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MEADOWBANK DIVISION

Appendix WT:
MEADOWBANK TAILINGS STORAGE FACILITY MANAGEMENTPLAN FOR WHALE TAIL PIT

Version 1

January 2017

EXECUTIVE SUMMARY

Agnico Eagle Mines Ltd. Meadowbank Division (Agnico Eagle) 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. This report is an appendix to the Mine Waste Rock and Tailings Management Plan (March 2016), in support of the potential amendments to the Licence required to accommodate the Whale Tail Pit Project Tailings Management at the approved Meadowbank Tailings Storage Facility.

The Meadowbank Mine consists of several gold-bearing deposits: Vault, Portage, Goose Island, and Agnico Eagle is proposing an additional satellite pit located at the Amaruq Property called Whale Tail Pit. During the operation and processing of Whale Tail Pit ore, Agnico Eagle is proposing to store associated tailings within the same footprint of the approved Meadowbank Mine Tailings Storage Facility. Waste rock generated from mining Whale Tail Pit will be regulated under a separate Water Licence No. 2AM-WTP---- currently under consideration by the Nunavut Impact Review Board and Nunavut Water Board.

The proposed Whale Tail open pit mine, mined by truck-and-shovel operation, will produce 8.3 million tonnes (Mt) of ore, 46.1 Mt of waste rock, and 5.6 Mt of overburden waste. There are four phases to the development: 1 year of construction, 3 years of mine operations, 8 years of closure, and the post-closure period. According to the Whale Tail Pit Life of Mine (LOM) calculation, the addition of the Whale Tail Pit to the actual Meadowbank LOM (LOM 2015) will generate an addition of approximately 8.3 Mt (dry) of tailings to the Meadowbank Tailings Storage Facility (TSF) for a total of 35.4 Mt stored within the Meadowbank Tailings Storage Facility.

The approved Meadowbank Tailings Storage Facility (TSF) is delineated by a series of dikes built (and to be built) around and across the basin of the dewatered northwest arm of Second Portage Lake. The TSF is divided into the North and South Cells. From 2010 to 2015 tailings were placed in the North Cell. The North Cell of the TSF is delineated by the Stormwater Dike (separates North and South Cells), Saddle Dams 1 and 2 and perimeter rockfill road structures. Tailings deposition commenced in the South Cell in 2014 and will continue until 2018 when mine operations are scheduled to cease (North Cell deposition was completed in 2015). The South Cell is delineated by the Central Dike and Saddle Dams 3, 4 and 5. The division of the TSF into cells allows tailings management in comparatively smaller areas with shorter beach lengths that reduce the amount of water that is trapped and permanently stored as ice. Operation in cells also allows progressive closure and cover trials to begin in the North Cell (2014-2016) while tailings deposition continues in the South Cell.

To store the full volume of tailings from processing of the Whale Tail Pit ore, Agnico Eagle is proposing to maximize the storage in South Cell through the deposition of approximately 5.3 Mt of tailings, within the Type A Water License 2AM-MEA1525 approved tailings facility structure. Agnico Eagle is also proposing to construct an internal dike structure to store the remaining 3 Mt within the current footprint of the North Cell.

The tailings deposition plan has been optimized to target tailings deposition in the North Cell TSF during summer, and in the South Cell TSF during winter to reduce the impact of cold climate on the tailings dry density. The control strategy to minimize water infiltration into the TSF and the migration of constituents out of the facility in closure and post-closure includes freeze control of the tailings through permafrost encapsulation. These strategies will continue for Whale Tail Pit tailings storage. Consistent with approved interim closure plans for Meadowbank, a minimum of a 2-metre thick cover of non-potentially acid generating rockfill will be placed over the tailings as an insulating convective layer to confine the active layer within relatively inert materials. The final thickness of the rockfill cover layer will be confirmed in the final closure design based on thermal monitoring to be completed during operations. All infrastructures needed for mine operations, closure and reclamation, will be re-contoured and/or surface treated during closure according to site specific conditions to minimize windblown dust and erosion from surface runoff. This activity is designed to enhance the potential for re-vegetation to occur and wildlife habitat re-establishment.

A Thermal Monitoring Plan (TMP) was developed to observe the freezeback of the TSF in order to comply with the Nunavut Water Board (NWB) water license 2AM-MEA1525. The License requires a TMP to monitor temperatures of the TSF during and after, mining operations. These activities will continue during the operation of Whale Tail Pit tailings storage and closure of the Meadowbank Tailings Storage Facility.

DOCUMENT CONTROL

Version	Date (YM)	Section	Page	Revision
Appendix WT- V1	2017/01	All	All	An Appendix to the Existing Meadowbank Tailings Management Plan

Prepared by Golder and Associates & the Meadowbank Division

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1.1 MINE WASTE AND MEADOWBANK MINE TAILINGS MANAGEMENT

The current mine plan (2016 to 2018) indicates that an approximate further 10.3 Mt of ore will be processed over a nominal mine life of 2.75 years, including ore from pits and stockpiles. During this time, approximately 48.1 Mt of mine waste rock will be produced and stored in the Portage Waste Rock Storage Facility or Vault Waste Rock Storage Facility. As approved under Type A 2AM-MEA1525 at the end of the Meadowbank mine life, an approximate total of 28.2 Mt of tailings will be placed in the Meadowbank Tailings Storage Facility (Figure 1.2), based on in situ tailings density.

Agnico Eagle Meadowbank Division (Agnico Eagle) is proposing to develop the Whale Tail Pit and Haul Road Project (Project), a satellite deposit located on the Amaruq property, to continue mine operations, milling at Meadowbank Mine and storage within the footprint of the approved Tailings Storage Facility.

NAG classified waste rock produced by pre-stripping and generic mining activities will be used for construction of the remaining mine infrastructure and dikes at the site, as has been the practice to date. Based on current material balance calculations, sufficient quantities of suitable rock fill and till borrow materials will be available for construction, capping activities and closure/reclamation projects.

1.2 WHALE TAIL PIT LIFE OF MINE AND PRODUCTION

Several LOM scenarios were analyzed by Agnico Eagle, which ultimately retained the best one based on the most current information and economic viability, at a pre-economic assessment level, of the Whale Tail Pit Project. Mill throughput for the Whale Tail Pit is not expected to change significantly from that existing at Meadowbank, and will remain on average 9,000 t/day and up to a peak mill throughput of 12,000 t/day (which is the current rate capacity at Meadowbank Mill). Although optimization will occur, milling will end as the maximum capacity of the current TSF is reached (8.3 Mt). Table 1.1 summarizes the Whale Tail Pit LOM.

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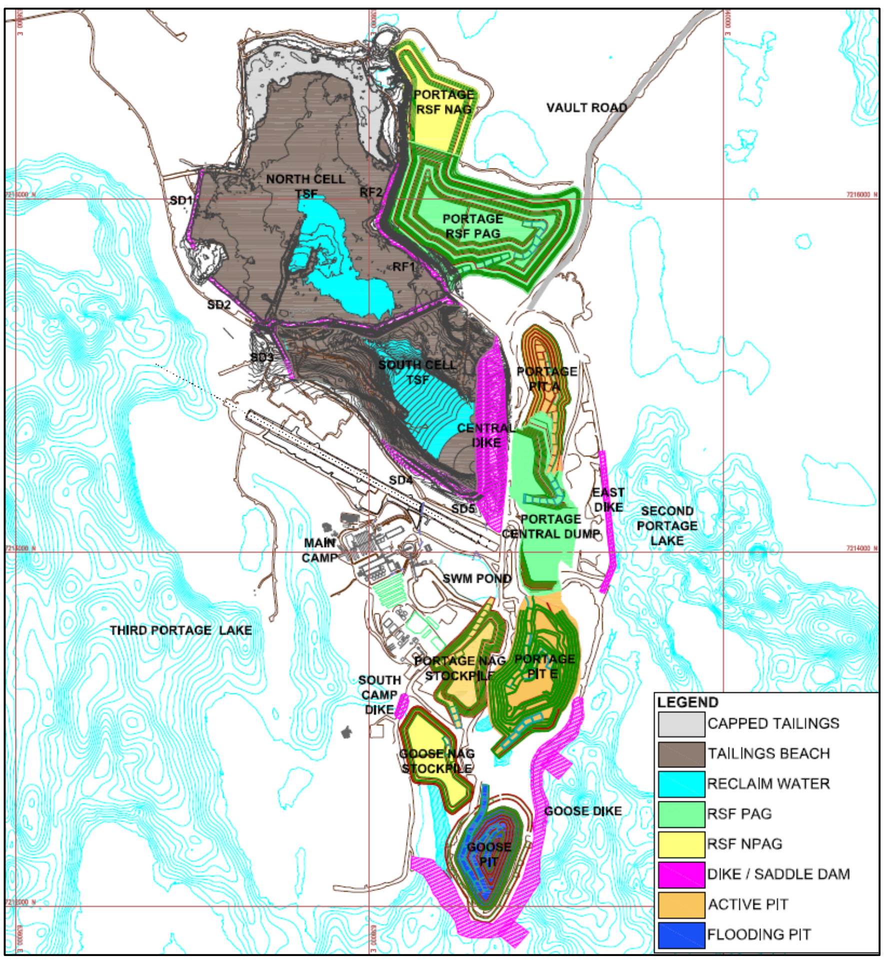
Table 1.1 Projected Whale Tail Pit Mined Tonnages

Year	Period	Ore Mined (t)	Ore Processed in Mill (t)	Production Days
2018		160,020	-	-
2019	Q1	366,229	-	184
	Q2	610,012	-	
	Q3	418,663	821,250	
	Q4	895,072	821,250	
2020	Q1	800,463	821,250	366
	Q2	931,458	821,250	
	Q3	763,882	821,250	
	Q4	856,512	821,250	
2021		2,476,834	3,285,000	365
2022		0	66,644	8
Total		**8,279,144**	**8,279,144**	**923**

Figure 1.1 Meadowbank Tailings Storage Facility



The Whale Tale Pit deposition plan is proposed to be a continuation of the current Meadowbank deposition plan according to the Whale Tail Pit production rates and mill feed presented in Table 1.1. Completion of the current Meadowbank LOM milling activities will occur in Q3 2018.

Approximately 46.1 Mt of waste rock, 5.6 Mt of overburden will be generated by the Whale Tail Pit Project (Tables 1.2 and 1.3). 8.3 Mt of tailings (or mined ore) will be generated by the Project (Tables 1.2 and 1.3). For completeness, the management and operation of Waste Rock and overburden is presented in the tables, however it will be regulated under a separate water licence No. 2AM-WTP---- currently under review by the NIRB and NWB (Licence Pending).

The term "waste rock" designates all fragmented rock mass that has no economic value and needs to be stored separately. Waste rock is also commonly referred to as "mine rock" in the mining industry. Typically, waste rock is produced during the initial stripping and the subsequent development of open pits and underground workings.

The term "overburden" designates all soils above the bedrock that needs to be stripped at surface prior to developing the open pits. Generally, the overburden at the site consists of a thin layer of organic material overlying a layer of non-cohesive soil with variable amounts of silt, sand, and gravel.

Tailings are the processed material by-product of the gold recovery process and generally comprise water with gravel, sand, silt, and clay sized particles.

Table 1.2 Projected Mined Tonnages and Ore Stockpile Balance (2018 – 2022)

Year	Period	Ore Mined (t)	Waste Rock Excavated (t)	Overburden Excavated (t)	Total Material Excavated (t)	Total Material Excavated (t/day)	Strip ratio	Ore Stockpile Balance (t)
2018	June to Sept.	-	400,782	610,973	1,011,754	8,431	-	-
	Q4	160,020	1,080,812	807,105	2,047,937	22,260	11.80	160,020
	Sub-total	**160,020**	**1,481,594**	**1,418,078**	**3,059,691**	**14,433**	**18.12**	**160,020**
2019	Q1	366,229	1,905,908	820,072	3,092,209	33,980	7.44	526,249
	Q2	610,012	2,299,406	122,351	3,031,769	33,316	3.97	1,136,261
	Q3	418,663	4,307,676	2,350,185	7,076,524	77,764	15.90	733,674
	Q4	895,072	5,284,473	826,373	7,005,917	76,988	6.83	807,495
	Sub-total	**2,289,976**	**13,797,463**	**4,118,981**	**20,206,420**	**55,360**	**7.82**	**807,495**
2020	Q1	800,463	6,111,564	81,160	6,993,187	76,848	7.74	786,709
	Q2	931,458	5,816,680	139	6,748,277	74,157	6.24	896,916
	Q3	763,882	5,120,892	0	5,884,773	64,668	6.70	839,548
	Q4	856,512	4,455,358	0	5,311,869	58,372	5.20	874,809
	Sub-total	**3,352,314**	**21,504,494**	**81,300**	**24,938,107**	**68,324**	**6.44**	**874,809**
2021		**2,476,834**	**9,320,843**	**0**	**11,797,677**	**32,322**	**3.76**	**66,644**
2022		**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total		**8,279,144**	**46,104,394**	**5,618,359**	**60,001,895**		**6.25**	**0**

Table 1.3 presents the volume, use and waste destination for overburden, waste rock and tailings associated with the Whale Tail Pit operations. Further details on the management of the mine waste materials are presented in the Whale Tail Pit Waste Rock Management Plan (January 2017).

The Meadowbank Tailings Storage site layouts are presented in Appendix A to illustrate the evolution of the TSF in 2018, 2019, 2022, and 2029.

Table 1.3 Summary of Mine Waste Tonnage and Destination

Mine Waste Stream	Estimated Quantities	Waste Destination
Overburden	5.6 Mt	• Temporary storage West of Whale Tail Lake (~ 0.1 Mt for operations) • Co-disposed with waste rock in Whale Tail WRSF
Waste Rock	46.1 Mt	• Construction material • Whale Tail WRSF • Closure and site reclamation
Tailings	8.3 Mt	• As slurry tailings placed in the TSF (Meadowbank Mine)

SECTION 2 • WHALE TAIL PIT TAILINGS MANAGEMENT

Tailings are the processed material by-product of the gold recovery process. Tailings are processed through a cyanide destruction circuit, then pumped to the Tailings Distribution Box, and then deposited in the Meadowbank Tailings Storage Facilities – North and South Cells (TSF).

The TSF is divided by the Stormwater dike into the North and South Cells. The North Cell is currently delimited by the Saddle Dams 1 and 2 as well as two rockfill road structures (RF1 and RF2). All those structures of the North Cell are presently at final El.150m. Final tailings deposition occurred in 2015 to maximum elevation 149.5masl.

The South Cell is currently delineated by the Central Dike, which is approved to 149.5 masl according to the Type A 2AM-MEA1525. The Central Dike embankment was completed to El.115m in 2012 and, to El.120m in 2013, to El. 132m in 2014, to El. 137m in 2015 and will be completed to El. 143m in 2016. A liner (LLDPE) was installed on the upstream surface to El.137m. This dike will be raised to a currently planned elevation of El.143m in the summer 2016 and if approved, will be raised to 149.5 masl during the construction phase and operation of Whale Tail Pit.

Tailings deposition began in February 2010, in the North Cell, and was switched to the South Cell (former Portage Attenuation pond) on November 22, 2014 and continued to July 1, 2015. During that time, the first phase of North capping occurred. Deposition switched back in the North Cell during the summer 2015 to finalize the beach profile. Currently the reclaim pond is located in the South Cell and this water is recycled to the mill as process water. The South Cell will continue to be the reclaim pond during the milling of the Whale Tail Pit ore.

2.1 TAILINGS MANAGEMENT AND DEPOSITION STRATEGY FOR WHALE TAIL PIT

According to the Whale Tail Pit LOM calculation, the addition of the Whale Tail Pit to the Meadowbank LOM (LOM 2015 – completion Q3 2018) will generate an addition of approximately 8.3 Mt (dry) of tailings to the Meadowbank TSF.

Tailings from Whale Tail Pit will be stored within the approved Meadowbank TSF footprint. According to the approved Meadowbank TSF design and Meadowbank LOM 2015, there remains a capacity of 5.3 Mt in the South Cell after the completion of mining Goose Pit, Portage Pit, Vault Pit, BB Phaser, and Phaser Pit. To provide the additional 3 Mt of capacity required to store Whale Tail Pit tailings, Agnico Eagle is proposing to construct an internal structure raise over the outside perimeter of the existing and frozen North Cell. This concept will increase the tailings beach elevation to a maximum of 153.5 masl in the North Cell.

2.1.1 Deposition Strategy

Agnico Eagle, in collaboration with O'Kane Consulting (O'Kane), developed a rockfill internal structure design for the North Cell TSF to avoid increasing the overall footprint of the existing TSF. The Arctic climate conditions lead Agnico Eagle to implement a specific deposition strategy to optimize placement of tailings and reduce the impact of cold temperature on the tailings dry density. This strategy has been documented in previous tailings management plans and focuses on discharging tailings into the North Cell TSF during summer, and moving to the South Cell TSF during winter.

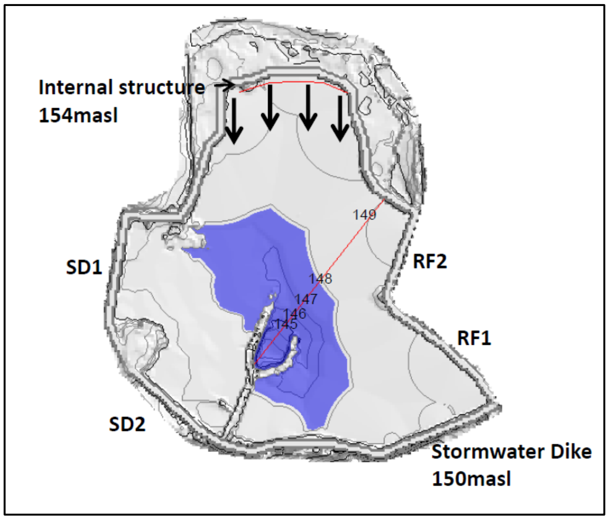
Since the beginning of operations, Agnico Eagle inferred variations of tailings dry density has ranged from 1.76 tonnes per cubic metre (t/m^3) to 1.08 t/m^3 during summer and winter, respectively. These observations are a direct consequence of ice entrapment occurring within the storage facility. The ice entrapment depends on the temperature and the general TSF geometry at the deposition location, reclaim water volume and sub-aerial beach length. The more the slurry is exposed to cold temperatures during the sub-aerial deposition, the greater the volume of water trapped as ice in the capillary voids of the tailings beach.

Agnico Eagle identified the North Cell TSF as most prone to ice entrapment due to its geometry. Therefore, deposition in the proposed North Cell TSF raise will be conducted from June to September inclusively, for a period of 122 days in an environment free of ice. For the remaining part of the year, the South Cell TSF will be used for tailings deposition as a lower entrapment is forecasted due to smaller sub-aerial beach lengths. This tailings deposition strategy will also promote the building of a tailings beach on all peripheral geotechnical structures per design requirements.

2.1.2 North Cell Tailings Storage Facility

Figure 2.1 depicts the geometry of the North Cell before resuming the deposition in June 2019. An incline internal structure will surround the North Cell TSF starting at elevation 154 masl at the north end of the cell, and decreasing in elevation until reaching the Stormwater Dike (SWD) at elevation 150 masl. Tailings deposition will be almost exclusively sub-aerial and water ponding against the SWD will be transferred to the South Cell TSF to keep the reclaim water elevation below 148 m to maintain a 2 m freeboard per design requirements. A long subaerial tailings beach will be pushed from the north to the south to promote sheet flow runoff water drainage toward the South Cell at closure. The Meadowbank Dike Review Board encouraged this practice for closure purposes as outlined in the Meadowbank Review Board Report No. 17 (Meadowbank Mine Annual report, MDRB, 2015).

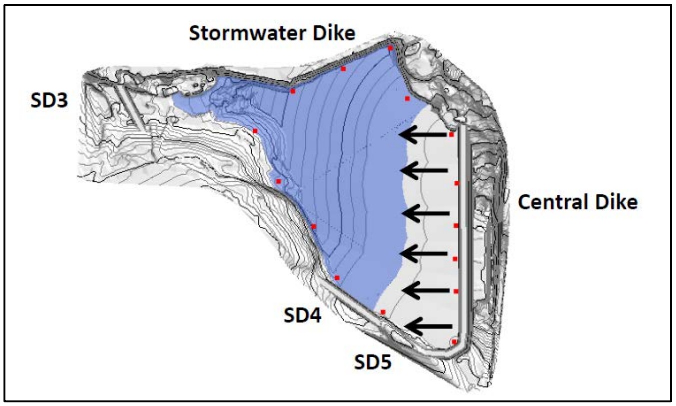
Figure 2.1 North Cell Deposition Strategy



2.1.3 South Cell Tailings Storage Facility

Figure 2.2 depicts the geometry of the South Cell before resuming deposition in October 2019. All structures (Central Dike, SD3, 4 & 5 and SWD) will be raised at elevation 150 masl. As is currently undertaken at Meadowbank, most of the deposition will occur from the Central Dike to push the reclaim water toward the west end of the TSF. Throughout operations, the reclaim pond will be located in the South Cell TSF and water transfer will be required from the North Cell to South Cell TSF. The reclaim system will be located in the SD3 area. At the end of operations, a long subaerial tailings beach will be built up from Central Dike, which will promote runoff water drainage toward SD3 at closure.

Figure 2.2 South Cell Deposition Strategy



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2.1.4 North Cell Internal Structure

O'Kane were mandated by Agnico Eagle to design the North Cell TSF internal dike structures to provide an additional tailings storage capacity of 3 Mt. The internal structure will consist of NPAG waste rock placed at 1.5H:1V (upstream face) and at 3H:1V (downstream face) along the alignment (see drawings presented in Appendix B). While the technical drawings presented in Appendix B show a 15 m crest width, suitable for 2-way traffic with 50 t haul trucks, the final dike width at the crest will be determined by construction equipment to be used. Numerical modeling of slope stability and seepage were completed assuming a 30 m wide dike. Sensitivity analysis of seepage showed no difference in seepage rates and total volumes between the 15 m and 30 m options. The height of the dike will vary between 2 and 4 m, the higher portion located in the northern section of the TSF.

2.2 TAILINGS DEPOSITION PLANNING

2.2.1 Tailings Properties

An updated TSF water balance and tailings deposition plan for the Project was prepared based on tailings properties defined by field measurement during the Meadowbank operations. Table 2.1 presents the parameters used in the model as determined from bi-annual (i.e., twice per year) bathymetric surveys after the summer and winter seasons. Intervening summer and winter values were estimated from the measured values and weighted by month.

The bathymetric surveys of the TSF also provided measurements of sub-aqueous and sub-aerial beach angles. The model used a sub-aerial tailings beach slope of 0.45% and a sub-aqueous tailings beach slope of 2.36% assuming that the Meadowbank in situ measured tailings geotechnical properties will be representative of conditions during deposition of the Whale Tail Pit tailings.

Based on the geochemical testing completed to date, the Whale Tail Pit tailings are expected to be PAG due to their low carbonate-mineral buffering capacity relative to sulphide sulphur content (2.8 wt%). The Whale Tail Pit tailings sample subjected to kinetic testing by humidity cell remained neutral for the 44-week test duration and showed little evidence of active sulphide mineral oxidation. However, mineral depletion calculations on kinetic test results suggest that the buffering capacity will eventually be consumed, after which the tailings may start to oxidize and develop acidic conditions. Whale Tail Pit tailings geochemistry evaluation is ongoing; based on the current data, the tailings are anticipated to require oxidation control in the long-term.

Table 2.1 Model Parameters

North Cell Parameters 2019-2021				South Cell Parameters 2019-2020 & 2021			
Month	**Ice Thickness (m)**	**Tailings Dry Density (t/m³)**	**Ice entrapment (%)**	**Month**	**Ice Thickness (m)**	**Tailings Dry Density (t/m³)**	**Ice entrapment (%)**
January	1.1	1.08	90%	January	1.1	1.22 - 1.08	50% - 90%
February	1.3	1.08	90%	February	1.3	1.22 - 1.08	50% - 90%
March	1.5	1.08	90%	March	1.5	1.22 - 1.08	50% - 90%
Q1	**1.5**	**1.08**	**90%**	**Q1**	**1.5**	**1.22 - 1.08**	**50% - 90%**
April	1.7	1.08	90%	April	1.7	1.49 - 1.08	50% - 90%
May	0	1.32	60%	May	0	1.49 - 1.32	40% - 60%
June	0	1.56	30%	June	0	1.49 - 1.56	30%
Q2	**0**	**1.32**	**60%**	**Q2**	**0**	**1.49 - 1.32**	**40% - 60%**
July	0	1.56	30%	July	0	1.76 - 1.56	30%
August	0	1.56	30%	August	0	1.76 - 1.56	30%
September	0	1.56	30%	September	0	1.76 - 1.56	30%
Q3	**0**	**1.56**	**30%**	**Q3**	**0**	**1.76 - 1.56**	**30%**
October	0.2	1.32	75%	October	0.2	1.31 - 1.32	40% - 75%
November	0.5	1.08	80%	November	0.5	1.31 - 1.08	50% - 80%
December	0.8	1.08	90%	December	0.8	1.31 - 1.08	50% - 90%
Q4	**0.8**	**1.16**	**82%**	**Q4**	**0.8**	**1.31 - 1.16**	**47% - 82%**
Average	-	**1.28**	**65%**	**Average**	-	**1.44 - 1.28**	**42% - 65%**

2.2.2 Deposition Strategy

End of pipe tailings deposition will be used in North and South Cell TSF during the Whale Tail Pit mining. The deposition may be optimized by incorporating a spigoting system to the deposition process at the north end of the North Cell TSF.

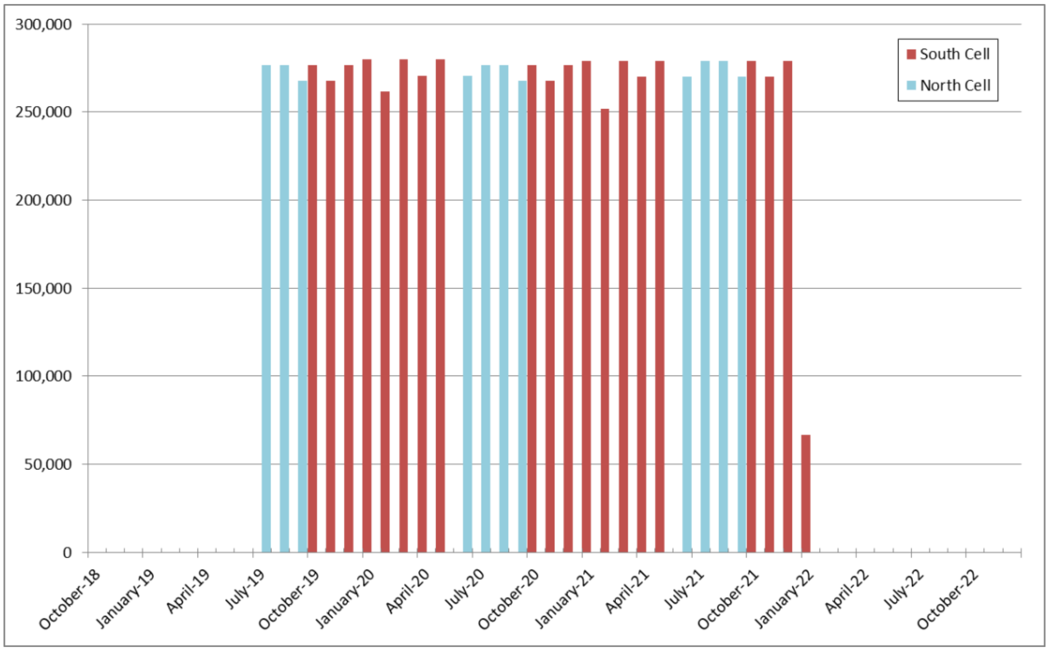
2.2.3 Tailings Deposition Plan

Please refer to Appendix C for the detailed Whale Tail Pit Tailings Deposition Plan. Table 2.2 and Figure 2.3 summarize the tailing tonnages to be deposited in each cell with time.

Table 2.2 Tailings Storage Facility Tailings Tonnage Profile

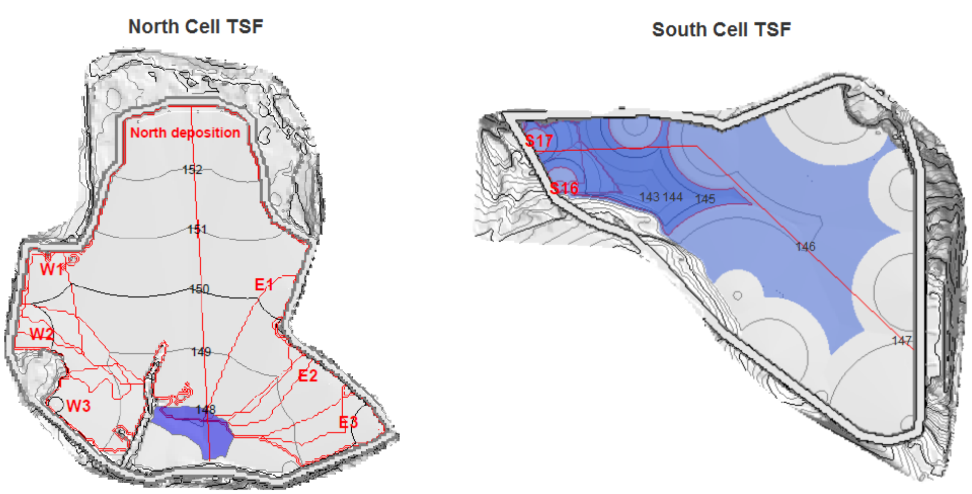
Time	North Cell (t)	South Cell (t)	Total (t)
2019	821,250	821,250	1,642,500
2020	1,091,992	2,193,008	3,285,000
2021	1,098,000	2,187,000	3,285,000
2022	0	66,644	66,644
Total	**3,011,242**	**5,267,902**	**8,279,144**

Figure 2.3 Tailings Tonnage Stored in Each Cell with Time



Assuming a tailings dry density of 1.28 t/m³, the South Cell will have a remaining storage capacity of 1.9 Mt after completion of Whale Tail Pit operations. This provides additional storage contingency should tailing properties differ from that modelled. Figure 2.4 presents the layout of the TSF once deposition is completed.

Figure 2.4 Tailings Storage Facility Layout after Deposition Completed



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2.3 TAILINGS STORAGE FACILITY CAPACITY

As mill processing rates and tailings characteristics are liable to fluctuate over the life of the mine, the design of the TSF and tailings deposition plan will continue to evolve based on changes in design parameters including mill process rates, tailings beach slopes, ice entrapment, and tailings in-situ densities. As such, a preliminary deposition plan was done in 2009 to provide guidelines for operation of the facility and to schedule the construction of the TSF perimeter dikes. The preliminary deposition plan was initially updated each year to include data collected from the previous year's deposition within the TSF. Since 2013, Agnico Eagle has assigned dedicated engineers, who regularly review/update the deposition plan incorporating any new and relevant information and changes to mine and operational planning.

Agnico Eagle performed a bathymetric analysis in July 2015 of the North Cell to further validate the key variables which influence the water balance as well as the deposition plan. Mainly, those key variables are the tailings dry density (influenced by ice entrapment) and the sub-aerial and sub-aqueous beach angles. Furthermore, a dynamic model was established with parameters influenced in accordance with the real time conditions (i.e. seasonal temperature variation) instead of working with year round estimated average and this allows Agnico Eagle better reflect the actual site conditions.

The 2015 bathymetry was compared to the 2013 and 2014 bathymetries. The findings revealed that deposition in the South Cell during the winter 2015-2016 was much more efficient than expected. Average tailings dry density measured was up to 1.45t/m³ instead of the average of 1.28t/m³ observed in the North Cell during the last years. It could be explained by the deposition conditions that changed which results as only sub-aqueous deposition was performed. An average of 38% of the original slurry water in the tailings remains in the cell through a combination of 30% being trapped as pore water within the tailings along with an additional 8% being pure ice entrapment (ice lenses). This differs with the 60% determined in 2015. The better performance observed in 2015 could be related to the deposition strategy promoted which was based on performing sub-aquatic deposition during winter time in the South Cell in order to reduce the impact of cold temperature on tailings deposition. Beach angles measured in the South Cell were also steeper; 1.1% sub-aerial beach slope in the South Cell instead of the 0.45% in the North Cell, and 3.6% sub-aqueous slope in the South Cell instead of 2.36% in the North Cell.

Based on that new information, Agnico Eagle reviewed the tailings deposition strategy and implemented a new guideline in order to improve the efficiency of the tailings deposition and reduce the operational risk. During winter time, Agnico Eagle observed slurry channeling over the frozen tailings beach instead of beaching in front of the discharge point. This phenomenon could compromise the reclaim water system operation as observed in 2013 when Agnico Eagle needed to stop the reclaim barge. The new guideline consists to maintain a free water volume always a least two times bigger than the sub- aerial tailings volume into this deposition plan. Note that this strategy put more pressure on the Central Dike liner protection and the water treatment required at closure. With this new free water target, Agnico Eagle expect that South Cell parameters of 2015 could be used to plan deposition for 2016- 2017. North Cell parameters will be used for 2018 as they were considered representative of the tailings deposition occurring in a TSF pond at closure. A similar analysis will be conducted during the summer of 2016 in the both cells to confirm this assumption. Table 2.4 presents the parameters used for the South Cell tailings deposition plan.

Table 2.3 Average Height Increase of Tailings Surface Elevation for Various Amounts of Ice Entrapment based on Golder, 2008b

Proportion of Entrapped Ice (%)	Average Height Increase of Final Tailings Surface Elevation* (m)
0	-
10	1.4
20	2.5
30	3.7

*Based on initial ore reserves.

Table 2.4 South Cell Tailings Deposition Modelling Parameters

Month	Parameters					
	Ice Thickness (m)	Ice Ratio (%)	Tailings Dry Density (%)	Ice entrapment (%)	Sub aerial beach angle (%)	Sub aqueous beach angle (%)
16-Jan	1.1	19%	1.22	50%	1.10%	3.60%
16-Feb	1.3	24%	1.22	50%	1.10%	3.60%
16-Mar	1.6	31%	1.22	50%	1.10%	3.60%
16-Apr	1.7	34%	1.49	50%	1.10%	3.60%
16-May	0	0%	1.49	40%	1.10%	3.60%
16-Jun	0	0%	1.49	30%	1.10%	3.60%
16-Jul	0	0%	1.76	30%	1.10%	3.60%
16-Aug	0	0%	1.76	30%	1.10%	3.60%
16-Sep	0	0%	1.76	30%	1.10%	3.60%
16-Oct	0.2	4%	1.31	40%	1.10%	3.60%
16-Nov	0.5	10%	1.31	50%	1.10%	3.60%
16-Dec	0.8	17%	1.31	50%	1.10%	3.60%
17-Jan	1.1	28%	1.22	50%	1.10%	3.60%
17-Feb	1.3	32%	1.22	50%	1.10%	3.60%
17-Mar	1.6	46%	1.22	50%	1.10%	3.60%
17-Apr	1.7	55%	1.49	50%	1.10%	3.60%
17-May	0	0%	1.49	40%	1.10%	3.60%
17-Jun	0	0%	1.49	30%	1.10%	3.60%
17-Jul	0	0%	1.76	30%	1.10%	3.60%
17-Aug	0	0%	1.76	30%	1.10%	3.60%
17-Sep	0	0%	1.76	30%	1.10%	3.60%
17-Oct	0.2	4%	1.32	75%	0.45%	2.36%
17-Nov	0.5	7%	1.08	80%	0.45%	2.36%
17-Dec	0.8	13%	1.08	90%	0.45%	2.36%
18-Jan	1.1	18%	1.08	90%	0.45%	2.36%
18-Feb	1.3	23%	1.08	90%	0.45%	2.36%
18-Mar	1.6	28%	1.08	90%	0.45%	2.36%
18-Apr	1.7	32%	1.08	90%	0.45%	2.36%
18-May	0	0%	1.32	60%	0.45%	2.36%
18-Jun	0	0%	1.56	30%	0.45%	2.36%
18-Jul	0	0%	1.56	30%	0.45%	2.36%
18-Aug	0	0%	1.56	30%	0.45%	2.36%
18-Sep	0	0%	1.56	30%	0.45%	2.36%

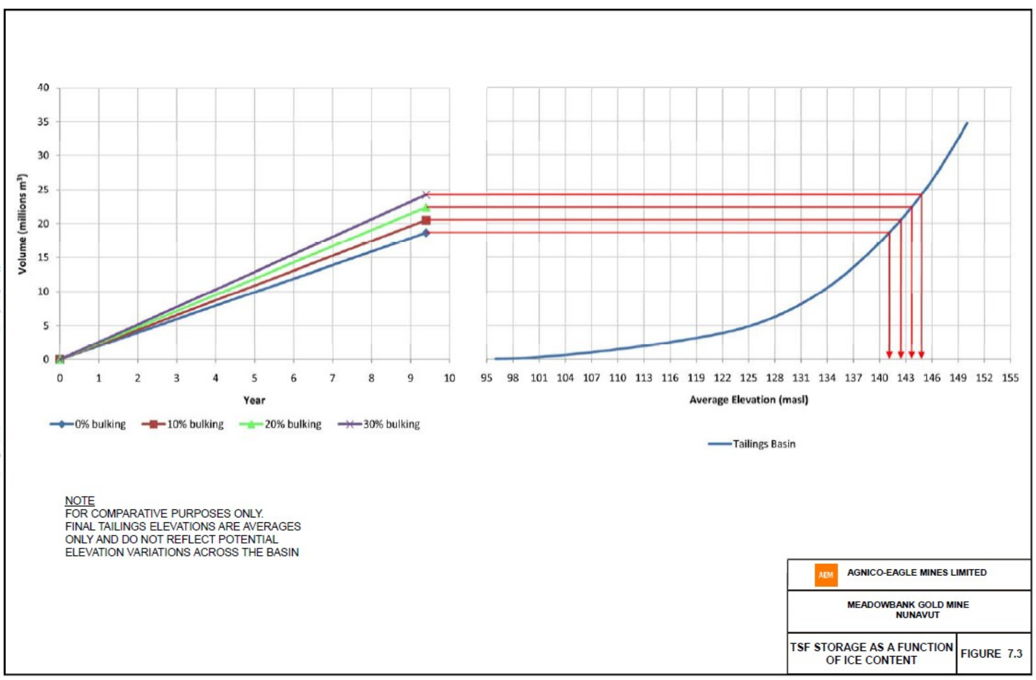
In addition to the contingency related to density, the design of the dikes allows for staging crest elevations without major re-design. The TSF dikes are raised by the downstream method, and the alignments of the dikes were selected to allow additional rising to occur above 150 masl, should additional ore bodies be identified.

The key variables that will influence the performance of the tailings facility are the following:

- Tailings beach slope;
- Reclaim pond volume;
- In-situ dry density;
- Seepage; and
- Ice content.

Regular monitoring of the TSF discharge operation, such as bathymetry and topography surveys, are to be conducted throughout the life of the TSF to adjust model parameters and deposition strategy. This ensures proper planning of the raisings/dikes construction, water availability in the TSF pond and water release strategy following freshet. It will also help in the evaluation of ice entrapment throughout the life of the TSF and verification of model parameters and deposition strategy within the updated deposition plan.

Figure 2.5 Tailings Storage as a Function of Ice Content



2.4 TAILINGS FREEZEBACK AND SEEPAGE

The primary purpose of placing a cover system on the North Cell TSF is to mitigate long-term environmental effects due to runoff, seepage, erosion, or direct contact with the waste. From the determined closure objectives, design criteria for the closure of the North Cell of the TSF were developed. Modeling of tailings freezeback and contaminant transport was carried out by O'Kane Consultant in 2015 to estimate the performance of the permafrost encapsulation cover system design. Design criteria specific to the cover system design include:

Tailings Material Temperature

- The tailings material placed within the North Cell should be entirely frozen after a period of 10 years following closure (frozen defined as tailings temperature <0°C).
- The freezing front should continue at depth into the lake bed sediments and the bedrock underlying the North Cell, thus eliminating the talik currently in place. The time required for this phenomenon to take place will be determined from modeling and is to be corroborated by monitoring of ground temperatures following closure.
- The tailings are to remain frozen for a period of over 150 years following closure, taking into account the agreed-upon climate change scenario. This will be based on modeling and monitoring of ground temperatures following closure of the facility.
- Ground temperature monitoring should be conducted for a minimum of ten years following closure of the TSF and data compared to the modeled scenario. Model parameters are to be adjusted based on monitoring data and future ground temperature predictions refined.
- For 90% of the TSF surface area, the active layer shall remain within the constructed NAG cover system and the underlying tailings material shall remain frozen for a warm year event with a return period of 1 in 100 years, accounting for the climate change scenario.
- In areas where the active layer extends into the tailings material, the thawed layer should be limited to the upper 30 cm of the tailings mass and saturation of the tailings should remain above 85% to limit oxidation of the tailings.

Tailings Material Saturation

- As an additional method to reduce tailings reactivity, the degree of saturation within the tailings mass should remain above 85%. This will reduce the tailings reactivity should part of the upper region of the tailings mass thaw during a warm year event.

Dust Contamination

- Following closure of the facility and completion of the cover construction, dust emissions from the TSF will be in accordance with applicable standards.

The main objectives of numerical modeling are to estimate the seepage within the deposit and heat transfer within the system. One-dimensional (1D) soil-plant-atmosphere (SPA) modeling was completed primarily to determine surface temperatures for use in the thermal/seepage model. Numerical models were carried out in both one and two-dimensions. The 2D numerical model utilized a cross section profile of the entire North and South TSF, as well as the eventual pit lake, in order to accurately estimate the subsurface thermal and flow regimes. To develop reasonable lower boundary conditions for the 2D models, deep 1D models were completed first.

As part of the Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report (AR5), the IPCC adopted new Representative Concentration Pathways (RCPs) to replace the previous emission scenarios of the Special Report on Emission Scenarios (SRES). The two middle class scenarios: RCP4.5 and RCP6 scenarios were chosen as the most appropriate climate change scenarios for the site. The first of the two proposed scenarios, RCP4.5, is comparable to many scenarios that include some form of climate policy but allows for increases in emissions. The second proposed scenario, RCP6 is a stabilization scenario where total radiative forcing stabilizes after 2100 at 6 W/m2. This scenario would still require implementation of a range of technologies and strategies to reduce GHG emissions.

The first stage of modeling was completed using a 1D thermal model to predict temperature of the subsurface zone (tailings interface with cover) through the timeline modeled of 150 years. 2m and 4m cover systems were considered in this numerical modeling work. As uncertainty exists in the assessment of what the temperature values mean with regards to the phase of pore water; any temperature between 0°C and -2°C was considered as a potentially unfrozen zone. However, the agreed cover design objectives were such that the cover system is considered to meet performance objectives if the degree of saturation of the tailings material remains above 85% when the tailings temperature is above the freezing point. The 2m cover indicates minor thawing will occur for the upper portion of the tailings mass. The cover system will still effectively minimize oxygen ingress due to the high saturation of the tailings. Tailings interface under a 4 m cover system indicates temperatures at the interface are usually below -2°C, and always below 0°C, for the entire 150-year simulation period, even under the climate conditions of the RCP6 scenario. Note that the final landform surface presented shows a cover thickness above 4 m for 50% of the TSF surface area, increasing the confidence in the capacity of the designed cover system to limit oxidation and contaminant release.

The second stage was to develop 2D seepage and temperature models which include the North and South Cells with a realistic cross-section profile. It was assumed that a NAG cover would be placed on the South Cell. The inclusion of the South Cell TSF to the 2D model also allowed the incorporation of the Portage pit lake, providing a substantial source of energy to the system. The pit lake represents a continuous source of energy not accounted for in the 1D model. This energy source maintains a temperature condition above the freezing point in the subsurface, allowing water to continue seeping through the talik at this location, delivering energy to further points in the profile. This heat will radiate outwards until equilibrium is met.

Although the 2D modeling results for the coupled seepage – temperature models differs from the 1D model for the temperature profiles at depth, temperatures at the tailings – cover interface are similar for both approaches. The tailings – cover system interface results showed increased occurrences of temperatures rising above -2°C for the RCP6 and 2 m cover when compared to the model run under the RCP4.5 database with a 4 m cover. However, the conclusion from the 2D modeling approach remains the same as from the 1D approach, that the 2 m cover system is appropriate in meeting the performance criteria for the cover design.

The convective airflow model using modified geometry was run for a period of 150 years using the RCP4.5 climate database. Assuming the same initial temperature conditions as modeled in the thermal/seepage modeling, the airflow rates through the cover system and resultant temperatures within the buried tailings were calculated. Due to the presence of a layer of crushed soapstone resulting from construction at the surface, airflow rates through the cover system were minimal. Based on the results of this idealized model, it is predicted that airflow rates through the cover system on a large scale in the field will not be substantial enough to affect cover performance. This conclusion was drawn from the fact that the numerical modeling carried out herein used a geometry that was ideal for convective airflow to occur, and even under these conditions, there was no observable result on internal TSF temperatures.

Monitoring of the TSF thermal capping and additional modeling work will be completed as part of the TSF final cover design. Results of the modeling and the cover design will be provided in the Final Closure and Reclamation plan for Meadowbank site.

2.3.1 Monitoring of Tailings Freezeback

During the development and mining of the deposits, an adaptive management plan has been implemented with respect to monitoring of the TSF to ensure freezeback is occurring. The monitoring program is designed to collect data required to validate the predictions of freezeback within the tailings. If it is determined by monitoring during operations that the tailings are freezing at lower rates than predicted, then mitigation procedures would be implemented. Results to date indicate that the Tailings in the North Cell are freezing as predicted.

During the operational phase, a number of test pad stratigraphies have been developed to assess various cover designs, and to determine the most appropriate design for the actual site conditions. Such an approach has been used previously at northern mines such as Nanisivik. Four tests pads have been constructed on the TSF North Cell since 2014, in collaboration with the Research Institute Mines and Environment (RIME).

Once capping on the tailings with NAG will be completed, a specific monitoring program will be implementing. The objectives of the TSF North Cell cover system and landform are to ensure long-term landform stability, encourage TSF freeze-back into the surrounding permafrost, and maintain either subzero temperature or high degree of saturation (>85%) in the tailings at all times. The purpose of the performance monitoring system is to ensure that these objectives are met. The objectives of the TSF North Cell cover system performance monitoring program will be:

- To monitor the temperature profile through both the tailings and the cover system to verify that the tailings beneath the cover system remain below freezing for most of the year and to verify that the tailings and talik are freezing into the surrounding permafrost;
- To monitor the water content of the tailings below the cover system and understand the basic water content response at the base of the cover; and
- To monitor settlement, consolidation, sediment loss and progression of erosion features on the landform.

As indicated before, the tailings will also be covered with a minimum 2-m thickness of NAG rockfill, which will provide an alternative and preventive strategy for the management of the TSF in the event that permafrost develops more slowly than predicted.

2.3.2 Monitoring of Tailings Seepage

Following dewatering of 2PL Arm and during investigations and construction of the TSF perimeter dikes several investigative procedures are used to identify the location and hydraulic properties of faults that are inferred to be present beneath the North Arm of 2PL including mapping of exposed bedrock, and packer testing in boreholes.

The results of the investigations are used to locate monitoring wells and thermistors that are and will be installed within the dikes, and between the Central Dike and crest of the Portage Pit. Thermal data is monitored to evaluate seepage from the TSF and freezeback of the TSF, and of the Central Dike, Saddle Dam and Rockfill perimeter containment foundations. In addition visual inspections are performed regularly and a yearly geotechnical inspection is undertaken by a third party contractor.

- If monitoring indicates flow rates and water qualities of concern, then mitigation measures would be undertaken. Collection of any seep water will be required as pumping it back to the TSF’s. The potential mitigation action would be dependent on observed flow rates and water quality data;
- If, during monitoring, it is found that the freezeback of the dike and tailings deposit are occurring at a rate less than predicted, then enhancement by artificial freezing methods (i.e. thermosyphons) may be considered.

Refer to the 2015 Water Management Plan and Report for details on the Central Dike seepage and to the Tailings Storage Facilities OMS Plan for seepage monitoring and mitigation actions, both included in the 2015 Annual Report.

2.3.3 Requirements for Sumps and Seepage Pump Back

Seepage collection systems are planned downstream of the TSF dikes, saddle dams and rockfill structures as a contingency against seepage. Seepage collection systems consist of trenches and sumps located immediately downstream of the TSF dikes (and Waste Rock Storage facilities). Seepage reporting to the sumps is to be pumped back over the dike into the TSF. Seepage pump back rates will be monitored and recorded as a measure of dike or rockfill performance. The seepage collection system has been constructed where required during operations. Additional structures could be constructed in operations or at closure if required as contingency against seepage.

In 2013 seepage was detected in a sump location on the North side of the Portage RSF (PAG). It was later determined that the source was the North Cell TSF reclaim water that had ponded against the rockfill structure adjacent to the Portage RSF. This water migrated under the Portage RSF and discharged to the sump location. Corrective measures (installation of a till plug, increased pumping, the installation of 4 additional thermistors to assist in monitoring freezeback in the RSF, installation of filter material and geotextile installation along the rockfill structures RF1 and RF2) were undertaken to prevent migration of contaminants to Lake NP-2 (2013, 2014). A report, including recommendations, was prepared by Golder (Jan, 2014). Also Agnico Eagle prepared a Freshet Action Plan which includes monitoring and continued pumping of this seepage area. This Plan is updated yearly as part of the 2015 Water Management Plan and Report. Agnico Eagle has implemented the Golder recommendations to control the seepage.

In November 2014 upon the start of the South Cell deposition and water reclaiming, an unpredicted rise in piezometers levels downstream of Central Dike was observed. This rise was recorded as having the same rate of rise as the South Cell reclaim pond thus indicating a possible seep beneath the Central Dike structure through the dense till foundation layer and fractured bedrock. Golder was advised and issued a revision of the seepage model of their design. Chain of events, investigations results and action plan is detailed in the 2015 Water Management Plan and Report. Agnico Eagle will continue thorough monitoring of the situation and implement corrective measures if needed. This area is now included as a sampling location in accordance with the Water License. The seepage is contained on site and excess volumes are pumped back to the South Cell TSF.

SECTION 3 • THERMAL MONITORING PLAN

To observe the freezeback of the Tailing Storage Facility (TSF) perimeter impoundment dikes and rockfill structures as well as the Rockfill Storage Facilities (RSF's), a series of subsurface thermistors have been installed at strategic, prescribed locations.

The thermistors have been installed in boreholes drilled around and in the perimeter of the RSF/TSF. The purposes of the thermistors in the TSF are to monitor the talik temperatures underneath the TSF as freezing progresses and to monitor the freezing of the tailings. The purpose of the TSF perimeter thermistors is to monitor the temperature of the perimeter structures which include the containment structures (i.e. saddle dams) to ensure they remain frozen. The purpose of the thermistors in the RSF is to monitor the RSF temperature as freezing progresses. See figure 8.1 for the specific locations of those thermistors.

The thermistors are monitored regularly and this will continue throughout the operational period as well as during closure and post closure. The results are used to evaluate the predicted thermal response of the facilities with the actual thermal response. This will allow adjustments to the tailings deposition plan, the Waste Rock deposition and the final Closure Plan to attempt to influence the rate at which the TSF and RSF freeze.

At this time the thermistors indicate that freezeback is occurring within the North Cell TSF and in the Portage RSF structures. The thermistors installed on the perimeter structures of the TSF/RSF show that the foundation and the dikes remain frozen on yearly basis.

Additional thermistors are planned to be installed in tailings in 2016 and several were installed in the RSF in 2015. Thermistors installed in 2015 are RSF7 to RSF16 (10 thermistors total). Thermistors were also installed in the vicinity of Central Dike in 2015 to monitor the Central Dike seepage and the tailings freeze back. In 2015 Agnico Eagle installed 5 new thermistors at Central Dike, and 10 thermistors at the RSF, as shown on Figure 3.1 for thermistor locations.

Installations of instrumentation in the tailings will continue to take place in the TSF's (North and South) as the cells are filled with tailings. Initially, some of the installations may be 'sacrificial' or temporary; in other words installations may be used to collect data over a short period and then may be destroyed or inaccessible as deposition progresses. The rationale behind installing such thermistors is to monitor the thermal conditions within and beneath the TSF from a very early stage in the life of the facility. As the TSF reaches final elevation, thermistors will be installed from the final tailings surface, and directly into the underlying bedrock. Additional thermistors will be installed in the North Cell in 2016 as the tailings deposition is completed in this area.

The locations of the thermistors are based on tailings deposition plans. For waste rock, the phasing and locations are based on the deposition plan described in Section 6 of this document. Future deposition plans will be taken into account prior to scheduling future installations, and if necessary thermistor specifications and locations should be modified as necessary during Whale Tail Pit operations and closure.

A research project is ongoing at Meadowbank in collaboration with the RIME (Research Institute of Mine and Environment). Construction of test pad for cover trials in the TSF and installation of instruments for monitoring within the TSF and the RSF is part of the research project. The monitoring results are used for cover design, cover performance assessment for both the TSF's and RSF's and to ensure the expected criteria for closure will be met and maintained**.**

3.1 INSTRUMENT LOCATION

Installed and planned future locations of thermistors are presented on Figure 3.1.

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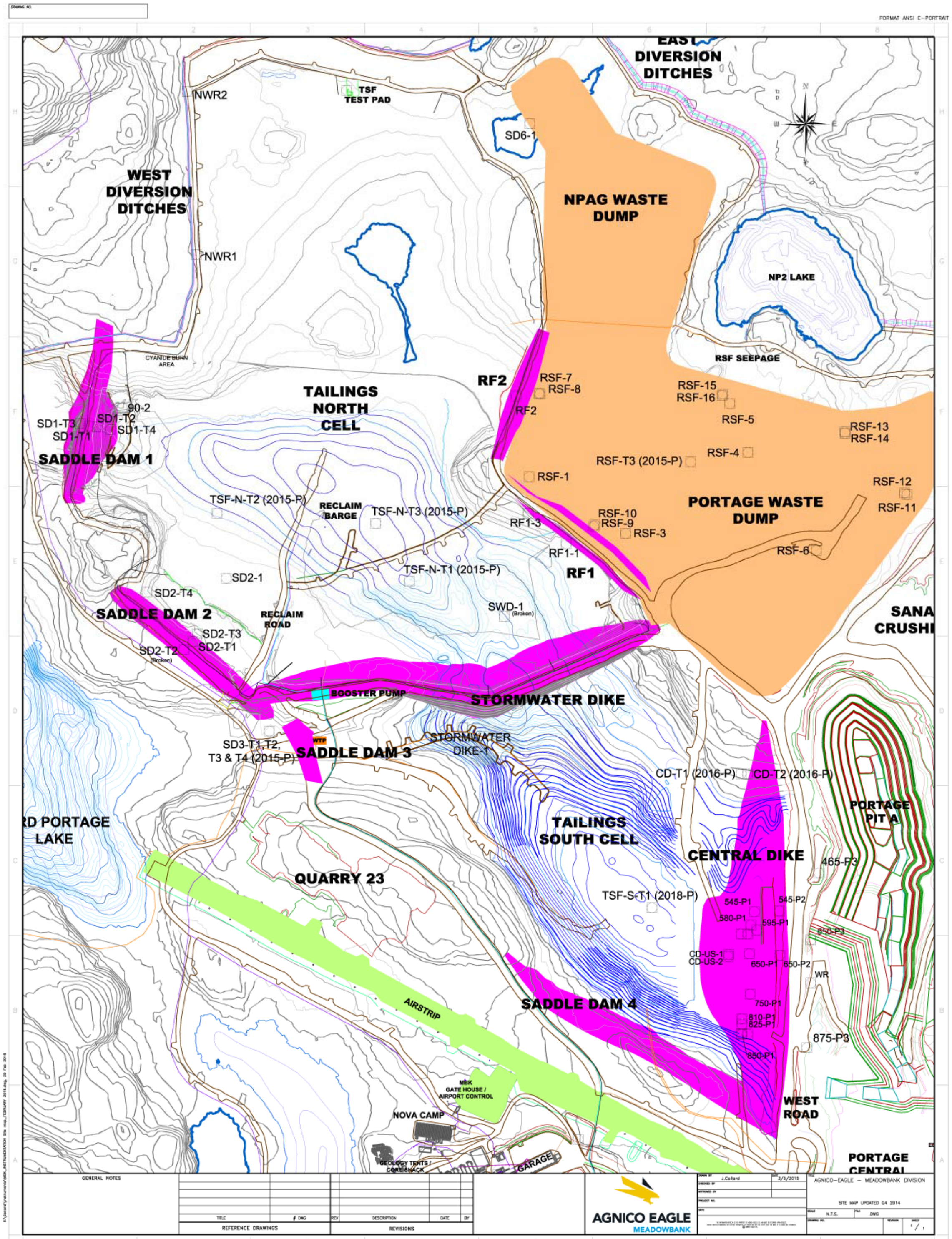
Figure 3.1 Planned and Installed Thermistor Location



SECTION 4 • SUMMARY OF MEADOWBANK WATER MANAGEMENT DURING WHALE TAIL PIT OPERATIONS AND CLOSURE

4.1 MEADOWBANK MINE WATER MANAGEMENT STRATEGY DURING WHALE TAIL PIT OPERATIONS FOR PROGRESSIVE CLOSURE OF GOOSE, PORTAGE, AND VAULT PITS

At Meadowbank, four major sources of inflow water are considered in the site water management system on site: freshwater pumped from Third Portage Lake, natural pit groundwater inflow, seepage inflow from the East Dike and runoff water. This water is utilized and removed from the catchment areas by the following means: WTP effluent from the Vault Attenuation Pond, water trapped in the capillary voids of the tailings fraction at the TSF, East Dike seepage discharge into Second Portage Lake and water trapped within the in-pit central waste rock storage area voids.

An updated Meadowbank Mine Water Balance incorporating the Project is presented in Appendix D, and the related flowcharts are provided in Appendix E. The updated model does not include inflows from the Interception Sump, Waste Dump Extension Pond, or ST-16 to the TSF. It is expected that water running through the diversion ditch to the Interception Sump during the Project LOM will be suitable for direct discharge to the environment, while inflows to the TSF from the Waste Dump Extension Pond and ST-16 will be relatively minor and therefore have negligible influence on eth water balance. The following sections provide further details on the Meadowbank Mine water management strategy during the Project.

4.1.1 Freshwater from Third Portage Lake

Freshwater from Third Portage Lake is pumped utilizing a freshwater barge to service the camp, mill, maintenance shop, and all other freshwater 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 Licence. The two main consumers of freshwater are the mill and the camp.

The freshwater going to the mill is used in the milling process and will be discharged with the tailings as a slurry. Once in the TSF, the total water volume is comprised of 40% free reclaim water (recycled back to the mill as process water), 30% entrapped within the capillary void space of the tailings, and a further 30% entrapped within the TSF as ice (60% total entrapped in TSF). The water entrapment within the TSF represents annual averages as the ice entrapment during the summer months would fall to zero, while in winter months it could reach close to 90% (according to the 2014-2015 North Cell bathymetric analysis).

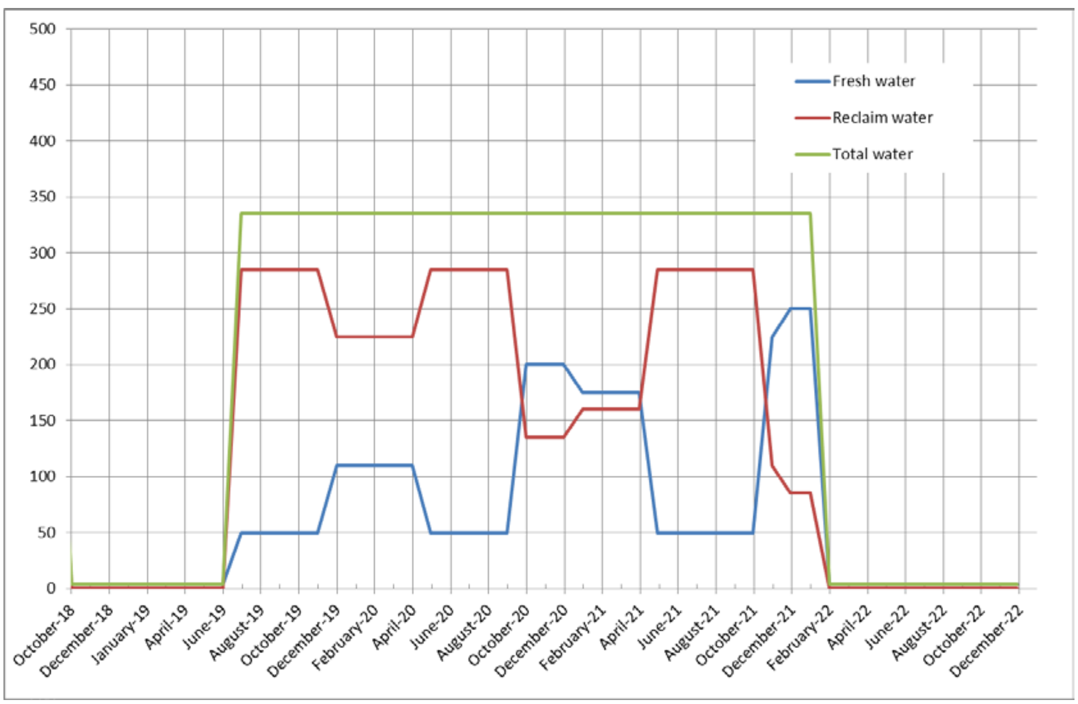
The freshwater used in the camp includes laundry facilities, cleaning, cooking and drinking water consumption. The majority of the camp freshwater is returned as sewage treatment effluent to the Stormwater Management Pond which ultimately gets transferred to the active TSF (currently the South Cell), and later in the mine closure period to Portage Pit during the reflooding operation.

The total expected freshwater utilization planned for 2019 to mine closure varies from 50 to 250 cubic metres per hour (m^3/hr) during mill operation, and drops to 4 m3/hr during closure. Table 4.1 and Figure 4.1 summarize water consumption with time. The variation seen in the freshwater consumption during mill operation is calculated to prevent a water deficit in the TSF while allowing for adequate reclaim volumes at the mill.

Table 4.1 Yearly Water Consumption Summary

Time	Freshwater flow (m^3/hr)	Total Freshwater (m^3)	Reclaim Water Flow (m^3/hr)	Total Reclaim Water (m^3)	Total Water Flow (m^3/h)
2019	32	282,635	138	1,214,399	170
2020	108	944,640	228	1,998,953	335
2021	123	1,072,800	212	1,862,750	335
2022	25	218,064	7	63,321	32
2023-2029	4	34,675	0	0	4

Figure 4.1 Flow to the Mill

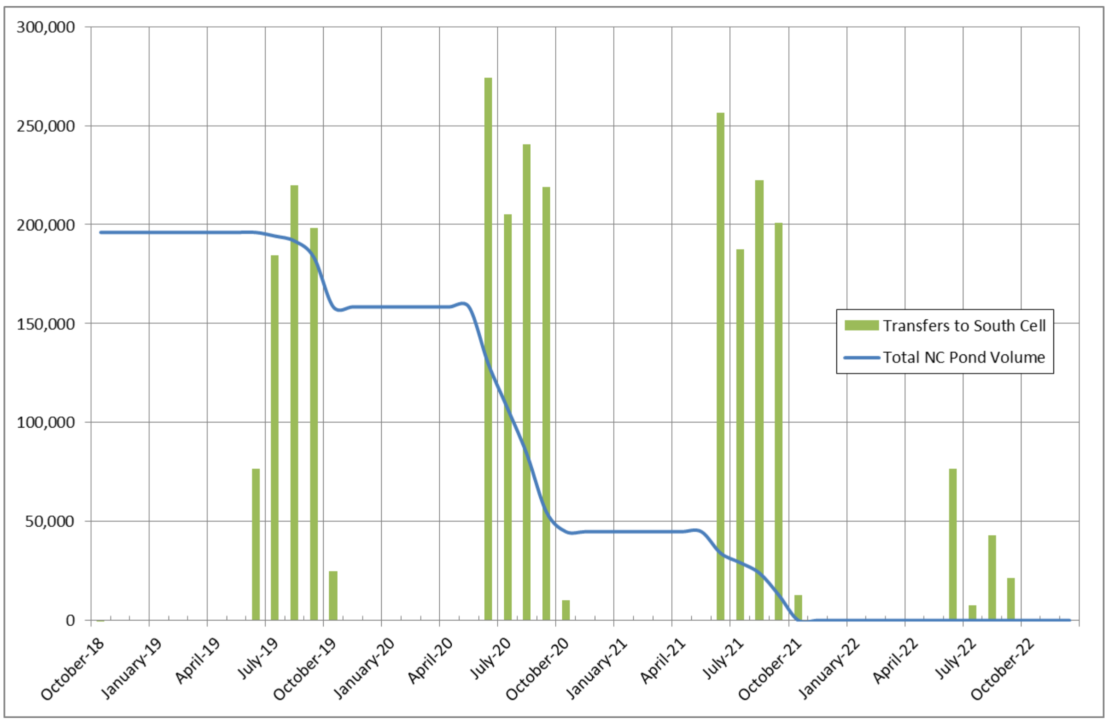


4.1.2 Reclaim Tailings Water

Reclaim tailings water represents the water reclaimed from the TSF to feed the mill during operations. The pumping system is a mobile pumphouse mounted on skids which retreats on a road as the water level rises in the South Cell TSF. The suction line is laid down at the bottom of the pond and is extended as needed when the pump moves. A summary of the reclaim water that will be sent to the mill on an annual basis during the Project is presented in Table 4.1.

Figure 4.2 illustrates the water management in the North Cell TSF until the end of its operation in 2022. The reclaim pumping system installed in the South Cell will continue to supply the mill with reclaim water. Water transfers are required from the North Cell to South Cell TSF to maintain a reclaim water elevation in the North Cell below 148 m (i.e., to maintain a 2.0 m freeboard), and to continue providing the mill with the required volume of reclaim water.

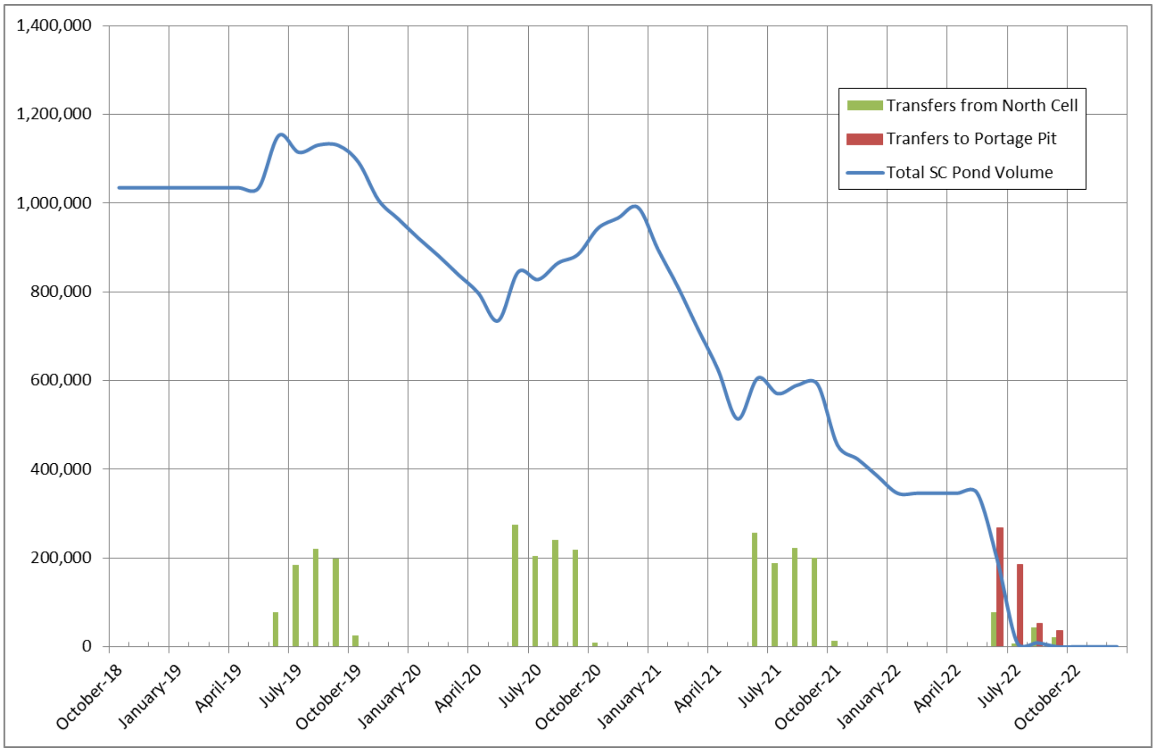
Figure 4.2 North Cell TSF – Reclaim Water Volume and Transfer



The South Cell TSF water management is consistent with that of the North Cell. Figure 4.3 shows the projected water volume in the South Cell from 2019 through to mine closure in 2022 and the water transfers required to maintain the optimal reclaim water volume for operations.

After the summer 2019, the reclaim water volume in the South Cell will decrease slowly until deposition is complete. Some water will need to be transferred to the Portage Pit at the end of the deposition (cessation of mill operation) to properly dewater the tailings pond prior to executing capping activities. The treatment requirements of the reclaim water will be determined as per TSF Expansion Water Quality Analysis Phase 1 (SNC 2016, found in Appendix F) and will be evaluated as per Type A 2AM-MEA1525 Water Licence conditions.

Figure 4.3 South Tailings Storage Facility - Reclaim Water Volume, Elevation, and Transfer



4.1.3 Water Transfers

Water transfers from various locations around the site are required to reduce freshwater consumption, optimize basin storage, optimize the water balance and prevent receiving environment impacts.

4.1.3.1 Tailings Storage Facility Water Transfers

Water transfers within the TSF and to the Portage Pit are required throughout the Project LOM to optimize the tailings deposition sequence, maintain an adequate reclaim pond (operating volume, dike structure protection and water quality), minimize freshwater consumption, and to ensure the closure of each TSF cell (Table 4.2). All these transfers will be documented overtime in order to improve accuracy of the water balance and maintain adequate TSF reclaim pond levels with time.

Table 4.2 Tailings Storage Facility Water Transfers

Year	North Cell to South Cell (m^3)	SMP to South Cell (m^3)	SMP to Portage Pit (m^3)	South Cell to Portage Pit (m^3)
2019	703,953	34,675		
2020	948,751	34,675		
2021	880,009	34,675		
2022	148,451		34,675	540,163
2023	181,187		34,675	281,082

4.1.3.2 Stormwater Management Pond

The Stormwater Management Pond (Tear Drop Pond) is a small shallow, fishless, water body that is presented in Figure 1.1 adjacent to the Portage Pit. Treated sewage effluent is discharged to this lake before being transferred to the Portage Pit during operations. These transfers ensure there is always capacity in the pond to contain freshet water from its catchment area, as well as the onsite Sewage Treatment Plant effluent. The pond water is transferred two times or more per year during the warmer months: typically, once in the spring and once in the fall. The total flow volume to be transferred during the Project LOM is forecasted at 34,675 cubic metres (m^3).

4.2 PROGRESSIVE CLOSURE – GOOSE, PORTAGE, AND VAULT PIT REFLOODING

As per the recommendations and requirements concerning water use in the NWB Water Licence No. 2AM-MEA1525, the Meadowbank Water Management Plan will be updated on an annual basis and will continue to include a pit flooding strategy. The following is provided as an interim update considering the addition of the Project. The first phase of the Portage, Goose, and Vault pit reflooding sequence is currently planned to be completed by the end of summer 2025. Refer to Table 4.3 for the proposed reflooding sequence per year for all pits.

Table 4.3 Pit Flooding Profile

Pit Flooding Profile								
Year	Volumes pumped from Third Portage Lake			Volumes pumped from Wally Lake				Total flooding water (m^3)
	To Portage Pit (m^3)	To Goose Pit (m^3)	From Third Portage Lake (m^3)	To Vault Pit (m^3)	To Vault Attenuation Pond (m^3)	To Phaser Pit (m^3)	From Wally Lake (m^2)	
2018	0	3,182,704	3,182,704	0	0	0	0	3,182,704
2019	4,520,000	0	4,520,000	4,182,604	0	0	4,182,604	8,702,604
2020	4,520,000	0	4,520,000	4,182,604	0	0	4,182,604	8,702,604
2021	4,520,000	0	4,520,000	4,182,604	0	0	4,182,604	8,702,604
2022	4,520,000	0	4,520,000	4,182,604	0	0	4,182,604	8,702,604
2023	4,520,000	0	4,520,000	4,182,604	0	0	4,182,604	8,702,604
2024	4,520,000	0	4,520,000	4,182,604	0	0	4,182,604	8,702,604
2025	4,059,356	0	4,059,356	2,955,472	314,194	0	3,269,666	7,329,022
Total	**31,179,356**	**3,182,704**	**34,362,060**	**28,051,096**	**314,194**	**0**	**28,365,290**	**62,727,350**

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4.2.1 Goose Pit Flooding

The volumes of water needed for Portage and Goose pit reflooding, which is part of the overall approved Meadowbank interim closure plan (Golder 2014), is dependent on the water elevation of Third Portage Lake. The Goose Dike can only be breached when the level of the flooded pits reaches the same elevation as Third Portage Lake and pit water quality meets Type A Water Licence conditions. According to Third Portage Lake elevation data from 2013 to 2015 this elevation is approximately 133.6 masl (Figure 4.4).

To obtain a water elevation of 133.6 m in the Portage and Goose pits, a total of 45 Million cubic metres (Mm^3) of water will be required in the Portage area. Of this amount, 34.3 Mm^3 will originate from Third Portage Lake, and the 10.7 Mm3 balance will be made up from the natural pit water inflows including runoff and precipitation combined with reclaim water.

Figure 4.4 Distribution of Third Portage Lake Elevation Surveyed Data

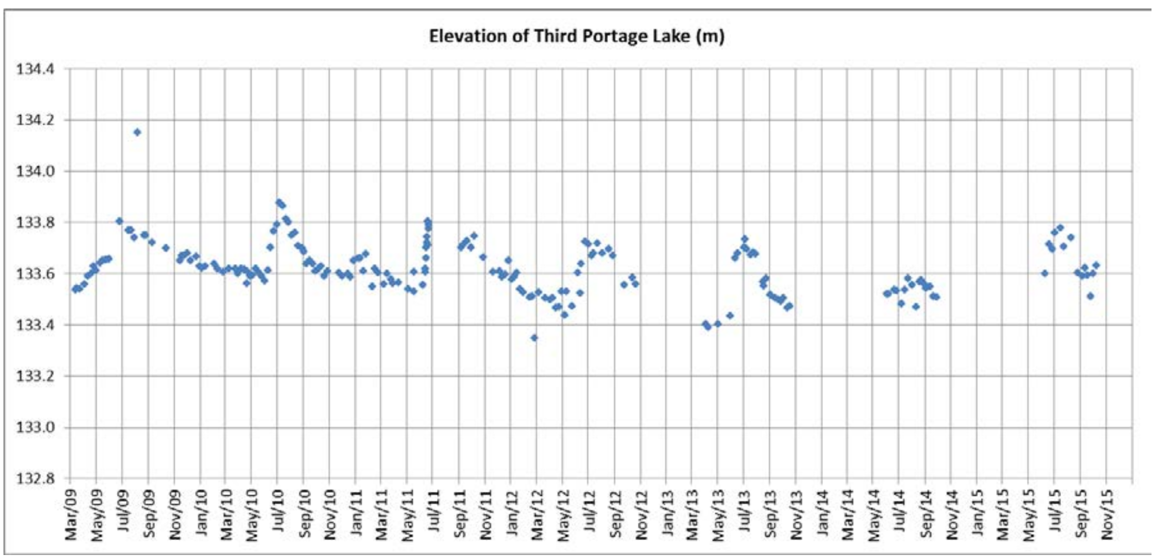
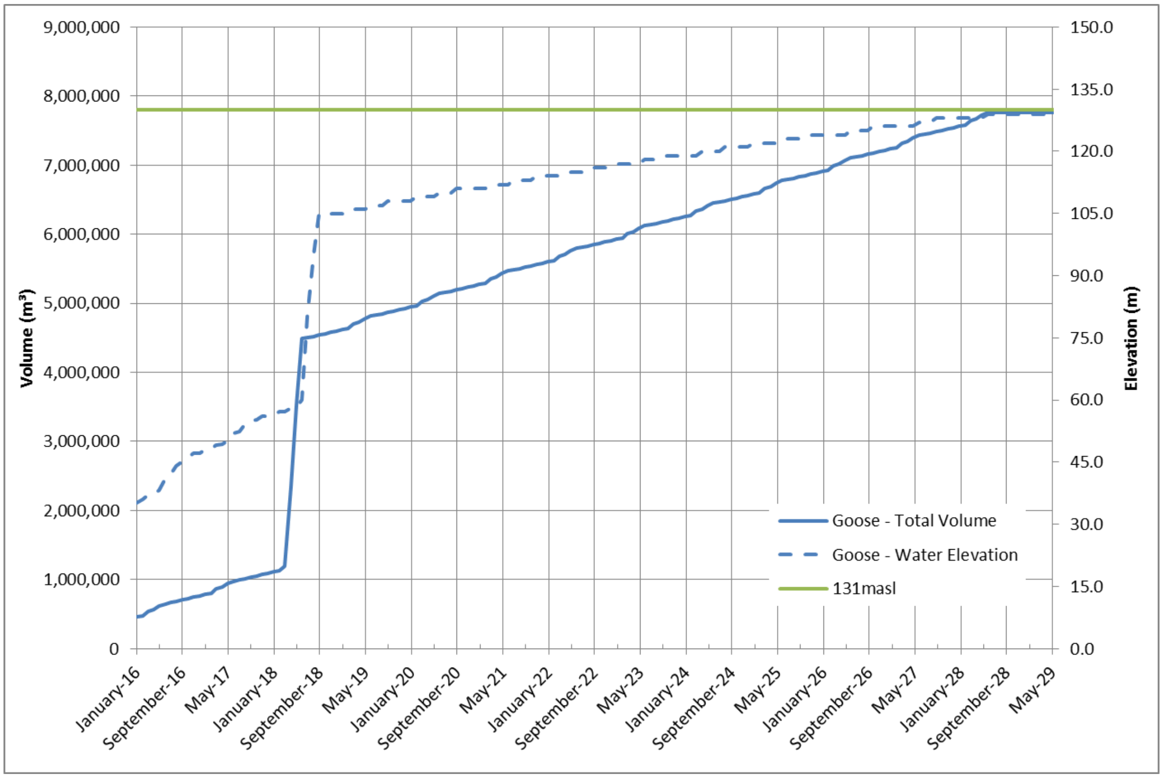


Figure 4.5 depicts the Goose Pit flooding curve. Goose Pit flooding started in 2015 by allowing the annual inflow volume (runoff, groundwater, and precipitation) of 383,800 m³ to remain within the pit. In the summer 2018, transfers from Third Portage Lake to Goose Pit are planned to commence, and will end in September 2018, after which natural pit inflows will continue. Once elevation 131.0 masl is reached, the Goose water will join the Portage Pit water to form one water body. This is planned by September 2025, and the pit lake water level is expected to reach the Third Portage Lake elevation in 2029. If water quality meets all closure criteria, including Canadian Council of Ministers of the Environment (CCME) guidelines and site specific criteria, the Goose dike will be breached. Refer Appendix F for details on the pit water quality forecast model.

When interpreting Figure 4.5, it should be noted that it appears that Goose Pit never reaches 133.6 masl; however, Goose Pit volumes between 131 masl and 133.6 masl are included as part of Portage flooding volumes.

Figure 4.5 Goose Pit Flooding

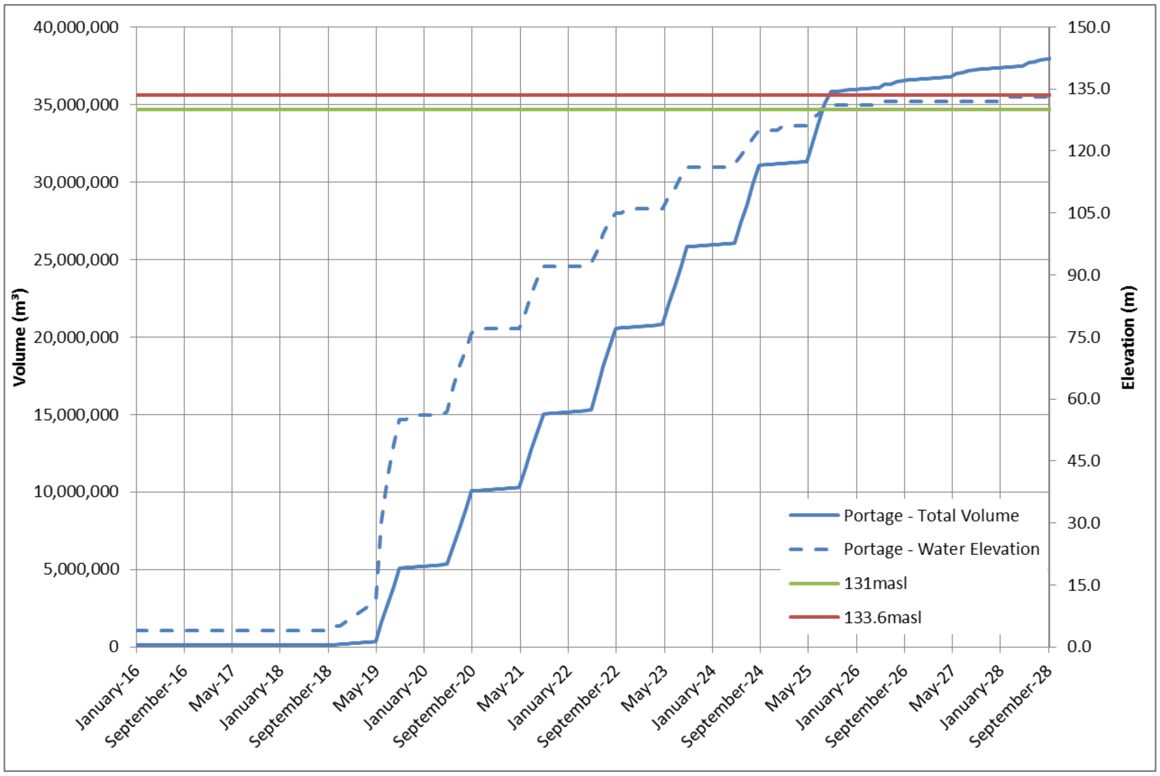


4.2.2 Portage Pit Flooding

Portage Pit reflooding will begin in 2019 with a annual 4.52 Mm^3 transfer from Third Portage Lake to the Portage Pit. In 2025, an additional 4.06 Mm^3 will be required to complete the total active flooding to elevation 131 masl. From this point, runoff water and other pit inflows will be used to complete flooding of both the Portage and Goose pits until elevation 133.6 masl is reached at the end of 2028 (Figure 4.6).

Again, as mentioned above, the portion of Goose Pit between 131 masl and 133.6 masl elevation is included in the Portage Pit volumes.

Figure 4.6 Portage Pit Flooding

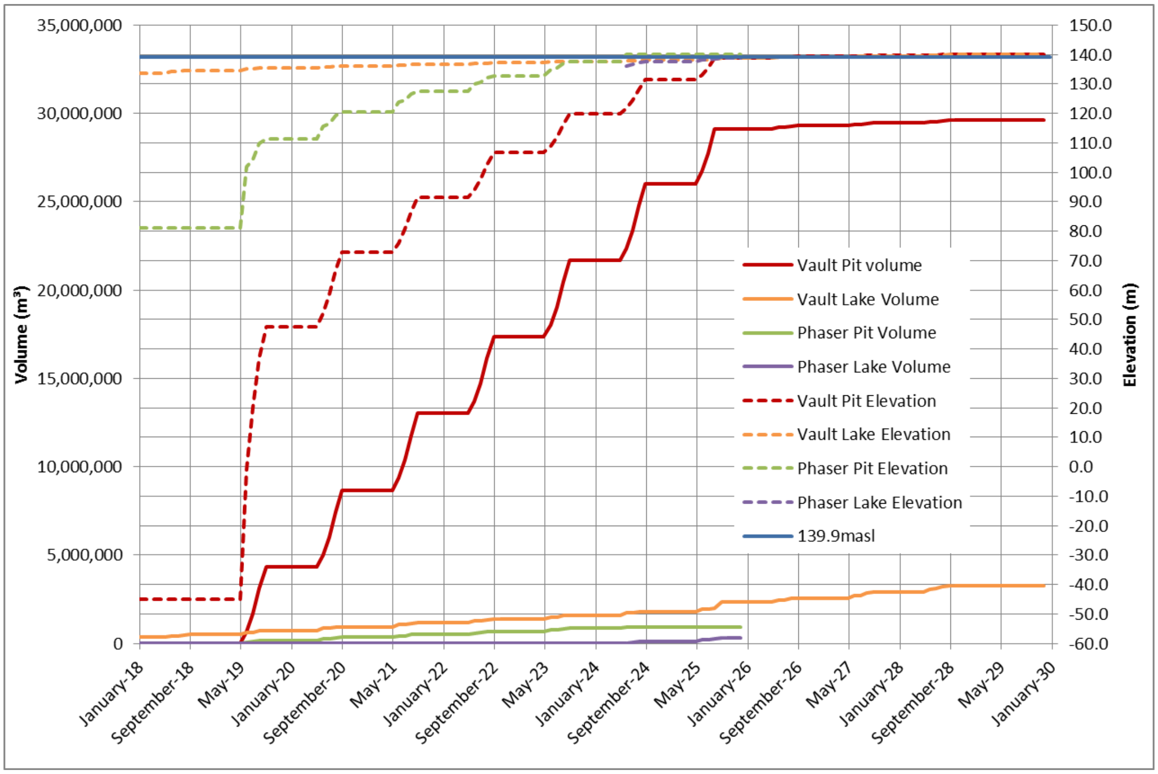


4.2.3 Vault Pit Flooding

The Vault Pit area is composed of many basins in the former lake and different pit elevations that are all linked together. The flooding of Vault and Phaser (once fully authorized) is more complex and requires water transfers from basin to basin. Reflooding of the Vault area from Wally Lake will commence in 2019 and will continue until the end of summer 2024 at an annual rate of 4,182,604m^3, and finally 2,955,472 m^3 in 2025. From 2025 to 2029 natural inflows of approximatively 500,000 m^3 per year from freshet, precipitation and groundwater will then allow Vault Pit lake to reach 139.9 masl (natural Wally Lake water level) (Figure 4.7). 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 4.3 for the yearly cumulative volumes required to complete the flooding process as well as the resulting pit elevations in the previous figures.

Phaser Pit and Lake are planned to be flooded exclusively from catchment run off until approximately 2025. At this point, the Phaser and Vault areas will combine, and flooding will continue as describe above for the Vault area until a target elevation of 139.9 masl (i.e., the Wally Lake elevation) is reached in 2027.

Figure 4.7 Vault Pit Flooding



4.3 WATER MANAGEMENT STRUCTURE INSPECTIONS

As per the recommendations and requirements outlined in the document *Water Licence: 2AM-MEA1525 Reasons for Decision Including Record of Proceedings* from the NWB, and as per Water Licence 2AM-MEA1525 (Part E, Condition 10), Agnico Eagle will conduct weekly inspections of all water management structures during periods of flow. Records of the inspections will be available for review by an Inspector upon request.

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