	2022	4	winter	0						0	2,850	0	0	4	2,850	4
	May/22	31	2022	5	winter	0						0	2,945	0	0	4	2,945	4
	June/22	30	2022	6	winter	0						0	2,850	0	0	4	2,850	4
	July/22	31	2022	7	summer	0						0	2,945	0	0	4	2,945	4
	August/22	31	2022	8	summer	0						0	2,945	0	0	4	2,945	4
	September/22	30	2022	9	summer	0						0	2,850	0	0	4	2,850	4
	October/22	31	2022	10	winter	0						0	2,945	0	0	4	2,945	4
	November/22	30	2022	11	winter	0						0	2,850	0	0	4	2,850	4
	December/22	31	2022	12	winter	0						0	2,945	0	0	4	2,945	4
	January/23	31	2023	1	winter							0	2,945	0	0	4	2,945	4
	February/23	28	2023	2	winter							0	2,660	0	0	4	2,660	4
	March/23	31	2023	3	winter							0	2,945	0	0	4	2,945	4
	April/23	30	2023	4	winter							0	2,850	0	0	4	2,850	4
	May/23	31	2023	5	winter							0	2,945	0	0	4	2,945	4
	June/23	30	2023	6	winter							0	2,850	0	0	4	2,850	4
	July/23	31	2023	7	summer							0	2,945	0	0	4	2,945	4
	August/23	31	2023	8	summer							0	2,945	0	0	4	2,945	4
	September/23	30	2023	9	summer							0	2,850	0	0	4	2,850	4
	October/23	31	2023	10	winter							0	2,945	0	0	4	2,945	4
	November/23	30	2023	11	winter							0	2,850	0	0	4	2,850	4
	December/23	31	2023	12	winter							0	2,945	0	0	4	2,945	4
	January/24	31	2024	1	winter							0	2,945	0	0	4	2,945	4
	February/24	29	2024	2	winter							0	2,755	0	0	4	2,755	4
	March/24	31	2024	3	winter							0	2,945	0	0	4	2,945	4
	April/24	30	2024	4	winter							0	2,850	0	0	4	2,850	4
	May/24	31	2024	5	winter							0	2,945	0	0	4	2,945	4
	June/24	30	2024	6	winter							0	2,850	0	0	4	2,850	4
	July/24	31	2024	7	summer							0	2,945	0	0	4	2,945	4
	August/24	31	2024	8	summer							0	2,945	0	0	4	2,945	4
	September/24	30	2024	9	summer							0	2,850	0	0	4	2,850	4
	October/24	31	2024	10	winter							0	2,945	0	0	4	2,945	4
	November/24	30	2024	11	winter							0	2,850	0	0	4	2,850	4
	December/24	31	2024	12	winter							0	2,945	0	0	4	2,945	4
	January/25	31	2025	1	winter							0	2,945	0	0	4	2,945	4
	February/25	28	2025	2	winter							0	2,660	0	0	4	2,660	4
	March/25	31	2025	3	winter							0	2,945	0	0	4	2,945	4
	April/25	30	2025	4	winter							0	2,850	0	0	4	2,850	4
	May/25	31	2025	5	winter							0	2,945	0	0	4	2,945	4
	June/25	30	2025	6	winter							0	2,850	0	0	4	2,850	4
	July/25	31	2025	7	summer							0	2,945	0	0	4	2,945	4
	August/25	31	2025	8	summer							0	2,945	0	0	4	2,945	4
	September/25	30	2025	9	summer							0	2,850	0	0	4	2,850	4
	October/25	31	2025	10	winter							0	2,945	0	0	4	2,945	4
	November/25	30	2025	11	winter							0	2,850	0	0	4	2,850	4
	December/25	31	2025	12	winter							0	2,945	0	0	4	2,945	4
	January/26	31	2026	1	winter							0	2,945	0	0	4	2,945	4
	February/26	28	2026	2	winter							0	2,660	0	0	4	2,660	4
	March/26	31	2026	3	winter							0	2,945	0	0	4	2,945	4
	April/26	30	2026	4	winter							0	2,850	0	0	4	2,850	4
	May/26	31	2026	5	winter							0	2,945	0	0	4	2,945	4
	June/26	30	2026	6	winter							0	2,850	0	0	4	2,850	4
	July/26	31	2026	7	summer							0	2,945	0	0	4	2,945	4
	August/26	31	2026	8	summer							0	2,945	0	0	4	2,945	4
	September/26	30	2026	9	summer							0	2,850	0	0	4	2,850	4
	October/26	31	2026	10	winter							0	2,945	0	0	4	2,945	4
	November/26	30	2026	11	winter							0	2,850	0	0	4	2,850	4
	December/26	31	2026	12	winter							0	2,945	0	0	4	2,945	4
PERIOD 4 MONITORING (5 YEARS)	January/27	31	2027	1	winter							0	2,945	0	0	4	2,945	4
	February/27	28	2027	2	winter							0	2,660	0	0	4	2,660	4
	March/27	31	2027	3	winter							0	2,945	0	0	4	2,945	4
	April/27	30	2027	4	winter							0	2,850	0	0	4	2,850	4
	May/27	31	2027	5	winter							0	2,945	0	0	4	2,945	4
	June/27	30	2027	6	winter							0	2,850	0	0	4	2,850	4
	July/27	31	2027	7	summer							0	2,945	0	0	4	2,945	4
	August/27	31	2027	8	summer							0	2,945	0	0	4	2,945	4
	September/27	30	2027	9	summer							0	2,850	0	0	4	2,850	4
	October/27	31	2027	10	winter							0	2,945	0	0	4	2,945	4
	November/27	30	2027	11	winter							0	2,850	0	0	4	2,850	4
	December/27	31	2027	12	winter							0	2,945	0	0	4	2,945	4
	January/28	31	2028	1	winter							0	2,945	0	0	4	2,945	4
	February/28	28	2028	2	winter							0	2,660	0	0	4	2,660	4
	March/28	31	2028	3	winter							0	2,945	0	0	4	2,945	4
	April/28	30	2028	4	winter							0	2,850	0	0	4	2,850	4
	May/28	31	2028	5	winter							0	2,945	0	0	4	2,945	4
	June/28	30	2028	6	winter							0	2,850	0	0	4	2,850	4
	July/28	31	2028	7	summer							0	2,945	0	0	4	2,945	4
	August/28	31	2028	8	summer							0	2,945	0	0	4	2,945	4
	September/28	30	2028	9	summer							0	2,850	0	0	4	2,850	4
	October/28	31	2028	10	winter								2,945	0	0		2,945	0
	November/28	30	2028	11	winter								2,850	0	0		2,850	0
	December/28	31	2028	12	winter								2,945	0	0		2,945	0
	January/29	31	2029	1	winter								2,945	0	0		2,945	0
	February/29	28	2029	2	winter								2,660	0	0		2,660	0
	March/29	31	2029	3	winter								2,945	0	0		2,945	0
	April/29	30	2029	4	winter								2,850	0	0		2,850	0
	May/29	31	2029	5	winter								2,945	0	0		2,945	0
	June/29	30	2029	6	winter								2,850	0	0		2,850	0
	July/29	31	2029	7	summer								2,945	0	0		2,945	0
	August/29	31	2029	8	summer								2,945	0	0		2,945	0
	September/29	30	2029	9	summer								2,850	0	0		2,850	0
	October/29	31	2029	10	winter								2,945	0	0		2,945	0
	November/29	30	2029	11	winter								2,850	0	0		2,850	0
	December/29	31	2029	12	winter								2,945	0	0		2,945	0
	January/30	31	2030	1	winter								2,945	0	0		2,945	0
	February/30	28	2030	2	winter								2,660	0	0		2,660	0
	March/30	31	2030	3	winter								2,945	0	0		2,945	0
	April/30	30	2030	4	winter								2,850	0	0		2,850	0
	May/30	31	2030	5	winter								2,945	0	0		2,945	0
	June/30	30	2030	6	winter								2,850	0	0		2,850	0
	July/30	31	2030	7	summer								2,945	0	0		2,945	0
	August/30	31	2030	8	summer								2,945	0	0		2,945	0
	September/30	30	2030	9	summer								2,850	0	0		2,850	0
	October/30	31	2030	10	winter								2,945	0	0		2,945	0
	November/30	30	2030	11	winter								2,850	0	0		2,850	0
	December/30	31	2030	12	winter								2,945	0	0		2,945	0
	January/31	31	2031	1	winter								2,945	0	0		2,945	0
	February/31	28	2031	2	winter								2,660	0	0		2,660	0
	March/31	31	2031	3	winter								2,945	0	0		2,945	0
	April/31	30	2031	4	winter								2,850	0	0		2,850	0
	May/31	31	2031	5	winter								2,945	0	0		2,945	0
	June/31	30	2031	6	winter								2,850	0	0		2,850	0
	July/31	31	2031	7	summer								2,945	0	0		2,945	0
	August/31	31	2031	8	summer								2,945	0	0		2,945	0
	September/31	30	2031	9	summer								2,850	0	0		2,850	0
	October/31	31	2031	10	winter								0	0	0		0	0
	November/31	30	2031	11	winter								0	0	0		0	0
	December/31	31	2031	12	winter								0	0	0		0	0

						NORTH CELL				
						Input				Output
						152.9 ha				
	Month-Year	# Days /mth	Year	Mth	S/W	Runoff to NC	Interception sump to NC	WEP + SD1 to NC (from ST-S-2)	Waste rock seep to NC (from ST-16)	Transfer to SC
		Days /mth				m3/mth	m3/mth	m3/mth	m3/mth	m3/mth
PERIOD 1: MBK TAILINGS DEPOSITION	January/17	31	2017	1	winter	0	0	0	0	0
	February/17	28	2017	2	winter	0	0	0	0	0
	March/17	31	2017	3	winter	0	0	0	0	0
	April/17	30	2017	4	winter	0	0	0	0	0
	May/17	31	2017	5	winter	142,381	72,377	5,197	16,692	236,647
	June/17	30	2017	6	winter	-75,388	90,538	1,767	20,881	37,798
	July/17	31	2017	7	summer	-28,959	17,160	1,402	5,025	-5,372
	August/17	31	2017	8	summer	10,455	3,120	2,848	4,804	21,227
	September/17	30	2017	9	summer	-52,609	6,365	4,806	2,804	-38,634
	October/17	31	2017	10	winter	0	0	0	0	0
	November/17	30	2017	11	winter	0	0	0	0	0
	December/17	31	2017	12	winter	0	0	0	0	0
	January/18	31	2018	1	winter	0	0	0	0	0
	February/18	28	2018	2	winter	0	0	0	0	0
	March/18	31	2018	3	winter	0	0	0	0	0
	April/18	30	2018	4	winter	0	0	0	0	0
	May/18	31	2018	5	winter	0	0	0	1,625	1,625
	June/18	30	2018	6	winter	77,826	126,269	5,434	10,832	220,361
	July/18	31	2018	7	summer	20,642	24,514	6,653	3,414	55,223
	August/18	31	2018	8	summer	56,114	8,346	104	1,365	65,929
	September/18	30	2018	9	summer	26,452	12,085	3,378	2,000	43,915
GAP PERIOD	October/18	31	2018	10	winter	0	0	0	0	0
	November/18	30	2018	11	winter	0	0	0	0	0
	December/18	31	2018	12	winter	0	0	0	0	0
	January/19	31	2019	1	winter	0	0	0	0	0
	February/19	28	2019	2	winter	0	0	0	0	0
	March/19	31	2019	3	winter	0	0	0	0	0
	April/19	30	2019	4	winter	0	0	0	0	0
	May/19	31	2019	5	winter	0	0	0	1,625	1,625
	June/19	30	2019	6	winter	77,826	126,269	5,434	10,832	220,361
PERIOD 2: WHALE TAIL TAILINGS IN-PIT DEPOSITION	July/19	31	2019	7	summer	20,642	24,514	6,653	3,414	55,223
	August/19	31	2019	8	summer	56,114	8,346	104	1,365	65,929
	September/19	30	2019	9	summer	26,452	12,085	3,378	2,000	43,915
	October/19	31	2019	10	winter	0	0	0	0	0
	November/19	30	2019	11	winter	0	0	0	0	0
	December/19	31	2019	12	winter	0	0	0	0	0
	January/20	31	2020	1	winter	0	0	0	0	0
	February/20	29	2020	2	winter	0	0	0	0	0
	March/20	31	2020	3	winter	0	0	0	0	0
	April/20	30	2020	4	winter	0	0	0	0	0
	May/20	31	2020	5	winter	0	0	0	1,625	1,625
	June/20	30	2020	6	winter	77,826	126,269	5,434	10,832	220,361
	July/20	31	2020	7	summer	20,642	24,514	6,653	3,414	55,223
	August/20	31	2020	8	summer	56,114	8,346	104	1,365	65,929
	September/20	30	2020	9	summer	26,452	12,085	3,378	2,000	43,915
	October/20	31	2020	10	winter	0	0	0	0	0
	November/20	30	2020	11	winter	0	0	0	0	0
	December/20	31	2020	12	winter	0	0	0	0	0
	January/21	31	2021	1	winter	0	0	0	0	0
	February/21	28	2021	2	winter	0	0	0	0	0
	March/21	31	2021	3	winter	0	0	0	0	0
	April/21	30	2021	4	winter	0	0	0	0	0
	May/21	31	2021	5	winter	0	0	0	1,625	1,625
	June/21	30	2021	6	winter	77,826	126,269	5,434	10,832	220,361
	July/21	31	2021	7	summer	20,642	24,514	6,653	3,414	55,223
	August/21	31	2021	8	summer	56,114	8,346	104	1,365	65,929
	September/21	30	2021	9	summer	26,452	12,085	3,378	2,000	43,915
	October/21	31	2021	10	winter	0	0	0	0	0
	November/21	30	2021	11	winter	0	0	0	0	0
	December/21	31	2021	12	winter	0	0	0	0	0
	January/22	31	2022	1	winter	0	0	0	0	0
PERIOD 3 PIT FILLING	February/22	28	2022	2	winter	0	0	0	0	0
	March/22	31	2022	3	winter	0	0	0	0	0
	April/22	30	2022	4	winter	0	0	0	0	0
	May/22	31	2022	5	winter	0	0	0	1,625	1,625
	June/22	30	2022	6	winter	77,826	126,269	5,434	10,832	220,361
	July/22	31	2022	7	summer	20,642	24,514	6,653	3,414	55,223
	August/22	31	2022	8	summer	56,114	8,346	104	1,365	65,929
	September/22	30	2022	9	summer	26,452	12,085	3,378	2,000	43,915
	October/22	31	2022	10	winter	0	0	0	0	0
	November/22	30	2022	11	winter	0	0	0	0	0
	December/22	31	2022	12	winter	0	0	0	0	0
	January/23	31	2023	1	winter	0	0	0	0	0
	February/23	28	2023	2	winter	0	0	0	0	0
	March/23	31	2023	3	winter	0	0	0	0	0
	April/23	30	2023	4	winter	0	0	0	0	0
	May/23	31	2023	5	winter	0	0	0	1,625	1,625
	June/23	30	2023	6	winter	77,826	126,269	5,434	10,832	220,361
	July/23	31	2023	7	summer	20,642	24,514	6,653	3,414	55,223
	August/23	31	2023	8	summer	56,114	8,346	104	1,365	65,929
	September/23	30	2023	9	summer	26,452	12,085	3,378	2,000	43,915
	October/23	31	2023	10	winter	0	0	0	0	0
	November/23	30	2023	11	winter	0	0	0	0	0
	December/23	31	2023	12	winter	0	0	0	0	0
	January/24	31	2024	1	winter	0	0	0	0	0
	February/24	29	2024	2	winter	0	0	0	0	0
	March/24	31	2024	3	winter	0	0	0	0	0
	April/24	30	2024	4	winter	0	0	0	0	0
	May/24	31	2024	5	winter	0	0	0	1,625	1,625
	June/24	30	2024	6	winter	77,826	126,269	5,434	10,832	220,361
	July/24	31	2024	7	summer	20,642	24,514	6,653	3,414	55,223
	August/24	31	2024	8	summer	56,114	8,346	104	1,365	65,929
	September/24	30	2024	9	summer	26,452	12,085	3,378	2,000	43,915
	October/24	31	2024	10	winter	0	0	0	0	0
	November/24	30	2024	11	winter	0	0	0	0	0
	December/24	31	2024	12	winter	0	0	0	0	0
	January/25	31	2025	1	winter	0	0	0	0	0
	February/25	28	2025	2	winter	0	0	0	0	0
	March/25	31	2025	3	winter	0	0	0	0	0
	April/25	30	2025	4	winter	0	0	0	0	0
	May/25	31	2025	5	winter	0	0	0	1,625	1,625
	June/25	30	2025	6	winter	77,826	126,269	5,434	10,832	220,361
	July/25	31	2025	7	summer	20,642	24,514	6,653	3,414	55,223
	August/25	31	2025	8	summer	56,114	8,346	104	1,365	65,929
	September/25	30	2025	9	summer	26,452	12,085	3,378	2,000	43,915
	October/25	31	2025	10	winter	0	0	0	0	0
	November/25	30	2025	11	winter	0	0	0	0	0
	December/25	31	2025	12	winter	0	0	0	0	0
	January/26	31	2026	1	winter	0	0	0	0	0
	February/26	28	2026	2	winter	0	0	0	0	0
	March/26	31	2026	3	winter	0	0	0	0	0
	April/26	30	2026	4	winter	0	0	0	0	0
	May/26	31	2026	5	winter	0	0	0	1,625	1,625
	June/26	30	2026	6	winter	77,826	126,269	5,434	10,832	220,361
	July/26	31	2026	7	summer	20,642	24,514	6,653	3,414	55,223
	August/26	31	2026	8	summer	56,114	8,346	104	1,365	65,929
	September/26	30	2026	9	summer	26,452	12,085	3,378	2,000	43,915
	October/26	31	2026	10	winter	0	0	0	0	0
	November/26	30	2026	11	winter	0	0	0	0	0
	December/26	31	2026	12	winter	0	0	0	0	0
PERIOD 4 MONITORING (5 YEARS)	January/27	31	2027	1	winter	0	0	0	0	0
	February/27	28	2027	2	winter	0	0	0	0	0
	March/27	31	2027	3	winter	0	0	0	0	0
	April/27	30	2027	4	winter	0	0	0	0	0
	May/27	31	2027	5	winter	0	0	0	1,625	1,625
	June/27	30	2027	6	winter	77,826	126,269	5,434	10,832	220,361
	July/27	31	2027	7	summer	20,642	24,514	6,653	3,414	55,223
	August/27	31	2027	8	summer	56,114	8,346	104	1,365	65,929
	September/27	30	2027	9	summer	26,452	12,085	3,378	2,000	43,915
	October/27	31	2027	10	winter	0	0	0	0	0
	November/27	30	2027	11	winter	0	0	0	0	0
	December/27	31	2027	12	winter	0	0	0	0	0
	January/28	31	2028	1	winter	0	0	0	0	0
	February/28	28	2028	2	winter	0	0	0	0	0
	March/28	31	2028	3	winter	0	0	0	0	0
	April/28	30	2028	4	winter	0	0	0	0	0
	May/28	31	2028	5	winter	0	0	0	1,625	1,625
	June/28	30	2028	6	winter	77,826	126,269	5,434	10,832	220,361
	July/28	31	2028	7	summer	20,642	24,514	6,653	3,414	55,223
	August/28	31	2028	8	summer	56,114	8,346	104	1,365	65,929
	September/28	30	2028	9	summer	26,452	12,085	3,378	2,000	43,915
	October/28	31	2028	10	winter	0	0	0	0	0
	November/28	30	2028	11	winter	0	0	0	0	0
	December/28	31	2028	12	winter	0	0	0	0	0
	January/29	31	2029	1	winter	0	0	0	0	0
	February/29	28	2029	2	winter	0	0	0	0	0
	March/29	31	2029	3	winter	0	0	0	0	0
	April/29	30	2029	4	winter	0	0	0	0	0
	May/29	31	2029	5	winter	0	0	0	0	0
	June/29	30	2029	6	winter	77,826	0	0	0	77,826
	July/29	31	2029	7	summer	20,642	0	0	0	20,642
	August/29	31	2029	8	summer	56,114	0	0	0	56,114
	September/29	30	2029	9	summer	26,452	0	0	0	26,452
	October/29	31	2029	10	winter	0	0	0	0	0
	November/29	30	2029	11	winter	0	0	0	0	0
	December/29	31	2029	12	winter	0	0	0	0	0
	January/30	31	2030	1	winter	0	0	0	0	0
	February/30	28	2030	2	winter	0	0	0	0	0
	March/30	31	2030	3	winter	0	0	0	0	0
	April/30	30	2030	4	winter	0	0	0	0	0
	May/30	31	2030	5	winter	0	0	0	0	0
	June/30	30	2030	6	winter	77,826	0	0	0	77,826
	July/30	31	2030	7	summer	20,642	0	0	0	20,642
	August/30	31	2030	8	summer	56,114	0	0	0	56,114
	September/30	30	2030	9	summer	26,452	0	0	0	26,452
	October/30	31	2030	10	winter	0	0	0	0	0
	November/30	30	2030	11	winter	0	0	0	0	0
	December/30	31	2030	12	winter	0	0	0	0	0
	January/31	31	2031	1	winter					0
	February/31	28	2031	2	winter					0
	March/31	31	2031	3	winter					0
	April/31	30	2031	4	winter					0
	May/31	31	2031	5	winter					0
	June/31	30	2031	6	winter					0
	July/31	31	2031	7	summer					0
	August/31	31	2031	8	summer					0
	September/31	30	2031	9	summer					0
	October/31	31	2031	10	winter					0
	November/31	30	2031	11	winter					0
	December/31	31	2031	12	winter					0

3 NORTH CELL

SOUTH CELL TSF WATER BALANCE

Input (84.3 ha; Tailings) / Output / Pond Volume — 4 SOUTH CELL

Period	Month-Year	# Days /mth	Year	Mth	Transfer from NC	Transfer from Portage Pit	Net Transfer from Central Dike Seep	SD3-4-5 to SC	Stormwater Mgmt Pond	Runoff to SC	Tailing Reclaim Water to SC	Tailings water / ice entrap.	Net Reclaim Water to SC	Tails to SC	Tailngs in-situ density in SC	Tailings volume in-situ in SC	Cumulative tailings volume in SC	Cumulative tailings tonnage in SC	SC To Portage Pit	To Portage Pit A	To Portage Pit E	SC To Mill	SC Total Water Volume (Free+ice)	SC Free Water Volume	% Ice Ratio	Cummulative Volume (Tailings + Pond) (m3)	Volume Available Remaining (m3)	Water or Tails elevation	SC Water Surface
		Days /mth			m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	% w/w	m3/mth	t/mth	t/m3	m3/mth	m3	t	m3/mth			m3/mth	m3	m3	%	m3	m3	m	m2
PERIOD 1: MBK TAILINGS DEPOSITION	January/17	31	2017	1	0	7,698	-67,422		0	0	299,820	43%	170,897	331,887	1.30	255,298	5,410,789	7,528,953				252,232	1,400,620	1,134,503	19%	6,811,409	9,421,110	133.67	246217
	February/17	28	2017	2	0	0	1,972		0	0	276,161	43%	157,412	314,269	1.30	241,745	5,652,534	7,843,222				232,324	1,327,680	982,483	26%	6,980,214	9,252,305	134.07	246217
	March/17	31	2017	3	0	10,351	-87,024		0	0	280,367	43%	159,809	279,684	1.20	233,070	5,885,604	8,122,906				247,752	1,163,064	755,992	35%	7,048,668	9,183,851	134.21	246217
	April/17	30	2017	4	0	0	-25,135		0	0	278,761	43%	158,894	328,392	1.20	273,660	6,159,264	8,451,298				227,667	1,069,156	566,653	47%	7,228,420	9,004,099	134.60	246217
	May/17	31	2017	5	0	15,345	122,329	19,901	33,664	75,146	298,780	35%	194,207	344,962	1.40	246,401	6,405,666	8,796,260				246,010	1,283,738	1,283,738	0%	7,689,404	8,543,115	135.60	218919
	June/17	30	2017	6	172,533	86,268	-181,472	20,713	9,576	0	286,082	26%	211,701	322,937	1.50	215,291	6,620,957	9,119,197				247,773	1,355,284	1,355,284	0%	7,976,241	8,256,278	136.20	218919
	July/17	31	2017	7	0	21,273	1,591	2,111	28,193	-18,494	295,612	32%	201,016	336,222	1.50	224,148	6,845,105	9,455,419				251,376	1,339,398	1,339,398	0%	8,184,503	8,048,016	136.61	218919
	August/17	31	2017	8	0	3,823	45,619	565	0	617	295,753	32%	201,112	326,409	1.46	223,568	7,068,673	9,781,828	26,889			257,796	1,306,449	1,306,449	0%	8,375,122	7,857,397	136.99	218919
	September/17	30	2017	9	66,229		49,762	2,348	0	2,655	274,665	32%	186,772	275,754	1.50	183,836	7,252,509	10,057,582	258,065			241,501	1,114,649	1,114,649	0%	8,367,158	7,865,361	136.98	218919
	October/17	31	2017	10	0				0	-21	305,547	40%	183,328	348,657	1.32	264,134	7,516,643	10,406,239				260,400	1,037,556	985,678	5%	8,554,199	7,678,320	137.35	218919
	November/17	30	2017	11	0				0	0	294,779	46%	159,181	337,410	1.18	285,941	7,802,583	10,743,649				252,000	944,737	812,474	14%	8,747,320	7,485,199	137.73	218919
	December/17	31	2017	12	0				0	0	305,338	46%	164,882	348,657	1.18	295,472	8,098,055	11,092,306				260,400	849,219	628,422	26%	8,947,275	7,285,244	138.12	218919
	January/18	31	2018	1	0				0	0	304,829	46%	164,608	279,000	1.18	236,441	8,334,496	11,371,306				238,080	775,747	504,236	35%	9,110,243	7,122,276	138.42	218919
	February/18	28	2018	2	0				0	0	276,716	46%	149,426	252,000	1.18	213,559	8,548,055	11,623,306				215,040	710,134	404,776	43%	9,258,189	6,974,330	138.69	191622
	March/18	31	2018	3	0				0	0	304,997	46%	164,698	279,000	1.18	236,441	8,784,496	11,902,306				238,080	636,752	305,641	52%	9,421,248	6,811,271	138.98	164324
	April/18	30	2018	4	0				0	0	0		0	0	1.18	0	8,784,496	11,902,306	200,000			0	436,752	170,333	61%	9,221,248	7,011,271	138.62	207305
	May/18	31	2018	5	1,625				0	0	0		0	0	1.32	0	8,784,496	11,902,306	200,000			0	238,377	238,377	0%	9,022,873	7,209,646	138.26	250285
	June/18	30	2018	6	220,361				0	42,909	0		0	0	1.50	0	8,784,496	11,902,306	200,000			0	301,646	301,646	0%	9,086,143	7,146,376	138.37	293266
	July/18	31	2018	7	55,223				0	11,381	0		0	0	1.60	0	8,784,496	11,902,306	167,152	1		0	201,098	201,098	0%	8,985,594	7,246,925	138.19	283345
	August/18	31	2018	8	65,929				0	30,938	0		0	0	1.70	0	8,784,496	11,902,306	197,416	1		0	100,549	100,549	0%	8,885,045	7,347,474	138.01	273425
	September/18	30	2018	9	43,915				0	14,584	0		0	0	1.70	0	8,784,496	11,902,306	159,047	1		0	0	0	0%	8,784,496	7,448,023	137.81	263504
GAP PERIOD	October/18	31	2018	10	0				0	0	0		0	0	1.50	0	8,784,496	11,902,306	0	1		0	0	0	5%	8,784,496	7,448,023	137.81	263504
	November/18	30	2018	11	0				0	0	0		0	0	1.40	0	8,784,496	11,902,306	0	1		0	0	0	13%	8,784,496	7,448,023	137.81	263504
	December/18	31	2018	12	0				0	0	0		0	0	1.30	0	8,784,496	11,902,306	0	1		0	0	0	20%	8,784,496	7,448,023	137.81	263504
	January/19	31	2019	1	0				0	0	0		0	0	1.18	0	8,784,496	11,902,306	0	1		0	0	0	35%	8,784,496	7,448,023	137.81	263504
	February/19	28	2019	2	0				0	0	0		0	0	1.18	0	8,784,496	11,902,306	0	1		0	0	0	43%	8,784,496	7,448,023	137.81	263504
	March/19	31	2019	3	0				0	0	0		0	0	1.18	0	8,784,496	11,902,306	0	1		0	0	0	52%	8,784,496	7,448,023	137.81	263504
	April/19	30	2019	4	0				0	0	0		0	0	1.18	0	8,784,496	11,902,306	0	1		0	0	0	61%	8,784,496	7,448,023	137.81	263504
	May/19	31	2019	5	1,625				0	0	0		0	0	1.32	0	8,784,496	11,902,306	1,625	1		0	0	0	0%	8,784,496	7,448,023	137.81	263504
	June/19	30	2019	6	220,361				0	42,909	0		0	0	1.50	0	8,784,496	11,902,306	263,270	1		0	0	0	0%	8,784,496	7,448,023	137.81	263504
PERIOD 2: WHALE TAIL TAILINGS IN-PIT DEPOSITION	July/19	31	2019	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306	66,603	1		0	0	0	0%	8,784,496	7,448,023	137.81	272727
	August/19	31	2019	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306	96,867	1		0	0	0	0%	8,784,496	7,448,023	137.81	272727
	September/19	30	2019	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306	58,499	1		0	0	0	0%	8,784,496	7,448,023	137.81	272727
	October/19	31	2019	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	5%	8,784,496	7,448,023	137.81	241502
	November/19	30	2019	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	13%	8,784,496	7,448,023	137.81	241502
	December/19	31	2019	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	25%	8,784,496	7,448,023	137.81	241502
	January/20	31	2020	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	31%	8,784,496	7,448,023	137.81	147048
	February/20	29	2020	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	38%	8,784,496	7,448,023	137.81	147048
	March/20	31	2020	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	48%	8,784,496	7,448,023	137.81	147048
	April/20	30	2020	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306	0	1		0	0	0	51%	8,784,496	7,448,023	137.81	280422
	May/20	31	2020	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306	1,625	1		0	0	0	0%	8,784,496	7,448,023	137.81	280422
	June/20	30	2020	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306	263,270	1		0	0	0	0%	8,784,496	7,448,023	137.81	280422
	July/20	31	2020	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306	66,603	1		0	0	0	0%	8,784,496	7,448,023	137.81	280422
	August/20	31	2020	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306	96,867	1		0	0	0	0%	8,784,496	7,448,023	137.81	280422
	September/20	30	2020	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306	58,499	1		0	0	0	0%	8,784,496	7,448,023	137.81	280422
	October/20	31	2020	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	5%	8,784,496	7,448,023	137.81	208530
	November/20	30	2020	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	13%	8,784,496	7,448,023	137.81	208530
	December/20	31	2020	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	25%	8,784,496	7,448,023	137.81	208530
	January/21	31	2021	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	31%	8,784,496	7,448,023	137.81	166568
	February/21	28	2021	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	38%	8,784,496	7,448,023	137.81	166568
	March/21	31	2021	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	48%	8,784,496	7,448,023	137.81	166568
	April/21	30	2021	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306	0	1		0	0	0	51%	8,784,496	7,448,023	137.81	166568
	May/21	31	2021	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306	1,625	1		0	0	0	0%	8,784,496	7,448,023	137.81	166568
	June/21	30	2021	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306	263,270	1		0	0	0	0%	8,784,496	7,448,023	137.81	166568
	July/21	31	2021	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306	66,603	1		0	0	0	0%	8,784,496	7,448,023	137.81	166568
	August/21	31	2021	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306	96,867	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	September/21	30	2021	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306	58,499	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	October/21	31	2021	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	5%	8,784,496	7,448,023	137.81	
	November/21	30	2021	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	13%	8,784,496	7,448,023	137.81	
	December/21	31	2021	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	25%	8,784,496	7,448,023	137.81	
	January/22	31	2022	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	31%	8,784,496	7,448,023	137.81	
PERIOD 3: PIT FILLING	February/22	28	2022	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	38%	8,784,496	7,448,023	137.81	
	March/22	31	2022	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	48%	8,784,496	7,448,023	137.81	
	April/22	30	2022	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306	0	1		0	0	0	51%	8,784,496	7,448,023	137.81	
	May/22	31	2022	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306	1,625	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	June/22	30	2022	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306	263,270	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	July/22	31	2022	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306	66,603	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	August/22	31	2022	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306	96,867	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	September/22	30	2022	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306	58,499	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	October/22	31	2022	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	5%	8,784,496	7,448,023	137.81	
	November/22	30	2022	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	13%	8,784,496	7,448,023	137.81	
	December/22	31	2022	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	25%	8,784,496	7,448,023	137.81	
	January/23	31	2023	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	31%	8,784,496	7,448,023	137.81	
	February/23	28	2023	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	38%	8,784,496	7,448,023	137.81	
	March/23	31	2023	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	48%	8,784,496	7,448,023	137.81	
	April/23	30	2023	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306	0	1		0	0	0	51%	8,784,496	7,448,023	137.81	
	May/23	31	2023	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306	1,625	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	June/23	30	2023	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306	263,270	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	July/23	31	2023	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306	66,603	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	August/23	31	2023	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306	96,867	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	September/23	30	2023	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306	58,499	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	October/23	31	2023	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	5%	8,784,496	7,448,023	137.81	
	November/23	30	2023	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	13%	8,784,496	7,448,023	137.81	
	December/23	31	2023	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	25%	8,784,496	7,448,023	137.81	
	January/24	31	2024	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	31%	8,784,496	7,448,023	137.81	
	February/24	29	2024	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	38%	8,784,496	7,448,023	137.81	
	March/24	31	2024	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	48%	8,784,496	7,448,023	137.81	
	April/24	30	2024	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306	0	1		0	0	0	51%	8,784,496	7,448,023	137.81	
	May/24	31	2024	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306	1,625	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	June/24	30	2024	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306	263,270	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	July/24	31	2024	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306	66,603	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	August/24	31	2024	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306	96,867	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	September/24	30	2024	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306	58,499	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	October/24	31	2024	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	5%	8,784,496	7,448,023	137.81	
	November/24	30	2024	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	13%	8,784,496	7,448,023	137.81	
	December/24	31	2024	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	25%	8,784,496	7,448,023	137.81	
	January/25	31	2025	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	31%	8,784,496	7,448,023	137.81	
	February/25	28	2025	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	38%	8,784,496	7,448,023	137.81	
	March/25	31	2025	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306	0	1		0	0	0	48%	8,784,496	7,448,023	137.81	
	April/25	30	2025	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306	0	1		0	0	0	51%	8,784,496	7,448,023	137.81	
	May/25	31	2025	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306	1,625	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	June/25	30	2025	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306	263,270	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	July/25	31	2025	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306	66,603	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	August/25	31	2025	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306	96,867	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	September/25	30	2025	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306	58,499	1		0	0	0	0%	8,784,496	7,448,023	137.81	
	October/25	31	2025	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	5%	8,784,496	7,448,023	137.81	
	November/25	30	2025	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	13%	8,784,496	7,448,023	137.81	
	December/25	31	2025	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306	0	1		0	0	0	25%	8,784,496	7,448,023	137.81	
	January/26	31	2026	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	0	0	31%	8,784,496	7,448,023	137.81	
	February/26	28	2026	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	0	0	38%	8,784,496	7,448,023	137.81	
	March/26	31	2026	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	0	0	48%	8,784,496	7,448,023	137.81	
	April/26	30	2026	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306				0	0	0	51%	8,784,496	7,448,023	137.81	
	May/26	31	2026	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306				0	1,625	1,625	0%	8,786,121	7,446,398	137.81	
	June/26	30	2026	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306				0	264,895	264,895	0%	9,049,391	7,183,128	138.31	
	July/26	31	2026	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306				0	331,498	331,498	0%	9,115,994	7,116,525	138.43	
	August/26	31	2026	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306				0	428,365	428,365	0%	9,212,861	7,019,658	138.60	
	September/26	30	2026	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306				0	486,864	486,864	0%	9,271,360	6,961,159	138.71	
	October/26	31	2026	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306				0	486,864	462,521	5%	9,271,360	6,961,159	138.71	
	November/26	30	2026	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306				0	486,864	423,572	13%	9,271,360	6,961,159	138.71	
	December/26	31	2026	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306				0	486,864	365,148	25%	9,271,360	6,961,159	138.71	
PERIOD 4: MONITORING (5 YEARS)	January/27	31	2027	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	486,864	335,936	31%	9,271,360	6,961,159	138.71	
	February/27	28	2027	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	486,864	301,856	38%	9,271,360	6,961,159	138.71	
	March/27	31	2027	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	486,864	253,169	48%	9,271,360	6,961,159	138.71	
	April/27	30	2027	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306				0	486,864	238,563	51%	9,271,360	6,961,159	138.71	
	May/27	31	2027	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306				0	488,489	488,489	0%	9,272,985	6,959,534	138.71	
	June/27	30	2027	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306				0	751,759	751,759	0%	9,536,255	6,696,264	139.19	
	July/27	31	2027	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306				0	818,362	818,362	0%	9,602,858	6,629,661	139.32	
	August/27	31	2027	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306				0	915,229	915,229	0%	9,699,725	6,532,794	139.49	
	September/27	30	2027	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306				0	973,728	973,728	0%	9,758,224	6,474,295	139.60	
	October/27	31	2027	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306				0	973,728	925,041	5%	9,758,224	6,474,295	139.60	
	November/27	30	2027	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306				0	973,728	847,143	13%	9,758,224	6,474,295	139.60	
	December/27	31	2027	12	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306				0	973,728	730,296	25%	9,758,224	6,474,295	139.60	
	January/28	31	2028	1	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	973,728	973,728		9,758,224	6,474,295	139.60	
	February/28	29	2028	2	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	973,728	973,728		9,758,224	6,474,295	139.60	
	March/28	31	2028	3	0				0	0	0		0	0	1.22	0	8,784,496	11,902,306				0	973,728	973,728		9,758,224	6,474,295	139.60	
	April/28	30	2028	4	0				0	0	0		0	0	1.49	0	8,784,496	11,902,306				0	973,728	973,728		9,758,224	6,474,295	139.60	
	May/28	31	2028	5	1,625				0	0	0		0	0	1.49	0	8,784,496	11,902,306				0	975,353	975,353		9,759,849	6,472,670	139.60	
	June/28	30	2028	6	220,361				0	42,909	0		0	0	1.49	0	8,784,496	11,902,306				0	1,238,622	1,238,622		10,023,119	6,209,400	140.08	
	July/28	31	2028	7	55,223				0	11,381	0		0	0	1.76	0	8,784,496	11,902,306				0	1,305,225	1,305,225		10,089,722	6,142,797	140.20	
	August/28	31	2028	8	65,929				0	30,938	0		0	0	1.76	0	8,784,496	11,902,306				0	1,402,093	1,402,093		10,186,589	6,045,930	140.37	
	September/28	30	2028	9	43,915				0	14,584	0		0	0	1.76	0	8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	October/28	31	2028	10	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	November/28	30	2028	11	0				0	0	0		0	0	1.31	0	8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	December/28	31	2028	12	0				0	0					1.31		8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	January/29	31	2029	1	0				0	0							8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	February/29	28	2029	2	0				0	0							8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	March/29	31	2029	3	0				0	0							8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	April/29	30	2029	4	0				0	0							8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	May/29	31	2029	5	0				0	0							8,784,496	11,902,306				0	1,460,591	1,460,591		10,245,088	5,987,431	140.48	
	June/29	30	2029	6	77,826				0	42,909							8,784,496	11,902,306				0	1,581,326	1,581,326		10,365,822	5,866,697	140.69	
	July/29	31	2029	7	20,642				0	11,381							8,784,496	11,902,306				0	1,613,348	1,613,348		10,397,844	5,834,675	140.75	
	August/29	31	2029	8	56,114				0	30,938							8,784,496	11,902,306				0	1,700,401	1,700,401		10,484,897	5,747,622	140.91	
	September/29	30	2029	9	26,452				0	14,584							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	October/29	31	2029	10	0				0	0							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	November/29	30	2029	11	0				0	0							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	December/29	31	2029	12	0				0	0							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	January/30	31	2030	1	0				0	0							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	February/30	28	2030	2	0				0	0							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	March/30	31	2030	3	0				0	0							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	April/30	30	2030	4	0				0	0							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	May/30	31	2030	5	0				0	0							8,784,496	11,902,306				0	1,741,436	1,741,436		10,525,932	5,706,587	140.98	
	June/30	30	2030	6	77,826				0	42,909							8,784,496	11,902,306				0	1,862,171	1,862,171		10,646,667	5,585,852	141.20	
	July/30	31	2030	7	20,642				0	11,381							8,784,496	11,902,306				0	1,894,193	1,894,193		10,678,689	5,553,830	141.25	
	August/30	31	2030	8	56,114				0	30,938							8,784,496	11,902,306				0	1,981,245	1,981,245		10,765,742	5,466,777	141.41	
	September/30	30	2030	9	26,452				0	14,584							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	October/30	31	2030	10	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	November/30	30	2030	11	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	December/30	31	2030	12	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	January/31	31	2031	1	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	February/31	28	2031	2	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	March/31	31	2031	3	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	April/31	30	2031	4	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	May/31	31	2031	5	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	June/31	30	2031	6	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	July/31	31	2031	7	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	August/31	31	2031	8	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	September/31	30	2031	9	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	October/31	31	2031	10	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	November/31	30	2031	11	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	
	December/31	31	2031	12	0				0	0							8,784,496	11,902,306				0	2,022,281	2,022,281		10,806,777	5,425,742	141.48	

PORTAGE PIT A WATER BALANCE

INPUT (Non-Contact Water; Tailings) — OUTPUT — PIT VOLUME

Period	Month-Year	# Days (Days/mth)	Year	Mth	3PL to Pit A (m3/mth)	SC Runoff to Pit A (m3/mth)	Stormwater Mgmt Pond to Pit A (m3/mth)	Runoff to Pit A (m3/mth)	Infiltation to Pit A (m3/mth)	East Dike Seepage to Pit A (m3/mth)	Transfer Goose to Pit A (m3/mth)	WTP Treated Water from Pit E (m3/mth)	Transfer Pit E to Pit A (m3/mth)	Tailing Reclaim Water to Pit A (m3/mth)	% Water Content / Tails (% w/w)	Net Reclaim Water to Pit A (m3/mth)	Tails to Pit A (t/mth)	Tailings in-situ density in Pit A (t/m3)	Tailings volume in-situ in Pit A (m3/mth)	Cumulative tailings volume in Pit A (m3)	Cumulative tailings tonnage in Pit A (t)	Pit A Reclaim Water to Mill (m3/mth)	Pit A to WTP (m3/mth)	Pit A to Pit E Elev > 90 m (m3/mth)	Pit A to Pit E Elev < 90 m (m3/mth)	Pit A + CD Water Volume (m3)	Pit A+CD Water + Tail Volume (m3)	Pit A Tails Elevation (m)	Pit A+CD Water Elevation (m)	Pit A Water Volume (m3)	CD_Pit A Water Volume (m3)	Pit A Water Surface (m2)	Pit A Water Depth above Tails (m)
PERIOD 1: NWA TAILINGS DEPOSITION	January/17	31	2017	1						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	February/17	28	2017	2						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	March/17	31	2017	3						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	April/17	30	2017	4						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	May/17	31	2017	5						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	June/17	30	2017	6						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	July/17	31	2017	7						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	August/17	31	2017	8						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	September/17	30	2017	9						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	October/17	31	2017	10						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	November/17	30	2017	11						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	December/17	31	2017	12						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	January/18	31	2018	1						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	February/18	28	2018	2						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	March/18	31	2018	3						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	18,193	18,193	-3.00	5.15	18,193	0	6063	8.15
	April/18	30	2018	4		0	0	0	2,400	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	20,593	20,593	-3.00	5.54	20,593	0	6268	8.54
	May/18	31	2018	5		0	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	23,073	23,073	-3.00	5.95	23,073	0	6298	8.95
	June/18	30	2018	6		0	0	23,777	2,400	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	49,250	49,250	-3.00	10.01	49,250	0	6617	13.01
	July/18	31	2018	7		167,152	0	6,306	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	225,188	225,188	-3.00	23.76	225,188	0	21571	26.76
	August/18	31	2018	8		197,616	0	17,144	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	442,228	442,228	-3.00	32.71	442,228	0	28584	35.71
	September/18	30	2018	9		159,047	0	8,081	2,400	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	611,757	611,757	-3.00	38.08	611,757	0	33627	41.08
GAP PERIOD	October/18	31	2018	10		0	0	0	2,480	0	200,000	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	814,237	814,237	-3.00	43.76	814,237	0	37475	46.76
	November/18	30	2018	11		0	0	0	2,400	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	816,637	816,637	-3.00	43.82	816,637	0	37516	46.82
	December/18	31	2018	12		0	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	819,117	819,117	-3.00	43.89	819,117	0	37559	46.89
	January/19	31	2019	1		0	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	821,597	821,597	-3.00	43.96	821,597	0	37602	46.96
	February/19	28	2019	2		0	0	0	2,240	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	823,837	823,837	-3.00	44.02	823,837	0	37640	47.02
	March/19	31	2019	3		0	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	826,317	826,317	-3.00	44.08	826,317	0	37683	47.08
	April/19	30	2019	4		0	0	0	2,400	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	828,717	828,717	-3.00	44.15	828,717	0	37724	47.15
	May/19	31	2019	5		1,625	0	0	2,480	0	200,000	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	1,032,822	1,032,822	-3.00	48.29	1,021,801	11,020	49035	51.29
	June/19	30	2019	6		263,270	0	23,777	2,400	0	200,000	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	1,522,269	1,522,269	-3.00	56.22	1,475,814	46,454	60110	59.22
PERIOD 2: WHALE TAIL TAILINGS IN-PIT DEPOSITION	July/19	31	2019	7		66,603	0	6,306	2,480	0	500,000	0	0	0	67%	0	0	1.00	0	0	0	229,636	0	0	0	1,868,022	1,868,022	-3.00	61.33	1,792,433	75,589	63876	64.33
	August/19	31	2019	8		96,867	0	17,144	2,480	0	500,000	0	0	0	67%	0	0	1.00	0	0	0	230,512	0	0	0	2,254,001	2,254,001	-3.00	66.65	2,143,603	110,399	73096	69.65
	September/19	30	2019	9		58,499	0	8,081	2,400	0	500,000	0	0	0	67%	0	0	1.00	0	0	0	230,758	0	0	0	2,592,223	2,592,223	-3.00	70.30	2,451,945	140,278	89997	73.30
	October/19	31	2019	10		0	0	0	2,480	0	500,000	0	0	0	67%	0	0	1.00	0	0	0	230,484	0	0	0	2,864,219	2,864,219	-3.00	73.02	2,701,249	162,970	93889	76.02
	November/19	30	2019	11		0	0	0	2,400	0	0	0	0	0	67%	0	0	1.00	0	0	0	231,223	0	0	0	2,635,396	2,635,396	-3.00	70.74	2,491,464	143,932	90614	73.74
	December/19	31	2019	12		0	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	230,649	0	0	0	2,407,227	2,407,227	-3.00	68.38	2,282,948	124,279	81183	71.38
	January/20	31	2020	1		0	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	230,512	0	0	0	2,179,195	2,179,195	-3.00	65.65	2,075,646	103,549	69152	68.65
	February/20	29	2020	2		0	0	0	2,320	0	0	0	0	0	67%	0	0	1.00	0	0	0	229,006	0	0	0	1,952,509	1,952,509	-3.00	62.53	1,869,403	83,106	64809	65.53
	March/20	31	2020	3		0	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	230,347	0	0	0	1,724,642	1,724,642	-3.00	59.25	1,661,223	63,419	62300	62.25
	April/20	30	2020	4		0	0	0	2,400	0	0	0	0	0	67%	0	0	1.00	0	0	0	230,211	0	0	0	1,496,831	1,496,831	-3.00	55.83	1,452,503	44,328	59834	58.83
	May/20	31	2020	5		1,625	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	0	0	230,238	0	0	0	1,270,698	1,270,698	-3.00	52.28	1,244,458	26,240	57236	55.28
	June/20	30	2020	6		263,270	0	23,777	2,400	0	0	0	0	0	67%	0	0	1.00	0	0	0	230,484	0	0	0	1,329,661	1,329,661	-3.00	53.23	1,299,318	30,342	57932	56.23
	July/20	31	2020	7		66,603	0	6,306	2,480	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	273,750	273,750	0	0	0	0	1,470,708	1,744,458	26.17	59.54	1,405,613	65,095	59280	33.37
	August/20	31	2020	8		96,867	0	17,144	2,480	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	547,500	547,500	0	0	0	0	1,652,858	2,200,358	36.16	65.93	1,547,389	105,469	60955	29.78
	September/20	30	2020	9		58,499	11,590	8,081	2,400	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	821,250	821,250	0	0	0	0	1,799,086	2,620,336	43.95	70.59	1,656,429	142,658	62244	26.64
	October/20	31	2020	10		0	0	0	2,480	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	1,095,000	1,095,000	0	0	0	0	1,867,225	2,962,225	49.63	73.96	1,696,181	171,044	62713	24.33
	November/20	30	2020	11		0	0	0	2,400	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	1,368,750	1,368,750	0	0	0	0	1,935,283	3,304,033	54.42	77.15	1,733,156	202,127	63157	22.72
	December/20	31	2020	12		0	0	0	2,480	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	1,642,500	1,642,500	0	0	0	0	2,003,421	3,645,921	58.95	80.21	1,769,568	233,854	63599	21.27
	January/21	31	2021	1		0	0	0	2,480	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	1,916,250	1,916,250	0	0	0	0	2,071,560	3,987,810	63.25	83.15	1,802,959	268,601	64003	19.91
	February/21	28	2021	2		0	0	0	2,240	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	2,190,000	2,190,000	0	0	0	0	2,139,458	4,329,458	67.27	85.96	1,833,428	306,031	64373	18.70
	March/21	31	2021	3		0	0	0	2,480	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	2,463,750	2,463,750	0	0	0	0	2,207,597	4,671,347	70.43	88.63	1,864,678	342,919	64752	18.20
	April/21	30	2021	4		0	0	0	2,400	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	2,737,500	2,737,500	0	0	0	0	2,275,655	5,013,155	73.40	90.99	1,896,905	378,750	65143	17.59
	May/21	31	2021	5		1,625	23,085	0	2,480	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	3,011,250	3,011,250	0	0	0	146,706	2,221,798	5,233,048	76.23	92.44	1,820,117	401,681	64212	16.22
	June/21	30	2021	6		263,270	0	23,777	2,400	0	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	230,484	0	0	366,598	1,914,162	4,925,412	76.23	90.40	1,544,644	369,518	60923	14.17
	July/21	31	2021	7		66,603	0	6,306	2,480	0	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	229,636	0	0	0	1,759,915	4,771,165	76.23	89.35	1,406,593	353,322	59292	13.12
	August/21	31	2021	8		96,867	0	17,144	2,480	0	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	230,512	0	0	0	1,645,895	4,657,145	76.23	88.53	1,304,446	341,449	57997	12.30
	September/21	30	2021	9		58,499	0	8,081	2,400	0	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	230,758	0	0	0	1,484,117	4,495,367	76.23	87.29	1,159,978	324,139	56165	11.07
	October/21	31	2021	10		0	0	0	2,480	0	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	230,484	0	0	0	1,256,112	4,267,362	76.23	85.46	956,903	299,210	44630	9.23
	November/21	30	2021	11		0	0	0	2,400	0	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	231,223	0	0	0	1,027,289	4,038,539	76.23	83.57	753,176	274,113	36422	7.35
	December/21	31	2021	12		0	0	0	2,480	0	0	0	335,410	0	67%	0	0	1.00	0	3,011,250	3,011,250	230,649	0	0	0	1,134,530	4,145,780	76.23	84.46	848,688	285,843	38069	8.24
	January/22	31	2022	1		0	0	0	2,480	0	0	0	341,206	0	67%	0	0	1.00	0	3,011,250	3,011,250	56,118	0	0	0	1,422,099	4,433,349	76.23	86.80	1,104,746	317,353	54666	10.57
PERIOD 3 PIT FILLING	February/22	28	2022	2		0	0	0	2,240	7,482	0	0	95,747	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	1,527,568	4,538,818	76.23	87.63	1,198,661	328,908	56655	11.41
	March/22	31	2022	3		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	1,537,530	4,548,780	76.23	87.71	1,207,529	330,001	56768	11.49
	April/22	30	2022	4		0	0	0	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	1,547,412	4,558,662	76.23	87.79	1,216,327	331,086	56879	11.56
	May/22	31	2022	5		1,625	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	1,558,999	4,570,249	76.23	87.88	1,226,642	332,358	57010	11.66
	June/22	30	2022	6	400,000	263,270	0	23,777	2,400	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	2,252,187	5,263,437	76.23	92.64	1,847,355	404,832	64542	16.42
	July/22	31	2022	7	400,000	66,603	0	6,306	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	2,735,058	5,746,308	76.23	95.76	2,280,676	454,382	81051	19.54
	August/22	31	2022	8	400,000	96,867	0	17,144	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,259,031	6,270,281	76.23	99.01	2,752,864	506,167	94695	22.78
	September/22	30	2022	9	400,000	58,499	0	8,081	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,735,493	6,746,743	76.23	101.84	3,182,036	553,457	100180	25.62
	October/22	31	2022	10		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	84,898	0	3,660,557	6,671,807	76.23	101.40	3,114,607	545,950	99413	25.18
	November/22	30	2022	11		0	0	0	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,670,439	6,681,689	76.23	101.46	3,123,499	546,940	99514	25.24
	December/22	31	2022	12		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,680,401	6,691,651	76.23	101.52	3,132,463	547,938	99616	25.29
	January/23	31	2023	1		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,690,363	6,701,613	76.23	101.58	3,141,428	548,936	99718	25.35
	February/23	28	2023	2		0	0	0	2,240	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,700,085	6,711,335	76.23	101.64	3,150,176	549,910	99817	25.41
	March/23	31	2023	3		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,710,047	6,721,297	76.23	101.70	3,159,140	550,908	99919	25.47
	April/23	30	2023	4		0	0	0	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,719,929	6,731,179	76.23	101.75	3,168,032	551,898	100021	25.53
	May/23	31	2023	5		1,625	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	3,731,516	6,742,766	76.23	101.82	3,178,458	553,058	100139	25.60
	June/23	30	2023	6	400,000	263,270	0	23,777	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	4,428,445	7,439,695	76.23	105.79	3,807,729	620,716	107463	29.56
	July/23	31	2023	7	400,000	66,603	0	6,306	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	137,207	0	4,774,110	7,785,360	76.23	107.65	4,122,587	651,523	116846	31.43
	August/23	31	2023	8	400,000	96,867	0	17,144	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,298,083	8,309,333	76.23	110.24	4,602,256	695,827	133329	34.02
	September/23	30	2023	9	400,000	58,499	0	8,081	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,774,545	8,785,795	76.23	112.36	5,040,274	734,271	138464	36.13
	October/23	31	2023	10		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,784,507	8,795,757	76.23	112.40	5,049,435	735,072	138571	36.17
	November/23	30	2023	11		0	0	0	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,794,389	8,805,639	76.23	112.44	5,058,523	735,866	138677	36.22
	December/23	31	2023	12		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,804,351	8,815,601	76.23	112.49	5,067,684	736,667	138785	36.26
	January/24	31	2024	1		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,814,313	8,825,563	76.23	112.53	5,076,845	737,468	138892	36.30
	February/24	29	2024	2		0	0	0	2,320	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,824,115	8,835,365	76.23	112.57	5,085,859	738,256	138998	36.35
	March/24	31	2024	3		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,834,077	8,845,327	76.23	112.62	5,095,020	739,057	139105	36.39
	April/24	30	2024	4		0	0	0	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,843,959	8,855,209	76.23	112.66	5,104,108	739,851	139212	36.43
	May/24	31	2024	5		1,625	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	5,855,546	8,866,796	76.23	112.71	5,114,763	740,783	139337	36.48
	June/24	30	2024	6	400,000	263,270	0	23,777	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	6,552,474	9,563,724	76.23	115.70	5,755,688	796,786	148150	39.47
	July/24	31	2024	7	400,000	66,603	0	6,306	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	7,035,345	10,046,595	76.23	117.72	6,200,063	835,283	154485	41.50
	August/24	31	2024	8	400,000	96,867	0	17,144	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	7,559,319	10,570,569	76.23	119.88	6,682,494	876,824	161429	43.65
	September/24	30	2024	9	400,000	58,499	0	8,081	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,035,780	11,047,030	76.23	121.79	7,120,907	914,873	181125	45.56
	October/24	31	2024	10		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,045,742	11,056,992	76.23	121.83	7,130,075	915,667	181544	45.60
	November/24	30	2024	11		0	0	0	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,055,624	11,066,874	76.23	121.87	7,139,170	916,455	181960	45.64
	December/24	31	2024	12		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,065,586	11,076,836	76.23	121.91	7,148,338	917,249	182380	45.68
	January/25	31	2025	1		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,075,548	11,086,798	76.23	121.95	7,157,506	918,042	182799	45.72
	February/25	28	2025	2		0	0	0	2,240	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,085,270	11,096,520	76.23	121.99	7,166,453	918,817	183208	45.76
	March/25	31	2025	3		0	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,095,232	11,106,482	76.23	122.03	7,175,621	919,611	183627	45.80
	April/25	30	2025	4		0	0	0	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,105,114	11,116,364	76.23	122.07	7,184,715	920,399	184043	45.84
	May/25	31	2025	5		1,625	0	0	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,116,701	11,127,951	76.23	122.11	7,195,378	921,323	184531	45.89
	June/25	30	2025	6	400,000	263,270	0	23,777	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	8,813,630	11,824,880	76.23	124.84	7,837,056	976,574	205299	48.61
	July/25	31	2025	7	400,000	66,603	0	6,306	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	126,674	0	9,169,828	12,181,078	76.23	126.20	8,165,560	1,004,267	209855	49.97
	August/25	31	2025	8	400,000	96,867	0	17,144	2,480	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	9,693,801	12,705,051	76.23	128.05	8,657,158	1,036,643	216569	51.82
	September/25	30	2025	9	400,000	58,499	0	8,081	2,400	7,482	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,170,263	13,181,513	76.23	129.30	9,118,207	1,052,056	221711	53.08
	October/25	31	2025	10		0	0	0	1,240	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,175,244	13,186,494	76.23	129.32	9,123,045	1,052,198	221765	53.09
	November/25	30	2025	11		0	0	0	1,200	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,180,185	13,191,435	76.23	129.33	9,127,845	1,052,340	221819	53.11
	December/25	31	2025	12		0	0	0	1,240	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,185,166	13,196,416	76.23	129.35	9,132,683	1,052,482	221873	53.12
	January/26	31	2026	1		0	0	0	1,240	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,190,147	13,201,397	76.23	129.36	9,137,522	1,052,625	221927	53.13
	February/26	28	2026	2		0	0	0	1,120	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,195,008	13,206,258	76.23	129.37	9,142,244	1,052,764	221979	53.15
	March/26	31	2026	3		0	0	0	1,240	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,199,989	13,211,239	76.23	129.39	9,147,082	1,052,906	222033	53.16
	April/26	30	2026	4		0	0	0	1,200	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,204,930	13,216,180	76.23	129.40	9,151,882	1,053,048	222087	53.17
	May/26	31	2026	5	400,000	0	0	0	1,240	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	10,609,911	13,621,161	76.23	130.50	9,546,349	1,063,562	226486	54.27
	June/26	30	2026	6	400,000	0	0	23,777	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,037,428	14,048,678	76.23	131.67	9,965,075	1,072,354	232415	55.44
	July/26	31	2026	7	400,000	0	0	6,306	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	205,862	0	11,241,613	14,252,863	76.23	132.23	10,165,576	1,076,037	235718	56.00
	August/26	31	2026	8	400,000	0	0	17,144	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,662,498	14,673,748	76.23	133.19	10,580,882	1,081,616	242559	56.96
	September/26	30	2026	9		0	0	8,081	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	306,813	0	11,367,507	14,378,757	76.23	132.57	10,289,360	1,078,147	237757	56.35
	October/26	31	2026	10		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,371,248	14,382,498	76.23	132.58	10,293,038	1,078,210	237817	56.36
	November/26	30	2026	11		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,374,989	14,386,239	76.23	132.60	10,296,716	1,078,273	237878	56.37
	December/26	31	2026	12		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,378,730	14,389,980	76.23	132.61	10,300,395	1,078,335	237938	56.38
PERIOD 4 MONITORING (5 YEARS)	January/27	31	2027	1		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,382,471	14,393,721	76.23	132.62	10,304,073	1,078,398	237999	56.39
	February/27	28	2027	2		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,386,212	14,397,462	76.23	132.63	10,307,751	1,078,461	238060	56.40
	March/27	31	2027	3		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,389,953	14,401,203	76.23	132.64	10,311,430	1,078,523	238120	56.41
	April/27	30	2027	4		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,393,694	14,404,944	76.23	132.65	10,315,108	1,078,586	238181	56.42
	May/27	31	2027	5		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,397,435	14,408,685	76.23	132.66	10,318,786	1,078,649	238241	56.43
	June/27	30	2027	6	105,000	0	0	23,777	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,529,953	14,541,203	76.23	133.01	10,449,162	1,080,791	240389	56.78
	July/27	31	2027	7		0	0	6,306	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,540,000	14,551,250	76.23	133.02	10,459,146	1,080,854	240554	56.80
	August/27	31	2027	8		0	0	17,144	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,560,885	14,572,135	76.23	133.05	10,479,901	1,080,984	240896	56.82
	September/27	30	2027	9		0	0	8,081	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,572,707	14,583,957	76.23	133.07	10,491,650	1,081,057	241089	56.84
	October/27	31	2027	10		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,576,448	14,587,698	76.23	133.07	10,495,368	1,081,080	241150	56.85
	November/27	30	2027	11		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,580,189	14,591,439	76.23	133.08	10,499,085	1,081,104	241212	56.85
	December/27	31	2027	12		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,583,930	14,595,180	76.23	133.08	10,502,803	1,081,127	241273	56.86
	January/28	31	2028	1		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,587,671	14,598,921	76.23	133.09	10,506,521	1,081,150	241334	56.86
	February/28	28	2028	2		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,591,412	14,602,662	76.23	133.09	10,510,239	1,081,174	241395	56.87
	March/28	31	2028	3		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,595,153	14,606,403	76.23	133.10	10,513,956	1,081,197	241457	56.87
	April/28	30	2028	4		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,598,894	14,610,144	76.23	133.10	10,517,674	1,081,220	241518	56.88
	May/28	31	2028	5		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,602,635	14,613,885	76.23	133.11	10,521,392	1,081,243	241579	56.88
	June/28	30	2028	6		0	0	23,777	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,630,153	14,641,403	76.23	133.14	10,548,738	1,081,415	242030	56.92
	July/28	31	2028	7		0	0	6,306	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,640,200	14,651,450	76.23	133.16	10,558,723	1,081,477	242194	56.93
	August/28	31	2028	8		0	0	17,144	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,661,085	14,672,335	76.23	133.19	10,579,478	1,081,607	242536	56.96
	September/28	30	2028	9		0	0	8,081	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,672,907	14,684,157	76.23	133.20	10,591,227	1,081,680	242729	56.97
	October/28	31	2028	10		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,676,648	14,687,898	76.23	133.21	10,594,944	1,081,704	242791	56.98
	November/28	30	2028	11		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,680,389	14,691,639	76.23	133.21	10,598,662	1,081,727	242852	56.98
	December/28	31	2028	12		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,684,130	14,695,380	76.23	133.22	10,602,380	1,081,750	242913	56.99
	January/29	31	2029	1		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,687,871	14,699,121	76.23	133.22	10,606,098	1,081,774	242974	56.99
	February/29	28	2029	2		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,691,612	14,702,862	76.23	133.23	10,609,815	1,081,797	243036	57.00
	March/29	31	2029	3		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,695,353	14,706,603	76.23	133.23	10,613,533	1,081,820	243097	57.00
	April/29	30	2029	4		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,699,094	14,710,344	76.23	133.24	10,617,251	1,081,843	243158	57.01
	May/29	31	2029	5		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,702,835	14,714,085	76.23	133.24	10,620,969	1,081,867	243219	57.01
	June/29	30	2029	6		0	0	23,777	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,730,353	14,741,603	76.23	133.28	10,648,315	1,082,038	243670	57.05
	July/29	31	2029	7		0	0	6,306	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,740,400	14,751,650	76.23	133.29	10,658,300	1,082,100	243834	57.06
	August/29	31	2029	8		0	0	17,144	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,761,285	14,772,535	76.23	133.32	10,679,055	1,082,230	244176	57.09
	September/29	30	2029	9		0	0	8,081	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,773,107	14,784,357	76.23	133.34	10,690,804	1,082,304	244370	57.11
	October/29	31	2029	10		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,776,848	14,788,098	76.23	133.34	10,694,521	1,082,327	244431	57.11
	November/29	30	2029	11		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,780,589	14,791,839	76.23	133.35	10,698,239	1,082,350	244492	57.12
	December/29	31	2029	12		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,784,330	14,795,580	76.23	133.35	10,701,957	1,082,374	244554	57.12
	January/30	31	2030	1		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,788,071	14,799,321	76.23	133.36	10,705,675	1,082,397	244615	57.13
	February/30	28	2030	2		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,791,812	14,803,062	76.23	133.36	10,709,392	1,082,420	244676	57.13
	March/30	31	2030	3		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,795,553	14,806,803	76.23	133.37	10,713,110	1,082,443	244737	57.14
	April/30	30	2030	4		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,799,294	14,810,544	76.23	133.37	10,716,828	1,082,467	244799	57.14
	May/30	31	2030	5		0	0	0	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,803,035	14,814,285	76.23	133.38	10,720,545	1,082,490	244860	57.15
	June/30	30	2030	6		0	0	23,777	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,830,553	14,841,803	76.23	133.41	10,747,892	1,082,661	245310	57.19
	July/30	31	2030	7		0	0	6,306	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,840,600	14,851,850	76.23	133.43	10,757,877	1,082,724	245475	57.20
	August/30	31	2030	8		0	0	17,144	0	3,741	0	0	0	0	67%	0	0	1.00	0	3,011,250	3,011,250	0	0	0	0	11,861,485	14,872,735	76.23	133.45	10,778,632	1,082,853	245817	57.23
	September/30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PORTAGE PIT E WATER BALANCE

Period	Month-Year	# Days /mth	Year	Mth	3PL to Pit E (INPUT – Non-Contact Water)	SC Runoff to Pit E	Stormwater Mgmt Pond to Pit E	Runoff to Pit E	Infiltration to Pit E	East Dike Seepage to Pit E	Transfer Goose to Pit E	WTP Treated Water from Pit A	Transfer Pit A to Pit E	Tailing Reclaim Water to Pit E (INPUT – Tailings)	%Water Content / Tails	Net Reclaim Water to Pit E	Tails to Pit E	Tailngs in-situ density in Pit E	Tailings volume in-situ in Pit E	Cumulative tailings volume in Pit E	Cumulative tailings tonnage in Pit E	Pit E Reclaim Water to Mill (OUTPUT)	Pit E to WTP	Pit E to Pit A Elev > 90 m	Pit E to Pit A Elev < 90 m	Pit E + CD Water Volume (PIT VOLUME)	Pit E + CD + Water + Tail Volume	Pit E Tails Elevation	Pit E +CD Water Elevation	Pit E Water Volme	CD_Pit E Water Volume	Pit E Water Surface	Pit E Water Depth above Tails
		Days /mth			m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	% w/w	m3/mth	t/mth	t/m3	m3/mth	m3	t	m3/mth	m3/mth	m3/mth	m3/mth	m3	m3	m	m	m3	m3	m2	m
PERIOD 1: MBK TAILINGS DEPOSITION	January/17	31	2017	1						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	February/17	28	2017	2						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	March/17	31	2017	3						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	April/17	30	2017	4						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	May/17	31	2017	5						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	June/17	30	2017	6						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	July/17	31	2017	7						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	August/17	31	2017	8						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	September/17	30	2017	9						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	October/17	31	2017	10						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	November/17	30	2017	11						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	December/17	31	2017	12						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	January/18	31	2018	1						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	February/18	28	2018	2						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	March/18	31	2018	3						0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	82,881	82,881	-13.00	4.47	81,352	1,529	16836	17.47
	April/18	30	2018	4		0	0	0	1,740	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	84,621	84,621	-13.00	4.54	82,907	1,713	17283	17.54
	May/18	31	2018	5		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	86,419	86,419	-13.00	4.62	84,515	1,904	17745	17.62
	June/18	30	2018	6		0	0	26,568	1,740	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	114,726	114,726	-13.00	5.86	109,849	4,877	20842	18.86
	July/18	31	2018	7		0	0	7,046	1,798	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	123,571	123,571	-13.00	6.23	117,778	5,793	21000	19.23
	August/18	31	2018	8		0	0	19,156	1,798	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	144,524	144,524	-13.00	7.12	136,577	7,947	21375	20.12
	September/18	30	2018	9		0	0	9,030	1,740	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	155,294	155,294	-13.00	7.57	146,250	9,044	21567	20.57
GAP PERIOD	October/18	31	2018	10		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	157,092	157,092	-13.00	7.64	147,865	9,228	21599	20.64
	November/18	30	2018	11		0	0	0	1,740	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	158,832	158,832	-13.00	7.71	149,427	9,405	21631	20.71
	December/18	31	2018	12		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	160,630	160,630	-13.00	7.79	151,042	9,588	21663	20.79
	January/19	31	2019	1		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	162,428	162,428	-13.00	7.86	152,657	9,771	21695	20.86
	February/19	28	2019	2		0	0	0	1,624	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	164,052	164,052	-13.00	7.93	154,116	9,937	21724	20.93
	March/19	31	2019	3		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	165,850	165,850	-13.00	8.00	155,731	10,120	21756	21.00
	April/19	30	2019	4		0	0	0	1,740	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	167,590	167,590	-13.00	8.08	157,295	10,296	21787	21.08
	May/19	31	2019	5		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	169,388	169,388	-13.00	8.15	158,911	10,477	21819	21.15
	June/19	30	2019	6		0	0	26,568	1,740	0	0	0	0	0	67%	0	0	1.00	0	0	0	0	0	0	0	197,696	197,696	-13.00	9.30	184,362	13,334	22326	22.30
PERIOD 2: WHALE TAIL TAILINGS IN-PIT DEPOSITION	July/19	31	2019	7		0	0	7,046	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	273,750	273,750	0	0	0	0	272,198	545,948	13.12	21.34	225,395	46,804	23205	8.22
	August/19	31	2019	8		0	0	19,156	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	547,500	547,500	0	0	0	0	358,811	906,311	22.86	29.83	287,697	71,114	24614	6.96
	September/19	30	2019	9		0	11,590	9,030	1,740	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	821,250	821,250	0	0	0	0	446,829	1,268,079	29.53	35.96	356,745	90,084	26612	6.42
	October/19	31	2019	10		0	0	0	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	1,095,000	1,095,000	0	0	0	0	514,285	1,609,285	34.60	40.84	397,381	116,905	28051	6.24
	November/19	30	2019	11		0	0	0	1,740	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	1,368,750	1,368,750	0	0	0	0	581,684	1,950,434	38.97	45.21	435,012	146,672	29384	6.25
	December/19	31	2019	12		0	0	0	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	1,642,500	1,642,500	0	0	0	0	649,140	2,291,640	42.99	49.07	479,678	169,462	31665	6.08
	January/20	31	2020	1		0	0	0	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	1,916,250	1,916,250	0	0	0	0	716,597	2,632,847	46.66	52.62	523,877	192,719	34800	5.96
	February/20	29	2020	2		0	0	0	1,682	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	2,190,000	2,190,000	0	0	0	0	783,937	2,973,937	49.84	55.71	563,854	220,083	37635	5.87
	March/20	31	2020	3		0	0	0	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	2,463,750	2,463,750	0	0	0	0	851,394	3,315,144	52.88	58.65	603,487	247,907	40446	5.77
	April/20	30	2020	4		0	0	0	1,740	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	2,737,500	2,737,500	0	0	0	0	918,792	3,656,292	55.56	61.47	642,879	275,913	42323	5.91
	May/20	31	2020	5		0	23,085	0	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	3,011,250	3,011,250	0	0	0	0	1,009,334	4,020,584	58.13	64.35	702,016	307,318	44134	6.21
	June/20	30	2020	6	500,000	0	0	26,568	1,740	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	3,285,000	3,285,000	0	0	0	0	1,603,299	4,888,299	60.63	70.57	1,214,898	388,401	62496	9.94
	July/20	31	2020	7	500,000	0	0	7,046	1,798	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	229,636	0	0	0	1,882,508	5,167,508	60.63	72.41	1,467,934	414,574	66851	11.78
	August/20	31	2020	8	500,000	0	0	19,156	1,798	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	230,512	0	0	0	2,172,950	5,457,950	60.63	74.28	1,730,873	442,077	72411	13.65
	September/20	30	2020	9	500,000	0	11,590	9,030	1,740	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	230,758	0	0	0	2,452,962	5,737,962	60.63	76.05	1,981,825	471,137	80421	15.42
	October/20	31	2020	10		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	230,484	0	0	0	2,224,276	5,509,276	60.63	74.61	1,776,984	447,291	73386	13.98
	November/20	30	2020	11		0	0	0	1,740	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	231,223	0	0	0	1,994,792	5,279,792	60.63	73.14	1,569,816	424,976	69005	12.51
	December/20	31	2020	12		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	230,649	0	0	0	1,765,942	5,050,942	60.63	71.64	1,362,231	403,710	64957	11.01
	January/21	31	2021	1		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	230,512	0	0	0	1,537,228	4,822,228	60.63	70.13	1,155,036	382,192	61496	9.50
	February/21	28	2021	2		0	0	0	1,624	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	229,006	0	0	0	1,309,846	4,594,846	60.63	68.60	949,241	360,605	53175	7.97
	March/21	31	2021	3		0	0	0	1,798	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	230,347	0	0	0	1,081,296	4,366,296	60.63	67.00	743,374	337,923	45400	6.37
	April/21	30	2021	4		0	0	0	1,740	0	0	0	0	0	67%	0	0	1.00	0	3,285,000	3,285,000	230,211	0	0	0	852,826	4,137,826	60.63	65.26	535,237	317,589	35605	4.63
	May/21	31	2021	5		0	0	0	1,798	0	0	0	146,706	0	67%	0	0	1.00	0	3,285,000	3,285,000	230,238	0	0	0	771,092	4,056,092	60.63	64.63	460,670	310,421	30317	4.00
	June/21	30	2021	6	500,000	0	0	26,568	1,740	14,964	0	0	366,598	233,194	67%	50,694	273,750	1.00	273,750	3,558,750	3,558,750	0	0	0	0	1,731,656	5,290,406	63.02	73.21	1,305,681	425,975	64013	10.18
	July/21	31	2021	7	500,000	0	0	7,046	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	3,832,500	3,832,500	0	0	0	0	2,306,159	6,138,659	65.36	78.52	1,792,363	513,796	73733	13.16
	August/21	31	2021	8	500,000	0	0	19,156	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	4,106,250	4,106,250	0	0	0	0	2,892,771	6,999,021	67.62	83.63	2,278,986	613,785	90760	16.01
	September/21	30	2021	9	500,000	0	11,590	9,030	1,740	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	4,380,000	4,380,000	0	0	0	0	3,480,789	7,860,789	69.69	88.37	2,757,540	723,249	105380	18.68
	October/21	31	2021	10		0	0	0	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	4,653,750	4,653,750	0	0	0	0	3,548,246	8,201,996	71.69	89.97	2,784,596	763,650	105819	18.28
	November/21	30	2021	11		0	0	0	1,740	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	4,927,500	4,927,500	0	0	0	0	3,615,644	8,543,144	73.65	91.50	2,811,158	804,486	106250	17.85
	December/21	31	2021	12		0	0	0	1,798	14,964	0	0	0	233,194	67%	50,694	273,750	1.00	273,750	5,201,250	5,201,250	0	0	0	335,410	3,347,691	8,548,941	75.59	91.53	2,542,514	805,177	99509	15.94
	January/22	31	2022	1		0	0	0	1,798	14,964	0	0	0	56,771	67%	12,341	66,644	1.00	66,644	5,267,894	5,267,894	0	0	0	341,206	3,035,588	8,303,482	76.05	90.43	2,259,760	775,828	90121	14.38
PERIOD 3: PIT FILLING	February/22	28	2022	2		0	0	0	1,624	7,482	0	0	0	0	67%	0	0	1.00	0	5,267,894	5,267,894	0	0	0	95,747	2,948,946	8,216,840	76.05	90.04	2,183,516	765,430	87540	13.99
	March/22	31	2022	3		0	0	0	1,798	7,482	0	0	0	0	67%	0	0	1.00	0	5,267,894	5,267,894	0	0	0	0	2,958,226	8,226,120	76.05	90.08	2,191,683	766,544	87829	14.03
	April/22	30	2022	4		0	0	0	1,740	7,482	0	0	0	0	67%	0	0	1.00	0	5,267,894	5,267,894	0	0	0	0	2,967,448	8,235,342	76.05	90.12	2,199,798	767,650	88115	14.07
	May/22	31	2022	5		0	23,085	0	1,798	7,482	0	0	0	0	67%	0	0	1.00	0	5,267,894	5,267,894	0	0	0	0	2,999,813	8,267,707	76.05	90.27	2,228,279	771,535	89076	14.22
	June/22	30	2022	6	600,000	0	0	26,568	1,740	3,741	0	0	0	0	67%	0	0	1.00	0	5,267,894	5,267,894	0	0	0	0	3,631,862	8,899,756	76.05	93.08	2,785,181	846,681	105828	17.02
	July/22	31	2022	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/22	31	2022	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/22	30	2022	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/22	31	2022	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/22	30	2022	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/22	31	2022	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/23	31	2023	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/23	28	2023	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/23	31	2023	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/23	30	2023	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/23	31	2023	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/23	30	2023	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/23	31	2023	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/23	31	2023	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/23	30	2023	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/23	31	2023	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/23	30	2023	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/23	31	2023	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/24	31	2024	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/24	29	2024	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/24	31	2024	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/24	30	2024	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/24	31	2024	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/24	30	2024	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/24	31	2024	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/24	31	2024	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/24	30	2024	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/24	31	2024	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/24	30	2024	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/24	31	2024	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/25	31	2025	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/25	28	2025	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/25	31	2025	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/25	30	2025	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/25	31	2025	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/25	30	2025	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/25	31	2025	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/25	31	2025	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/25	30	2025	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/25	31	2025	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/25	30	2025	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/25	31	2025	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/26	31	2026	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/26	28	2026	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/26	31	2026	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/26	30	2026	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/26	31	2026	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/26	30	2026	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/26	31	2026	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/26	31	2026	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/26	30	2026	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/26	31	2026	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/26	30	2026	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/26	31	2026	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PERIOD 4: MONITORING (5 YEARS)	January/27	31	2027	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/27	28	2027	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/27	31	2027	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/27	30	2027	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/27	31	2027	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/27	30	2027	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/27	31	2027	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/27	31	2027	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/27	30	2027	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/27	31	2027	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/27	30	2027	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/27	31	2027	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/28	31	2028	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/28	29	2028	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/28	31	2028	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/28	30	2028	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/28	31	2028	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/28	30	2028	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/28	31	2028	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/28	31	2028	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/28	30	2028	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/28	31	2028	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/28	30	2028	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/28	31	2028	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/29	31	2029	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/29	28	2029	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/29	31	2029	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/29	30	2029	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/29	31	2029	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/29	30	2029	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/29	31	2029	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/29	31	2029	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/29	30	2029	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/29	31	2029	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/29	30	2029	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/29	31	2029	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/30	31	2030	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/30	28	2030	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/30	31	2030	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/30	30	2030	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/30	31	2030	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/30	30	2030	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/30	31	2030	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/30	31	2030	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/30	30	2030	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/30	31	2030	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/30	30	2030	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/30	31	2030	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	January/31	31	2031	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	February/31	28	2031	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	March/31	31	2031	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	April/31	30	2031	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	May/31	31	2031	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	June/31	30	2031	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	July/31	31	2031	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	August/31	31	2031	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	September/31	30	2031	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	October/31	31	2031	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	November/31	30	2031	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	December/31	31	2031	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

6_PORT. PIT E

Period	Month-Year	# Days /mth	Year	Mth	3PL to Goose Pit	Stormwater Mgmt to Goose Pit	Runoff Goose Pit	Infiltration to Goose Pit	Treated Water from WTP	SC Reclaim Water to Goose Pit	Tailing Reclaim Water to Goose Pit	%Water Content / Tails	Net Reclaim Water to Goose Pit	Tails to Goose Pit	Tailngs in-situ density in Goose Pit	Tailings volume in-situ in Goose Pit	Cumulative tailings volume in Goose Pit	Cumulative tailings tonnage in Goose Pit	Transfer Goose Pit to Portage Pit	To Pit A	To Pit E	To WTP	Reclaime Water to Mill	Total Free Pond Volume in Goose Pit (Pit+Dump)	Water + Tails Volume in Goose Pit	Goose Pit Tails Elevation	Water Elev. Goose Pit + Dump	Goose Pit Water Volme	Goose Pit Dump Water Volme	Goose Pit Water Surface	Goose Pit Water Depth above Tails
	GOOSE PIT WATER BALANCE				INPUT: Non Contact Water				INPUT: Contact Water		INPUT: Tailings								OUTPUT					PIT VOLUME							
		Days /mth			m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	m3/mth	% w/w	m3/mth	t/mth	t/m3	m3/mth	m3	t	m3/mth			m3/mth	m3/mth	m3	m3	m	m	m3	m3	m2	m
PERIOD 1: MBK TAILINGS DEPOSITION	January/17	31	2017	1			42,000				0	67%	0	0	1.00	0	0	0					0	795,149	795,149	-3.00	58.65	553,018	242,131	42973	61.65
	February/17	28	2017	2			19,313				0	67%	0	0	1.00	0	0	0					0	814,462	814,462	-3.00	59.25	568,233	246,229	42973	62.25
	March/17	31	2017	3			19,131				0	67%	0	0	1.00	0	0	0					0	833,593	833,593	-3.00	59.84	583,376	250,217	42973	62.84
	April/17	30	2017	4			11,131				0	67%	0	0	1.00	0	0	0					0	844,724	844,724	-3.00	60.18	592,219	252,505	43243	63.18
	May/17	31	2017	5			102,000				0	67%	0	0	1.00	0	0	0					0	946,724	946,724	-3.00	63.18	674,224	272,500	47759	66.18
	June/17	30	2017	6			120,000				0	67%	0	0	1.00	0	0	0					0	1,066,724	1,066,724	-3.00	66.47	772,685	294,039	52722	69.47
	July/17	31	2017	7			30,000				0	67%	0	0	1.00	0	0	0					0	1,096,724	1,096,724	-3.00	67.24	797,572	299,152	53877	70.24
	August/17	31	2017	8			-10,000			26,889	0	67%	0	0	1.00	0	0	0					0	1,113,613	1,113,613	-3.00	67.65	811,609	302,004	54494	70.65
	September/17	30	2017	9		32,461	32,000			258,065	0	67%	0	0	1.00	0	0	0					0	1,436,139	1,436,139	-3.00	74.46	1,082,826	353,313	63662	77.46
	October/17	31	2017	10							0	67%	0	0	1.00	0	0	0					0	1,436,139	1,436,139	-3.00	74.46	1,082,826	353,313	63662	77.46
	November/17	30	2017	11							0	67%	0	0	1.00	0	0	0					0	1,436,139	1,436,139	-3.00	74.46	1,082,826	353,313	63662	77.46
	December/17	31	2017	12							0	67%	0	0	1.00	0	0	0					0	1,436,139	1,436,139	-3.00	74.46	1,082,826	353,313	63662	77.46
	January/18	31	2018	1		0	0	27,218	0	0	0	67%	0	0	1.00	0	0	0					0	1,463,357	1,463,357	-3.00	74.99	1,106,104	357,253	64335	77.99
	February/18	28	2018	2		0	0	24,584	0	0	0	67%	0	0	1.00	0	0	0					0	1,487,941	1,487,941	-3.00	75.46	1,127,317	360,624	64915	78.46
	March/18	31	2018	3		0	0	27,218	0	0	0	67%	0	0	1.00	0	0	0					0	1,515,159	1,515,159	-3.00	75.96	1,150,805	364,354	65557	78.96
	April/18	30	2018	4		0	0	26,340	0	200,000	230,000	67%	50,000	270,000	1.00	270,000	270,000	270,000					0	1,791,499	2,061,499	44.42	85.25	1,362,350	429,149	80398	40.84
	May/18	31	2018	5		23,085	0	27,218	0	200,000	237,667	67%	51,667	279,000	1.00	279,000	549,000	549,000					0	2,093,469	2,642,469	58.49	93.29	1,605,726	487,742	92565	34.80
	June/18	30	2018	6		0	9,968	26,340	0	200,000	230,000	67%	50,000	270,000	1.00	270,000	819,000	819,000					0	2,379,777	3,198,777	67.87	100.00	1,843,998	535,779	99408	32.13
	July/18	31	2018	7		0	2,644	27,218	0	0	193,822	67%	42,135	227,530	1.00	227,530	1,046,530	1,046,530					0	2,451,774	3,498,304	73.62	103.42	1,892,738	559,036	105069	29.80
	August/18	31	2018	8		0	7,187	27,218	0	0	193,822	67%	42,135	227,530	1.00	227,530	1,274,060	1,274,060					0	2,528,314	3,802,374	78.51	106.77	1,946,970	581,345	110621	28.26
	September/18	30	2018	9		11,590	3,388	26,340	0	0	187,570	67%	40,776	220,191	1.00	220,191	1,494,251	1,494,251					0	2,610,408	4,104,659	82.75	109.94	2,007,333	603,075	115882	27.19
GAP PERIOD	October/18	31	2018	10		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	200,000	1			0	2,437,626	3,931,877	82.75	108.16	1,846,985	590,642	112924	25.41
	November/18	30	2018	11		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,463,966	3,958,217	82.75	108.44	1,871,445	592,521	113385	25.69
	December/18	31	2018	12		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,491,184	3,985,435	82.75	108.72	1,896,721	594,463	113862	25.97
	January/19	31	2019	1		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,518,402	4,012,653	82.75	109.01	1,921,996	596,406	114337	26.26
	February/19	28	2019	2		0	0	24,584	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,542,986	4,037,237	82.75	109.26	1,944,798	598,188	114750	26.51
	March/19	31	2019	3		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,570,204	4,064,455	82.75	109.53	1,970,043	600,161	115207	26.78
	April/19	30	2019	4		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,596,544	4,090,795	82.75	109.80	1,994,474	602,070	115649	27.05
	May/19	31	2019	5		23,085	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	200,000	1			0	2,446,847	3,941,098	82.75	108.25	1,855,548	591,300	113085	25.50
	June/19	30	2019	6		0	9,968	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	200,000	1			0	2,283,156	3,777,407	82.75	106.50	1,703,613	579,542	110171	23.75
PERIOD 2: WHALE TAIL TAILINGS IN-PIT DEPOSITION	July/19	31	2019	7		0	2,644	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	500,000	1			0	1,813,018	3,307,269	82.75	101.25	1,268,637	544,381	101481	18.50
	August/19	31	2019	8		0	7,187	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	500,000	1			0	1,347,423	2,841,674	82.75	95.75	841,680	505,743	95073	13.00
	September/19	30	2019	9		0	3,388	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	500,000	1			0	877,151	2,371,402	82.75	89.81	415,817	461,334	88856	7.06
	October/19	31	2019	10		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	500,000	1			0	404,369	1,898,620	82.75	82.62	-6,974	411,343	75511	-0.13
	November/19	30	2019	11		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	430,709	1,924,960	82.75	83.05	16,398	414,311	76317	0.30
	December/19	31	2019	12		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	457,927	1,952,178	82.75	83.50	40,608	417,319	77140	0.75
	January/20	31	2020	1		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	485,145	1,979,396	82.75	83.94	64,819	420,326	77962	1.19
	February/20	29	2020	2		0	0	25,462	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	510,607	2,004,858	82.75	84.35	87,526	423,081	78721	1.60
	March/20	31	2020	3		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	537,825	2,032,076	82.75	84.79	111,809	426,016	79531	2.04
	April/20	30	2020	4		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	564,165	2,058,416	82.75	85.21	135,341	428,824	80308	2.45
	May/20	31	2020	5		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	591,383	2,085,634	82.75	85.63	159,692	431,691	81104	2.88
	June/20	30	2020	6	500,000	0	9,968	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	1,127,691	2,621,942	82.75	93.04	641,848	485,843	92304	10.29
	July/20	31	2020	7	500,000	0	2,644	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	1,657,553	3,151,804	82.75	99.45	1,125,604	531,949	98847	16.70
	August/20	31	2020	8	500,000	0	7,187	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,191,958	3,686,209	82.75	105.50	1,619,025	572,933	108522	22.75
	September/20	30	2020	9	500,000	0	3,388	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,721,686	4,215,937	82.75	111.01	2,110,519	611,168	117474	28.26
	October/20	31	2020	10		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,748,904	4,243,155	82.75	111.26	2,136,040	612,865	117843	28.51
	November/20	30	2020	11		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,775,244	4,269,495	82.75	111.51	2,160,737	614,507	118200	28.76
	December/20	31	2020	12		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,802,462	4,296,713	82.75	111.76	2,186,258	616,204	118569	29.01
	January/21	31	2021	1		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,829,680	4,323,931	82.75	112.01	2,211,786	617,894	118938	29.26
	February/21	28	2021	2		0	0	24,584	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,854,264	4,348,515	82.75	112.22	2,235,117	619,147	119260	29.47
	March/21	31	2021	3		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,881,482	4,375,733	82.75	112.47	2,260,949	620,533	119616	29.72
	April/21	30	2021	4		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,907,822	4,402,073	82.75	112.70	2,285,947	621,875	119961	29.95
	May/21	31	2021	5		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	2,935,040	4,429,291	82.75	112.94	2,311,778	623,262	120318	30.19
	June/21	30	2021	6	500,000	0	9,968	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	3,471,348	4,965,599	82.75	117.32	2,836,655	634,693	126779	34.57
	July/21	31	2021	7	500,000	0	2,644	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,001,210	5,495,461	82.75	121.33	3,363,736	637,474	134800	38.58
	August/21	31	2021	8	500,000	0	7,187	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,535,615	6,029,866	82.75	125.08	3,896,332	639,283	146255	42.33
	September/21	30	2021	9		0	3,388	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,565,343	6,059,594	82.75	125.27	3,925,844	639,499	146838	42.52
	October/21	31	2021	10		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,592,561	6,086,812	82.75	125.44	3,952,864	639,697	147371	42.69
	November/21	30	2021	11		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,618,901	6,113,152	82.75	125.61	3,979,013	639,889	147887	42.86
	December/21	31	2021	12		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,646,119	6,140,370	82.75	125.79	4,006,033	640,086	148420	43.04
	January/22	31	2022	1		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,673,337	6,167,588	82.75	125.96	4,033,054	640,284	148953	43.21
PERIOD 3 PIT FILLING	February/22	28	2022	2		0	0	24,584	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,697,921	6,192,172	82.75	126.11	4,057,456	640,465	149395	43.36
	March/22	31	2022	3		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,725,139	6,219,390	82.75	126.26	4,084,472	640,667	149869	43.51
	April/22	30	2022	4		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,751,479	6,245,730	82.75	126.41	4,110,617	640,863	150329	43.66
	May/22	31	2022	5		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,778,697	6,272,948	82.75	126.57	4,137,633	641,065	150803	43.82
	June/22	30	2022	6		0	9,968	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,815,006	6,309,257	82.75	126.77	4,173,671	641,334	151436	44.02
	July/22	31	2022	7		0	2,644	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,844,868	6,339,119	82.75	126.94	4,203,311	641,556	151957	44.19
	August/22	31	2022	8		0	7,187	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,879,273	6,373,524	82.75	127.13	4,237,461	641,812	152525	44.38
	September/22	30	2022	9		0	3,388	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,909,001	6,403,252	82.75	127.29	4,266,967	642,034	153005	44.54
	October/22	31	2022	10		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,936,219	6,430,470	82.75	127.43	4,293,982	642,237	153444	44.68
	November/22	30	2022	11		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,962,559	6,456,810	82.75	127.57	4,320,125	642,433	153869	44.82
	December/22	31	2022	12		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	4,989,777	6,484,028	82.75	127.71	4,347,140	642,636	154308	44.96
	January/23	31	2023	1		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,016,995	6,511,246	82.75	127.86	4,374,155	642,839	154748	45.11
	February/23	28	2023	2		0	0	24,584	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,041,579	6,535,830	82.75	127.99	4,398,556	643,023	155144	45.24
	March/23	31	2023	3		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,068,797	6,563,048	82.75	128.12	4,425,572	643,225	155182	45.37
	April/23	30	2023	4		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,095,137	6,589,388	82.75	128.25	4,451,717	643,420	155182	45.50
	May/23	31	2023	5		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,122,355	6,616,606	82.75	128.38	4,478,733	643,622	155182	45.63
	June/23	30	2023	6		0	9,968	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	36,308		1		0	5,122,355	6,616,606	82.75	128.38	4,478,733	643,622	155182	45.63
	July/23	31	2023	7		0	2,644	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	29,862		1		0	5,122,355	6,616,606	82.75	128.38	4,478,733	643,622	155182	45.63
	August/23	31	2023	8		0	7,187	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	34,405		1		0	5,122,355	6,616,606	82.75	128.38	4,478,733	643,622	155182	45.63
	September/23	30	2023	9		0	3,388	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	29,728		1		0	5,122,355	6,616,606	82.75	128.38	4,478,733	643,622	155182	45.63
	October/23	31	2023	10		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,149,573	6,643,824	82.75	128.51	4,505,749	643,824	155182	45.76
	November/23	30	2023	11		0	0	26,340	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,175,913	6,670,164	82.75	128.64	4,531,893	644,020	155182	45.89
	December/23	31	2023	12		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,203,131	6,697,382	82.75	128.77	4,558,909	644,222	155182	46.02
	January/24	31	2024	1		0	0	27,218	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,230,349	6,724,600	82.75	128.90	4,585,925	644,424	155182	46.15
	February/24	29	2024	2		0	0	25,462	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,255,811	6,750,062	82.75	129.02	4,611,203	644,608	155182	46.27
	March/24	31	2024	3		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,269,420	6,763,671	82.75	129.09	4,624,723	644,696	155182	46.34
	April/24	30	2024	4		0	0	13,170	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,282,590	6,776,841	82.75	129.14	4,637,807	644,782	155182	46.39
	May/24	31	2024	5		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,296,199	6,790,450	82.75	129.21	4,651,328	644,871	155182	46.46
	June/24	30	2024	6		0	9,968	13,170	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	23,138		1		0	5,296,199	6,790,450	82.75	129.21	4,651,328	644,871	155182	46.46
	July/24	31	2024	7		0	2,644	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	16,253		1		0	5,296,199	6,790,450	82.75	129.21	4,651,328	644,871	155182	46.46
	August/24	31	2024	8		0	7,187	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	20,796		1		0	5,296,199	6,790,450	82.75	129.21	4,651,328	644,871	155182	46.46
	September/24	30	2024	9		0	3,388	13,170	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	16,558		1		0	5,296,199	6,790,450	82.75	129.21	4,651,328	644,871	155182	46.46
	October/24	31	2024	10		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,309,808	6,804,059	82.75	129.27	4,664,848	644,960	155182	46.52
	November/24	30	2024	11		0	0	13,170	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,322,978	6,817,229	82.75	129.33	4,677,932	645,046	155182	46.58
	December/24	31	2024	12		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,336,587	6,830,838	82.75	129.39	4,691,452	645,135	155182	46.64
	January/25	31	2025	1		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,350,196	6,844,447	82.75	129.45	4,704,972	645,223	155182	46.70
	February/25	28	2025	2		0	0	12,292	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,362,488	6,856,739	82.75	129.50	4,717,184	645,304	155182	46.75
	March/25	31	2025	3		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,376,097	6,870,348	82.75	129.56	4,730,704	645,392	155182	46.81
	April/25	30	2025	4		0	0	13,170	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,389,267	6,883,518	82.75	129.62	4,743,788	645,478	155182	46.87
	May/25	31	2025	5		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,402,876	6,897,127	82.75	129.69	4,757,309	645,567	155182	46.94
	June/25	30	2025	6		0	9,968	13,170	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	23,138		1		0	5,402,876	6,897,127	82.75	129.69	4,757,309	645,567	155182	46.94
	July/25	31	2025	7		0	2,644	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	16,253		1		0	5,402,876	6,897,127	82.75	129.69	4,757,309	645,567	155182	46.94
	August/25	31	2025	8		0	7,187	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	20,796		1		0	5,402,876	6,897,127	82.75	129.69	4,757,309	645,567	155182	46.94
	September/25	30	2025	9		0	3,388	13,170	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	16,558		1		0	5,402,876	6,897,127	82.75	129.69	4,757,309	645,567	155182	46.94
	October/25	31	2025	10		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,416,485	6,910,736	82.75	129.75	4,770,829	645,656	155182	47.00
	November/25	30	2025	11		0	0	13,170	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,429,655	6,923,906	82.75	129.81	4,783,913	645,742	155182	47.06
	December/25	31	2025	12		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,443,264	6,937,515	82.75	129.87	4,797,433	645,831	155182	47.12
	January/26	31	2026	1		0	0	13,609	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	February/26	28	2026	2		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	March/26	31	2026	3		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	April/26	30	2026	4		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	May/26	31	2026	5		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	June/26	30	2026	6		0	9,968	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	9,968		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	July/26	31	2026	7		0	2,644	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	2,644		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	August/26	31	2026	8		0	7,187	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	7,187		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	September/26	30	2026	9		0	3,388	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	3,388		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	October/26	31	2026	10		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	November/26	30	2026	11		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	December/26	31	2026	12		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
PERIOD 4 MONITORING (5 YEARS)	January/27	31	2027	1		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	February/27	28	2027	2		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	March/27	31	2027	3		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	April/27	30	2027	4		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	May/27	31	2027	5		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	June/27	30	2027	6		0	9,968	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	9,968		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	July/27	31	2027	7		0	2,644	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	2,644		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	August/27	31	2027	8		0	7,187	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	7,187		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	September/27	30	2027	9		0	3,388	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	3,388		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	October/27	31	2027	10		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	November/27	30	2027	11		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	December/27	31	2027	12		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	January/28	31	2028	1		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	February/28	28	2028	2		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	March/28	31	2028	3		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	April/28	30	2028	4		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	May/28	31	2028	5		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	June/28	30	2028	6		0	9,968	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	9,968		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	July/28	31	2028	7		0	2,644	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	2,644		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	August/28	31	2028	8		0	7,187	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	7,187		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	September/28	30	2028	9		0	3,388	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	3,388		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	October/28	31	2028	10		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	November/28	30	2028	11		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	December/28	31	2028	12		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	January/29	31	2029	1		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	February/29	28	2029	2		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	March/29	31	2029	3		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	April/29	30	2029	4		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	May/29	31	2029	5		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	June/29	30	2029	6		0	9,968	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	9,968		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	July/29	31	2029	7		0	2,644	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	2,644		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	August/29	31	2029	8		0	7,187	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	7,187		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	September/29	30	2029	9		0	3,388	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	3,388		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	October/29	31	2029	10		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	November/29	30	2029	11		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	December/29	31	2029	12		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	January/30	31	2030	1		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	February/30	28	2030	2		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	March/30	31	2030	3		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	April/30	30	2030	4		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	May/30	31	2030	5		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	June/30	30	2030	6		0	9,968	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	9,968		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	July/30	31	2030	7		0	2,644	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	2,644		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	August/30	31	2030	8		0	7,187	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	7,187		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	September/30	30	2030	9		0	3,388	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	3,388		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	October/30	31	2030	10		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	November/30	30	2030	11		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	December/30	31	2030	12		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	January/31	31	2031	1		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	February/31	28	2031	2		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	March/31	31	2031	3		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	April/31	30	2031	4		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	May/31	31	2031	5		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	June/31	30	2031	6		0	9,968	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	9,968		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	July/31	31	2031	7		0	2,644	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	2,644		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	August/31	31	2031	8		0	7,187	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	7,187		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	September/31	30	2031	9		0	3,388	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251	3,388		1		0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	October/31	31	2031	10		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	November/31	30	2031	11		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18
	December/31	31	2031	12		0	0	0	0	0	0	67%	0	0	1.00	0	1,494,251	1,494,251					0	5,456,873	6,951,124	82.75	129.93	4,810,953	645,919	155182	47.18

8 GOOSE PIT

					EAST DIKE SEEPAGE					CENTRAL DUMP				STORMWATER MGMT POND					
	Month-Year	# Days /mth	Year	Mth	East Dike Seepage	To 2PL	To Pit A	To Pit E	9 EAST DIKE SEEP.	CD_Pit A Volume	CD_Pit E Volume	CD Total Volume	10 CENTRAL DUMP	STORMWATER MANAGEMENT POND	To SC	To Pit A	To Pit E	To Goose Pit	12 STORMWATER MGMT POND
		Days /mth			m3/mth					m3	m3	m3		m3/mth					
PERIOD 1: MBK TAILINGS DEPOSITION	January/17	31	2017	1															
	February/17	28	2017	2															
	March/17	31	2017	3															
	April/17	30	2017	4															
	May/17	31	2017	5															
	June/17	30	2017	6															
	July/17	31	2017	7															
	August/17	31	2017	8															
	September/17	30	2017	9															
	October/17	31	2017	10															
	November/17	30	2017	11															
	December/17	31	2017	12															
	January/18	31	2018	1	14,964	1				0	1,529	1,529		0	1	0	0	0	
	February/18	28	2018	2	14,964	1				0	1,529	1,529		0	1	0	0	0	
	March/18	31	2018	3	14,964	1				0	1,529	1,529		0	1	0	0	0	
	April/18	30	2018	4	14,964	1				0	1,713	1,713		0	0	0	0	1	
	May/18	31	2018	5	14,964	1				0	1,904	1,904		23,085	0	0	0	1	
	June/18	30	2018	6	14,964	1				0	4,877	4,877		0	0	0	0	1	
	July/18	31	2018	7	14,964	1				0	5,793	5,793		0	0	0	0	1	
	August/18	31	2018	8	14,964	1				0	7,947	7,947		0	0	0	0	1	
	September/18	30	2018	9	14,964	1				0	9,044	9,044		11,590	0	0	0	1	
GAP PERIOD	October/18	31	2018	10	14,964	1				0	9,228	9,228		0	0	0	0	1	
	November/18	30	2018	11	14,964	1				0	9,405	9,405		0	0	0	0	1	
	December/18	31	2018	12	14,964	1				0	9,588	9,588		0	0	0	0	1	
	January/19	31	2019	1	14,964	1				0	9,771	9,771		0	0	0	0	1	
	February/19	28	2019	2	14,964	1				0	9,937	9,937		0	0	0	0	1	
	March/19	31	2019	3	14,964	1				0	10,120	10,120		0	0	0	0	1	
	April/19	30	2019	4	14,964	1				0	10,296	10,296		0	0	0	0	1	
	May/19	31	2019	5	14,964	1				11,020	10,477	21,498		23,085	0	0	0	1	
	June/19	30	2019	6	14,964	1				46,454	13,334	59,788		0	0	0	0	1	
PERIOD 2: WHALE TAIL TAILINGS IN-PIT DEPOSITION	July/19	31	2019	7	14,964		0.0	1.0		75,589	46,804	122,393		0	0	0	1	0	
	August/19	31	2019	8	14,964		0.0	1.0		110,399	71,114	181,512		0	0	0	1	0	
	September/19	30	2019	9	14,964		0.0	1.0		140,278	90,084	230,362		11,590	0	0	1	0	
	October/19	31	2019	10	14,964		0.0	1.0		162,970	116,905	279,875		0	0	0	1	0	
	November/19	30	2019	11	14,964		0.0	1.0		143,932	146,672	290,604		0	0	0	1	0	
	December/19	31	2019	12	14,964		0.0	1.0		124,279	169,462	293,741		0	0	0	1	0	
	January/20	31	2020	1	14,964		0.0	1.0		103,549	192,719	296,269		0	0	0	1	0	
	February/20	29	2020	2	14,964		0.0	1.0		83,106	220,083	303,189		0	0	0	1	0	
	March/20	31	2020	3	14,964		0.0	1.0		63,419	247,907	311,326		0	0	0	1	0	
	April/20	30	2020	4	14,964		0.0	1.0		44,328	275,913	320,241		0	0	0	1	0	
	May/20	31	2020	5	14,964		0.0	1.0		26,240	307,318	333,558		23,085	0	0	1	0	
	June/20	30	2020	6	14,964		0.0	1.0		30,342	388,401	418,743		0	0	0	1	0	
	July/20	31	2020	7	14,964		1.0	0.0		65,095	414,574	479,669		0	0	1	0	0	
	August/20	31	2020	8	14,964		1.0	0.0		105,469	442,077	547,546		0	0	1	0	0	
	September/20	30	2020	9	14,964		1.0	0.0		142,658	471,137	613,794		11,590	0	1	0	0	
	October/20	31	2020	10	14,964		1.0	0.0		171,044	447,291	618,335		0	0	1	0	0	
	November/20	30	2020	11	14,964		1.0	0.0		202,127	424,976	627,103		0	0	1	0	0	
	December/20	31	2020	12	14,964		1.0	0.0		233,854	403,710	637,564		0	0	1	0	0	
	January/21	31	2021	1	14,964		1.0	0.0		268,601	382,192	650,792		0	0	1	0	0	
	February/21	28	2021	2	14,964		1.0	0.0		306,031	360,605	666,636		0	0	1	0	0	
	March/21	31	2021	3	14,964		1.0	0.0		342,919	337,923	680,842		0	0	1	0	0	
	April/21	30	2021	4	14,964		1.0	0.0		378,750	317,589	696,339		0	0	1	0	0	
	May/21	31	2021	5	14,964		1.0	0.0		401,681	310,421	712,103		23,085	0	1	0	0	
	June/21	30	2021	6	14,964		0.0	1.0		369,518	425,975	795,494		0	0	0	1	0	
	July/21	31	2021	7	14,964		0.0	1.0		353,322	513,796	867,118		0	0	0	1	0	
	August/21	31	2021	8	14,964		0.0	1.0		341,449	613,785	955,234		0	0	0	1	0	
	September/21	30	2021	9	14,964		0.0	1.0		324,139	723,249	1,047,388		11,590	0	0	1	0	
	October/21	31	2021	10	14,964		0.0	1.0		299,210	763,650	1,062,860		0	0	0	1	0	
	November/21	30	2021	11	14,964		0.0	1.0		274,113	804,486	1,078,599		0	0	0	1	0	
	December/21	31	2021	12	14,964		0.0	1.0		285,843	805,177	1,091,019		0	0	0	1	0	
	January/22	31	2022	1	14,964		0.0	1.0		317,353	775,828	1,093,181		0	0	0	1	0	
PERIOD 3 PIT FILLING	February/22	28	2022	2	14,964		0.5	0.5		328,908	765,430	1,094,338		0			1		
	March/22	31	2022	3	14,964		0.5	0.5		330,001	766,544	1,096,545		0			1		
	April/22	30	2022	4	14,964		0.5	0.5		331,086	767,650	1,098,736		0			1		
	May/22	31	2022	5	14,964		0.5	0.5		332,358	771,535	1,103,892		23,085			1		
	June/22	30	2022	6	7,482		0.5	0.5		404,832	846,681	1,251,513		0			1		
	July/22	31	2022	7	14,964		0.5	0.5		454,382	918,678	1,373,060		0			1		
	August/22	31	2022	8	14,964		0.5	0.5		506,167	990,728	1,496,895		0			1		
	September/22	30	2022	9	14,964		0.5	0.5		553,457	1,060,024	1,613,480		11,590			1		
	October/22	31	2022	10	14,964		0.5	0.5		545,950	1,069,923	1,615,873		0			1		
	November/22	30	2022	11	14,964		0.5	0.5		546,940	1,070,892	1,617,832		0			1		
	December/22	31	2022	12	14,964		0.5	0.5		547,938	1,071,867	1,619,805		0			1		
	January/23	31	2023	1	14,964		0.5	0.5		548,936	1,072,843	1,621,778		0			1		
	February/23	28	2023	2	14,964		0.5	0.5		549,910	1,073,800	1,623,709		0			1		
	March/23	31	2023	3	14,964		0.5	0.5		550,908	1,074,775	1,625,683		0			1		
	April/23	30	2023	4	14,964		0.5	0.5		551,898	1,075,744	1,627,642		0			1		
	May/23	31	2023	5	14,964		0.5	0.5		553,058	1,079,146	1,632,204		23,085			1		
	June/23	30	2023	6	14,964		0.5	0.5		620,716	1,149,049	1,769,765		0			1		
	July/23	31	2023	7	14,964		0.5	0.5		651,523	1,227,430	1,878,953		0			1		
	August/23	31	2023	8	14,964		0.5	0.5		695,827	1,291,802	1,987,629		0			1		
	September/23	30	2023	9	14,964		0.5	0.5		734,271	1,355,684	2,089,955		11,590			1		
	October/23	31	2023	10	14,964		0.5	0.5		735,072	1,356,583	2,091,655		0			1		
	November/23	30	2023	11	14,964		0.5	0.5		735,866	1,357,477	2,093,343		0			1		
	December/23	31	2023	12	14,964		0.5	0.5		736,667	1,358,377	2,095,044		0			1		
	January/24	31	2024	1	14,964		0.5	0.5		737,468	1,359,276	2,096,744		0			1		
	February/24	29	2024	2	14,964		0.5	0.5		738,256	1,360,165	2,098,420		0			1		
	March/24	31	2024	3	14,964		0.5	0.5		739,057	1,361,064	2,100,121		0			1		
	April/24	30	2024	4	14,964		0.5	0.5		739,851	1,361,958	2,101,809		0			1		
	May/24	31	2024	5	14,964		0.5	0.5		740,783	1,365,095	2,105,878		23,085			1		
	June/24	30	2024	6	14,964		0.5	0.5		796,786	1,429,215	2,226,001		0			1		
	July/24	31	2024	7	14,964		0.5	0.5		835,283	1,490,627	2,325,909		0			1		
	August/24	31	2024	8	14,964		0.5	0.5		876,824	1,553,423	2,430,247		0			1		
	September/24	30	2024	9	14,964		0.5	0.5		914,873	1,616,353	2,531,227		11,590			1		
	October/24	31	2024	10	14,964		0.5	0.5		915,667	1,617,256	2,532,923		0			1		
	November/24	30	2024	11	14,964		0.5	0.5		916,455	1,618,152	2,534,607		0			1		
	December/24	31	2024	12	14,964		0.5	0.5		917,249	1,619,054	2,536,303		0			1		
	January/25	31	2025	1	14,964		0.5	0.5		918,042	1,619,957	2,537,999		0			1		
	February/25	28	2025	2	14,964		0.5	0.5		918,817	1,620,842	2,539,659		0			1		
	March/25	31	2025	3	14,964		0.5	0.5		919,611	1,621,744	2,541,356		0			1		
	April/25	30	2025	4	14,964		0.5	0.5		920,399	1,622,641	2,543,040		0			1		
	May/25	31	2025	5	14,964		0.5	0.5		921,323	1,625,787	2,547,110		23,085			1		
	June/25	30	2025	6	14,964		0.5	0.5		976,574	1,689,397	2,665,971		0			1		
	July/25	31	2025	7	14,964		0.5	0.5		1,004,267	1,760,260	2,764,527		0			1		
	August/25	31	2025	8	14,964		0.5	0.5		1,036,643	1,807,657	2,844,299		0			1		
	September/25	30	2025	9	14,964		0.5	0.5		1,052,056	1,830,722	2,882,778		11,590			1		
	October/25	31	2025	10	7,482		0.5	0.5		1,052,198	1,830,813	2,883,011		0			1		
	November/25	30	2025	11	7,482		0.5	0.5		1,052,340	1,830,903	2,883,243		0			1		
	December/25	31	2025	12	7,482		0.5	0.5		1,052,482	1,830,993	2,883,476		0			1		
	January/26	31	2026	1	7,482		0.5	0.5		1,052,625	1,831,084	2,883,709		0			1		
	February/26	28	2026	2	7,482		0.5	0.5		1,052,764	1,831,173	2,883,937		0			1		
	March/26	31	2026	3	7,482		0.5	0.5		1,052,906	1,831,264	2,884,170		0			1		
	April/26	30	2026	4	7,482		0.5	0.5		1,053,048	1,831,354	2,884,402		0			1		
	May/26	31	2026	5	7,482		0.5	0.5		1,063,562	1,842,756	2,906,318		23,085			1		
	June/26	30	2026	6	7,482		0.5	0.5		1,072,354	1,851,673	2,924,027		0			1		
	July/26	31	2026	7	7,482		0.5	0.5		1,076,037	1,860,753	2,936,790		0			1		
	August/26	31	2026	8	7,482		0.5	0.5		1,081,616	1,866,208	2,947,823		0			1		
	September/26	30	2026	9	7,482		0.5	0.5		1,078,147	1,868,645	2,946,792		11,590			1		
	October/26	31	2026	10	7,482		0.5	0.5		1,078,210	1,868,672	2,946,882		0			1		
	November/26	30	2026	11	7,482		0.5	0.5		1,078,273	1,868,699	2,946,972		0			1		
	December/26	31	2026	12	7,482		0.5	0.5		1,078,335	1,868,727	2,947,062		0			1		
PERIOD 4 MONITORING (5 YEARS)	January/27	31	2027	1	7,482		0.5	0.5		1,078,398	1,868,754	2,947,152		0			1		
	February/27	28	2027	2	7,482		0.5	0.5		1,078,461	1,868,781	2,947,242		0			1		
	March/27	31	2027	3	7,482		0.5	0.5		1,078,523	1,868,808	2,947,332		0			1		
	April/27	30	2027	4	7,482		0.5	0.5		1,078,586	1,868,836	2,947,422		0			1		
	May/27	31	2027	5	7,482		0.5	0.5		1,078,649	1,869,031	2,947,680		23,085			1		
	June/27	30	2027	6	7,482		0.5	0.5		1,080,791	1,873,051	2,953,842		0			1		
	July/27	31	2027	7	7,482		0.5	0.5		1,080,854	1,873,120	2,953,974		0			1		
	August/27	31	2027	8	7,482		0.5	0.5		1,080,984	1,873,275	2,954,259		0			1		
	September/27	30	2027	9	7,482		0.5	0.5		1,081,057	1,873,418	2,954,475		11,590			1		
	October/27	31	2027	10	7,482		0.5	0.5		1,081,080	1,873,437	2,954,518		0			1		
	November/27	30	2027	11	7,482		0.5	0.5		1,081,104	1,873,457	2,954,560		0			1		
	December/27	31	2027	12	7,482		0.5	0.5		1,081,127	1,873,476	2,954,603		0			1		
	January/28	31	2028	1	7,482		0.5	0.5		1,081,150	1,873,495	2,954,645		0			1		
	February/28	28	2028	2	7,482		0.5	0.5		1,081,174	1,873,514	2,954,688		0			1		
	March/28	31	2028	3	7,482		0.5	0.5		1,081,197	1,873,534	2,954,731		0			1		
	April/28	30	2028	4	7,482		0.5	0.5		1,081,220	1,873,553	2,954,773		0			1		
	May/28	31	2028	5	7,482		0.5	0.5		1,081,243	1,873,691	2,954,935		23,085			1		
	June/28	30	2028	6	7,482		0.5	0.5		1,081,415	1,873,899	2,955,313		0			1		
	July/28	31	2028	7	7,482		0.5	0.5		1,081,477	1,873,968	2,955,445		0			1		
	August/28	31	2028	8	7,482		0.5	0.5		1,081,607	1,874,123	2,955,730		0			1		
	September/28	30	2028	9	7,482		0.5	0.5		1,081,680	1,874,266	2,955,947		11,590			1		
	October/28	31	2028	10	7,482		0.5	0.5		1,081,704	1,874,285	2,955,989		0			1		
	November/28	30	2028	11	7,482		0.5	0.5		1,081,727	1,874,305	2,956,032		0			1		
	December/28	31	2028	12	7,482		0.5	0.5		1,081,750	1,874,324	2,956,074		0			1		
	January/29	31	2029	1	7,482		0.5	0.5		1,081,774	1,874,343	2,956,117		0			1		
	February/29	28	2029	2	7,482		0.5	0.5		1,081,797	1,874,363	2,956,159		0			1		
	March/29	31	2029	3	7,482		0.5	0.5		1,081,820	1,874,382	2,956,202		0			1		
	April/29	30	2029	4	7,482		0.5	0.5		1,081,843	1,874,401	2,956,244		0			1		
	May/29	31	2029	5	7,482		0.5	0.5		1,081,867	1,874,539	2,956,406		23,085			1		
	June/29	30	2029	6	7,482		0.5	0.5		1,082,038	1,874,747	2,956,785		0			1		
	July/29	31	2029	7	7,482		0.5	0.5		1,082,100	1,874,816	2,956,916		0			1		
	August/29	31	2029	8	7,482		0.5	0.5		1,082,230	1,874,971	2,957,201		0			1		
	September/29	30	2029	9	7,482		0.5	0.5		1,082,304	1,875,114	2,957,418		11,590			1		
	October/29	31	2029	10	7,482		0.5	0.5		1,082,327	1,875,134	2,957,461		0			1		
	November/29	30	2029	11	7,482		0.5	0.5		1,082,350	1,875,153	2,957,503		0			1		
	December/29	31	2029	12	7,482		0.5	0.5		1,082,374	1,875,172	2,957,546		0			1		
	January/30	31	2030	1	7,482		0.5	0.5		1,082,397	1,875,191	2,957,588		0			1		
	February/30	28	2030	2	7,482		0.5	0.5		1,082,420	1,875,211	2,957,631		0			1		
	March/30	31	2030	3	7,482		0.5	0.5		1,082,443	1,875,230	2,957,673		0			1		
	April/30	30	2030	4	7,482		0.5	0.5		1,082,467	1,875,249	2,957,716		0			1		
	May/30	31	2030	5	7,482		0.5	0.5		1,082,490	1,875,388	2,957,877		23,085			1		
	June/30	30	2030	6	7,482		0.5	0.5		1,082,661	1,875,595	2,958,256		0			1		
	July/30	31	2030	7	7,482		0.5	0.5		1,082,724	1,875,664	2,958,388		0			1		
	August/30	31	2030	8	7,482		0.5	0.5		1,082,853	1,875,819	2,958,673		0			1		
	September/30	30	2030	9	7,482		0.5	0.5		1,082,927	1,875,962	2,958,889		11,590			1		
	October/30	31	2030	10	7,482		0.5	0.5		1,082,950	1,875,982	2,958,932		0			1		
	November/30	30	2030	11	7,482		0.5	0.5		1,082,973	1,876,001	2,958,974		0			1		
	December/30	31	2030	12	7,482		0.5	0.5		1,082,997	1,876,020	2,959,017		0			1		
	January/31	31	2031	1	7,482		0.5	0.5		1,083,020	1,876,040	2,959,060		0			1		
	February/31	28	2031	2	7,482		0.5	0.5		1,083,043	1,876,059	2,959,102		0			1		
	March/31	31	2031	3	7,482		0.5	0.5		1,083,067	1,876,078	2,959,145		0			1		
	April/31	30	2031	4	7,482		0.5	0.5		1,083,090	1,876,097	2,959,187		0			1		
	May/31	31	2031	5	7,482		0.5	0.5		1,083,113	1,876,236	2,959,349		23,085			1		
	June/31	30	2031	6	7,482		0.5	0.5		1,083,284	1,876,443	2,959,728		0			1		
	July/31	31	2031	7	7,482		0.5	0.5		1,083,347	1,876,512	2,959,859		0			1		
	August/31	31	2031	8	7,482		0.5	0.5		1,083,477	1,876,668	2,960,144		0			1		
	September/31	30	2031	9	7,482		0.5	0.5		1,083,550	1,876,811	2,960,361		11,590			1		
	October/31	31	2031	10	7,482		0.5	0.5		1,083,550	1,876,811	2,960,361		0			1		
	November/31	30	2031	11	7,482		0.5	0.5		1,083,550	1,876,811	2,960,361		0			1		
	December/31	31	2031	12	7,482		0.5	0.5		1,083,550	1,876,811	2,960,361		0			1		

APPENDIX B IN-PIT TAILINGS DEPOSITION WATER BALANCE AND WATER QUALITY FORECAST

Title of document: IN-PIT TAILINGS DEPOSITION WATER BALANCE AND WATER QUALITY FORECAST

Client: AGNICO EAGLE – MEADOWBANK MINE SITE

Project: TSFE PROJECT – IN-PIT DEPOSITION PREFEASIBILITY STUDY

Prepared by: Anh-Long Nguyen, Eng.

Reviewed by: Marie-Hélène Picard, Eng.

Approved by: Dominic Tremblay, Eng.

REVISION INDEX

Revision				Pages Revised	Remarks
#	Prep.	App.	Date		
B0A	A.L. Nguyen	M.H. Picard	May 31st, 2017		Issued for Internal Comments
B0B	A.L. Nguyen	M.H. Picard	June 9th, 2017	All	Issued for Client Review
B0C	A.L. Nguyen	M.H. Picard	July 18th, 2017	All	Issued for Client Review
B00	A.L. Nguyen	M.H. Picard	Sept. 12, 2017	All	Issued for Permitting

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1.0 Introduction

Agnico Eagle is looking to extend the life of the Meadowbank Mine by constructing and operating Whale Tail Pit, a satellite deposit on the Amaruq property, as a continuation of mine operations and milling at the Meadowbank Mine.

In order to accommodate the tailings produced from the development of the Whale Tail Pit Project, a first phase of the Tailings Storage Facility Extension Project (TSFE) was conducted in 2015/2016. The objective was to evaluate the potential expansion of the Meadowbank TSF - North Cell by the construction of internal structures to increase the total storage capacity associated to the mining of the Amaruq ore deposit. This addition of these structures proposed by O'Kane Consultant (O'Kane, 2015 & 2016) was sufficient to increase the storage capacity of 8.3M tonnes of tailings into the North Cell.

The second phase of the project was to evaluate at a conceptual level different options for the storage of additional tailings on site coming from the Whale Tail Pit and future ore bodies. Three options were evaluated which included in-pit tailings deposition in Portage Pits A & E, internal structures tailings deposition over North and South Cells and filtered tailings deposition over North and South Cells. A Multi-Account Assessment (MAA) session was conducted and the in-pit tailings deposition option was selected as the preferred option to store tailings waste produced from Whale Tail Mine and future ore bodies in addition to its current TSF (SLI 2016a).

The third phase of the project consists in developing a prefeasibility study (PFS) design of the in-pit deposition. In the conceptual study, only Portage Pit A and Pit E were considered for tailings deposition. For the pre-feasibility study, Goose Pit is also considered as a location for tailings deposition. The PFS design of the in-pit deposition will also assess the maximum amount of tailings that can be stored in Goose Pit and Portage Pit A and Pit E to determine if the storage volume available is sufficient for anticipated and possible future tailings production volumes.

The PFS design of the in-pit deposition includes the following studies:

- 1D Tailings Consolidation Modeling Assessment of the tailings in the pit in order to assess the in-site tailings density;
- A Hydrogeological Modeling of groundwater flow in and around the Portage and Goose Pits, including a 3D contaminant transport model;
- Review Pit Wall Stability during in-pit deposition;
- Update and refinement of the water and tailings mass balance around Portage and Goose Pits;
- Update of the water quality forecast model;
- Development of deposition strategy
- Development of closure strategy;
- Development of infrastructures required for in-pit deposition.

The following technical note presents the PFS design of the water and mass balance, the water quality forecast, the deposition strategy and the infrastructures required for in-pit deposition. Results from the 1D tailings consolidation modeling assessment and the hydrogeological modeling are taken into account in the update of the water and mass balance and water quality forecast.

2.0 Design Basis

2.1 Summary

The design parameters considered for the PFS design of the in-pit tailings deposition of tailings in Portage and Goose Pits are presented in Table 2-1.

Table 2-1 : Operating Parameters for In-Pit Tailings Deposition

Parameter	Units	Values	Source
In-pit tailings capacity requirements	t	28,000,000 minimum (total amount required based on conceptual study design parameter)	SLI (2016b)
Mill throughput rate per day (dry)	TPD	9,000	AEM (2017a)
Tailings production tonnage profile		Refer to section 2.2	AEM (2017a)
Tailing slurry solid concentration from the mill	% w/w	54	AEM
Tailings slurry specific gravity	t/m^3	1.56	Calculated
Tailings solid specific gravity		3.0	AEM
Tailings solid particle size (P80)	µm	80	AEM
Reclaim water flow	m^3/h	Adjusted to maintain water cover over the tailings; maximum 230	SLI
Fresh water requirement for camp site	m^3/d	95	AEM
Moisture content in ore (assumed values based on previous water balance)	%	Jan: 0.98%; Feb: 1.53%; Mar: 1.04%; Apr: 1.09%; May 1.08%; Jun: 0.99%; Jul: 1.30%; Aug: 0.98%; Sep: 0.89%; Oct: 0.99%; Nov: 0.72%; Dec` 0.93%	AEM
Minimum reclaim pond volume	m^3	250,000	AEM
Tailings slurry in-situ dry density (in-situ after consolidation)	t/m^3	Refer to section 2.3	SLI
Water Content in the deposited tailings (in-situ after consolidation)	%	Refer to section 2.3	SLI
Deposition Slope	%	for modelling purposes, assume a flat geometry	SLI

Parameter	Units	Values	Source
Pit Volumes • Portage Pit A (up to elev. 133 m) • Portage Pit E (up to elev. 133 m) • Goose Pit (up to elev. 130 m)	m^3	Refer to Section 2.6 • 13,452,984 • 20,988,815 • 6,967,170	AEM (2017b)
Catchment Areas	ha	Refer to Section 2.4	AEM / SLI
Precipitation/evaporation values	mm	Refer to Section 2.4	AEM / SLI
Pit infiltration		Refer to section 2.5	SLI
Minimum water cover depth	m	3	SLI (2014)
Ice thickness	m	2	SLI (2014)
Maximum tailings elevation	m	125.6 m (8 m below the Third Portage Lake level (133.6 m) to prevent tailings re-suspension)	SLI (2016)

2.2 In-Situ Tailings Dry Density

In the conceptual study for the in-pit deposition, an in-situ tailings dry density of 1.0 t/m^3 following consolidation was selected (SLI 2016). The use of this value is conservative and would represent possibly the highest tailings storage volume required. This value was selected to account for the high rate of addition of tailings in the pit, which could lead to high pore water pressures resulting in very low density consolidated deposit.

SLI conducted a 1D tailings consolidation modeling assessment using the computer program FSConsol (GWP Software Inc.) while considering the expected properties of the tailings based on literature data (SLI 2017a). The model was evaluated under ideal sub-aqueous deposition condition. The results indicated that under these operating conditions, the average in-situ dry tailing density will range from 1.03 to 1.11 t/m^3. It is important to note that this model was based on literature values only since no specific data on the Whale Tail tailings were available. Characterization and testing on the Whale Tail tailings will be performed in the summer of 2017. The results will be used to confirm these assumptions.

For the purpose of the PFS design and in order to provide a conservative analysis, the water/mass balance model and water quality forecast model will continue to consider an average in-situ dry tailings density of **1.0 t/m^3**.

Assuming a dry solid specific gravity of 3.0 and an in-situ tailings density of 1.0 t/m^3, the water content in the deposited tailings after consolidation is evaluated at **67% w/w** of the mass of dry tailings deposited.

2.3 Tonnage Profile

For the purpose of the PFS design for in-pit deposition, Table 2-2 presents the mill throughput tonnage profile considered in the development of the water/mass balance around Portage Pit and Goose Pit based on the operating parameters listed in Table 2-1 and an in-situ tailings dry density of 1.0 t/m^3. The total tonnage shown in the table is the maximum amount of Portage/Vault, Whale Tail and future ore bodies tailings that can be stored in Goose Pit and Portage Pit.

Table 2-2 : Tailings Throughput Tonnage Profile (AEM 2017a)

Year	Tailings Throughput per Year (tons dry solid/year) Note 1	Source of Tailings	Deposition Location
2018	2,420,216	Portage/Vault	South Cell TSF
2019	1,583,570 1,642,499	Portage/Vault Whale Tail	Goose Pit
2020	3,285,000	Whale Tail	Goose Pit Portage Pit A
2021	3,285,000	Whale Tail	Portage Pit A and/or Pit E
2022	3,285,000	Whale Tail	Portage Pit A and/or Pit E
2023	3,285,000	Future Ore Bodies	Portage Pit A and/or Pit E
2024	3,285,000	Future Ore Bodies	Portage Pit A and/or Pit E
2025	3,285,000	Future Ore Bodies	Portage Pit A and/or Pit E
2026	3,285,000	Future Ore Bodies	Portage Pit A and/or Pit E
2027	3,285,000	Future Ore Bodies	Portage Pit A and/or Pit E
2028	2,457,000	Future Ore Bodies	Portage Pit A and/or Pit E
Total	**4,003,786** **11,497,499** **18,882,000**	**Portage/Vault** **Whale Tail** **Future Ore Bodies**	

Note 1: Conceptual tonnage/year for the purposes of the PFS.

2.4 Surface Runoff

Table 2-3 presents the site run-off hydrology for a typical average year considered in the evaluation of the water/mass balance around Portage and Goose Pit. It is assumed that the volume of snowfall accumulated between the months of October and May will be handled as additional snowmelt volume in the month of June during spring runoff.

Table 2-4 summarizes the catchment areas and the net surface runoff volumes considered in the water/mass balance model for in-pit deposition. Figure 2-1 presents the evaluation of the catchment areas used in the PFS around Portage Pit A, Portage Pit E, Portage Central Dump and Goose Pit.

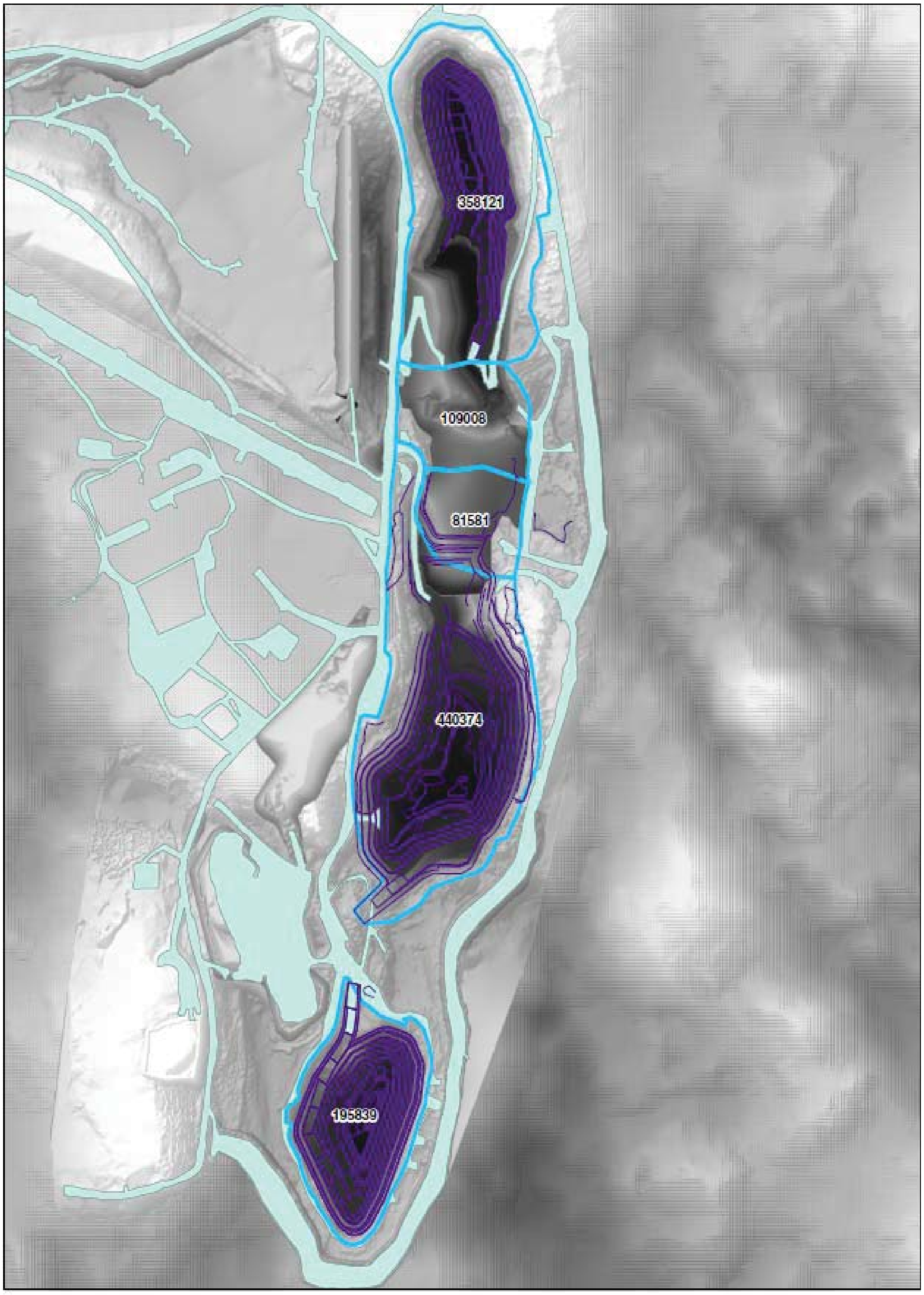
Table 2-3 : Site Run-Off Hydrology for a Typical Average Year

Month	Rainfall	Snowfall Water Equivalent	Evapo-Transpiration	Snow Sublimation	Lake Evaporation	Net precipitation on ground or over pond	Net precipitation used for model
	mm	mm	mm	mm	mm	mm	mm
Jan	0.0	8.2	0	9	0	0.0	0.0
Feb	0.0	2.2	0	9	0	0.0	0.0
Mar	0.0	3.6	0	9	0	0.0	0.0
Apr	0.0	3.9	0	9	0	0.0	0.0
May	0.0	15.6	0	9	0	6.6	0.0
Jun	20.3	2.6	2.8	0	8.8	20.1	50.9
Jul	40.3	5.2	32	0	99.2	13.5	13.5
Aug	61.2	7.9	32.4	0	100.4	36.7	36.7
Sep	24.2	5.8	12.7	0	39.5	17.3	17.3
Oct	0.0	22.2	0	9	0.1	13.2	0.0
Nov	0.0	5.6	0	9	0	0.0	0.0
Dec	0.0	20.0	0	9	0	11.0	0.0

Table 2-4 : Catchment Areas and Net Surface Runoff Volumes

Sectors	North Cell TSF	South Cell TSF	Portage Pit A + Portion of Central Dump	Portage Pit E + Portion of Central Dump	Goose Pit
Catchment Area	**152.9 ha**	**84.3 ha**	**46.7 ha**	**52.2 ha**	**19.6 ha**
Month	**m^3/month**	**m^3/month**	**m^3/month**	**m^3/month**	**m^3/month**
Jan	0	0	0	0	0
Feb	0	0	0	0	0
Mar	0	0	0	0	0
Apr	0	0	0	0	0
May	0	0	0	0	0
Jun	77,826	42,909	23,777	26,568	9,968
Jul	20,642	11,381	6,306	7,046	2,644
Aug	56,114	30,938	17,144	19,156	7,187
Sep	26,452	14,584	8,081	9,030	3,388
Oct	0	0	0	0	0
Nov	0	0	0	0	0
Dec	0	0	0	0	0
Total	**181,034**	**99,811**	**55,308**	**61,799**	**23,187**

Figure 2-1: Catchment Areas for Portage and Goose Pit



2.5 Pit Infiltration

Table 2-5 presents the pit infiltration flow rates used in the water/mass balance model. These values were estimated using the actual volumes pumped from the pits in 2015 minus the average runoff precipitation (SLI 2017b).

The East Dike seepage flows is based on the value used by AEM in their annual Water Management Plan updates.

Table 2-5 : Assumed Pit Infiltration Flow Rates

Location	Infiltration Flow
Portage Pit A	80 m^3/d
Portage Pit E	58 m^3/d
Goose Pit	878 m^3/d
East Dikes Seepage	14,964 m^3/mth

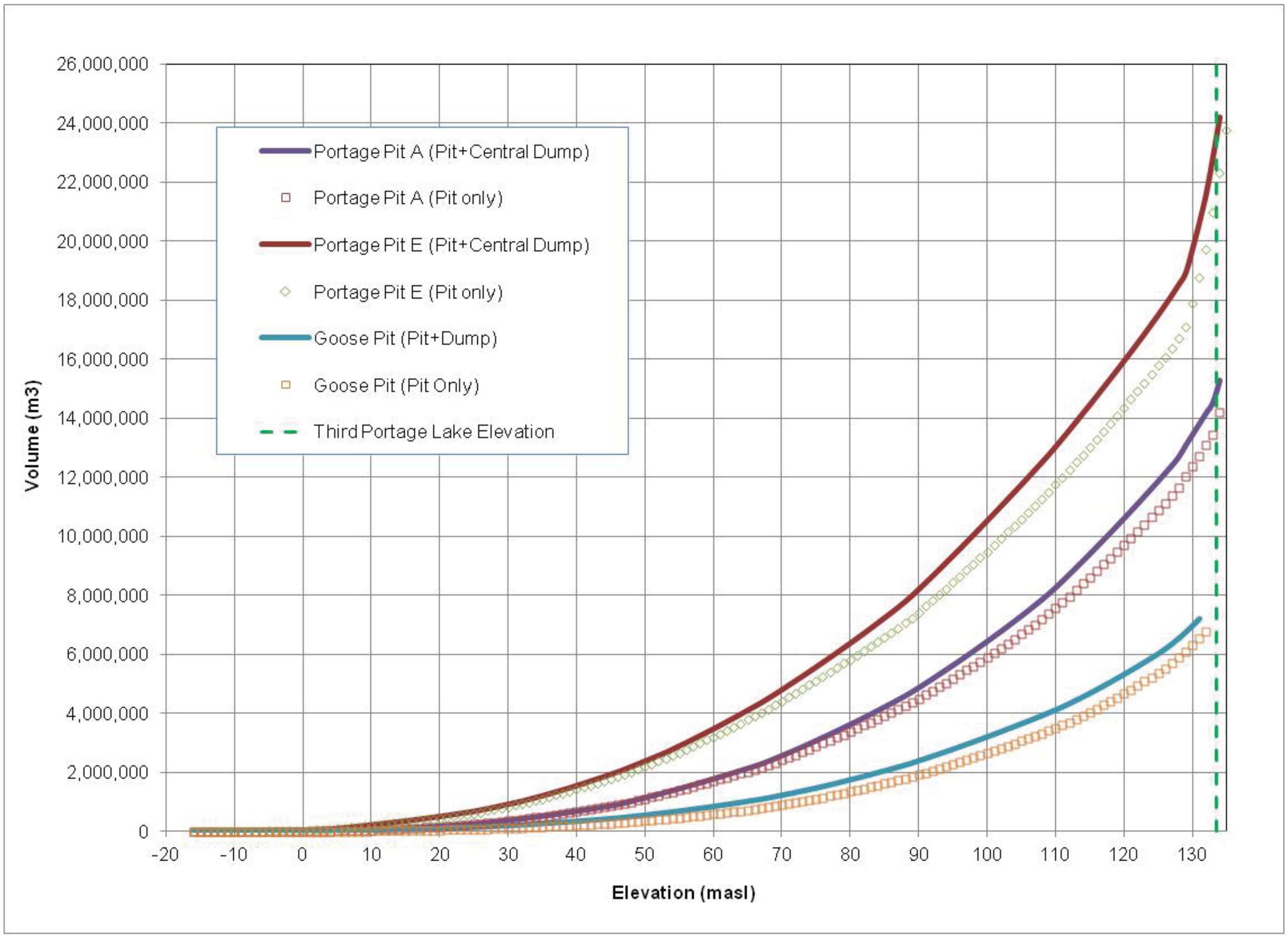
2.6 Pit Filling Curve

The pit filling curves were evaluated based on the latest topography data and accounts for the waste rock dump deposited in Portage Pit A, Pit E and Goose Pit.

Figure 2-2 presents the pit filling curve considered in the PFS design for in-pit deposition. Two curves are presented for each pit:

- One curve shows the free water storage volumes. This curve considers the water storage volume available in the pit as well as in the void space in the waste dump.
- One curve shows the total storage volume available in the pits only for water and tailings. For the model, it is assumed that a negligible amount of tailings solids can migrate through the waste dump.

Figure 2-2: Pit Filling Curve



Notes:

- The solid lines indicate the total available volume in the pit and include the void volume in the dump that deposited in the pits.
- The dashed lines indicate the available volume in the pit only.

3.0 In-Pit Deposition Strategy

The in-pit deposition consists of the deposition of tailings into Goose Pit, Portage Pit A and Pit E. The deposition strategy considered for the PFS design is divided into the following distinct periods:

- Period 1: Portage/Vault tailings deposition in South Cell TSF and in Goose Pit
- Period 2: Whale Tail tailings deposition in Goose Pit
- Period 3: Whale Tail and Future Ore Bodies Tailings deposition in Portage Pit, alternating between Portage Pit A and Pit E
- Period 4: Pit Closure at the end of operations
- Period 5: Monitoring period
- Period 6: Post closure

The in-pit deposition strategy was developed based on the following general assumptions:

i. It is assumed that water can flow between Portage Pit A and Pit E via the Portage Central Dump once the water level in the pit is above 90 masl.

ii. Tailings are first deposited in Goose Pit. For the purpose of the PFS study, it is assumed that the pit is filled until the tailings elevation reach about 125 masl.

iii. Once Goose Pit is filled, tailing deposition continues in Portage Pit A. Tailings are deposited in Pit A until elevation 80 masl to limit the amount of reclaim water that could flow from Pit A to Pit E through Central dump.

iv. Portage Pit E is then filled with tailings up to elevation 80 masl.

v. Deposition continues in Portage Pit, alternating between Pit A and Pit E until the tailings reaches an elevation of 125 masl in order to limit the hydraulic gradients between the pits and ensuring a minimum water cover over the tailings.

vi. During deposition, reclaim water is pumped to the mill from either Portage Pit A or Pit E. Reclaim water is pumped from the pit where no deposition is occurring to ensure that low Total Suspended Solids (TSS) are returned to the mill.

vii. During deposition, to ensure that the water level in Goose Pit remains below 130 masl, water from Goose Pit is transferred to Portage Pit E every summer.

viii. North Cell and South Cell TSF runoff are transferred to Portage Pit E during in-pit deposition.

ix. Stormwater Management Pond water is transferred to the pit where tailings deposition is occurring.

x. East Dike Seepage water is transferred to either Portage Pit A or Pit E during in-pit deposition. The seepage is transferred to the pit where tailings deposition is occurring.

Figure 3-1 presents the preliminary project timeline while table 3-1 presents the detail in-pit deposition strategy based on an in-situ tailings dry density of 1.0 t/m^3 after consolidation in the pits. For Period 3, tailings deposition will occur in Portage Pit, alternating between Portage Pit A (period 3A) and Portage Pit E (period 3B).

Figure 3-1 presents a plan and section view of the Portage and Goose Pits. A process flow diagram (PFD) of the in-pit deposition in Goose Pit, Portage Pit A and Pit E can be found in Appendix 1.

Figure 3-1: Preliminary Project Timeline

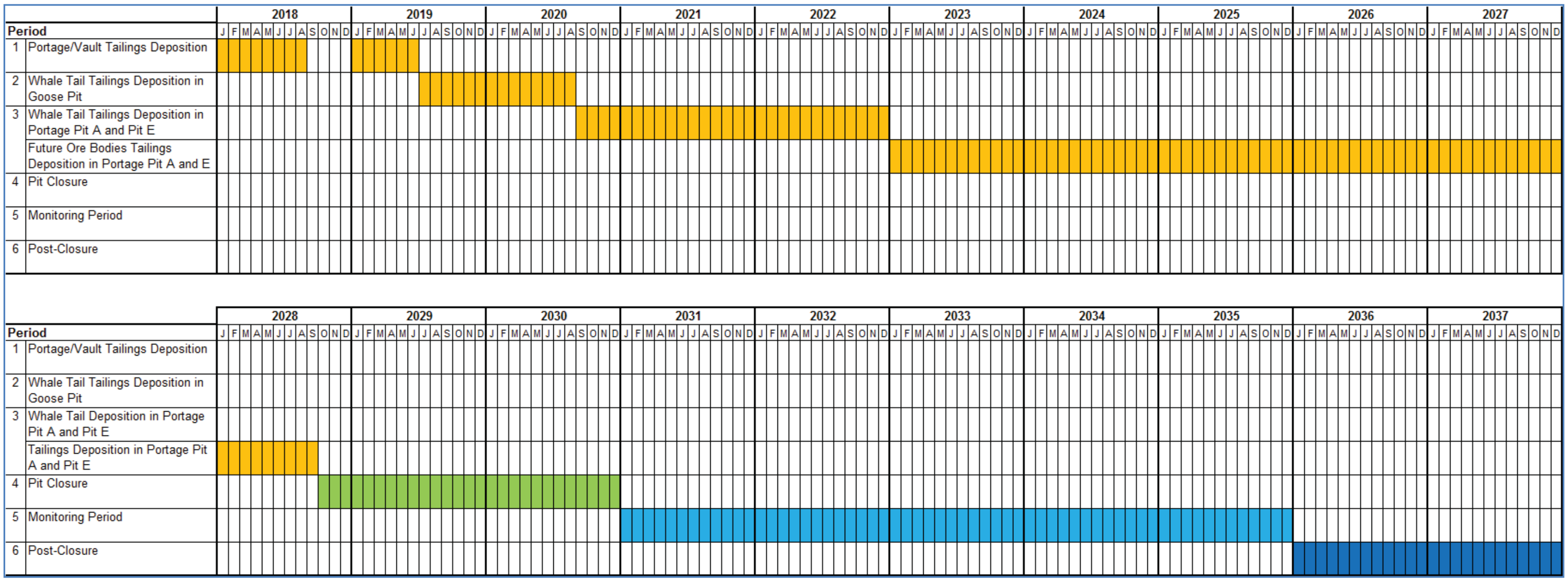


Table 3-1 : In-Pit Deposition Strategy

Period	North Cell TSF	South Cell TSF	Portage Pit A	Portage Pit E	Goose Pit
Period 1: ***Portage/Vault Tailings Deposition*** ***January 2018*** ***to*** ***June 2019***	Input: Surface water from the NC TSF, Interception sump, SD1 and WSF Output: Surface water transfer to SC TSF Activity: Start reclamation of the North Cell.	Deposition: Continue deposition of Vault tailings in South Cell TSF (January 2018 – August 2018) Input: Surface water from NC and SC TSF Reclaim Pond. Input: Stormwater Mgmt Pond Water Output: Reclaim water pumped to Mill	Input: Pit surface runoff and pit infiltration. Note: East Dike seepage pumped to 2PL. Activity: Install tailings piping into the pit	Input: Pit surface runoff and pit infiltration. Activity: Install reclaim pumps and pipeline in Portage Pit E. Bring electrical power to reclaim pump.	Deposition: Deposition in Goose Pit from January 2019 to June 2019. Input: Surface runoff and pit infiltration. Input: Stormwater Mgmt Pond Water Output: Transfer water to Portage Pit A (as required) to maintain water level during deposition. Activity: Installation of tailings pipelines to Goose Pit in 2018. Installation water transfer pump station.

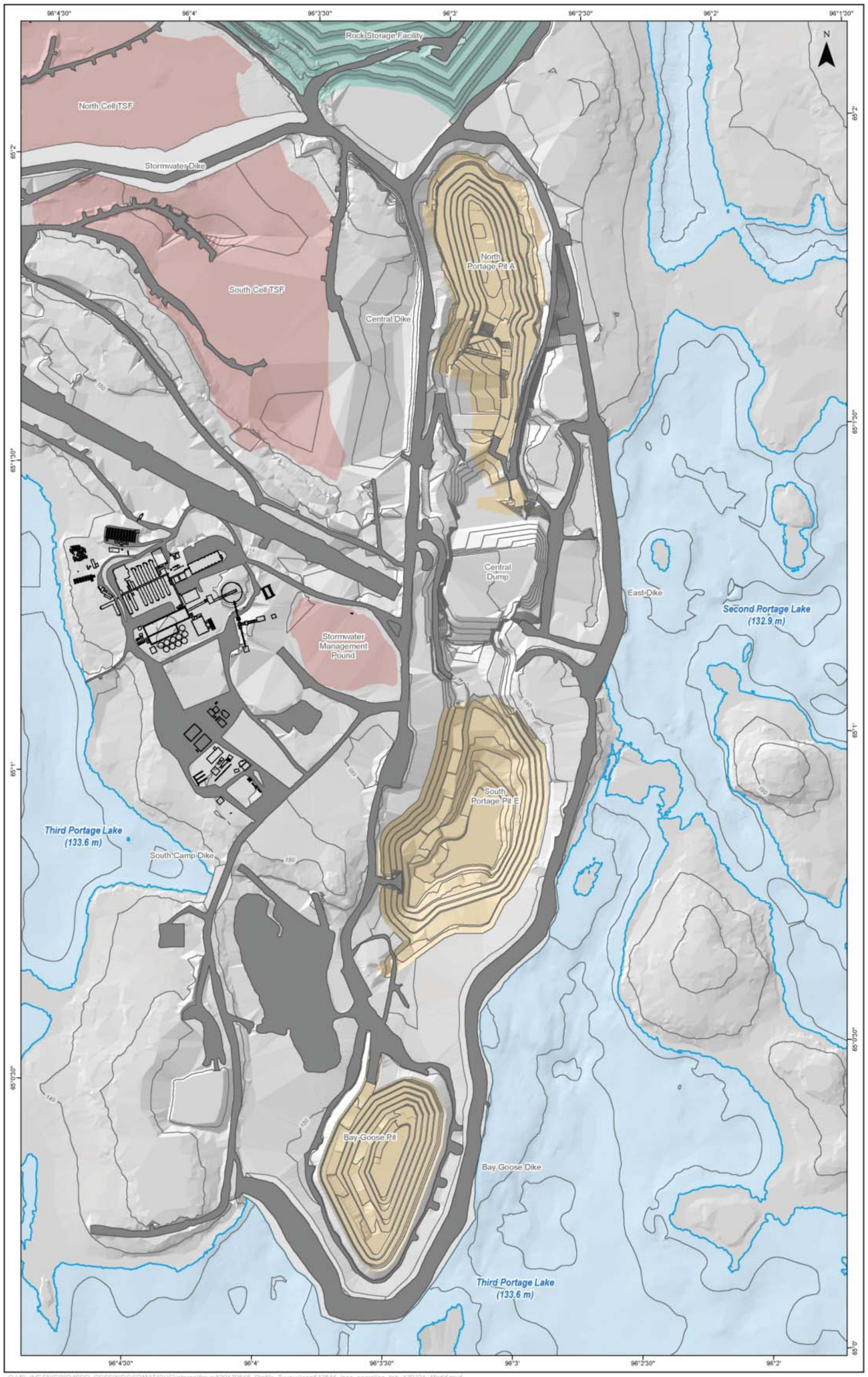
Period	North Cell TSF	South Cell TSF	Portage Pit A	Portage Pit E	Goose Pit
Period 2: ***Whale Tail Tailings Deposition in Goose Pit*** ***(Max Tails. Elev.)*** ***July 2019*** ***to*** ***August 2020***	Input: Surface water from the NC TSF, Interception sump, SD1 and WSF Output: Surface water transfer to SC TSF. Activity: Continue reclamation of the North Cell.	Input: Surface water from SC. Input: Surface water from NC. Output: Surface water to Portage Pit E. Activity: Start reclamation of the South Cell.	Input: Pit surface runoff and pit infiltration. Input: 3PL water. Note: East Dike seepage pumped to 2PL.	Input: Pit surface runoff and pit infiltration. Input: NC and SC runoff Input: 3PL water. Output: Reclaim water pumped to Mill. Activity: Install tailings piping into the pit	Deposition Whale Tail tailings Input: Surface runoff and pit infiltration. Input: Stormwater Mgmt Pond Output: Transfer water to Portage Pit E (as required) to maintain water level during deposition.

Period	North Cell TSF	South Cell TSF	Portage Pit A	Portage Pit E	Goose Pit
Period 3A ***Whale Tail and Future Ore Bodies Tailings Deposition in Portage Pit A*** ***September 2020*** ***to*** ***September 2028*** ***(intermittent)***	Input: Surface water from the NC TSF, Interception sump, SD1 and WSF Output: Surface water transfer to SC TSF Activity: Continue reclamation of the North Cell.	Input: Surface water from SC. Input: Surface water from NC. Output: Surface water to Portage Pit E Activity: Continue reclamation of the South Cell.	Deposition Whale Tail and Future Ore Bodies tailings Input: Pit surface runoff and pit infiltration. Input: 3PL water. Input: Stormwater Mgmt Pond Input East Dike seepage Output: Water to Pit E via Central Dump.	Input: Pit surface runoff and pit infiltration. Input: 3PL water. Input: NC and SC runoff Input: Goose Pit runoff Input: Pit A water from Central Dump Output: Reclaim water pumped to Mill.	Input: Surface runoff and pit infiltration. Output: Transfer to Pit E to maintain water level < 130 m.

Period	North Cell TSF	South Cell TSF	Portage Pit A	Portage Pit E	Goose Pit
Period 3B ***Whale Tail and Future Ore Bodies Tailings Deposition in Portage Pit E*** ***September 2021*** ***to*** ***March 2028*** ***(intermittent)***	Input: Surface water from the NC TSF, Interception sump, SD1 and WSF Output: Surface water transfer to SC TSF Activity: End reclamation of the North Cell. Monitoring of NC water quality	Input: Surface water from SC. Input: Surface water from NC. Output: Surface water to Portage Pit E Activity: End reclamation of the South Cell. Monitoring of SC water quality	Input: Pit surface runoff and pit infiltration. Input: 3PL water. Input: Pit E water via Central Dump Output: Water to Pit E via Central Dump. Output: Reclaim water pumped to Mill.	Deposition Whale Tail and Future Ore Bodies tailings Input: Pit surface runoff and pit infiltration. Input: Stormwater Mgmt Pond Input East Dike seepage Input: NC and SC runoff Input: Goose Pit runoff Input: Pit A water from Central Dump Output: Water to Pit A via Central Dump	Input: Surface runoff and pit infiltration. Output: Transfer to Pit E to maintain water level < 130 m.
Period 4: ***Pit Closure*** ***October 2028*** ***to*** ***December 2030***	Input: Surface water from the NC TSF, Interception sump, SD1 and WSF Output: To 3PL Note: Closure completed	Input: Surface water from SC. Output: To 3PL Note: Closure completed	Input: Pit surface runoff and pit infiltration. Input: East Dike seepage Activity: Treatment of reclaim water in Pit Monitor water quality.	Input: Pit surface runoff and pit infiltration. Input: East Dike seepage Activity: Treatment of reclaim water in Pit Monitor water quality.	Input: Surface runoff and pit infiltration. Activity: Treatment of reclaim water in Pit Monitor water quality. Note: Once water level > 130 m, assume zero infiltration flow.

Period	North Cell TSF	South Cell TSF	Portage Pit A	Portage Pit E	Goose Pit
Period 5: ***Monitoring Period*** ***January 2031*** ***to*** ***December 2035***	Note: Closure completed Surface water directed toward 3PL.	Note: Closure completed Surface water directed toward 3PL.	Input: Pit surface runoff and pit infiltration. Input: East Dike seepage Activity: Monitor water quality.	Input: Pit surface runoff and pit infiltration. Input: East Dike seepage Activity: Monitor water quality.	Input: Surface runoff and pit infiltration. Activity: Monitor water quality. Note: Once water level > 130 m, assume zero infiltration flow.
Period 6: ***Post-Closure*** ***As of January 2036***	Closure completed	Closure completed	Closure completed	Closure completed	Closure completed

Figure 3-2: Plan View of the Portage and Goose Pit Area



4.0 Pit Closure Strategy

For the PFS design, the closure strategy retained at the end of operation consists of pit flooding and dike breaching once the water quality is met. In fact, the ultimate objective for closure is to return the existing surrounding lakes to pre-mining state by joining the in-pit water bodies to the surrounding receiving environment. To achieve this objective, the following steps will have to be realised:

- In-pit tailings deposition to an elevation up to 125.6 masl. This maximum tailings elevation was assumed in order to achieve a water cover of about 8 m above the tailings at closure. This water cover depth will ensure that the tailings will not be re-suspended due to wave effect and ice formation and limit access of aquatic life to it, thus removing the necessity of a granular cover over the tailings.
- Treatment of the reclaim water to remove total/dissolved metals and other parameters of concern;
- Pit flooding with Third Portage Lake water, if required;
- During the monitoring period, natural runoff will be allowed to enter and fill the Portage and Goose Pit until the water elevation is close to the water elevation of Third Portage Lake (133.6 masl).
- Dike breaching once the water quality meets site-specific closure criteria.

5.0 Water and Mass Balance Model

5.1 Description

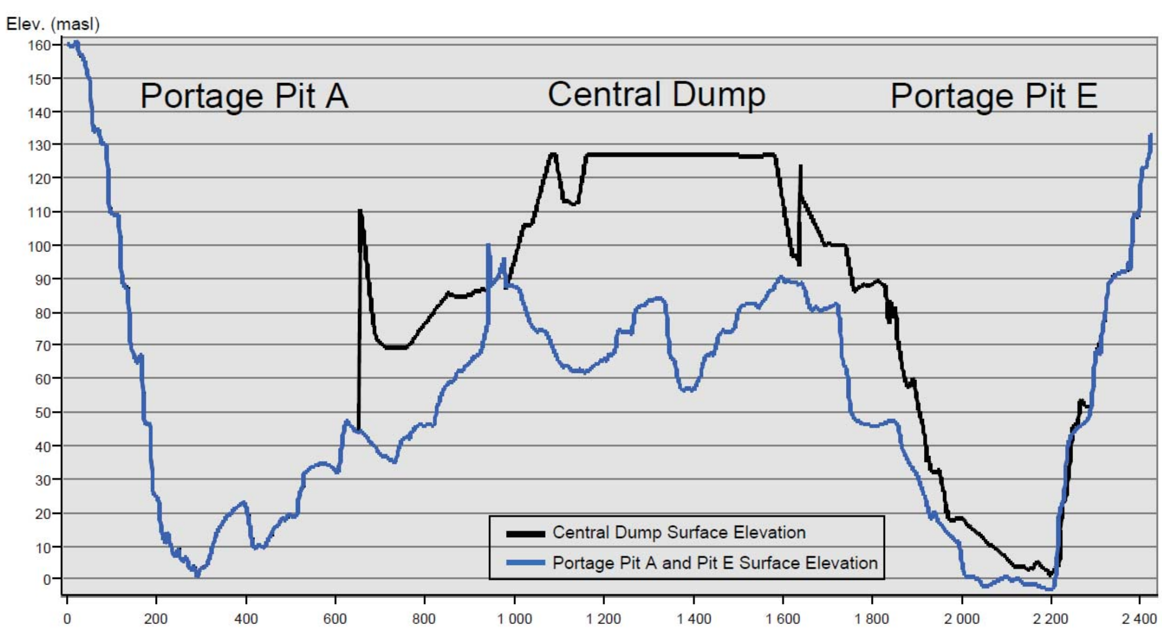
A water/mass balance model was developed for the PFS design of the in-pit deposition in order to evaluate the following:

- Maximum quantity of tailings that can be deposited in the pits considering a maximum tailings elevation of 125.6 masl;
- Mass, volume and elevation the consolidated tailings will occupy in each pit;
- Elevation of the water in each pit during in-pit deposition and at closure;
- Volume of fresh water required to maintain a water cover over the deposited tailings during in-pit deposition and for pit filling at closure;
- Reclaim water flow back to the mill while maintaining a minimum water cover over the tailings;
- Water quality forecast of different parameters in the reclaim water (i.e. water stored in the pits during deposition) during deposition and following closure.

The water/mass balance was developed based on the different inputs and outputs streams into each pit as described in Table 3-1. The model is based on a monthly time step and starts in January 2018. The water/mass balance model includes deposition of Portage/Vault tailings in the South Cell TSF and Goose Pit, and Whale Tail tailings in Goose Pit, and Whale Tail and future ore bodies tailings in Portage Pit A and Pit E.

Furthermore, the water/mass balance model also takes into account that Portage Pit A and Pit E are hydraulically connected via the Portage Central Dump. Figure 5-1 presents a section view of Portage Pit A, Pit E and the Central Dump. The model allows water to flow from one pit to the other when there is a difference in water elevation between the pits. Once the water elevation in Pit A and Pit E are more or less the same, water is allowed to transfer between the pits to maintain the same water elevation in both pits.

Figure 5-1: Profile View of Portage Pit A, Pit E and Central Dump



5.2 Assumptions

The following main assumptions were made for the development of the water/mass balance for the PFS design of the in-pit deposition:

1. In order to simplify the model, 100% conservation of water and mass is assumed. No chemical or natural degradation is taken into consideration, except for cyanide. Cyanide degradation is considered only during the summer months (June to September);
2. For this analysis, no treatment will take place at the North or South Cells TSF Reclaim Pond or at the Portage or Goose Pits during operations and closure;
3. The water quality of the Mill Effluent is assumed to be constant over time for all parameters, except for ammonia, chloride, sulfates and total dissolved solids (TDS). For ammonia, the water quality for this parameter will continue to vary due to the hydrolysis of cyanate to ammonia. For chloride, the water quality for this parameter will continue to increase due to the continued use of calcium chloride as a dust suppressant in the mill and crusher. For sulfates, the oxidation of sulphide in the ore will continue to contribute to the sulfate loading in the Mill Effluent. The overall TDS in the Mill Effluent will continue to increase due to the increase in ammonia, chloride and sulfate.
4. The water quality for the runoff and infiltration streams entering in the system is assumed to be constant over time for all parameters.
5. Water will start flowing between Portage Pit A and Pit E through Portage Central Dump once the water elevation in the pit is greater or equal to 90 masl. Water is assumed to flow through Central Dump between Portage Pit A and Pit E, irrespective of the tailings elevation. No reduction of the Central Dump permeability is accounted for in the model.
6. No solid tailings are assumed to migrate into the waste dump in Goose Pit and Portage Pit A and Pit E. Only water is allowed to flow through and accumulate in the waste dump.
7. Flows from surface waters, pit infiltration and East Dike seepage into the Portage Pit A, Pit E and Goose Pit are considered in the model. The flows are assumed constant throughout the year. When the water elevation is greater than 129 masl, it is assumed that the pit infiltration and East Dike seepage flow is reduced by 50% since the hydraulic gradient between the pit and the Second and Third Portage Lake will be lower.
8. Runoff water from the North and South Cells TSF will be transferred to Portage Pit E until the end of in-pit deposition. By that time, the closure of North and South Cells TSF is assumed to be completed and the runoff from this area can be transferred to Third Portage Lake.
9. Starting volumes and forecasted water quality in the South Cell TSF, Portage Pit A, Portage Pit E and Goose Pit are based on the results obtained from the Meadowbank Water Quality Forecasting Update for the 2016 Water Management Plan (SLI 2017c) for the month of December 2017.

5.3 Inputs/Outputs of Water/Mass Balance

5.3.1 Input and Ouput Streams

Table 5-1 summarizes the input and outputs considered in the water/mass balance around Portage Pits A and E and Goose Pit, as well as around the South Cell TSF during the period of In-Pit Tailings Deposition.

Table 5-1 : Summary Input and Output Streams used in Water/Mass Balance Model

Area	Input Streams	Output Streams
North Cell TSF	Surface water runoff Interception sump to NC WEP & SD1 to NC Waste rock seepage to NC	Runoff to South Cell TSF
South Cell TSF	North Cell runoff South Cell runoff Stormwater Management Pond** Tailings Water from the Mill*	Reclaim water to the Mill South Cell runoff to Portage Pit E
Portage Pit A	Transfer from Third Portage lake Portage Pit A runoff Portage Pit A infiltration Tailings Water from Mill* East Dike Seepage*** Stormwater Management Pond*** Transfer from Portage Pit E via Central Dump	Reclaim water to Mill** Water transfer to Pit E via Central Dump
Portage Pit E	Transfer from Third Portage lake Portage Pit E runoff Portage Pit E infiltration Tailings Water from Mill* South Cell runoff Goose Pit East Dike Seepage*** Stormwater Management Pond***	Reclaim water to Mill** Water transfer to Pit A via Central Dump
Goose Pit	Transfer from Third Portage lake Goose Pit runoff Goose Pit infiltration Tailings Water from Mill* Stormwater Management Pond***	Transfer to Pit E when required to maintain water elevation below 130 m during in-pit deposition.

Notes:

* Applicable only when tailings are deposited in the area.

** Reclaim water transferred to mill from pit where no deposition is occurring.

*** For the purpose of the model, stream will be transferred to the pit where tailings deposition is occurring.

5.3.2 Water Quality Data

Table 5-2 presents the water quality data for the Mill Effluent and tailings leaching rate used in the mass balance to evaluate the water quality forecast in Goose Pit, Portage Pit A and Pit E. Table 5-3 and 5-4 present the water quality data used around North and South Cells and around Portage Pit and Goose Pit respectively.

The water quality data are based on the following information:

- Mill Effluent when processing Portage/Vault ore: Average results from 4 samples taken of the mill effluent in 2016;
- Leaching of tailings from Portage/Vault ore: Average results from SFE leach tests on tailings conducted in 2016;
- Mill Effluent when processing Whale Tail ore: Average results from metallurgical test obtained from “Combined Ore” samples taken in Mar 2015 and May 2016;
- Leaching of tailings from Whale Tail ore: Average results from metallurgical test obtained from “Combined Ore” samples taken in Mar 2015 and May 2016;
- Water quality data from Portage RSF, Saddle Dam 1 sump, Saddle Dam 3 sump and East Dike Seepage is based on average water quality results obtained from sampling conducting in 2015 and 2016;
- Stormwater Management Pond water quality is based on analytical results from samples taken in 2013;
- Third Portage Lake water quality data is based on the average results taken from sample in the summer 2015;
- Pit infiltration water quality data to Portage Pit and Goose Pit is based on samples taken at groundwater monitoring well E3 on 2016-07-03 and MW03-01 on 2010-08-26, respectively;
- Natural runoff is assumed to have similar quality as Third Portage Lake water;
- The starting water quality data used for North Cell, South Cell, Portage Pit and Goose Pit is based on the 2016 water quality forecast model results for the month of December 2017.

Table 5-5 presents the CCME guidelines and Water License discharge criteria to Third Portage Lake at Meadowbank. The values present in this table are used for the PFS design to identify parameters of concern during in-pit deposition and at closure.

Table 5-2 : Mill Effluent Water Quality Data and Leaching Rate

PARAMETERS	UNITS	MILL EFFLUENT WHALE TAIL	LEACHING OF TAILS WHALE TAILS (kg/ton)	MILL EFFLUENT PORTAGE/VAULT	LEACHING OF TAILS PORTAGE/VAULT (kg/ton)
	REFERENCE	From COMBINED sample Process Water Sample Mar 15 and May 16	From COMBINED sample Process Water Sample Mar 15 and May 16	Average of 4 mill effluent samples taken in 2016	From SFE Leach Test- Avg 2016 tests
Alkalinity	mg $CaCO_3$/L	102	5.47E-02	66	3.50E-02
Hardness	mg $CaCO_3$/L	1345	5.43E-01	1313	1.85E-01
Total dissolved solids	mg/L	Summer: +3664 Winter: +4037	1.18E+00	Summer: +1564 Winter: +1937	0.00E+00
Total Aluminium (Al)	mg/L	0.764	4.41E-05	0.326	1.53E-04
Total Silver (Ag)	mg/L	0.001	8.67E-09	0.005	1.08E-06
Total Arsenic (As)	mg/L	0.452	5.88E-04	0.026	5.28E-06
Total Barium (Ba)	mg/L	0.080	1.18E-04	0.128	1.32E-05
Total Cadmium (Cd)	mg/L	0.00004	1.03E-08	0.000	0.00E+00
Total Chromium (Cr)	mg/L	0.041	3.00E-08	0.001	7.75E-08
Total Copper (Cu)	mg/L	3.569	2.89E-06	3.569	2.40E-06
Total Iron (Fe)	mg/L	1.710	1.03E-03	0.832	2.42E-04
Total Lead (Pb)	mg/L	0.010	2.33E-08	0.002	8.50E-08
Total Manganese (Mn)	mg/L	0.161	5.53E-05	0.013	1.47E-05
Total Mercury (Hg)	mg/L	0.000005	6.67E-09	0.000	5.00E-09
Total Molybdenum (Mo)	mg/L	0.115	4.36E-05	0.966	4.92E-05
Total Nickel (Ni)	mg/L	0.319	9.33E-06	0.024	7.00E-07
Total Selenium (Se)	mg/L	0.008	6.67E-07	0.166	1.17E-05
Total Strontium (Sr)	mg/L	0.70	1.79E-04	2.130	2.70E-04
Total Thallium (Ti)	mg/L	0.00002	3.33E-09	0.000	3.80E-08
Total Uranium (U)	mg/L	0.003	2.79E-07	0.013	3.67E-06
Total Zinc (Zn)	mg/L	0.006	1.00E-06	0.003	1.00E-06
Chloride	mg/L	Summer: +75 Winter: +300	3.20E-02	Summer: +75 Winter: +300	0.00E+00
Fluoride (F)	mg/L	0.19	1.07E-04	0.645	3.25E-04

PARAMETERS	UNITS	MILL EFFLUENT WHALE TAIL	LEACHING OF TAILS WHALE TAILS (kg/ton)	MILL EFFLUENT PORTAGE/VAULT	LEACHING OF TAILS PORTAGE/VAULT (kg/ton)
Sulphate (SO4)	mg SO4/L	Summer: +3500 Winter: +3500	8.47E-01	Summer: +1400 Winter: +1400	2.70E-01
Total Cyanide (CNt)	mg/L	19	5.84E-03	18	0.00E+00
Total Ammonia ($NH_3 + NH_4$)	mg N/L	Summer: +40 Winter: +40	3.60E-03	Summer: +40 Winter: +40	4.95E-03
Nitrate (NO_3)	mg N/L	7	4.00E-04	13	8.05E-04
Dissolved Aluminium (Al)	mg/L	0.279	4.41E-05	0.119	1.53E-04
Dissolved Silver (Ag)	mg/L	0.001	8.67E-09	0.005	1.08E-06
Dissolved Arsenic (As)	mg/L	0.452	5.88E-04	0.026	5.28E-06
Dissolved Barium (Ba)	mg/L	0.077	1.18E-04	0.122	1.32E-05
Dissolved Cadmium (Cd)	mg/L	0.00004	1.03E-08	0.000	0.00E+00
Dissolved Chromium (Cr)	mg/L	0.0065	3.00E-08	0.000	7.75E-08
Dissolved Copper (Cu)	mg/L	3.240	2.89E-06	3.240	2.40E-06
Dissolved Iron (Fe)	mg/L	1.397	1.03E-03	0.679	2.42E-04
Dissolved Lead (Pb)	mg/L	0.0058	2.33E-08	0.0004	8.50E-08
Dissolved Manganese (Mn)	mg/L	0.161	5.53E-05	0.008	1.47E-05
Dissolved Mercury (Hg)	mg/L	0.000005	6.67E-09	0.000	5.00E-09
Dissolved Molybdenum (Mo)	mg/L	0.101	4.36E-05	0.943	4.92E-05
Dissolved Nickel (Ni)	mg/L	0.056	9.33E-06	0.021	7.00E-07
Dissolved Selenium (Se)	mg/L	0.008	6.67E-07	0.169	1.17E-05
Dissolved Strontium (Sr)	mg/L	0.676	1.79E-04	2.045	2.70E-04
Dissolved Thallium (Ti)	mg/L	0.00001	3.33E-09	0.000	3.80E-08
Dissolved Uranium (U)	mg/L	0.003	2.79E-07	0.012	3.67E-06
Dissolved Zinc (Zn)	mg/L	0.003	1.00E-06	0.001	1.00E-06

Table 5-3 : Water Quality Data for Streams around North and South Cell TSF

PARAMETERS	UNITS	RECLAIM ST-21 NORTH CELL	SOUTH CELL	PORTAGE RSF TO NORTH CELL	SADDLE DAM 1 SUMP TO NORTH CELL	SADDLE DAM 3 SUMP TO SOUTH CELL	THIRD PORTAGE LAKE
		WQF 2016 Model December 2017	WQF 2016 Model December 2017	Average 2015/16 sampled at ST-16	Average 2015/16 sampled at ST-S-2	Average 2016 sampled at ST-32	Average- East Basin Summer 2015
Alkalinity	mg $CaCO_3$/L	0	124	68	56	40	9
Hardness	mg $CaCO_3$/L	0	1417	176	182	235	12
Total dissolved solids	mg/L	0	3038	301	315	379	22
Total Aluminium (Al)	mg/L	0.00	0.65	0.26	0.37	0.24	0.01
Total Silver (Ag)	mg/L	0.00	0.01	0.00	0.00	0.00	0.00
Total Arsenic (As)	mg/L	0.00	0.04	0.03	0.02	0.00	0.00
Total Barium (Ba)	mg/L	0.00	0.13	0.02	0.02	0.04	0.00
Total Cadmium (Cd)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Chromium (Cr)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Copper (Cu)	mg/L	0.00	2.90	0.03	0.01	0.02	0.00
Total Iron (Fe)	mg/L	0.00	1.47	0.97	1.17	2.58	0.02
Total Lead (Pb)	mg/L	0.00	0.00	0.00	0.00	0.01	0.00
Total Manganese (Mn)	mg/L	0.00	0.06	0.52	0.29	1.53	0.00
Total Mercury (Hg)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Molybdenum (Mo)	mg/L	0.00	0.87	0.01	0.01	0.00	0.00
Total Nickel (Ni)	mg/L	0.00	0.02	0.04	0.03	0.25	0.00
Total Selenium (Se)	mg/L	0.00	0.16	0.00	0.00	0.00	0.00
Total Strontium (Sr)	mg/L	0.00	2.22	0.15	0.00	0.00	0.01
Total Thallium (Ti)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Uranium (U)	mg/L	0.00	0.02	0.01	0.00	0.00	0.00
Total Zinc (Zn)	mg/L	0.00	0.01	0.00	0.11	0.01	0.00
Chloride	mg/L	0.00	433.20	10.12	7.56	19.83	0.79
Fluoride (F)	mg/L	0.00	1.15	0.19	0.21	0.35	0.08
Sulphate (SO4)	mg SO4/L	0.00	3115.69	33.44	145.72	182.00	5.10

PARAMETERS	UNITS	RECLAIM ST-21 NORTH CELL	SOUTH CELL	PORTAGE RSF TO NORTH CELL	SADDLE DAM 1 SUMP TO NORTH CELL	SADDLE DAM 3 SUMP TO SOUTH CELL	THIRD PORTAGE LAKE
Total Cyanide (CNt)	mg/L	0.00	2.02	0.00	0.01	0.01	0.00
Total Ammonia ($NH_3 + NH_4$)	mg N/L	0.00	79.45	0.56	0.75	1.30	0.01
Nitrate (NO_3)	mg N/L	0.00	12.91	8.39	8.62	7.77	0.03
Dissolved Aluminium (Al)	mg/L	0.00	0.38	0.26	0.37	0.24	0.00
Dissolved Silver (Ag)	mg/L	0.00	0.01	0.00	0.00	0.00	0.00
Dissolved Arsenic (As)	mg/L	0.00	0.03	0.00	0.02	0.00	0.00
Dissolved Barium (Ba)	mg/L	0.00	0.12	0.02	0.02	0.04	0.00
Dissolved Cadmium (Cd)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Chromium (Cr)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Copper (Cu)	mg/L	0.00	2.63	0.03	0.01	0.02	0.00
Dissolved Iron (Fe)	mg/L	0.00	1.00	0.21	1.17	2.58	0.01
Dissolved Lead (Pb)	mg/L	0.00	0.00	0.00	0.00	0.01	0.00
Dissolved Manganese (Mn)	mg/L	0.00	0.05	0.64	0.29	1.53	0.00
Dissolved Mercury (Hg)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Molybdenum (Mo)	mg/L	0.00	0.85	0.01	0.01	0.00	0.00
Dissolved Nickel (Ni)	mg/L	0.00	0.02	0.04	0.03	0.25	0.00
Dissolved Selenium (Se)	mg/L	0.00	0.16	0.00	0.00	0.00	0.00
Dissolved Strontium (Sr)	mg/L	0.00	2.15	0.15	0.00	0.00	0.01
Dissolved Thallium (Ti)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Uranium (U)	mg/L	0.00	0.02	0.01	0.00	0.00	0.00
Dissolved Zinc (Zn)	mg/L	0.00	0.00	0.00	0.11	0.01	0.00

Table 5-4 : Water Quality Data for Streams around Portage and Goose Pit

PARAMETERS	UNITS	EAST DIKE SEEPAGE TO PORTAGE	STORMWATER MANAGEMENT POND	THIRD PORTAGE LAKE	PORTAGE PIT ST-19	GOOSE PIT ST-20	PORTAGE PIT INFILTRATION	GOOSE PIT INFILTRATION WATER
		Average 2016 sampled at ST-8	Average 2013	Average- East Basin Summer 2015	WQF 2016 Model December 2017	WQF 2016 Model December 2017	From Pit E3 sample 2016-07-03	From MW03-01 sample 2010-08-26
Alkalinity	mg $CaCO_3$/L	29	0	9	156	69	74	49
Hardness	mg $CaCO_3$/L	40	0	12	517	266	129	77
Total dissolved solids	mg/L	42	0	22	782	427	271	340
Total Aluminium (Al)	mg/L	0.04	0.00	0.01	3.35	0.73	0.22	0.015
Total Silver (Ag)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.001
Total Arsenic (As)	mg/L	0.00	0.00	0.00	0.25	0.00	0.01	0.001
Total Barium (Ba)	mg/L	0.01	0.00	0.00	0.04	0.02	0.02	0.015
Total Cadmium (Cd)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.001
Total Chromium (Cr)	mg/L	0.00	0.00	0.00	0.10	0.01	0.00	0.000
Total Copper (Cu)	mg/L	0.00	0.00	0.00	0.01	0.11	0.00	0.002
Total Iron (Fe)	mg/L	0.10	0.00	0.02	11.12	1.30	0.61	0.600
Total Lead (Pb)	mg/L	0.00	0.00	0.00	0.01	0.00	0.00	0.000
Total Manganese (Mn)	mg/L	0.01	0.00	0.00	0.42	0.09	0.09	0.550
Total Mercury (Hg)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Total Molybdenum (Mo)	mg/L	0.00	0.00	0.00	0.16	0.03	0.03	0.015
Total Nickel (Ni)	mg/L	0.00	0.00	0.00	0.08	0.03	0.03	0.005
Total Selenium (Se)	mg/L	0.00	0.00	0.00	0.00	0.01	0.00	0.001
Total Strontium (Sr)	mg/L	0.00	0.00	0.01	0.01	0.22	0.24	0.000
Total Thallium (Ti)	mg/L	0.01	0.00	0.00	0.00	0.00	0.00	0.005
Total Uranium (U)	mg/L	0.00	0.00	0.00	0.00	0.01	0.00	0.000
Total Zinc (Zn)	mg/L	0.00	0.00	0.00	0.02	0.01	0.00	0.009
Chloride	mg/L	0.87	0.00	0.79	40.54	50.15	8.40	5.70
Fluoride (F)	mg/L	0.07	0.00	0.08	0.78	0.64	0.42	0.20

PARAMETERS	UNITS	EAST DIKE SEEPAGE TO PORTAGE	STORMWATER MANAGEMENT POND	THIRD PORTAGE LAKE	PORTAGE PIT ST-19	GOOSE PIT ST-20	PORTAGE PIT INFILTRATION	GOOSE PIT INFILTRATION WATER
Sulphate (SO4)	mg SO4/L	10.04	0.00	5.10	347.66	211.24	16.40	87
Total Cyanide (CNt)	mg/L	0.00	0.00	0.00	0.02	0.00	0.03	0.00
Total Ammonia ($NH_3 + NH_4$)	mg N/L	0.01	9.60	0.01	6.06	2.96	2.20	0.08
Nitrate (NO_3)	mg N/L	0.42	0.07	0.03	18.02	2.76	4.67	0.09
Dissolved Aluminium (Al)	mg/L	0.04	0.00	0.00	0.01	0.01	0.00	0.030
Dissolved Silver (Ag)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Dissolved Arsenic (As)	mg/L	0.00	0.00	0.00	0.03	0.00	0.01	0.001
Dissolved Barium (Ba)	mg/L	0.01	0.00	0.00	0.04	0.02	0.02	0.015
Dissolved Cadmium (Cd)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.001
Dissolved Chromium (Cr)	mg/L	0.00	0.00	0.00	0.10	0.01	0.00	0.000
Dissolved Copper (Cu)	mg/L	0.00	0.00	0.00	0.00	0.10	0.00	0.002
Dissolved Iron (Fe)	mg/L	0.10	0.00	0.01	0.02	0.04	0.04	0.050
Dissolved Lead (Pb)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.001
Dissolved Manganese (Mn)	mg/L	0.01	0.00	0.00	0.17	0.06	0.09	0.360
Dissolved Mercury (Hg)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Dissolved Molybdenum (Mo)	mg/L	0.00	0.00	0.00	0.11	0.03	0.03	0.015
Dissolved Nickel (Ni)	mg/L	0.00	0.00	0.00	0.03	0.03	0.03	0.005
Dissolved Selenium (Se)	mg/L	0.00	0.00	0.00	0.00	0.01	0.00	0.001
Dissolved Strontium (Sr)	mg/L	0.00	0.00	0.01	0.01	0.21	0.19	0.000
Dissolved Thallium (Ti)	mg/L	0.01	0.00	0.00	0.00	0.00	0.00	0.005
Dissolved Uranium (U)	mg/L	0.00	0.00	0.00	0.00	0.01	0.00	0.000
Dissolved Zinc (Zn)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.011

Table 5-5 : Discharge Criteria

PARAMETERS	UNITS	CCME GUIDELINES (based on 3PL)	WATER LICENSE, MAX. AVG CONC. (to 3PL)
Alkalinity	mg $CaCO_3$/L	n/a	n/a
Hardness	mg $CaCO_3$/L	n/a	n/a
Total dissolved solids	mg/L	n/a	1400
Total Aluminium (Al)	mg/L	0.1	1.5
Total Silver (Ag)	mg/L	0.00025	n/a
Total Arsenic (As)	mg/L	0.005	0.3
Total Barium (Ba)	mg/L	n/a	n/a
Total Cadmium (Cd)	mg/L	0.00004	0.002
Total Chromium (Cr)	mg/L	0.001	n/a
Total Copper (Cu)	mg/L	0.002	0.1
Total Iron (Fe)	mg/L	0.3	n/a
Total Lead (Pb)	mg/L	0.001	0.1
Total Manganese (Mn)	mg/L	n/a	n/a
Total Mercury (Hg)	mg/L	0.000026	0.0004
Total Molybdenum (Mo)	mg/L	0.073	n/a
Total Nickel (Ni)	mg/L	0.025	0.2
Total Selenium (Se)	mg/L	0.001	n/a
Total Strontium (Sr)	mg/L	n/a	n/a
Total Thallium (Ti)	mg/L	0.0008	n/a
Total Uranium (U)	mg/L	0.015	n/a
Total Zinc (Zn)	mg/L	0.03	0.4
Chloride	mg/L	120	1000
Fluoride (F)	mg/L	0.12	n/a
Sulphate (SO4)	mg SO4/L	n/a	n/a
Total Cyanide (CNt)	mg/L	0.005	0.5
Total Ammonia ($NH_3 + NH_4$)	mg N/L	1.83	16
Nitrate (NO_3)	mg N/L	2.94	20
Dissolved Aluminium (Al)	mg/L	0.1	1
Dissolved Silver (Ag)	mg/L	0.00025	n/a
Dissolved Arsenic (As)	mg/L	0.005	0.3
Dissolved Barium (Ba)	mg/L	n/a	n/a
Dissolved Cadmium (Cd)	mg/L	0.00004	0.002
Dissolved Chromium (Cr)	mg/L	0.001	n/a
Dissolved Copper (Cu)	mg/L	0.002	0.1
Dissolved Iron (Fe)	mg/L	0.3	n/a
Dissolved Lead (Pb)	mg/L	0.001	0.1
Dissolved Manganese (Mn)	mg/L	n/a	n/a
Dissolved Mercury (Hg)	mg/L	0.000026	0.0004
Dissolved Molybdenum (Mo)	mg/L	0.073	n/a
Dissolved Nickel (Ni)	mg/L	0.025	0.2

PARAMETERS	UNITS	CCME GUIDELINES (based on 3PL)	WATER LICENSE, MAX. AVG CONC. (to 3PL)
Dissolved Selenium (Se)	mg/L	0.001	n/a
Dissolved Strontium (Sr)	mg/L	n/a	n/a
Dissolved Thallium (Ti)	mg/L	0.0008	n/a
Dissolved Uranium (U)	mg/L	0.015	n/a
Dissolved Zinc (Zn)	mg/L	0.03	0.4

5.4 Results from Water/Mass Balance Model

5.4.1 In-Pit Deposition of Tailings

The results from the water/mass balance model around Portage Pit A and Pit E and Goose Pit for the In-Pit Tailings Deposition option are summarized in the following figures:

> Figure 5-2: Tonnage and Cumulative Tailings Deposited in Portage Pit A and Pit E and Goose Pit
> Figure 5-3: Estimated Yearly Filling Rate of Tailings in Portage Pit A and E and Goose Pit
> Figure 5-4: Estimated Water and Tailings Elevations in Portage Pit A and E and Goose Pit
> Table 5-6: Updated Mill Throughput Tonnage Profile

As shown in the Figures and in Table 5-6, it is possible to store an additional 4 MT of Portage/Vault tailings in Goose Pit and a minimum of 28 MT of Whale Tail and future ore bodies tailings in Goose Pit, Portage Pit A and Pit E. The maximum amount of Whale Tail and future ore bodies tailings that can be stored in all three pits is estimated at **30.3 MT** if we assume to fill all the pits with tailings up to an elevation of 125 masl with an in-situ tailings density after consolidation of 1.0 t/m^3.

Per the 1D tailings consolidation modeling (SNC 2017a), the in-situ tailings density at the end of deposition was estimated at 1.11 t/m^3. With this value, an additional 3 MT of tailings can be stored in the pits, which is equivalent to an additional 11 to 12 months of operation. It is important to note that this value was assessed using literature values only since no specific data on the Whale Tail tailings were available. Characterization and testing on the Whale Tail tailings will be performed in the summer of 2017. The results will be used to confirm these assumptions.

Figure 5-3 shows that the tailings filling rate in Goose Pit, Portage Pit A and Pit E is high, especially during the first year of deposition. Based on experience on other mine sites, when the tailings deposition is higher than 5 m/year, the tailings will not have sufficient time to consolidate and release its trapped water. This results in lower in-situ tailings densities, which is confirmed with the 1D modeling (SLI 2017a).

PARAMETERS	UNITS	EAST DIKE SEEPAGE TO PORTAGE	STORMWATER MANAGEMENT POND	THIRD PORTAGE LAKE	PORTAGE PIT ST-19	GOOSE PIT ST-20	PORTAGE PIT INFILTRATION	GOOSE PIT INFILTRATION WATER
Sulphate (SO4)	mg SO4/L	10.04	0.00	5.10	347.66	211.24	16.40	87
Total Cyanide (CNt)	mg/L	0.00	0.00	0.00	0.02	0.00	0.03	0.00
Total Ammonia ($NH_3 + NH_4$)	mg N/L	0.01	9.60	0.01	6.06	2.96	2.20	0.08
Nitrate (NO_3)	mg N/L	0.42	0.07	0.03	18.02	2.76	4.67	0.09
Dissolved Aluminium (Al)	mg/L	0.04	0.00	0.00	0.01	0.01	0.00	0.030
Dissolved Silver (Ag)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Dissolved Arsenic (As)	mg/L	0.00	0.00	0.00	0.03	0.00	0.01	0.001
Dissolved Barium (Ba)	mg/L	0.01	0.00	0.00	0.04	0.02	0.02	0.015
Dissolved Cadmium (Cd)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.001
Dissolved Chromium (Cr)	mg/L	0.00	0.00	0.00	0.10	0.01	0.00	0.000
Dissolved Copper (Cu)	mg/L	0.00	0.00	0.00	0.00	0.10	0.00	0.002
Dissolved Iron (Fe)	mg/L	0.10	0.00	0.01	0.02	0.04	0.04	0.050
Dissolved Lead (Pb)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.001
Dissolved Manganese (Mn)	mg/L	0.01	0.00	0.00	0.17	0.06	0.09	0.360
Dissolved Mercury (Hg)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Dissolved Molybdenum (Mo)	mg/L	0.00	0.00	0.00	0.11	0.03	0.03	0.015
Dissolved Nickel (Ni)	mg/L	0.00	0.00	0.00	0.03	0.03	0.03	0.005
Dissolved Selenium (Se)	mg/L	0.00	0.00	0.00	0.00	0.01	0.00	0.001
Dissolved Strontium (Sr)	mg/L	0.00	0.00	0.01	0.01	0.21	0.19	0.000
Dissolved Thallium (Ti)	mg/L	0.01	0.00	0.00	0.00	0.00	0.00	0.005
Dissolved Uranium (U)	mg/L	0.00	0.00	0.00	0.00	0.01	0.00	0.000
Dissolved Zinc (Zn)	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.011

Table 5-5 : Discharge Criteria

PARAMETERS	UNITS	CCME GUIDELINES (based on 3PL)	WATER LICENSE, MAX. AVG CONC. (to 3PL)
Alkalinity	mg $CaCO_3$/L	n/a	n/a
Hardness	mg $CaCO_3$/L	n/a	n/a
Total dissolved solids	mg/L	n/a	1400
Total Aluminium (Al)	mg/L	0.1	1.5
Total Silver (Ag)	mg/L	0.00025	n/a
Total Arsenic (As)	mg/L	0.005	0.3
Total Barium (Ba)	mg/L	n/a	n/a
Total Cadmium (Cd)	mg/L	0.00004	0.002
Total Chromium (Cr)	mg/L	0.001	n/a
Total Copper (Cu)	mg/L	0.002	0.1
Total Iron (Fe)	mg/L	0.3	n/a
Total Lead (Pb)	mg/L	0.001	0.1
Total Manganese (Mn)	mg/L	n/a	n/a
Total Mercury (Hg)	mg/L	0.000026	0.0004
Total Molybdenum (Mo)	mg/L	0.073	n/a
Total Nickel (Ni)	mg/L	0.025	0.2
Total Selenium (Se)	mg/L	0.001	n/a
Total Strontium (Sr)	mg/L	n/a	n/a
Total Thallium (Ti)	mg/L	0.0008	n/a
Total Uranium (U)	mg/L	0.015	n/a
Total Zinc (Zn)	mg/L	0.03	0.4
Chloride	mg/L	120	1000
Fluoride (F)	mg/L	0.12	n/a
Sulphate (SO4)	mg SO4/L	n/a	n/a
Total Cyanide (CNt)	mg/L	0.005	0.5
Total Ammonia ($NH_3 + NH_4$)	mg N/L	1.83	16
Nitrate (NO_3)	mg N/L	2.94	20
Dissolved Aluminium (Al)	mg/L	0.1	1
Dissolved Silver (Ag)	mg/L	0.00025	n/a
Dissolved Arsenic (As)	mg/L	0.005	0.3
Dissolved Barium (Ba)	mg/L	n/a	n/a
Dissolved Cadmium (Cd)	mg/L	0.00004	0.002
Dissolved Chromium (Cr)	mg/L	0.001	n/a
Dissolved Copper (Cu)	mg/L	0.002	0.1
Dissolved Iron (Fe)	mg/L	0.3	n/a
Dissolved Lead (Pb)	mg/L	0.001	0.1
Dissolved Manganese (Mn)	mg/L	n/a	n/a
Dissolved Mercury (Hg)	mg/L	0.000026	0.0004
Dissolved Molybdenum (Mo)	mg/L	0.073	n/a
Dissolved Nickel (Ni)	mg/L	0.025	0.2

PARAMETERS	UNITS	CCME GUIDELINES (based on 3PL)	WATER LICENSE, MAX. AVG CONC. (to 3PL)
Dissolved Selenium (Se)	mg/L	0.001	n/a
Dissolved Strontium (Sr)	mg/L	n/a	n/a
Dissolved Thallium (Ti)	mg/L	0.0008	n/a
Dissolved Uranium (U)	mg/L	0.015	n/a
Dissolved Zinc (Zn)	mg/L	0.03	0.4

5.4 Results from Water/Mass Balance Model

5.4.1 In-Pit Deposition of Tailings

The results from the water/mass balance model around Portage Pit A and Pit E and Goose Pit for the In-Pit Tailings Deposition option are summarized in the following figures:

> Figure 5-2: Tonnage and Cumulative Tailings Deposited in Portage Pit A and Pit E and Goose Pit
> Figure 5-3: Estimated Yearly Filling Rate of Tailings in Portage Pit A and E and Goose Pit
> Figure 5-4: Estimated Water and Tailings Elevations in Portage Pit A and E and Goose Pit
> Table 5-6: Updated Mill Throughput Tonnage Profile

As shown in the Figures and in Table 5-6, it is possible to store an additional 4 MT of Portage/Vault tailings in Goose Pit and a minimum of 28 MT of Whale Tail and future ore bodies tailings in Goose Pit, Portage Pit A and Pit E. The maximum amount of Whale Tail and future ore bodies tailings that can be stored in all three pits is estimated at **30.3 MT** if we assume to fill all the pits with tailings up to an elevation of 125 masl with an in-situ tailings density after consolidation of 1.0 t/m^3.

Per the 1D tailings consolidation modeling (SNC 2017a), the in-situ tailings density at the end of deposition was estimated at 1.11 t/m^3. With this value, an additional 3 MT of tailings can be stored in the pits, which is equivalent to an additional 11 to 12 months of operation. It is important to note that this value was assessed using literature values only since no specific data on the Whale Tail tailings were available. Characterization and testing on the Whale Tail tailings will be performed in the summer of 2017. The results will be used to confirm these assumptions.

Figure 5-3 shows that the tailings filling rate in Goose Pit, Portage Pit A and Pit E is high, especially during the first year of deposition. Based on experience on other mine sites, when the tailings deposition is higher than 5 m/year, the tailings will not have sufficient time to consolidate and release its trapped water. This results in lower in-situ tailings densities, which is confirmed with the 1D modeling (SLI 2017a).

Figure 5-2: Tonnage and Cumulative Volume of Tailings in Portage Pit A & E and Goose Pit

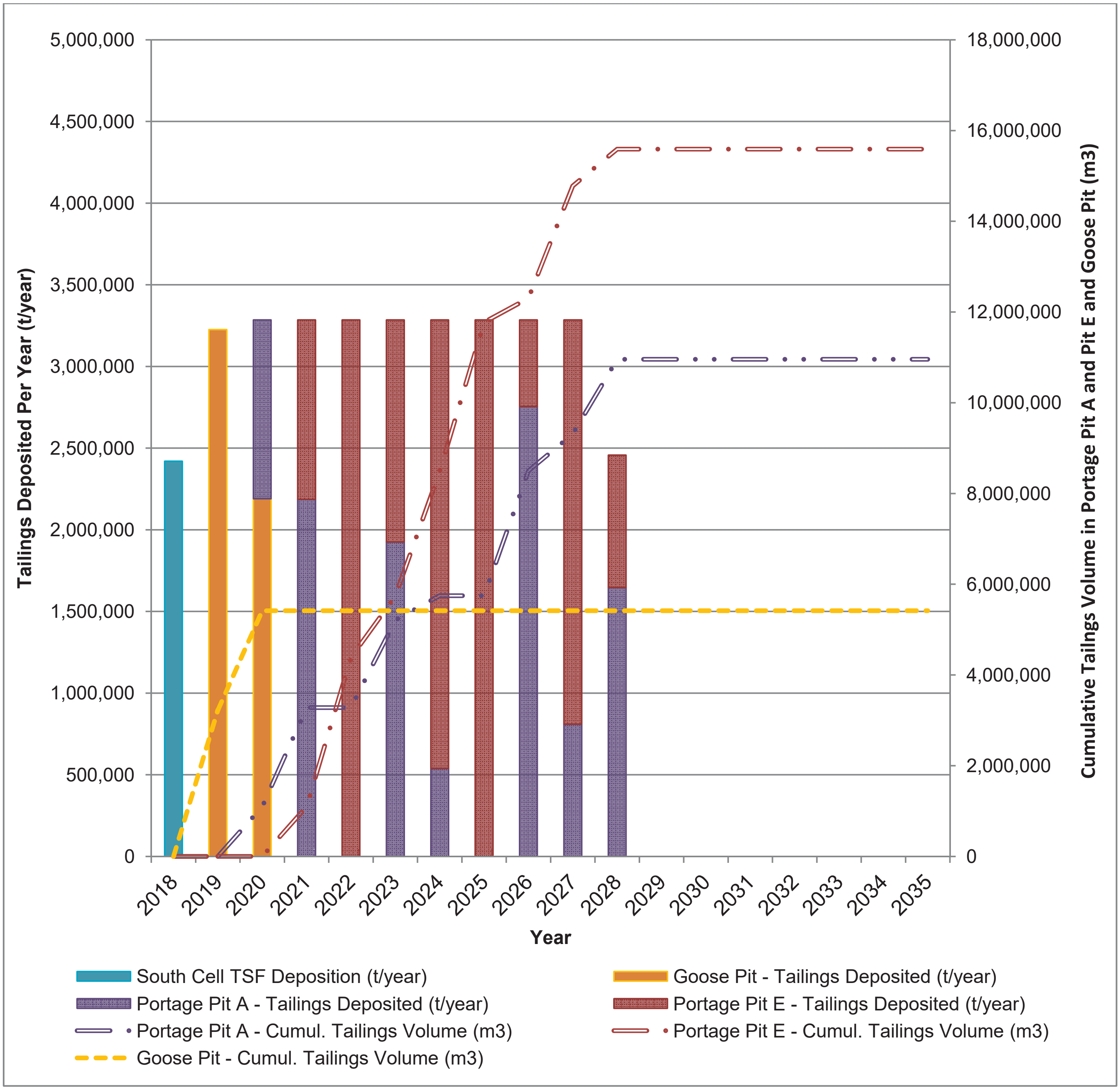


Figure 5-3: Estimated Yearly Tailings Filling Rate in Portage Pit A and E and Goose Pit

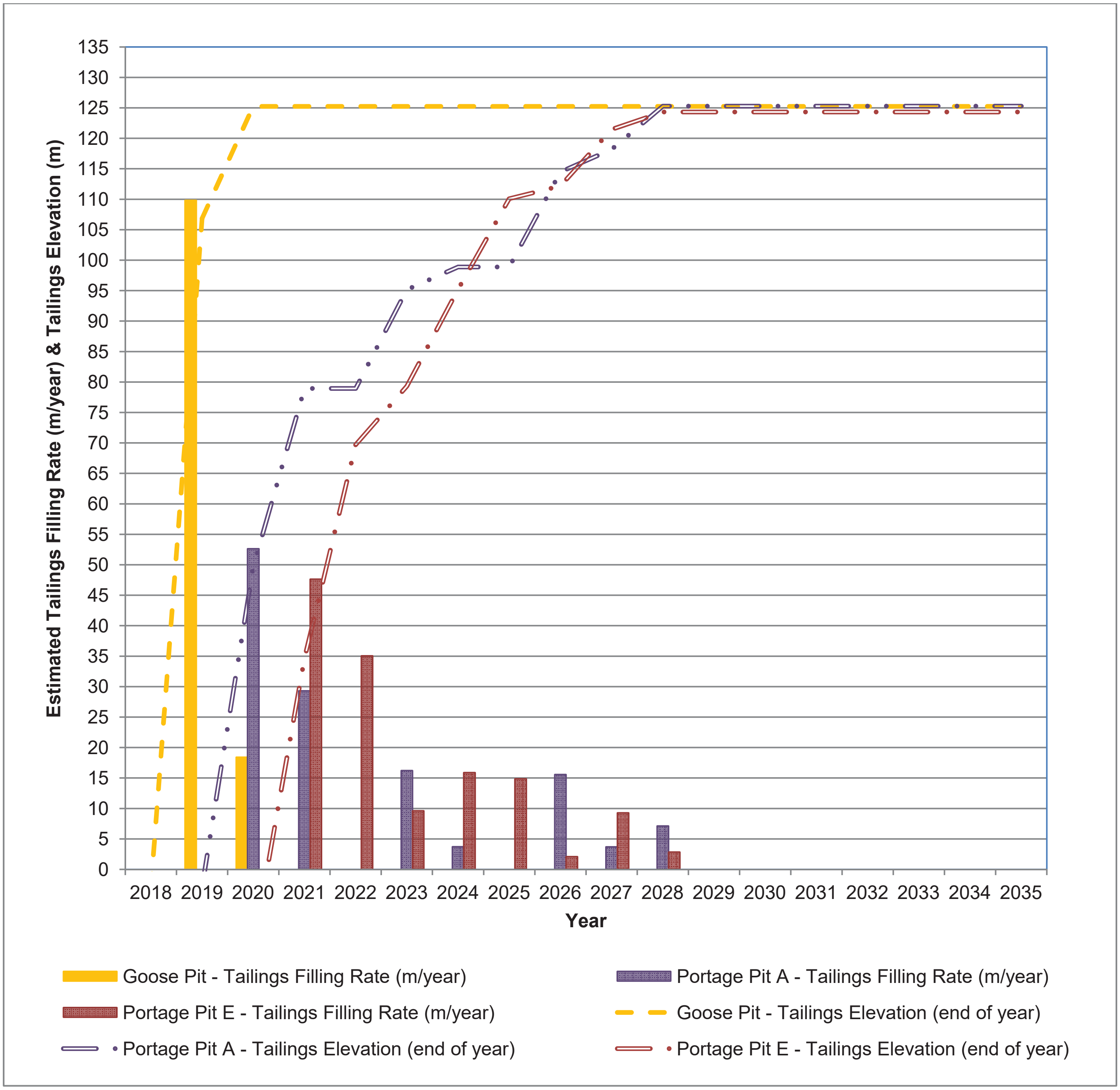


Figure 5-4: Estimated Water and Tailings Elevations in Portage Pit A and E and Goose Pit

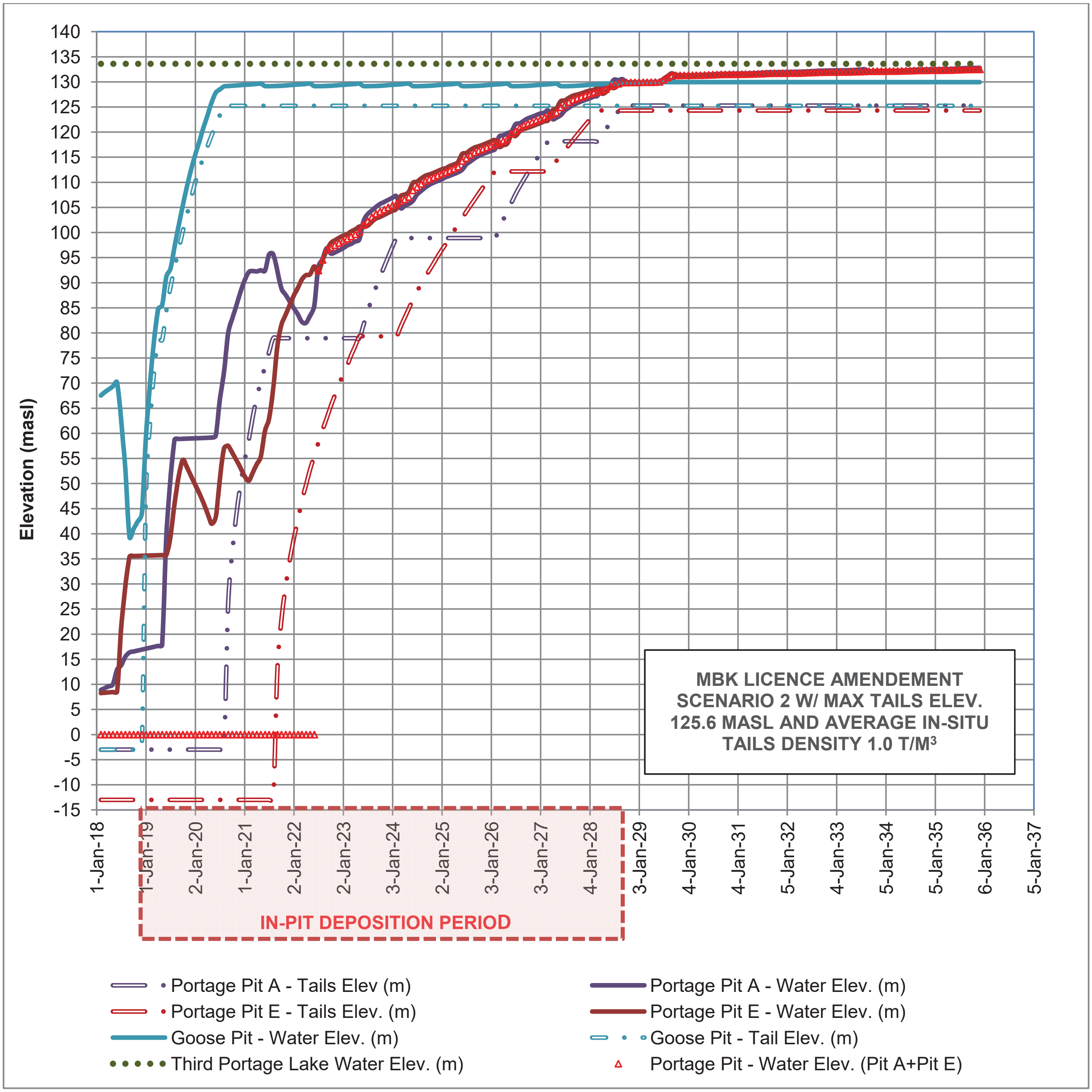


Table 5-6 : Tailings Deposition Tonnage Profile

Year	Source of Tailings	Period 1 South Cell TSF (t/year)	Period 1 & 2 Goose Pit (t/year)	Period 3A Portage Pit A (t/year)	Period 3B Portage Pit E (t/year)	Total per Year (t/year)
2018	Portage/Vault	2,420,216				**2,420,216**
2019	Portage/Vault Whale Tail		1,583,570 1,642,499			**1,583,570** **1,642,499**
2020	Whale Tail		2,190,000	1,095,000		**3,285,000**
2021	Whale Tail			2,187,000	1,098,000	**3,285,000**
2022	Whale Tail				3,285,000	**3,285,000**
2023	Future Ore Bodies			1,926,000	1,359,000	**3,285,000**
2024	Future Ore Bodies			538,525	2,746,475	**3,285,000**
2025	Future Ore Bodies				3,285,000	**3,285,000**
2026	Future Ore Bodies			2,754,000	531,000	**3,285,000**
2027	Future Ore Bodies			810,000	2,475,000	**3,285,000**
2028	Future Ore Bodies			1,647,000	810,000	**2,457,000**
Sub-Total	**Portage/Vault**	**2,420,216**	**1,583,570**			**4,003,786**
	Whale Tail		**3,832,499**	**3,282,000**	**4,383,000**	**11,497,499**
	Future Ore Bodies			**7,675,525**	**11,206,475**	**18,882,000**
Total		**2,420,216**	**5,416,069**	**10,957,525**	**15,589,475**	
		Portage/Vault Tailings **Whale Tail &Future Ore Bodies Tailings**				**4,003,786** **30,379,499**

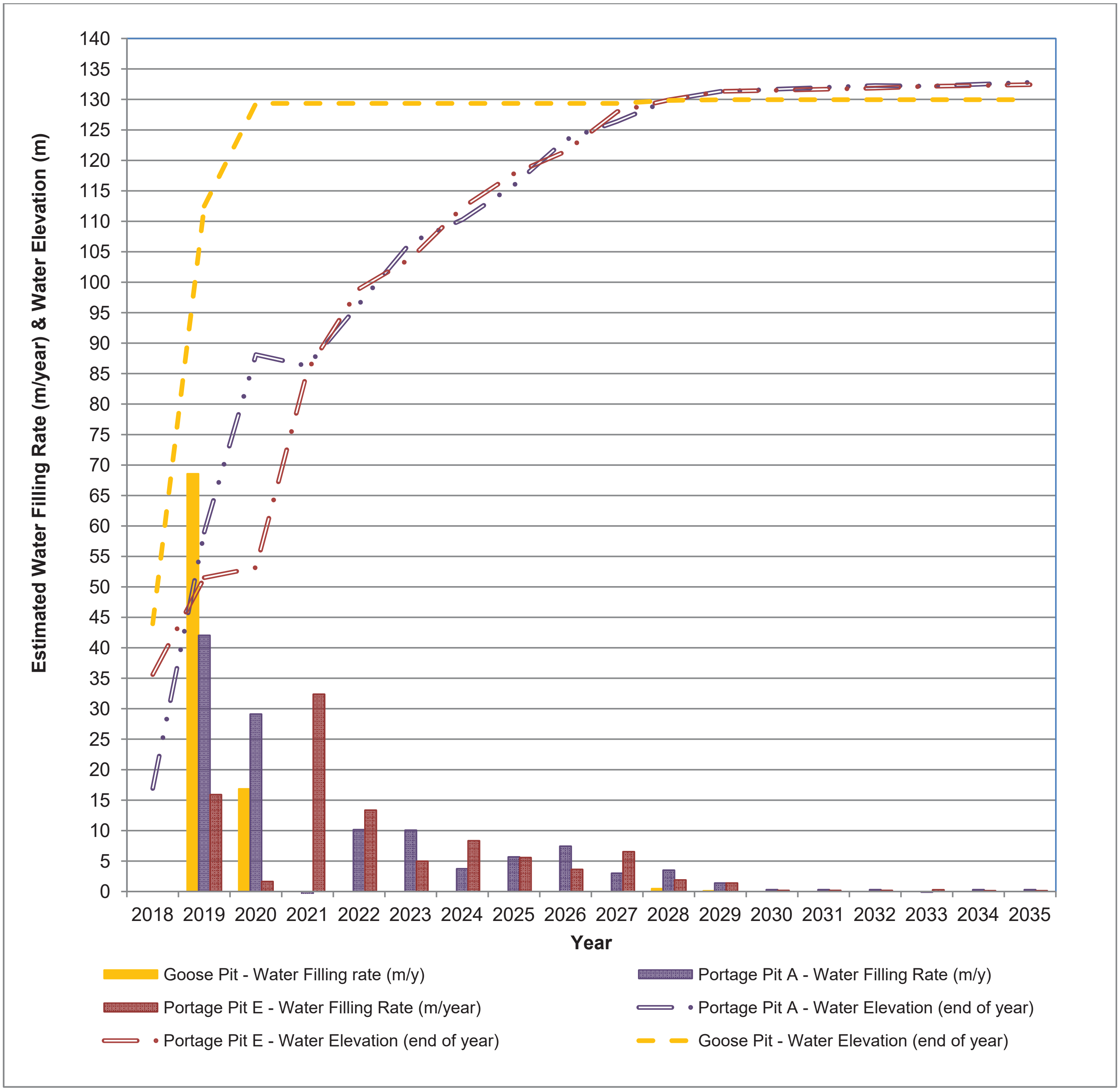
5.4.2 Reclaim Water and Fresh Water Consumption

In developing the water/mass balance for in-pit deposition, the following key operating parameters were considered:

> Reclaim water is pumped from Portage Pit A or Pit E to the mill at a constant daily average flow of 230 m^3/h (5520 m^3/day);
> Reclaim water is pumped from either Portage Pit A or Pit E. Water is only pumped from the inactive pit to ensure that a low Total Suspended Solids (TSS) in the reclaim water;
> Prior to the start of deposition in Goose Pit, if required, water is transferred to Portage Pit E to lower the starting water elevation to about 40 to 45 masl. This will ensure that the water elevation does not exceed 130 masl at the end of deposition in Goose Pit;
> During in-pit deposition, water is transferred from Goose Pit to Portage Pit E every summer to ensure its water elevation remained below 130 masl.

As shown in Figure 5-4, the variations in water elevation during in-pit deposition can be very high due to the deposition of slurry in the pit and the volume of water pumped back to the mill. Figure 5-5 presents the changes in water elevation over a year. Based on the model, the large changes in water elevation in Portage Pit A and Pit E occurs at the start of the in-pit deposition. At most, the water level can increase by 30 to 40 m/year. Assuming a 4 m difference have to be maintain between the water elevation and the reclaim pump, the pump skid will have to be moved up the ramp 7 to 10 times / year.

Figure 5-5: Estimated Yearly Changes in Water Elevation in Portage Pit A and E and Goose Pit



5.4.3 Fresh Water Consumption

In developing the water/mass balance for in-pit deposition, the following key operating parameters were considered with regard to fresh water consumption (i.e. from Third Portage Lake):

> A minimum water cover of 3 m is maintained during in-pit deposition by adding Third Portage Lake water to Portage Pit A and Pit E when required.

> Third Portage Lake is also added during pit closure in order that the water elevation reaches 133.6 masl by the end of the monitoring period (i.e. end of 2035).

> Fresh water consumption at the mine site camp is assumed constant during in-pit deposition, pit closure and monitoring period.

> Additional fresh water is added to the process to obtain a 54% w/w tailings slurry. The amount of fresh water added is evaluated based on the mill throughput, the slurry solid content, the volume of reclaim water pumped from the pits and the water content in the ore.

Table 5-7 presents the preliminary yearly fresh water consumption evaluated for in-pit deposition from 2018 to 2035. The estimated fresh water consumption includes the consumption required at the mill, the mine site camp and for pit filling.

Table 5-7 : Preliminary Yearly Fresh Water Consumption during In-Pit Deposition

Year	Phase	Mill and Camp (m^3/year)	Portage Pit A (m^3/year)	Portage Pit E (m^3/year)	Goose Pit (m^3/year)	Total per Year (m^3/year)
2018	Portage/Vault Tailings to South Cell TSF	581,017				**581,017**
2019	Portage/Vault & Whale Tail Tailings to Goose Pit	905,359	1,500,000	1,500,000		**3,905,359**
2020	Whale Tail Tailings to Goose Pit and Pit A	778,554	1,500,000	1,150,000		**3,428,554**
2021	Whale Tail and Future Ore Bodies Tailings to Portage Pit A and Pit E	784,023	1,500,000			**2,284,023**
2022		784,023	1,500,000			**2,284,023**
2023		784,023				**784,023**
2024		778,554				**778,554**
2025		784,023				**784,023**
2026		784,023				**784,023**
2027		784,023				**784,023**
2028		593,830				**593,830**
2029	Pit Closure	34,675		1,500,000		**1,534,675**
2030	Pit Closure	34,675				**34,675**
2031	Monitoring	34,675				**34,675**
2032	Monitoring	34,675				**34,675**
2033	Monitoring	34,675				**34,675**
2034	Monitoring	34,675				**34,675**
2035	Monitoring	34,675				**34,675**
Total		**8,584,176**	**6,000,000**	**4,150,000**	**0**	**18,734,176**

5.5 Water Quality Forecast

Table 5-8 presents the forecasted reclaim water Quality in Goose Pit, Portage Pit A, Portage Pit E at the end of the In-Pit Tailings Deposition (September 2028) and at the end of the Monitoring Period (December 2035), assuming that no active in-situ water treatment system is in place during Operations and Closure. Note that the water and mass balance model considers an in-situ tailings density of 1.0 t/m^3. Thus, the model accounts for the volume of water released from the tailings into the water column during deposition based on this in-situ tailings density.

For the purpose of the PFS design, CCME guidelines were used as a benchmark, however final site-specific closure limits will be developed through review of the final closure plan by regulatory agencies.

At the end of tailings deposition in Goose Pit and Portage Pit, many dissolved heavy metal concentrations are forecasted to be significantly higher than the CCME guidelines (i.e. 10% higher than guidelines; values highlighted in red in Table 5-8).

At the end of the Monitoring Period, even when a mixed pit conditions for Goose Pit, Portage Pit A and Portage Pit E is considered, many parameters remain higher than the CCME guidelines, including arsenic, copper, iron, cadmium, chromium, lead and selenium.

Table 5-9 presents the equilibrium concentrations of different heavy metals at the end of the monitoring period in Portage Pit, Goose Pit and mixed pits condition. The equilibrium concentrations were evaluated using the USGS geochemical modeling tool PHREEQC (USGS 2015). At equilibrium, many of the metals should precipitate out of solution, like arsenic, iron and copper. However, according to this evaluation, certain metals will remain higher than the CCME guidelines in the mixed Portage Pit, Goose Pit and mixed pits scenario after pit flooding and monitoring period, including silver, chromium, molybdenum, selenium, thallium, fluoride and total ammonia, and cadmium in Goose Pit only.

Long term consolidation of the tailings in the pit could also release pore water with similar reclaim water quality properties and may increase the concentration of these contaminants in the pit water following in-pit deposition, pit flooding and closure. However, the 1D tailings consolidation model suggests that the final in-situ tailings density could reach as high as 1.08 to 1.1 t/m^3 one year following the end of deposition, and does not increase significantly in the following years (SNC 2017a).

Contaminants within the tailings pore water could also diffuse to the environment following closure due to concentration gradients between the tailings pore water and the water column above the tailings. This could lead to a higher contaminant concentration at the surface of the tailings compare to the concentration in the water column.

In order to meet the CCME guidelines and/or final site-specific closure limits with regard to total metals in the Portage and Goose Pits water following in-pit deposition and pit closure, active in-situ water treatment will be required at closure. The objective of this treatment system is to precipitate the dissolved metals out of solution and allow the metal precipitate to settle out in the pits.

With regard to total cyanide, it is forecasted to be higher than the CCME guidelines. However, by the end of the monitoring period, most of the cyanide would volatilize and the final concentrations are forecasted to be well below the criteria guidelines.

Forecasted ammonia concentrations are more elevated than the CCME guideline. This parameter can be removed through a variety of treatment methods, such as in-situ aeration during the summer months, chemical oxidation or biological treatment.

Chloride, fluoride, and nitrate concentrations are also forecasted to be slightly more elevated than CCME guidelines at the end of deposition. At the end of the monitoring period, only fluoride will remain slightly more elevated than CCME guidelines.

The total nitrogen equivalent, which is the sum of total ammonia and nitrate concentrations, is also forecasted to be higher than the threshold concentration in terms of nutrient concentration that are typically adopted for adopted for an oligotrophic lake (Nurnberg 1996). Third Portage Lake is considered as a highly oligotrophic lake. The CCME guidelines do not have a specific criterion for this parameter.

Further investigation and discussion are required to review the potential impacts these parameters (F, SO_4, ammonia and nitrate) could have on Third Portage Lake water quality once the dikes are breached.

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Table 5-8 : Forecasted Reclaim Water Quality in Portage and Goose Pits

			At End of Deposition – September 2028				At End of Monitoring Period – December 2035				
Parameters	Units	CCME Guidelines	Portage Pit A	Portage Pit E	Mixed Portage Pit	Goose Pit	Portage Pit A	Portage Pit E	Mixed Portage Pit	Goose Pit	Mixed Pits
Alkalinity	mg $CaCO_3$/L	n/a	160	130	142	102	123	86	99	90	98
Hardness	mg $CaCO_3$/L	n/a	1609	1273	1412	742	1178	797	930	644	892
Total dissolved solids	mg/L	n/a	3860	3060	3391	1817	2820	1909	2227	1581	2141
Total Aluminium (Al)	mg/L	0.10	0.41	0.33	0.36	0.22	0.31	0.21	0.24	0.19	0.24
Total Silver (Ag)	mg/L	0.00025	0.00039	0.00036	0.00037	0.00149	0.00030	0.00026	0.00027	0.00134	0.00041
Total Arsenic (As)	mg/L	0.005	1.336	1.049	1.168	0.495	0.971	0.649	0.761	0.427	0.717
Total Barium (Ba)	mg/L	n/a	0.2694	0.2131	0.2364	0.1173	0.1975	0.1336	0.1559	0.1020	0.1487
Total Cadmium (Cd)	mg/L	0.00004	0.00009	0.00009	0.00009	0.00037	0.00007	0.00006	0.00006	0.00034	0.00010
Total Chromium (Cr)	mg/L	0.001	0.015	0.012	0.014	0.006	0.011	0.008	0.009	0.005	0.008
Total Copper (Cu)	mg/L	0.002	1.343	1.061	1.178	0.645	0.976	0.659	0.770	0.556	0.741
Total Iron (Fe)	mg/L	0.30	2.80	2.23	2.46	1.53	2.06	1.40	1.63	1.35	1.60
Total Lead (Pb)	mg/L	0.001	0.004	0.003	0.003	0.001	0.003	0.002	0.002	0.001	0.002
Total Manganese (Mn)	mg/L	n/a	0.206	0.179	0.191	0.444	0.155	0.121	0.133	0.404	0.169
Total Mercury (Hg)	mg/L	0.000026	0.000048	0.000043	0.000045	0.000041	0.000038	0.000028	0.000032	0.000038	0.000033
Total Molybdenum (Mo)	mg/L	0.073	0.139	0.112	0.123	0.112	0.102	0.071	0.082	0.097	0.084
Total Nickel (Ni)	mg/L	0.025	0.139	0.109	0.121	0.056	0.102	0.068	0.080	0.048	0.076
Total Selenium (Se)	mg/L	0.001	0.006	0.005	0.006	0.012	0.005	0.004	0.004	0.010	0.005
Total Strontium (Sr)	mg/L	n/a	0.653	0.522	0.576	0.390	0.484	0.332	0.385	0.337	0.378
Total Thallium (Ti)	mg/L	0.0008	0.0008	0.0008	0.0008	0.0035	0.0010	0.0008	0.0009	0.0032	0.0012
Total Uranium (U)	mg/L	0.015	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.001
Total Zinc (Zn)	mg/L	0.03	0.006	0.006	0.006	0.008	0.005	0.004	0.005	0.008	0.005
Chloride	mg/L	120	150	124	135	72	110	77	88	62	85
Fluoride (F)	mg/L	0.12	0.37	0.31	0.34	0.37	0.30	0.23	0.25	0.34	0.27
Sulphate (SO4)	mg SO4/L	n/a	3012	2377	2640	1375	2190	1476	1725	1188	1654
Total Cyanide (CNt)	mg/L	0.005	1.511	0.499	0.296	0.000	0.000	0.000	0.000	0.000	0.000
Total Ammonia (NH3 + NH4)	mg N/L	1.83	22.6	17.9	19.9	11.2	16.5	11.5	13.2	9.6	12.8
Nitrate (NO3)	mg N/L	2.94	3.74	3.08	3.35	2.13	2.91	2.00	2.32	1.84	2.25

			At End of Deposition – September 2028				At End of Monitoring Period – December 2035				
Parameters	Units	CCME Guidelines	Portage Pit A	Portage Pit E	Mixed Portage Pit	Goose Pit	Portage Pit A	Portage Pit E	Mixed Portage Pit	Goose Pit	Mixed Pits
Total N equivalent	*mg N/L*	*0.35 (**)*	*26.3*	*21.0*	*23.2*	*13.3*	*19.4*	*13.5*	*15.6*	*11.5*	*15.0*
Dissolved Aluminium (Al)	mg/L	0.1	0.206	0.169	0.184	0.132	0.155	0.108	0.124	0.115	0.123
Dissolved Silver (Ag)	mg/L	0.00025	0.00033	0.00029	0.00031	0.00064	0.00025	0.00019	0.00022	0.00056	0.00026
Dissolved Arsenic (As)	mg/L	0.005	1.3357	1.0486	1.1674	0.4949	0.9704	0.6483	0.7606	0.4265	0.7162
Dissolved Barium (Ba)	mg/L	n/a	0.2680	0.2119	0.2351	0.1165	0.1965	0.1329	0.1550	0.1013	0.1479
Dissolved Cadmium (Cd)	mg/L	0.00004	0.00009	0.00008	0.00009	0.00037	0.00007	0.00006	0.00006	0.00034	0.00010
Dissolved Chromium (Cr)	mg/L	0.001	0.0029	0.0023	0.0026	0.0012	0.0022	0.0015	0.0017	0.0010	0.0016
Dissolved Copper (Cu)	mg/L	0.002	1.220	0.964	1.070	0.586	0.887	0.598	0.699	0.505	0.673
Dissolved Iron (Fe)	mg/L	0.3	2.6	2.0	2.3	1.1	1.9	1.3	1.5	0.9	1.4
Dissolved Lead (Pb)	mg/L	0.001	0.002	0.002	0.002	0.001	0.002	0.001	0.001	0.001	0.001
Dissolved Manganese (Mn)	mg/L	n/a	0.198	0.169	0.181	0.314	0.149	0.111	0.124	0.284	0.146
Dissolved Mercury (Hg)	mg/L	0.000026	0.000047	0.000040	0.000043	0.000042	0.000037	0.000027	0.000031	0.000038	0.000032
Dissolved Molybdenum (Mo)	mg/L	0.073	0.134	0.108	0.118	0.109	0.098	0.068	0.078	0.094	0.081
Dissolved Nickel (Ni)	mg/L	0.025	0.042	0.033	0.037	0.020	0.031	0.021	0.025	0.018	0.024
Dissolved Selenium (Se)	mg/L	0.001	0.006	0.005	0.006	0.012	0.005	0.004	0.004	0.011	0.005
Dissolved Strontium (Sr)	mg/L	n/a	0.640	0.512	0.565	0.382	0.473	0.325	0.377	0.331	0.371
Dissolved Thallium (Ti)	mg/L	0.0008	0.0008	0.0008	0.0008	0.0035	0.0010	0.0008	0.0009	0.0032	0.0012
Dissolved Uranium (U)	mg/L	0.015	0.0021	0.0018	0.0019	0.0022	0.0016	0.0012	0.0013	0.0019	0.0014
Dissolved Zinc (Zn)	mg/L	0.03	0.0049	0.0048	0.0048	0.0089	0.0040	0.0034	0.0036	0.0082	0.0043

Notes:

XXX Cells highlighted in red indicated forecasted concentrations that are 10% times higher than the CCME guidelines.

** Value based on the threshold concentration considered for an oligotrophic lake in terms of nutrient concentration (Nurnberg 1996).

Table 5-9 : Forecasted Reclaim Water Quality in Portage and Goose Pits at Equilibrium

			At End of Monitoring Period – December 2035					
			Mixed Portage Pit		Goose Pit		Mixed Pits	
Parameters	Units	CCME Guidelines	Mass Balance	Equil. Conc.	Mass Balance	Equil. Conc..	Mass Balance	Equil. Conc..
pH		6.5 to 9.0	7.5 est.	7.9	7.5 est.	7.9	7.5 est.	7.9
Alkalinity	mg $CaCO_3$/L	n/a	99	26	90	27	98	26
Hardness	mg $CaCO_3$/L	n/a	930	860	644	586	892	823
Total dissolved solids	mg/L	n/a	2227	-	1581	-	2141	-
Total Aluminium (Al)	mg/L	0.10	0.24	0.00040	0.19	0.00044	0.24	0.00041
Total Silver (Ag)	mg/L	0.00025	0.00027	0.00027	0.0013	0.00130	0.0004	0.00040
Total Arsenic (As)	mg/L	0.005	0.761	0.00075	0.427	0.00023	0.717	0.00065
Total Barium (Ba)	mg/L	n/a	0.1559	0.00059	0.1020	0.00098	0.1487	0.00062
Total Cadmium (Cd)	mg/L	0.00004	0.00006	0.000015	0.00034	0.000056	0.00010	0.000023
Total Chromium (Cr)	mg/L	0.001	0.009	0.0050	0.005	0.0024	0.008	0.0046
Total Copper (Cu)	mg/L	0.002	0.770	0.00044	0.556	0.00032	0.741	0.00042
Total Iron (Fe)	mg/L	0.30	1.63	7.51E-09	1.35	6.99E-09	1.60	7.45E-09
Total Lead (Pb)	mg/L	0.001	0.002	2.67E-07	0.001	1.05E-07	0.002	2.43E-07
Total Manganese (Mn)	mg/L	n/a	0.133	5.52E-11	0.404	3.69E-11	0.169	5.26E-11
Total Mercury (Hg)	mg/L	0.000026	0.000032	0.0000249	0.000038	0.0000103	0.000033	0.0000237
Total Molybdenum (Mo)	mg/L	0.073	0.082	0.0794	0.097	0.0934	0.084	0.0813
Total Nickel (Ni)	mg/L	0.025	0.080	0.0100	0.048	0.0046	0.076	0.0092
Total Selenium (Se)	mg/L	0.001	0.004	0.0039	0.010	0.0104	0.005	0.0048
Total Strontium (Sr)	mg/L	n/a	0.385	0.385	0.337	0.337	0.378	0.378
Total Thallium (Ti)	mg/L	0.0008	0.0009	0.00090	0.0032	0.00317	0.0012	0.00120
Total Uranium (U)	mg/L	0.015	0.001	0.00136	0.002	0.00192	0.001	0.00144
Total Zinc (Zn)	mg/L	0.03	0.005	0.00021	0.008	0.00025	0.005	0.00022
Chloride	mg/L	120	88	88	62	62	85	85
Fluoride (F)	mg/L	0.12	0.25	0.254	0.34	0.338	0.27	0.265
Sulphate (SO4)	mg SO_4/L	n/a	1725	1724	1188	1187	1654	1653
Total Cyanide (CNt)	mg/L	0.005	0.000	1.24E-05	0.000	1.53E-08	0.000	1.10E-05
Total Ammonia (NH3 + NH4)	mg N/L	1.83	13.2	13.2	9.6	9.6	12.8	12.8
Nitrate (NO3)	mg N/L	2.94	2.3	2.3	1.8	1.8	2.3	2.3
Total N equivalent	*mg N/L*	*0.35 (**)*	*15.6*	15.56	*11.5*	*11.5*	*15.0*	*15.0*

Notes:

xxx	Cells highlighted in red indicated forecasted concentrations that are 10% times higher than the CCME guidelines.
**	Value based on the threshold concentration considered for an oligotrophic lake in terms of nutrient concentration (Nurnberg 1996).

6.0 Infrastructure Requirements

6.1 General

In order to implement in-pit deposition at Meadowbank, the following infrastructure will be required on site:

> New pipeline to transfer the tailings to Goose Pit, Portage Pit A and Pit E;
> New pipeline to transfer reclaim water from the pits to the mill and between the pits;
> Reclaim water pumping stations;
> Reclaim water treatment system (for pit closure);
> Central Dump monitoring wells.

6.2 Pipelines

Figure 6-1 presents an overview of the tailings pipeline routing to Goose Pit, Portage Pit A and Pit E, while Figures 6-2 to 6-4 present the approximate ground profile where the pipelines will be installed toward Goose Pit, Portage Pit A and Pit E respectively. The profiles shown on these figures are preliminary only and will be optimized to avoid any sudden rises and low points in the next phase of the project.

No changes are expected to the existing tailings and reclaim water pipeline from the mill to tie-in points located just to the north of the access road that runs along the south of the North and South Cells TSF. From the tie-in points, a new tailings pipeline will be installed and follow the North/South Cells TSF access road. The new tailings pipeline will then cross either aboveground or under the Goose/Portage Pit west road. The pipeline can then be sent to Goose Pit, Portage Pit E and Pit A.

The new reclaim water pipeline will also follow the same routing as the tailings pipelines for Portage Pit A and Pit E.

Table 6-1 summarizes the new pipelines required for in-pit deposition while Figure 6-5 presents a general overview of the pipelines. A general site layout can be found in Appendix 2.

Table 6-1 : Summary of New Pipelines for In-Pit Deposition

Item	New Pipeline	Diameter (in)	Approx. Length (m)	Material
1	Tailings to Goose and Portage Pits (header)	14	500	HDPE DR11
2	Tailings to Goose Pit	14	1800	HDPE DR11
3	Tailings to Portage Pit E	14	900	HDPE DR11
4	Tailings to Portage Pit A	14	900	HDPE DR11
5	Reclaim water from Portage Pit A/Pit E (header)	14	500	HDPE DR11
6	Reclaim water from Portage Pit A	14	900	HDPE DR11
7	Reclaim water from Portage Pit E	14	900	HDPE DR11
8	Goose Pit to Portage Pit E	8	720	HDPE DR11
9	Reclaim water to Water Treatment (for pit closure)	14	850	HDPE DR11
10	Treated reclaim water to pit (for pit closure)	14	850	HDPE DR11

Figure 6-1: Tailings Pipeline Routing Overview

Notes:

- Red line: Tailings to Goose Pit
- Brown line: Tailings to Portage Pit E
- Orange line: Tailings to Portage Pit A

Figure 6-2: Approximate Pipeline Profile to Goose Pit

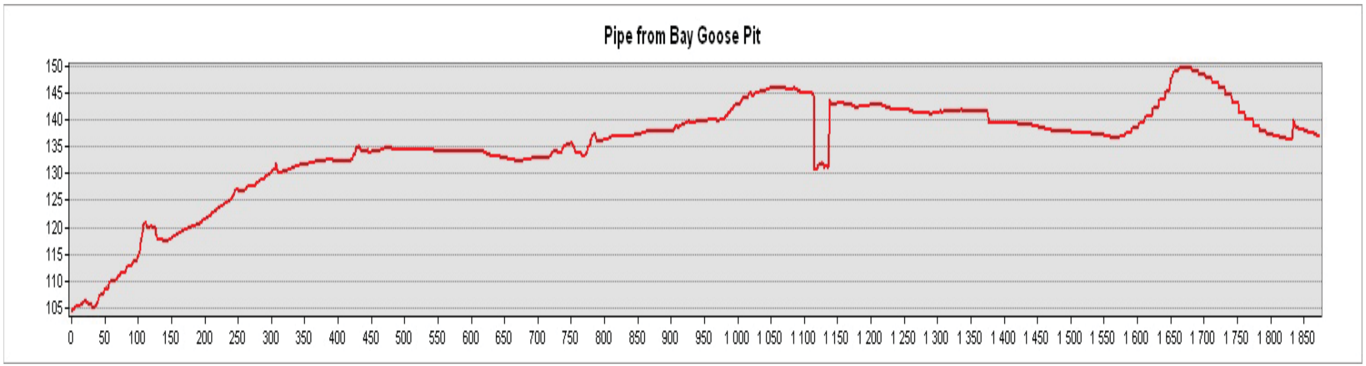


Figure 6-3: Approximate Pipeline Profile to Portage Pit E

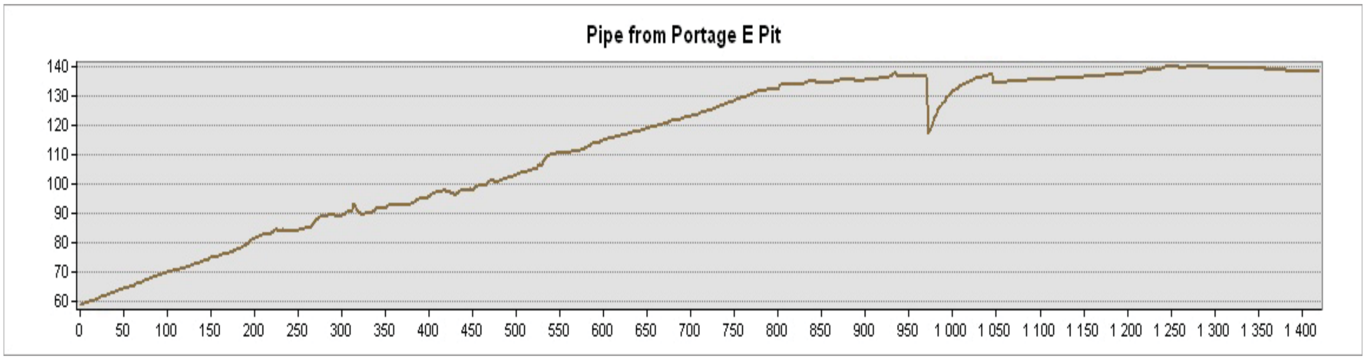


Figure 6-4: Approximate Pipeline Profile to Portage Pit A

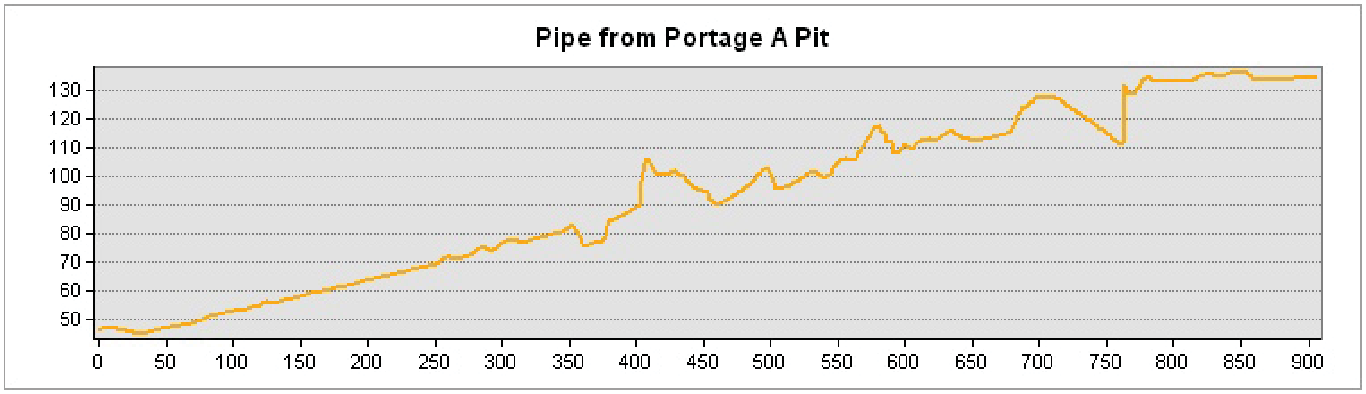
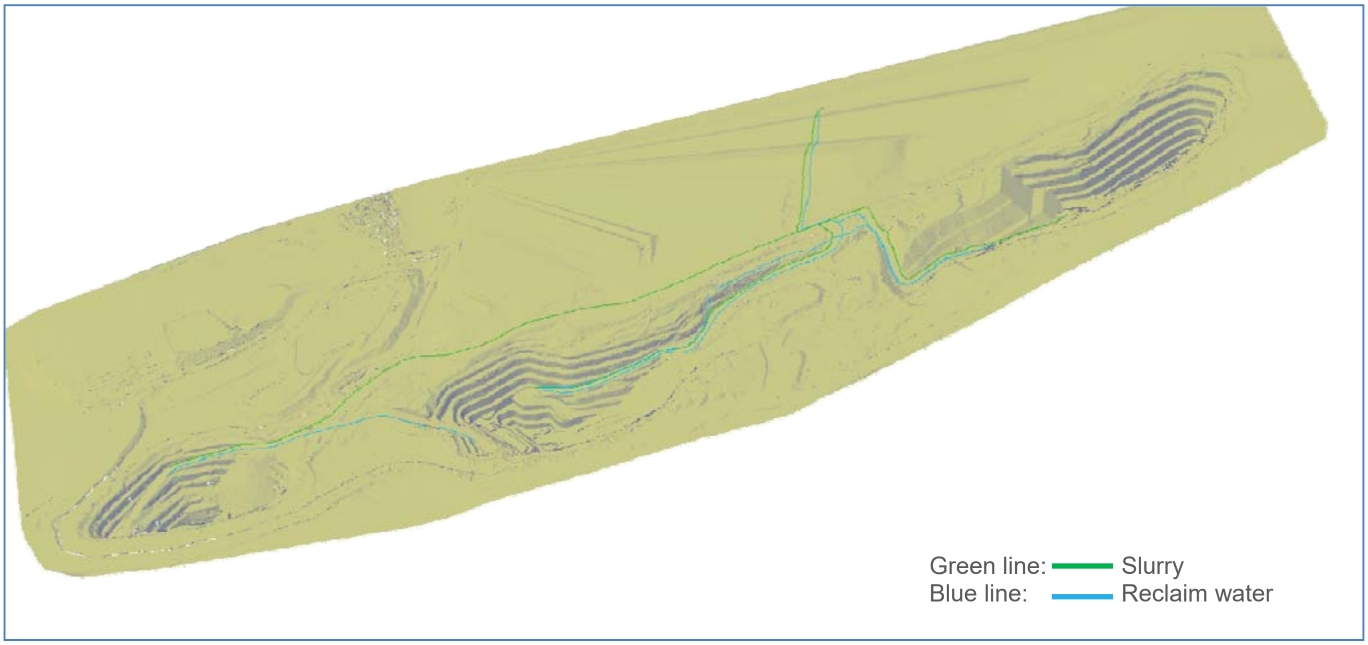


Figure 6-5: General Overview of Slurry and Reclaim Water Pipelines for In-Pit Deposition



6.3 Pumping Stations

Table 6-2 presents a summary of the estimate capacity and total dynamic head (TDH) required for the tailings pumps and reclaim water pumps.

Tailings Pumps

Tailings will be transferred to the pits using the existing final tailings pumps no. 1 & 2 (360-PP-040 & 041) and no. 3 & 4 (360-PP-105 & 106). The pump model is an FLSmidth Krebs millMAX 8x6-24 4V with a design flow of 506 m^3/h with a slurry head of 57.5 m (equivalent water head 59.3 m). To achieve this operating point, the pump steed is adjusted at 931 RPM. The maximum operating speed of the pump is 1200 rpm.

The elevation of the mill floor is at 148.65 m while the pits are located below elevation 130 m. Thus, the existing tailings pumps need mainly to provide the necessary head to compensate for the friction loss in the pipeline. The pipeline friction loss will be offset by the elevation drop between the mill and the pit.

Based on the estimated tailings pump capacity and head, the existing pump have the required capacity to transfer 506 m^3/h (or 12,144 m^3/day) of tailings slurry to the pits. The speed of the pump will have to be adjusted to meet the required flow and slurry head requirements.

Reclaim Water Pumps

New reclaim water pumps will be needed to transfer water from Portage Pit A or Pit E to the reclaim water tank 650-TK-036 located in the mill. The water/mass balance considers an average daily reclaim water flow of 230 m^3/h (5520 m^3/d). However, a design flow of 400 m^3/h was selected in order to provide the required daily volume in a shorter time. The design head is based on the lowest water elevation expected during operation in Pit A and Pit E. As the water rises in the pit, the pump speed will be adjusted to account for the lower static head.

In order to maintain the water level in Goose Pit below 130 masl during in-pit deposition, a transfer pump with a design capacity of 250 m^3/h was considered. At this pump capacity, about 180,000 m^3 can be transferred over 30 days. During operation, once in-pit deposition is completed in Goose Pit, the water elevation is not expected to vary significantly.

The water treatment system required after deposition for pit closure is assumed to have a treatment design capacity of 500 m^3/h (12,000 m^3/day). For the PFS design, the water treatment system is assumed to be located at an elevation of 135 masl. The pump will be equipped with a variable speed motor to adjust the treatment capacity.

For the PFS design, each reclaim water pump will be housed inside a heated container. The container will also house the electrical motor starter or VFD panels, electrical panel, local control panel and instrumentations. The container will be design so that it can be moved easily along the pit ramp.

Table 6-2 : Summary of Estimated Pump Capacity

Item	Description	Nominal Flow (m^3/h)	TDH approx. (m)	Notes
1	Tailings to Goose Pit	506	73 (slurry)	Variable speed (approx. 1030 rpm)
2	Tailings to Portage Pit E	506	47 (slurry)	Variable speed (approx. 840 rpm)
3	Tailings to Portage Pit A	506	50 (slurry)	Variable speed (approx. 870 rpm)
4	Reclaim water from Portage Pit A and Pit E	400	180	Variable speed
5	Goose Pit to Portage Pit E	250	35	Fixed speed
6	Reclaim water to WTP (for pit closure)	500	85	Variable speed

Note: TDH = Total Dynamic Head

6.4 Water Treatment System

Water treatment will be required following in-pit deposition to treat the pit water for closure, as described in Section 5.5.

The objective of this treatment system is to precipitate any dissolved metals in the pit water so that at closure, the dissolved and total metal concentrations are lower than the CCME guidelines and/or site specific closure limits.

As part of the hydrological modeling of the site, a 3D contaminant transport model was developed. The results of the modelling indicate that there could be very little diffusion of water within the pits to the environment, even if the transport simulations are considered conservative since neither contaminant retardation factor nor contaminant concentration reduction by natural degradation or treatment were considered. As an example, at post closure, the contaminant plume originating from Portage Pit A will only reach the East Dike and Second Portage Lake about 200m downgradient after more than 2500 years (SNC 2017b). Thus, the reclaim water should be contained within the pits, providing the necessary time to treat the water following in-pit deposition.

For the purpose of the PFS study, the water treatment system included in the design consists of the following:

- Pumping system that will pump water from the pit to the water treatment system.
- Dosage of a proprietary chemical that allows for the precipitation of dissolved metals. The chemical to be added could be Nalco's Nalmet, SNF's Metasorb, a coagulant like ferric sulphate or other type of chelating chemicals.
- Addition of a flocculant to assist in the settling of the metal precipitate (if required)
- Return of the treated water to the pit to allow the precipitate metals to settle out of solution.

The treatment system is designed to pump and treat a flow of 500 m^3/hr, or 12,000 m^3/day. Treatment of the pit water could be implemented over the summer months or on a yearly basis.

6.5 Portage Central Dump Monitoring Wells

Due to concerns of migration of reclaim water into the more permeable Portage Central Dump, monitoring well(s) will be required in this area.

The monitoring well(s) will be used to sample regularly the groundwater in the Central Dump and monitor its water quality at different depths. Moreover, the monitoring well(s) will also be equipped with a piezometer which will allow monitoring the water level in the dump. With this information, hydraulic gradients between Central Dump and the underneath Portage Fault and Bay Fault could be investigated during different in-pit deposition periods, including before mine closure, to asses groundwater flow and manage reclaim water migration risks toward lakes.

If the water quality degrades due to migration of reclaim water, then a contingency solution will have to be considered. This includes a possible "pump and treat" system, similar to the system described in Section 6.4.

7.0 Material Take-Off Summary

Table 7-1 presents the preliminary material take-off for the In-Pit Tailings Deposition. The quantities estimation has been estimated based on PFS engineering drawings.

Table 7-1: Preliminary Material Take-Off for In-Pit Deposition

Item	Description	Unit	Quantity
	TAILINGS SLURRY PIPELINE		
	14-in HDPE DR11 from Process Plant to Goose/Portage Pit area	m	500
	14-in HDPE DR11 to Portage Pit E	m	900
	Modifications to Road to Pit E	m.l	900
	14-in HDPE DR11 to Portage Pit A	m	900
	Modifications to Road to Pit A	m.l	900
	14-in HDPE DR11 to Goose Pit	m	1800
	Modifications to Road to Goose Pit	m.l	1800
	14-in gate valve (1 to Pit E, 1 to Pit A, 1 to Goose Pit, 1 header, 1 to SC TSF)	u	5
	14-in HDPE tee to install at connection close to SC TSF	u	1
	14-in HDPE tee to install at Portage Pit to send to Pit A or Pit E and Goose Pit	u	2
	PORTAGE PIT RECLAIM WATER PIPELINE		
	14-in HDPE DR11 from Portage Pit E	m	900
	14-in HDPE DR11 from Portage Pit A	m	900
	14-in HDPE DR11 from Portage Pit to existing header	m	500
	14-in HDPE DR11 suction line	m	10
	Electrical heat tracing of 14-in HDPE DR11 lines	m	2300
	14-in isolation gate valves (2 x tees)	u	4
	14-in HDPE tee to install at connection close to SC TSF	u	1
	14-in HDPE tee to install at Portage Pit to take reclaim water from Pit A or E	u	1
	Reclaim Pump Station: 1 x 400 m^3/hr at 180 m TDH, c/w 450 HP motor, pump container, piping, valve and electrical container	lot	1
	High-Voltage Transformer for Reclaim Pump Station and In-Situ Water Treatment container (to be moved between Pit E and Pit A)	u	1
	Pad (foundation work along the ramp if required)	Lot	1
	GOOSE PIT WATER TRANSFER TO PORTAGE PIT E		
	8-in HDPE DR11 from Goose Pit to Portage Pit E	m	720
	8-in HDPE DR11 suction line	m	10

Item	Description	Unit	Quantity
	8-in isolation gate valve (1 x on HDPE line, at discharge of pump container)	u	1
	Water Transfer Pump Station: 1 x 250 m3/hr at 35 m TDH, c/w 50 HP motor, pump container, piping, valve and electrical container	lot	1
	Pad (foundation work along the ramp if required)	lot	1
	High-Voltage Transformer for Goose Pit pump station	u	1
	PORTAGE PIT WATER TREATMENT SYSTEM (FOR PIT CLOSURE)		
	14-in HDPE DR11 pipeline from the pit to the water treatment system	m	850
	14-in HDPE DR11 treated water pipeline back to pit	m	850
	14-in HDPE DR11 suction line	m	10
	14-in isolation gate valve (1 x on HDPE line, at discharge of pump container)	u	1
	Pit Water Pump Station: 1 x 500 m3/hr at 85 m TDH c/w 450 HP motor, pump container, piping, valve and electrical container	lot	1
	Pad (foundation work along the ramp if required)	lot	1
	Chemical dosing container, c/w skid mounted duplex dosing system, dosing drum, drum transfer pump, containment dike.	lot	1
	Pad (foundation) for Water Treatment System	lot	1
	PORTAGE CENTRAL DUMP		
	Monitoring well(s)	u	1 minimum

8.0 References

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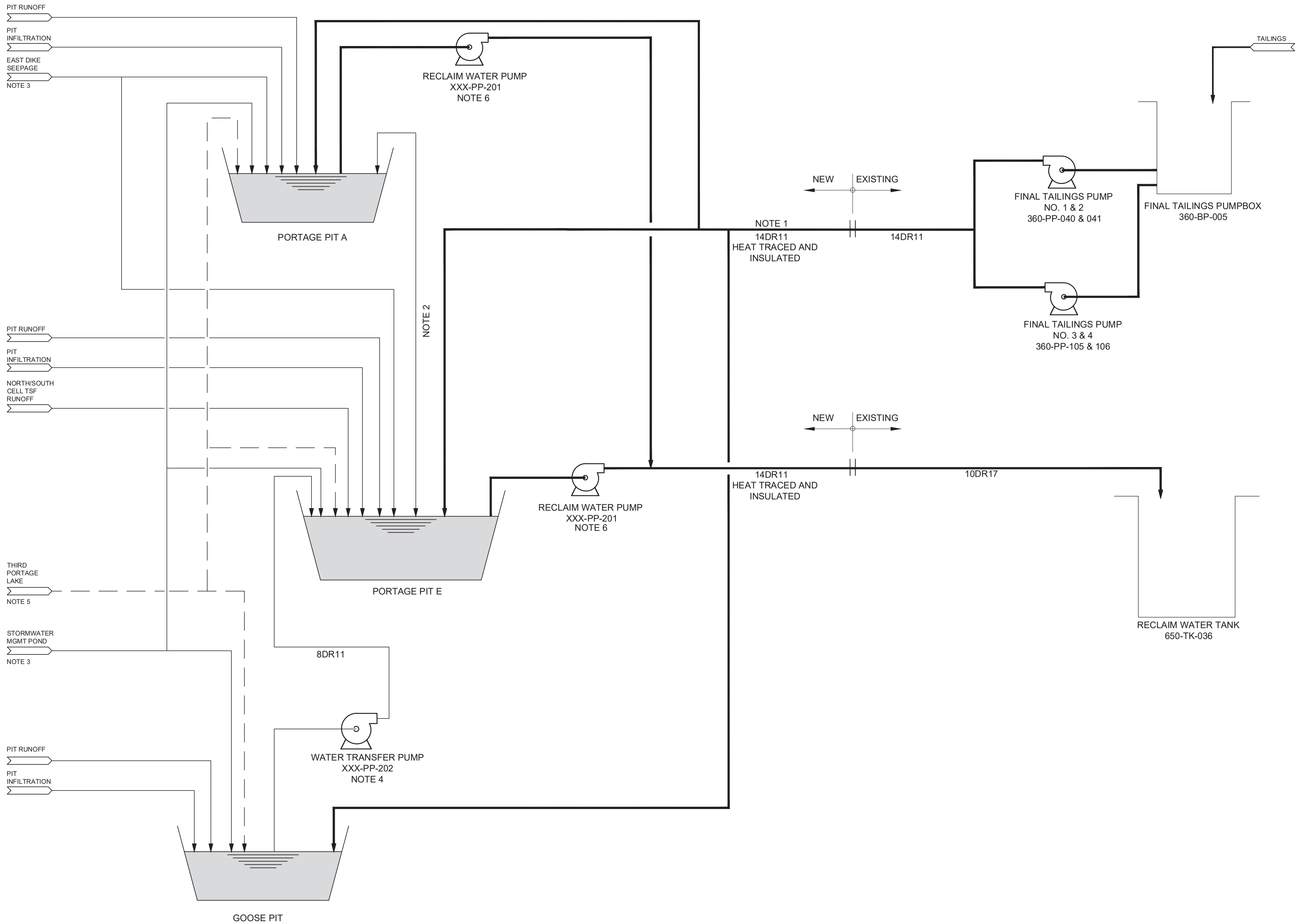
SNC-Lavalin Inc. (SLI 2017c), *Technical Note –Meadowbank Water Quality Forecasting Update for the 2016 Water Management Plan,* 644523-0000-40ER-0001, rev. 0, Mar 28, 2017

Appendix 1
Process Flow Diagram



NOTES :

1. TAILINGS WILL BE TRANSFERRED TO GOOSE PIT, PORTAGE PIT A OR PORTAGE PIT E.
2. WATER WILL TRANSFER BETWEEN PORTAGE PIT A AND PIT E DEPENDING ON THE WATER LEVEL IN EACH PIT VIA THE PORTAGE PIT CENTRAL DUMP.
3. THESE STREAMS WILL BE SENT TO THE PIT WHERE DEPOSITION IS OCCURING. STORMWATER MANAGEMENT POND CAN BE SENT TO GOOSE PIT, PORTAGE PIT A OR PIT E. EAST DIKE SEEPAGE CAN BE SENT TO PORTAGE PIT A OR PIT E ONLY.
4. DURING IN-PIT DEPOSITION, WATER WILL BE TRANSFERRED FROM GOOSE PIT TO PORTAGE PIT E TO MAINTAIN THE WATER LEVEL BELOW 130 MASL WHEN REQUIRED.
5. TRANSFER OF FRESH WATER FROM THIRD PORTAGE LAKE TO GOOSE PIT, PORTAGE PIT A AND/OR PORTAGE PIT E COULD BE REQUIRED DURING IN-PIT DEPOSITION TO MAINTAIN A MINIMUM WATER COVER AND FOR PIT FLOODING.
6. RECLAIM WATER WILL BE PUMPED FROM EITHER PORTAGE PIT A OR PIT E TO THE MILL. RECLAIM WATER WILL BE PUMPED FROM THE PIT WHERE NO DEPOSITION IS OCCURING.

LEGEND:

- PRIMARY STREAM
- SECONDARY STREAM
- INTERMITTENT STREAM

No	PURPOSE OF ISSUE	DATE (Y/M/D)	*	**
B00	ISSUED FOR STUDY	12/09/2017	A.L.N.	M.H.P.
B0B	ISSUED FOR COMMENTS	05/06/2017	A.L.N.	M.H.P.
B0A	ISSUED FOR COMMENTS	17/05/2017	A.L.N.	M.H.P.

INITIALS: * DESIGNED ** APPROVED

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SCALE			

CLIENT: AGNICO EAGLE

PROJECT: IN-PIT TAILINGS DEPOSITION PREFEASIBILITY STUDY

TITLE: PROCESS FLOW DIAGRAM IN-PIT DEPOSITION IN GOOSE PIT AND PORTAGE PIT A AND PIT E

PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
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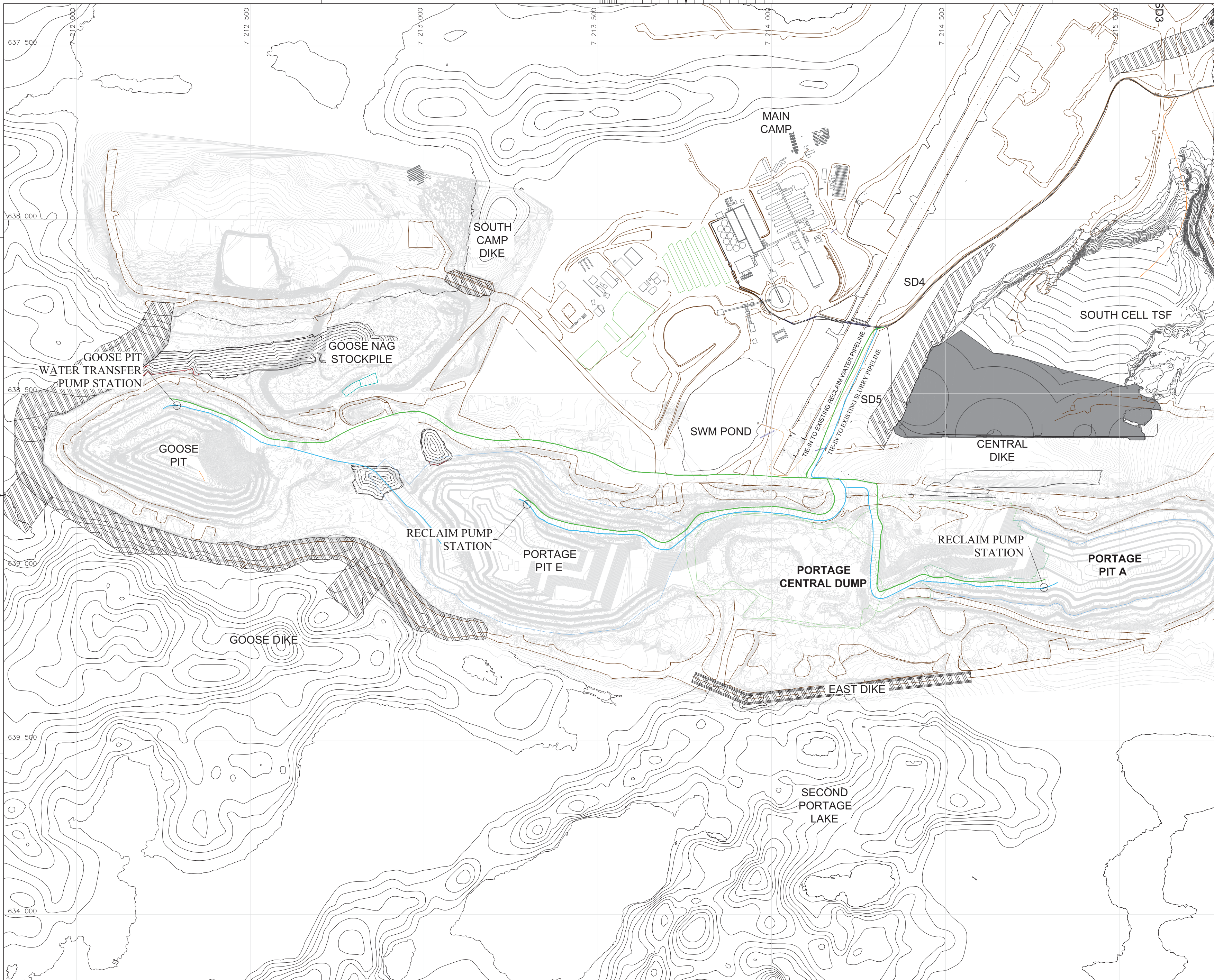
Appendix 2
General Site Layout for In-pit Deposition



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B0A	ISSUED FOR INTERNAL COMMENT	2017/06/07	A.L.N	M.H.P.
No	PURPOSE OF ISSUE	DATE (Y/M/D)	*	**

INITIALS: * DESIGNED ** APPROVED

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SCALE 1 : 5 000 — 50 0 50 100 150 200m

CLIENT: AGNICO EAGLE

PROJECT: IN-PIT TAILINGS DEPOSITION PREFEASIBILITY STUDY

TITLE: GENERAL SITE LAYOUT FOR IN-PIT DEPOSITION

PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
643541	0000	45 D1	0001	B00

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