SNC · LAVALIN

SUSTAINABLE MINE DEVELOPMENT

AGNICO-EAGLE MINES

FINALTECHNICAL NOTE

MEADOWBANK GOLD PROJECT WATER MANAGEMENT PLAN 2012

Our file: 610756-0000-4OER-0001

March 2013

Certified ISO 9001

WE CARE
NOUS VEILLONS

Title of document: **Water Management Plan 2012**

Client : **AGNICO-EAGLE MINES**

Project : **Meadowbank Gold Project**

Prepared by: Marc Payette, ing., M. Eng, MBA

Josée Beauchamp, ing. Jr, M. Eng

Yulia Zakrevskaya, ing. Jr.

Reviewed by: Gervais Pitchen, ing., M.Sc

Approved by: Anh-Long Nguyen, ing.,

REVISION INDEX

Revision				Pages Revised	Remarks
#	Prep.	Rev.	Date		
PA	YZ,JB,MP	GP	2012-08-15	All	For internal coordination
PB	YZ,JB,MP	GP	2012-08-24	All	For client approval
PC	MP	GP	2012-10-22	All	For client approval
00	MP	GP, SB, JD	2012-11-20	All	Final version
01	MP, YZ	GP, JD	2012-12-21	All	Final version
02	MP	GP	2013-03-15	All	Final version

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1 INTRODUCTION

This technical note presents an update to the site-wide water balance for Agnico-Eagle Mines Meadowbank Gold Project located in Nunavut. This update was carried out to evaluate mine water supply and storage requirements over the life of the mine, following modifications to the development sequence and the areal extent of the project.

1.1 Mandate

The primary objective of this mandate was to undertake different studies related to water management at the Meadowbank Gold Project. More specifically, the mandate was divided into four (4) sections:

1. Water Management Plan 2012. This study includes a review and an update of the 2009, 2011 and 2012 Water Management Plans (Golder) based on the new LOM and mine development sequence.
2. Water Treatment and Mass Balance. This study is based on the Water Management Plan 2012 and provides a mass balance model for parameters of concern from now to closure (2012-2025).
3. Water Balance Model. This water balance is a probabilistic and modular model that will allow testing different scenarios by adjusting water flows, volumes and environmental site conditions, using the Goldsim software.
4. An Ammonia Management Plan. This plan proposes monitoring strategies for the different sources of ammonia on site and how to use the results to adjust operating practices to lower ammonia levels.

The present report covers the water management plan 2012 and includes the following tasks:

- Acquisition of project information, especially regarding the present project status;
- Design criteria validation and update;
- Identification of the pertinent changes for the 2012 LOM regarding global project territory, new lake affected, and projected duration of mining activities;
- Review of the July 2009 Updated Water Management Plan (Ref. 2);
- Review of the water license requirements (Ref. 14)
- Review of the 2011 Site-wide water management plan update (Ref. 3);
- Review of the 2012 Draft Water Management Plan (Ref. 15);
- Review of current water balance and water quality information;
- Update of the hydrometeorological data;

- Identification of formerly planned mine development sequences that have become obsolete and will require reworking;
- Development of a water management plan for the projected duration of mining activities;
- Report preparation.

The water treatment and mass balance report is given in Appendix B. The water balance tool is treated in a separate document (Ref.13).

2 CONTEXT

2.1 Background

The Meadowbank Gold Project began operating in early 2010 under the terms established in the Water License (Ref. 14).

Dewatering sequences were defined in the 2009 Updated Water Management Plan (Ref. 2). Throughout the process, water quantity and quality had to be monitored to avoid uncontrolled releases of contact water to the environment.

Modifications to the mine plan, dewatering progress, mill process rate, tailings and rock storage facilities, and Attenuation and Reclaim Ponds led to a revision of the 2009 Updated Water Management Plan presented in a technical memorandum in September 2010 (Ref. 3). These modifications were related to differences observed between the actual process and treatment rates, and to modifications to the future planned production rates.

Since 2009, a tailings deposition plan is produced on a yearly basis. The most recent plan: Tailings Deposition Plan 2012 Update (Ref. 4), forecasted that tailings could be stored in the Portage North Cell until August 2015.

2.2 Necessity for the Update

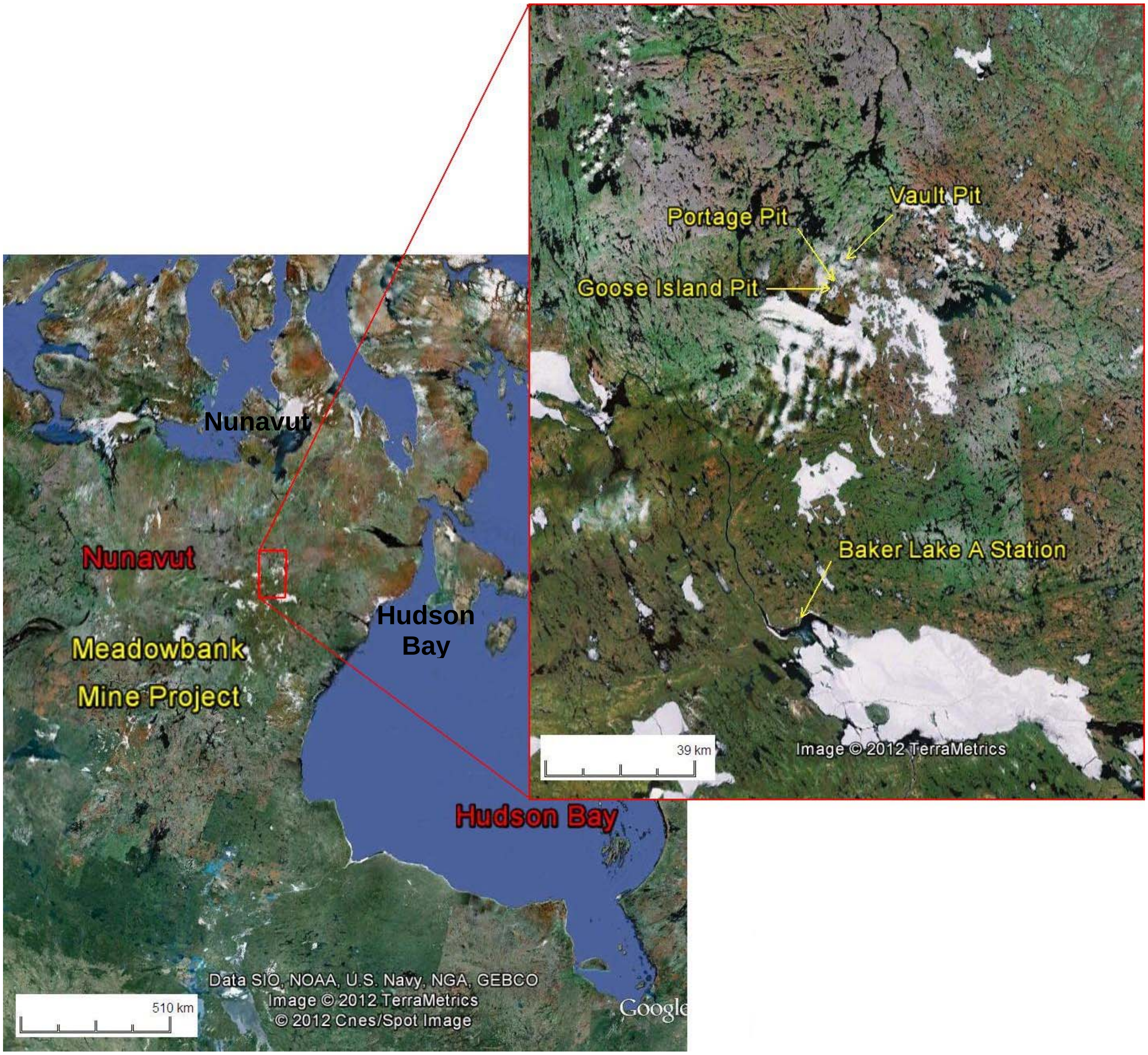
The present water management plan update is required following the significant changes listed below:

- Annual requirement of the Water License (Ref. 14);
- Support a request to increase freshwater use;
- Increase of the Mill production rate;
- Permitting : Extension of mining operations to Phaser Lake area;
- Changes to mine layout (discussed in Section 2.4);
- Increase in rock storage facility areal extent (discussed in Section 4);
- Changes in mining pit volume and excavation rate (discussed in Section 4);
- Shortened mine operation schedule (discussed in Section 2.5.1);
- Revised Vault drainage area including Phaser Lake pit extension;
- Updated meteorological data (covered in Sections 3 and 4).

2.3 General Location

The general location of the mine site is shown on Figure 2-1. The close-up view shows the Baker Lake A meteorological station located south of the mine site.

Figure 2-1: Location of the Mine Site and Baker Lake A Station



Source: Google Earth Pro, 2012

2.4 Mine Layout Plan

2.4.1 Changes to the Mine Layout

The Meadowbank site consists of two main areas: the Portage area, located between Third Portage Lake and Second Portage Lake, and the Vault area located near Wally Lake. Detailed maps of the mine site are presented in Appendix A1. The Portage area includes the

Mill area, the tailings storage facility (TSF) which is divided into two cells (North and South), the rock storage facility, and two main pits: the Portage Pit and the Goose Pit. The North Cell TSF contains the reclaim pond up to year 2015 and the South Cell contains the attenuation pond up to year 2015 and then holds the reclaim pond afterwards. In the Vault area, a rock storage facility and the Vault Pit itself will be developed. The ore mined at the Vault area will be transported to the Mill for gold extraction.

When compared to the layout used in the 2009-2010 UWMP (Ref. 2 and 3), the mine layout shows the following minor differences:

- The catchment area of the Portage rock storage facility was increased from 62.1 ha to 80.8 ha;
- The catchment of the Vault rock storage facility was reduced from 135.0 ha to 133.9 ha;
- The pits aerial extents were revised as follows: Portage Pit was slightly increased from 68.0 ha to 68.7 ha, Goose Pit was increased from 16.0 ha to 18.8 ha, and Vault Pit was increased from 36.7 ha to 52.4 ha and extends into Phaser Lake.

2.5 Mining Activity

2.5.1 Changes to the Schedule

According to the 2012 LOM (Ref. 12), Agnico-Eagle Mines plans to end mining activities in February 2018, with the completion of the Vault Pit. This corresponds to an active mine life reduction of 19 months compared to previous estimates (Figure 2-2). The main changes to mining activities are presented in Table 2-1.

Changes in the LOM affects the tailings accumulation rate in the deposition cells, the slurry water flow rates (Figure 2-2) to the TSF and the freshwater uptake rate from Third Portage Lake used as a make-up water source. Increasing the production rate increases the total water requirement to the Mill.

Figure 2-2: Original and Revised Cumulative Tailings Production

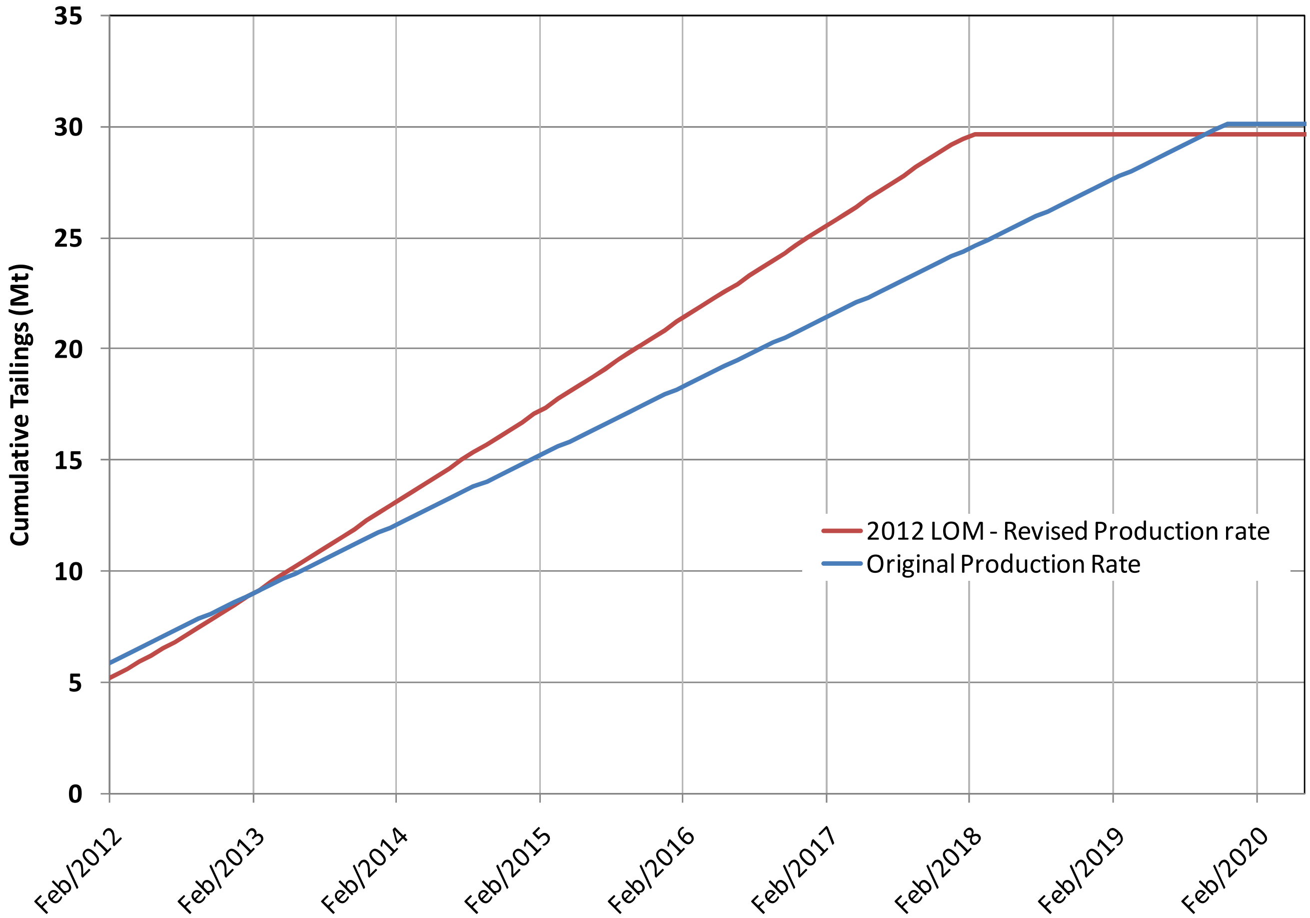


Table 2-1: Original and Updated Development Schedule

ACTIVITY	Updated Start Date	Updated End Date	Original Start Date	Original End Date
Pits Mining				
Portage Pit	Jan 2010[1]	Dec 2016	Jan 2009	Dec 2015
North	Jan 2010	Dec 2015	Jan 2009	Dec 2015
Central	Jan 2010	Dec 2013	Jan 2010	Dec 2015
South	Jan 2010	Dec 2016	Jan 2009	Dec 2015
Goose Island Pit	Apr 2012	Jun 2015	Jan 2014	Dec 2017
Vault Pit	Jan 2014	Feb 2018	Jan 2015	Dec 2019
Tailings Storage Facilty Operations				
North Cell	Jan 2010	Mar 2015	Jan 2010	Dec 2012
South Cell	Apr 2015	Feb 2018	Jan 2013	Dec 2019
Rock Storage Facility (RSF) Operations				
Portage RSF	Jan 2009	Dec 2016	Jan 2009	Dec 2017
Vault RSF	Jan 2014	Feb 2018	Jan 2015	Dec 2019
Attenuation / Reclaim Pond Water Management				
Attenuation Pond (South Cell)[2]	Jan 2009	Mar 2015	Jan 2009	Jan 2013
Attenuation Pond Vault Lake	Jan 2014	Feb 2018	Jan 2014	Dec 2019
Mill Operations	Jan 2010	Feb 2018	Jan 2010	Dec 2019
Other Key Activities				
Dewatering of Vault Lake	Sep 2013	Nov 2013	Jan 2013	
Dewatering of Phaser Lake	Sep 2016	Oct 2016	NA	
Flooding of Portage Pit	Mar 2017	Sep 2023	Jan 2017	
Flooding of Goose Island Pit	Jul 2015	Sep 2023	Jan 2018	
Flooding of Vault Pit	Mar 2018	Oct 2023	Jan 2020	
Mine Closure completed	NA	Jan 2024	Jan 2025	

[1] Periods are given from the beginning of the starting month to the end of the ending month.
[2] After March 2015, the Reclaim Pond is relocated in the South Cell TSF and the Attenuation Pond is combined with the Reclaim Pond. After this date, there is no Attenuation Pond.

3 HYDROLOGY

Data from the Environment Canada Baker Lake A meteorological station was used to validate the mine site hydrology. This station is located approximately 80 km south of the mine site (see Figure 2-1). Meteorological data from 1950 to 2011 was extracted from Environment Canada CDCD data base (Ref. 5) and Environment Canada online National Climate Data and Information Archive (Ref. 6).

3.1 Precipitation

Daily precipitation data from Baker Lake A station is available for 1946 to 2011. During this period, the data quality is good, with the exception of years 1946 to 1949, and 1993 which were removed from the analysis. A total of 61 years of daily precipitation data were used.

After analyzing the Baker Lake A data and comparing it with the data presented in the Hydrological Atlas of Canada (Ref. 7), it was established that the hydrological conditions at Meadowbank were similar to those at Baker Lake. Geographically speaking, the two areas are approximately 80 km apart and they are also both subject to the same dry Arctic weather climate.

An attempt to reproduce the hydrologic data analysis performed by Golder (Ref. 2 and 3) was undertaken during this study. It was found that the adjustment (reduction of 15% to Baker's Lake data) which was applied on the average annual rainfall to convert hydrological data from Baker Lake to Meadowbank was unnecessary. The difference in the rainfall could be explained by the fact that the data was extrapolated from a small period (measured on site from 1997 to 2004). By taking the whole series of data available from Environment Canada (1950-2011), and excluding one year with too many missing values, results similar to those obtained by Golder were achieved without applying any adjustment factor.

Since the conversion of the snow values (cm) to water equivalents (mm) is not linear, snowfall data was computed by subtracting the rainfall (mm) from the total precipitation (mm). As for rainfall, the analysis on the newly calculated snowfall values was applied to the period ranging from 1950 to 2011 without any subsequent adjustments. Compared to the results obtained by Golder, SNC-Lavalin revised snowfall is 30% lower. The computed snowfall and total precipitation values correlate with the values presented in the hydrological Atlas of Canada and are in accordance with values presented in other references (Ref. 9).

3.2 Monthly and Annual Precipitation

Table 3-1 presents monthly rainfall, snowfall, and total precipitation values for the mine site. August is the wettest month, with a total precipitation of 43.4 mm, and February is the driest month, with a total precipitation of 6.1 mm. During an average year the total precipitation is 249.6 mm, split between 147.5 mm of rainfall and 102.1 mm of snowfall precipitation.

Table 3-1: Meadowbank Average Annual and Monthly Precipitation (1950-2011)

Month	Rainfall (mm)	Snowfall Water Equiv. (mm)	Total Precipitation (mm)
January	0.0	6.9	6.9
February	0.0	6.0	6.1
March	0.0	9.2	9.2
April	0.4	13.6	14.0
May	5.2	7.7	12.8
June	18.6	3.1	21.7
July	38.6	0	38.6
August	42.8	0.6	43.4
September	35.2	6.7	41.9
October	6.5	22.6	29.1
November	0.2	16.2	16.4
December	0	9.4	9.5
Annual	**147.5**	**102.1**	**249.6**

3.3 Statistical Analysis

A frequency analysis was performed, using the Log-Pearson 3 probability distribution to determine the annual precipitation for different return periods:

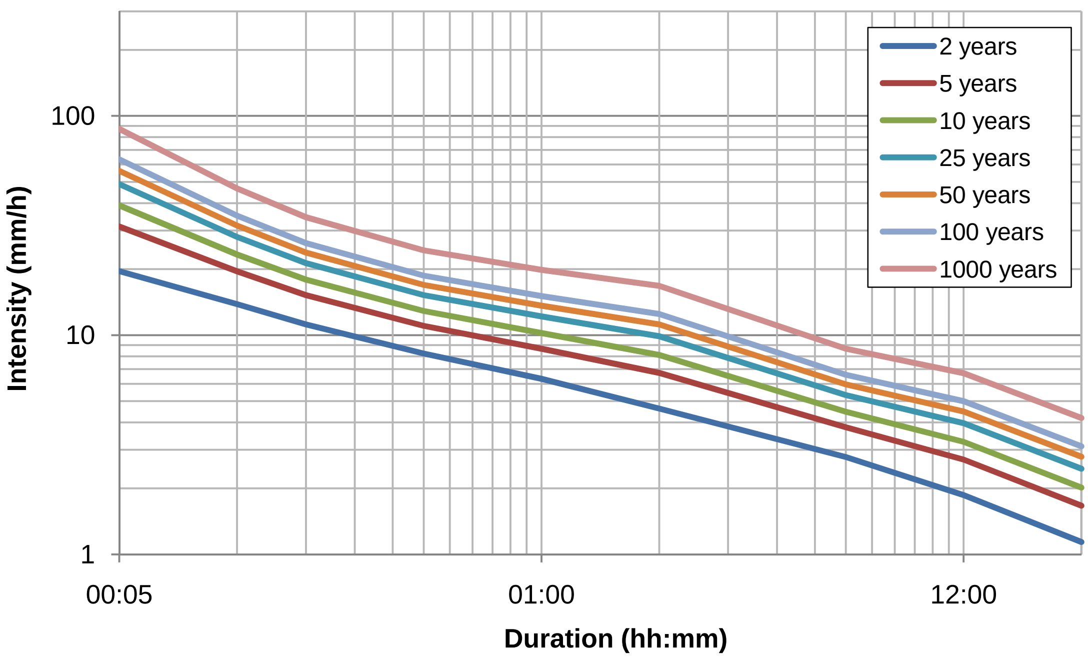
Table 3-2: Total Annual Precipitation for Different Return Periods

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

3.4 Intensity-Duration-Frequency Curves

IDF curves for precipitations of short duration (between 5 minutes and 24 hours) were developed by Environment Canada for the Baker Lake A meteorological station, based on data measured between 1987 and 2006 (Ref. 10). These curves are assumed to be representative of mine site short-term precipitation conditions.

Figure 3-1: Meadowbank IDF Curves



3.5 Snowmelt

The start date of the spring freshet varies from year to year. For the purposes of this study, it is assumed that snow accumulates during the winter, from October to May, and completely melts during the month of June. Also, due to the presence of permafrost, it is assumed that there is no infiltration in the ground.

4 WATER MANAGEMENT AND WATER BALANCE

This section presents the main assumptions used during the development of the water management and water balance; the design criteria; and the final results of the study. There are significant changes between the results obtained in the present study and the previous ones (Ref. 2 and 3), particularly concerning hydrology (discussed in section 3), freshwater consumption rate, mine production rate, and the life of mine development sequence (presented in Table 2-1 and section 4.3.1).

4.1 Design Criteria and Assumptions

Several assumptions underlie the present work. The majority of the design criteria, as listed in Section 4.2 of the July 2009 UWMP (Ref. 2), still apply. The most important design criteria are listed below:

- Annual evapotranspiration is 80 mm and the monthly distribution is the same as that of lake evaporation;
- Precipitation accumulates on the ground from October to May in the form of snow and ice. All snow and ice melts in June;
- Spring flood (freshet) corresponds to 1:100 yr snowfall and rainfall accumulated over the basin from the period October to May that melts in June;
- Attenuation Ponds should be sized to accommodate the runoff from the 1:100 yr spring freshet in excess of their maximum operating storage volume (average year climate condition) while maintaining a 2 m freeboard before the possibility of a spill to the receiving environment;
- The TSF should be sized to accommodate the runoff from the 1:100 yr, spring freshet in excess of the maximum operating volume (average year climate condition), while maintaining a 2 m freeboard before the possibility of a spill to the receiving environment;
- Up to the beginning of year 2012, the development sequence has proceeded according to the 2010 UWMP (Ref. 3);
- Topographic and geologic parameters (including permafrost) gathered for the project zone and presented in the July 2009 UWMP (Ref. 2), are still applicable to the 2012 mine plan;
- The water volume contained in the Reclaim Pond (North Cell and South Cell) is maintained above 750,000 m^3 until the end of Mill activities to allow for a 90 days stabilization of the supernatant chemistry (Ref.15);

- The tailings deposition sequence follows Scenario 2 of the 2012 tailings deposition plan (Ref. 4) and the tailings deposition rate follows the 2012 LOM (Ref. 12);
- Groundwater and seepage water volumes incoming from all pits are taken from the 2010 UWMP (Ref. 3).

4.2 Model Description

To analyse possible water management options, a water balance model was built for the entire Meadowbank mine site. The model was based on a monthly time step, using data received from Agnico-Eagle Mines, including site topography, bathymetric survey, mine layout and the mining plan (2012 LOM – Ref. 12).

The model allows for the evaluation of the maximum storage volume of the proposed water management infrastructure under average hydrologic conditions. The model describes water management during the active life of the mine, flooding activities, and post-closure. It also computes runoff values for the different mine drainage areas, and performs flow routing computations through the system. The revised mining schedule was divided in five major phases where each phase corresponds to important changes in the water management for the Portage and Vault areas throughout the life of the mine. The five different phases are defined as follows:

- Phase 1 - Actual
- Phase 2 - Vault pit active
- Phase 3 - Reclaim pond located in South Cell TSF
- Phase 4 - Vault pit flooded
- Phase 5 – Post Closure Concept

Flowcharts representing all inflows and outflows present in the system, at given points in time, were developed for the five main mine development phases and are presented in Appendix A2.

4.3 Results

4.3.1 Portage Area

4.3.1.1 TSF Reclaim Pond

One of the characteristics of the Portage Area management plan is the relocation of the tailings deposition and at the same time the Reclaim Pond from the North Cell TSF to the South Cell TSF in April 2015, when the North Cell TSF maximum storage capacity has been reached. April 2015 replaces August 2015, stated in the 2012 tailings deposition plan (Ref. 4), to follow the revised LOM (2012 LOM – Ref. 12). Following this transfer, the

Attenuation Pond, which was in the South Cell, will no longer exist. Then, all contact water from Portage Pit will be sent to Goose pit starting in July 2015.

The catchment areas located in the Portage area are listed in Table 4-1.

Table 4-1: Portage Area Catchments

Mill Area	118.3	ha
Tailing storage facility/North Cell	152.9	ha
Tailing storage facility/South Cell	84.3	ha
Portage Area	154.3	ha
Goose Pit Area	81.7	ha
Rock Storage Facility	80.8	ha
Total	**672.4**	**ha**

4.3.1.2 Mill Water Requirements

Agnico-Eagle Mines evaluated freshwater consumption reduction at the Mill. This study and its findings were presented in an internal memo (Ref. 11). The scope of the mandate was to review the systems at the Mill that currently use freshwater, and evaluate the possibility of converting them to reclaim water use instead. The plan adopted for this WMP aims at reducing the actual freshwater consumption to 80.0 m^3/h by the end of 2012. The freshwater reduction activities are carried out in two phases:

Phase 1:

- This phase has been completed in December 2012 with the cyanide thickener recovery project which reduces the freshwater consumption at the Mill by 36 m^3/hr.

Phase 2:

- Further reduction related to the ball mill cooling unit will be completed in the beginning of 2013 to bring freshwater consumption to 80 m^3/hr.

- According to the modeled Mill operation, a freshwater consumption of 80 m^3/hr is maintained as long as there is sufficient water in the TSF reclaim pond. In this normal condition, the freshwater consumption is at 80 m^3/hr, the reclaim water rate is at 375 m^3/hr. As determined by Agnico-Eagle Mines, a minimum required buffer volume of 750,000 m^3 in the Reclaim Pond is required for the mill processes. With a planned reclaim rate of 250,000 m^3/month it provides the Mill with a reasonable amount of buffer (from 2009 UWMP and 2010 UWMP Ref. 2 and 3).

When the available volume in the reclaim pond is close to (or at) 750,000 m³ the only available reclaim water is equal to all inflows to the reclaim pond during the month. During these deficit months when the reclaim pond volume is close to (or at) 750,000 m^3, the available reclaim water that can be pumped is 275 m³/hr. The total required water for Mill operation being the same as in the normal condition (455 m³/hr), the freshwater uptake from Third Portage Lake must be increased to compensate for the lack of reclaim water. In this case, the freshwater pumped from Third Portage to the Mill has to increase by 100 m³/hr to 180 m³/hr to maintain the volume of 750,000 m³ in the TSF reclaim pond.

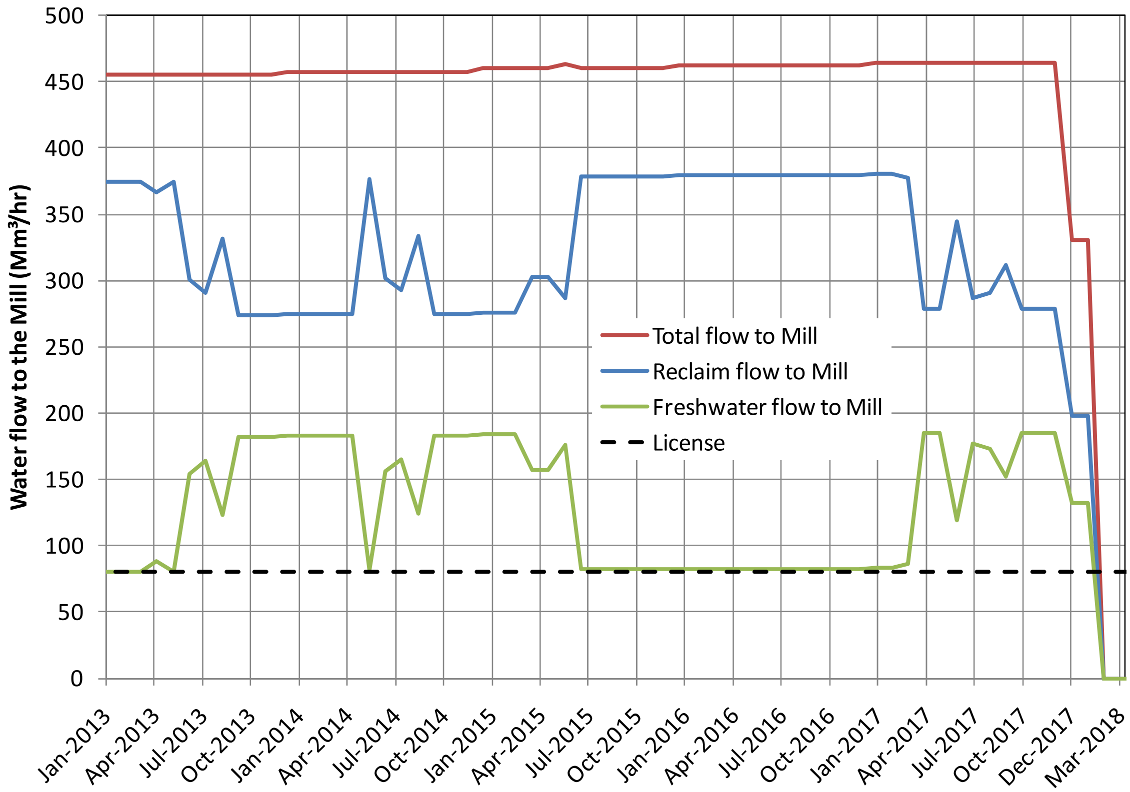
Table 4-2 presents the estimated average freshwater requirements (yearly and hourly) under the actual water management plan. As seen from this table, for the coming years the freshwater consumption of the Mill would (most likely) exceed 80 m³/hr as the volume of the North Cell TSF reclaim pond will be gradually brought down to 750,000 m³ (Figure 4-2) .

As shown in Table 4-2, an average freshwater flow of 123 m³/h will be needed for 2013 to maintain a minimum 750,000 m³ buffer. Figure 4-1 presents the variation of total flow to the Mill, the freshwater usage and the reclaim rate for the duration of the Mine operations. It can be seen that some period of reclaim water deficit (the reclaim pond volume reaches 750,000 m³) exist for which the freshwater uptake must be increased above the license limit. A series of alternate scenarios described in Appendix A4 have been proposed as mitigation measures to this situation.

Table 4-2: Freshwater Requirements from Third Portage Lake

Year	Mill freshwater use (m³/yr)	Pit Flooding (m³/yr)	Mill freshwater use (m³/h)	Freshwater used for pit flooding (m³/h)
2012	970,879	0	111	0
2013	1,077,544	0	123	0
2014	1,450,296	0	166	0
2015	1,019,025	450,000	116	51
2016	726,290	360,000	83	41
2017	1,171,588	4,880,000	134	557
2018	186,953	4,880,000	126	557
2019	0	4,880,000	0	557
2020	0	4,880,000	0	557
2021	0	4,880,000	0	557
2022	0	4,880,000	0	557
2023	0	360,000	0	41
2024	0	0	0	0
2025	0	0	0	0

Figure 4-1: Flow to the mill (m³/hr)



4.3.1.3 North Cell TSF

The Reclaim Pond, shown on the maps presented in Appendix A1, is located in the North Cell from the start of mining activities to the end of March 2015. It has an initial water volume of 1,425,000 m³ in January 2012 and a corresponding water level of 139.5 m. The pond receives water from different sources (Phase 1 of Appendix A2), with the main source being the tailings slurry water. According to the planned production, 2.3 Mm³ of tailings slurry water will be pumped to North Cell TSF Reclaim Pond in 2012, the remaining inflows to the pond are 159,800 m³ (freshet and direct precipitation, refer to Appendix A2 and A3). The annual reclaim water pumped from the Reclaim Pond to the Mill is 2.9 Mm3. There is a water deficit and a resulting Reclaim Pond volume decrease of 360,000 m³ (Figure 4-2) leading to a final volume 1,065,000 m³. Despite this decrease in North Cell TSF Reclaim Pond water volume, the water level in the North Cell TSF continues to increase due to tailings storage in the North Cell TSF that takes up a growing proportion of the total available volume.

In Figure 4-2 solid lines represents the average water level and water volume and dashed lines the effect of adding the 100-yr flood (the spring freshet of the wettest year corresponding to an incoming volume of about 0.9 Mm^3 for the month of October) to average conditions. During the winter months, water is frozen and the solid and dashed lines are the same. The 100-yr flood is the design criteria used to ensure the minimum 2.0 m freeboard is maintained in the Reclaim Pond.

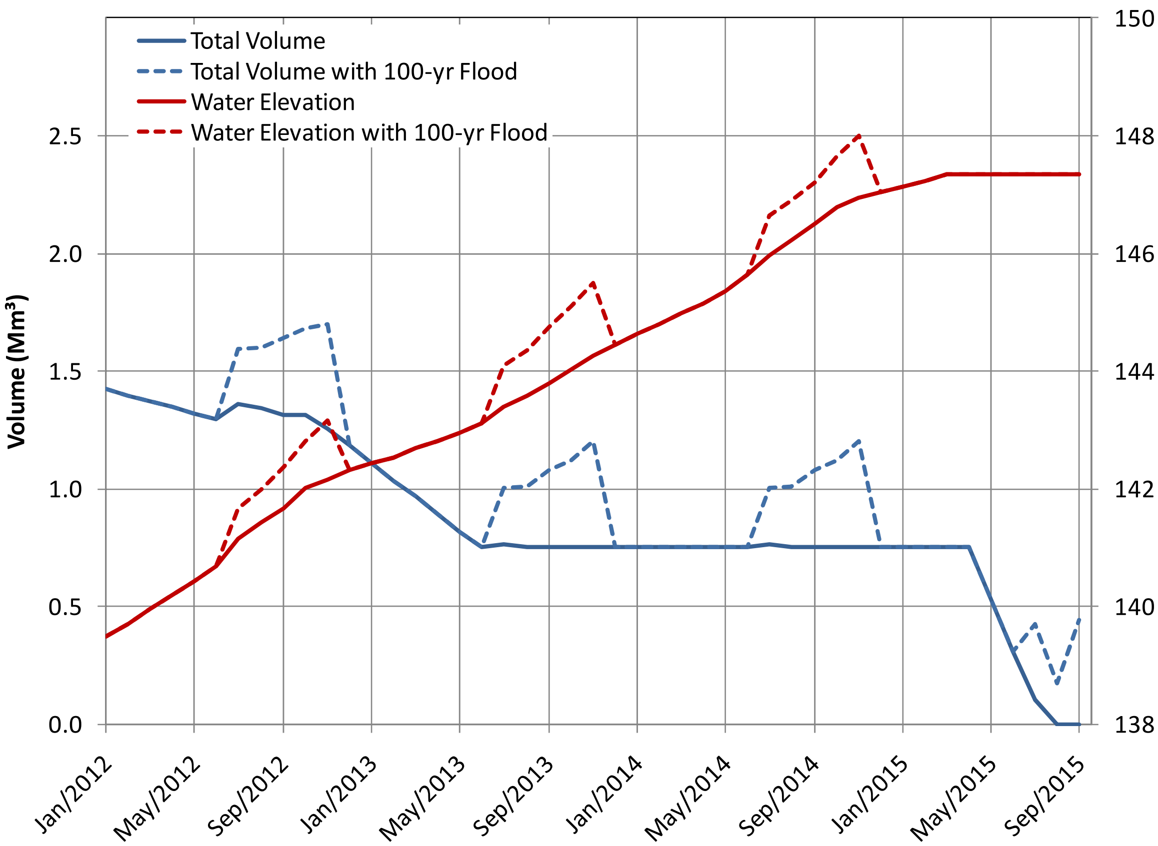
When the North Cell TSF is active, the reclaim water volume will be maintained above 750,000 m^3 by adjusting the ratio of reclaim water to freshwater fed to the Mill. In November 2014, the water level in the Reclaim Pond reaches the maximum level of 148.0 m, which corresponds to a total water volume of 1.2 Mm^3, including the 100-yr flood volume. Without the flood consideration, the maximum water level reached in the pond is 147.3 m (solid line on Figure 4-2). The possibility to add one more month of deposition in the North Cell TSF has been studied and has shown that it is not possible to maintain a volume of 750,000 m^3 without exceeding the maximum elevation of 148 m. The remaining available storage volume is too small. Therefore, this analysis confirms that March 2015 is the valid limit deposition date in the North Cell TSF.

At the end of March 2015, tailings deposition stops in the North Cell and is transferred to the South Cell. From the beginning of April 2015 to the end of June 2015 the Reclaim Pond (North Cell) would remain the Mill's reclaim water source. The remaining North Cell water volume could be gradually emptied from 750,000 m^3 to close to 0 m^3 over the following 3 months period. If the reclaim water cannot be pumped to the Mill, due to weather conditions and/or the low remaining volume, it could instead be decanted to the South Cell during the following months (June to September 2015). It should be noted that no reclaim water will be sent to Third Portage Lake following the conversion of the Attenuation Pond to the Reclaim Pond (South Cell). At the end of operations, remaining water in the South Cell TSF Reclaim Pond will be used to flood the pits.

According to SLI calculations, the total tailings stored in the North Cell would reach a maximum of 17.7 Mt at the end of March 2015, when the North Cell tailings deposition stops. This tonnage is close to the maximum available storage of 17.9 Mt established in Ref. 4 (scenario 1, tailings deposition ending in July 2015).

Based on a tailings dry density of 1.27 t/m^3 (Ref. 4), the total volume of tailings stored in the North Cell is 13.9 Mm^3. During tailings deposition, the water level shown on Figure 4-1 follows the water storage capacity curve presented in the 2012 tailing deposition plan (Ref. 4).

Figure 4-2: Reclaim Pond (North Cell) – Water Volume and Elevation

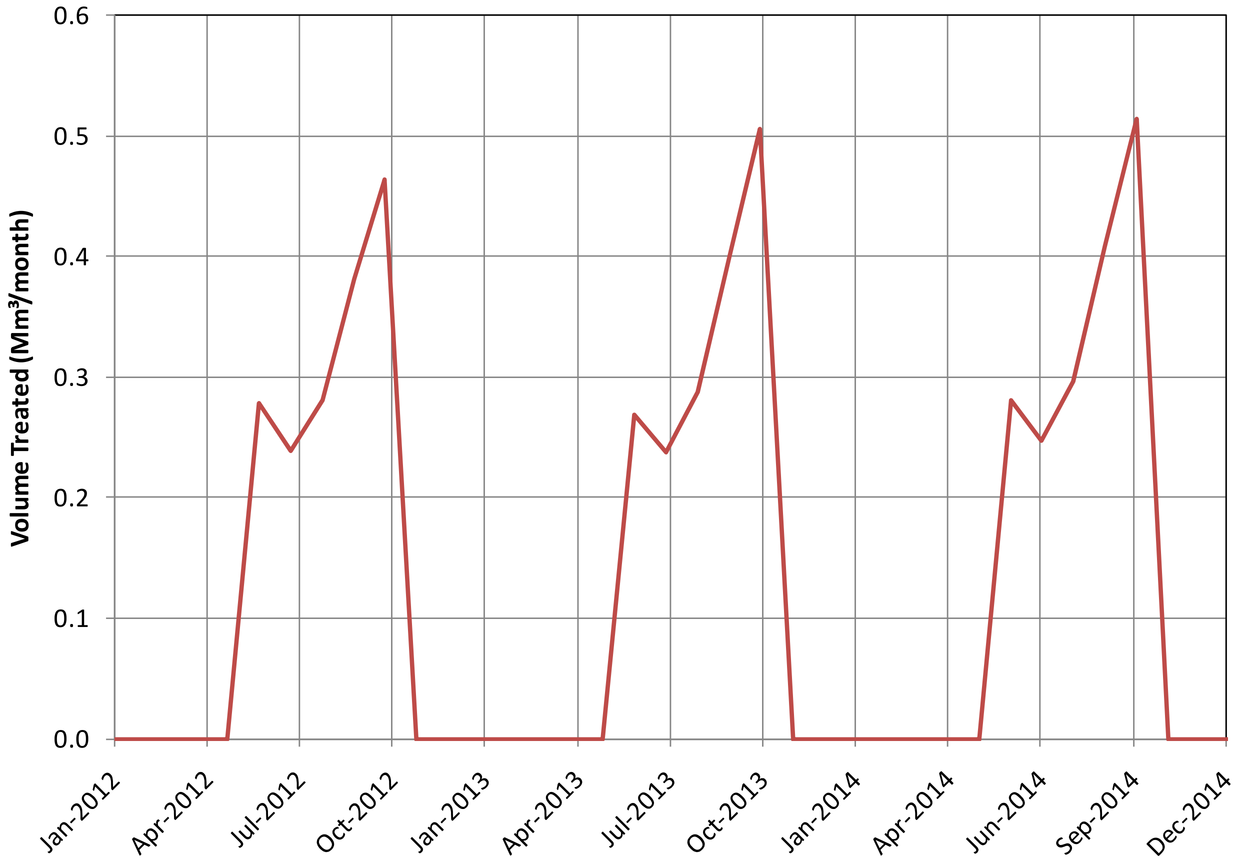


4.3.1.4 Attenuation Pond/South Cell TSF

During the course of the mine life, the South Cell will first be used as an Attenuation Pond (Phase 1 and 2, Appendix A2) and later as a TSF and Reclaim Pond (Phase 3, Appendix A2). Figure 4-3 shows the monthly water volume to be treated for total suspended solids (TSS) during Phase 1, for the Attenuation Pond in the South Cell. This assumes that all outflows from the Attenuation Pond would undergo TSS treatment, before being sent to Third Portage Lake during the summer period (from June to October). One Actiflo unit, with a capacity of 0.75 Mm^3/month, would be sufficient to treat water from the Attenuation Pond before sending it to Third Portage Lake from year 2012 to 2015. One consideration by AEM is to use this water to supplement Mill requirements.

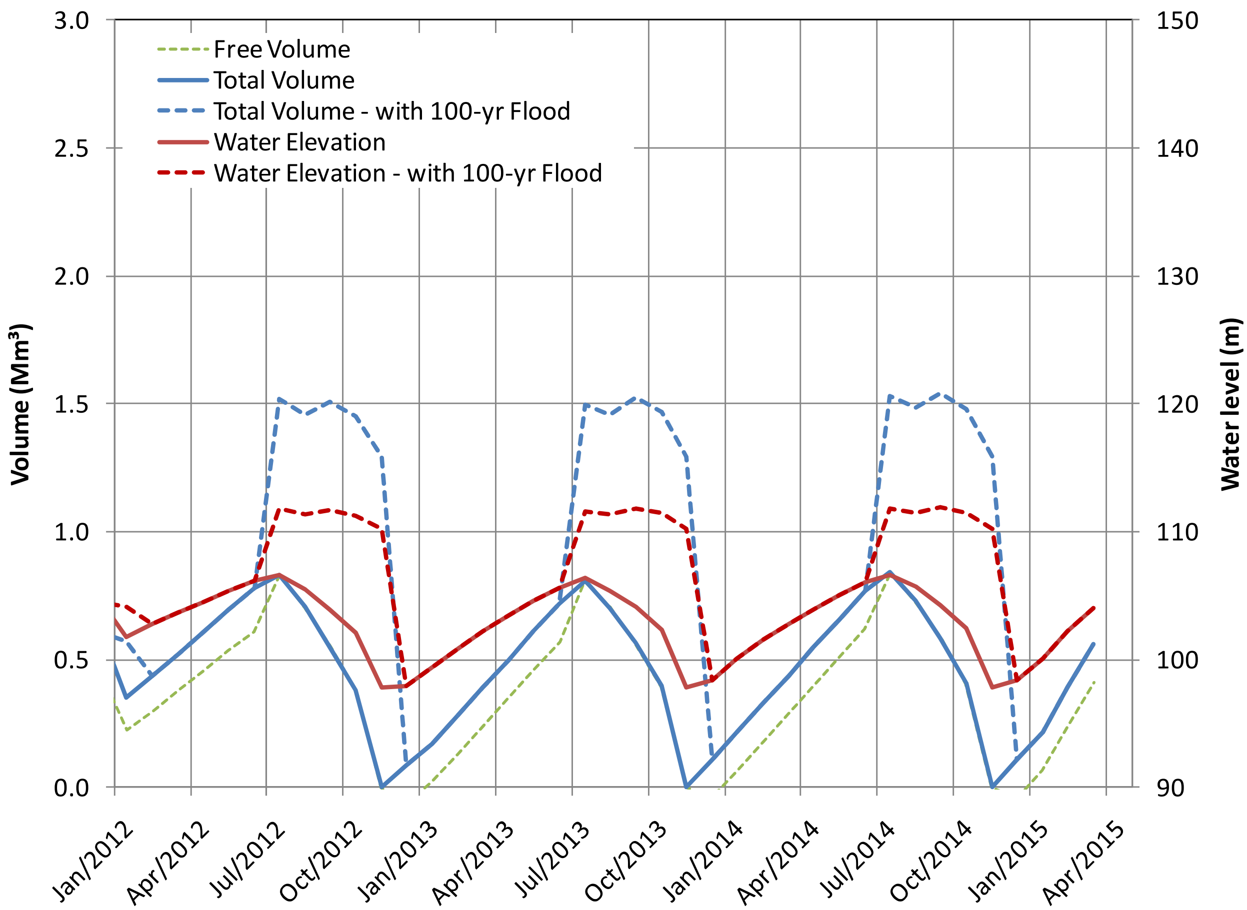
The current practice is to maintain a minimum water volume in the Attenuation Pond, and to discharge the yearly runoff and contact water from Portage area into Third Portage Lake after TSS treatment. This practice maximizes the pond's storage capacity when it becomes the South Cell TSF Reclaim Pond.

Figure 4-3: Attenuation Pond – TSS Treatment Rate in Attenuation Pond (Portage Area)



The Attenuation Pond water volume is shown in Figure 4-4. The maximum pond water elevation, under normal conditions, is 106.7 m (solid line), which corresponds to a water volume of 840,000 m³. Taking into account the 100-yr flood volume, the total water volume reaches 1.5 Mm³ and a maximum water level of 111.8 m (dotted line). The effect of dewatering the Attenuation Pond (with TSS treatment) to Third Portage Lake reduces the pond volume each year, during the summer (solid lines). The "Free Volume" presented in Figure 4-4 represents the volume of water free of ice, assuming a 1.5 m thick ice cover over the pond.

Figure 4-4: Attenuation Pond (South Cell) – Volume and Elevation



The South Cell Reclaim Pond volume and water level is shown on Figure 4-5. At the end of Mill activities in February 2018, the South Cell Reclaim Pond reaches its maximum water level of 140.0 m. Following August 2018, the water level drops slightly (138.6 m) as the remaining volume of 750,000 m³ is transferred to the pits. At this point, there are 11.9 Mt of tailings stored in the South Cell.

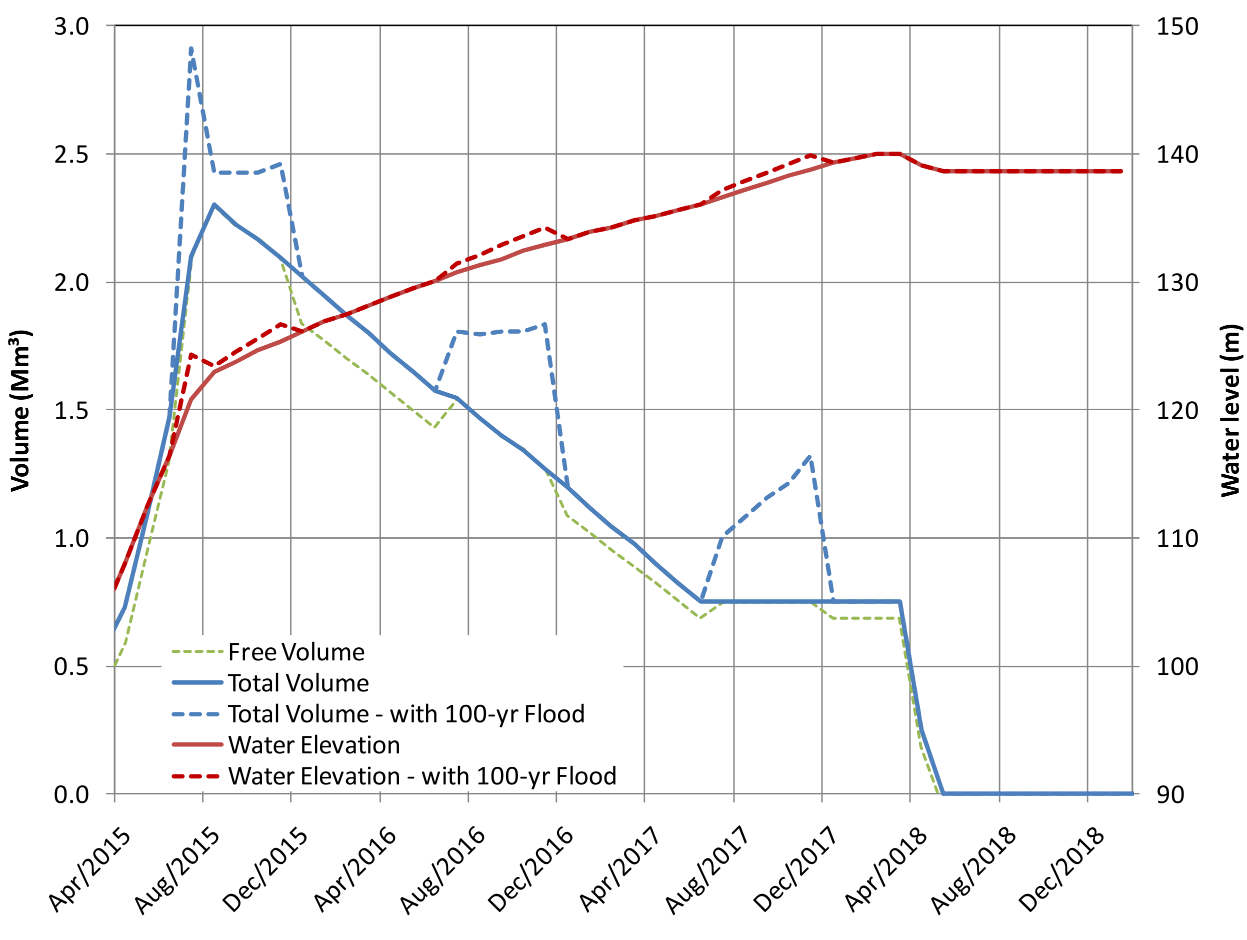
Water levels were computed using the struck volume storage capacity[1] of the South Cell, based on the water and tailings volumes. Struck storage levels were used since a detailed deposition plan has not yet been developed for this cell. Actual water levels based on a detailed deposition plan will be higher since the struck storage is the maximum available capacity of the cell.

[1] Struck volume refers to a horizontal storage of tailings. It corresponds to the maximum available storage.

The maximum volume reached in the South Cell Reclaim Pond, including the provision for the 100-yr flood volume, is significantly lower than previous estimates: 2.9 Mm³ in July 2015 compared to 12.6 Mm³ from Ref. 3. The maximum water level of 140.0 m is reached in November 2017, when the 100-yr design flood is added to the normal level.

The difference in maximum water volume from previous estimates is due primarily to the revised flooding schedule for the pits and the Mill freshwater consumption reduction plan. Flooding of Goose Pit starts in July 2015 compared to April 2017 in previous studies (Ref 3). This reduces the amount of contact water sent to the South Cell Reclaim Pond leading to a lower volume of water stored in the pond itself. In January 2017, flooding of the Portage Pit begins, further decreasing the amount of contact water sent to the Reclaim Pond and the final volume of the pond. A final determination of volume and flow of freshwater necessary to flood the pits will be made prior to the submission of the Water License renewal application (required in 2015).

Figure 4-5: Reclaim Pond (South Cell) – Volume and Elevation



4.3.1.5 Flooding of Goose and Portage Pits

The management of the South Cell TSF Reclaim Pond ensures that a minimum volume of 750,000 m³ is maintained in the Pond, until the end of Mill activities. In March 2018, the reclaim water will be transferred to the Portage and Goose Pits in equal quantities. The reclaim water transfer rate to the pits is 500,000 m³/month in March 2018 and 250,000 m³ in April 2018. The reclaim water treatment considerations, prior to flooding the pits, is presented in the companion water quality report (Appendix B).

As mentioned above, the Goose Pit flooding activities begin in July 2015 and the flooding of Portage Pit starts in January 2017. During the flooding period, pit drainage water, which includes groundwater seepage from the pits, surface runoff from the pit drainage area, and runoff water from the mill area are directed in the pit instead of being sent to the Attenuation/Reclaim Pond (South Cell).

The total volume of water required to flood the mine pits are estimated at 32.5 Mm³ for Portage Pit and 12.8 Mm³ for Goose Pit. For the Portage Pit, the flooding volume takes into account an initial waste rock volume of 8.5 Mm³ being placed in the pit starting in February 2013. The flooding of Goose and Portage Pits is shown on Figure 4-6 and Figure 4-7. Both pit areas merge when the water level reaches an elevation of 130.0 m, which is reached in Goose Pit in May 2021. This results in the Goose Pit water level stagnation, until Portage Pit reaches the same water level in September 2021. At the end of the flooding period the water level in the pits reaches 134.1 m, the same water level as Second Portage Lake.

Flooding of the pits will be a gradual process, occurring during the spring freshet. Engineered structures will be built to control the flow rate between the pits and Third Portage Lake to avoid any significant impact on the water level of Third Portage Lake. During the flooding period starting in 2015, an annual volume of 450,000 m³ will be pumped from Third Portage Lake to Goose Pit, between June and September, until the water elevation is back to the initial lake level. An annual volume of 4.52 Mm³ will also be routed from Third Portage Lake into the Portage Pit during the summer starting in 2017 using pumps at the East Dike. Figure 4-8 shows the net inflows to Third Portage Lake. After 2017, the flooding volume reaches 1.3 Mm³/month during the summer period. Adding the monthly volumes transferred to the Portage and Goose pits shows that an annual water volume of 4.88 Mm³ is withdrawn from the lake for flooding purposes. The annual flooding volume sent to the pits is lower than the spring freshet volume of 5.3 Mm³, hence the lake water level is not reduced (Ref. 3). Again, more detailed info regarding pit flooding will be submitted as part of the NWB Water License amendment or renewal in 2015.

Figure 4-6: Goose Pit Flooding – Volume and Elevation

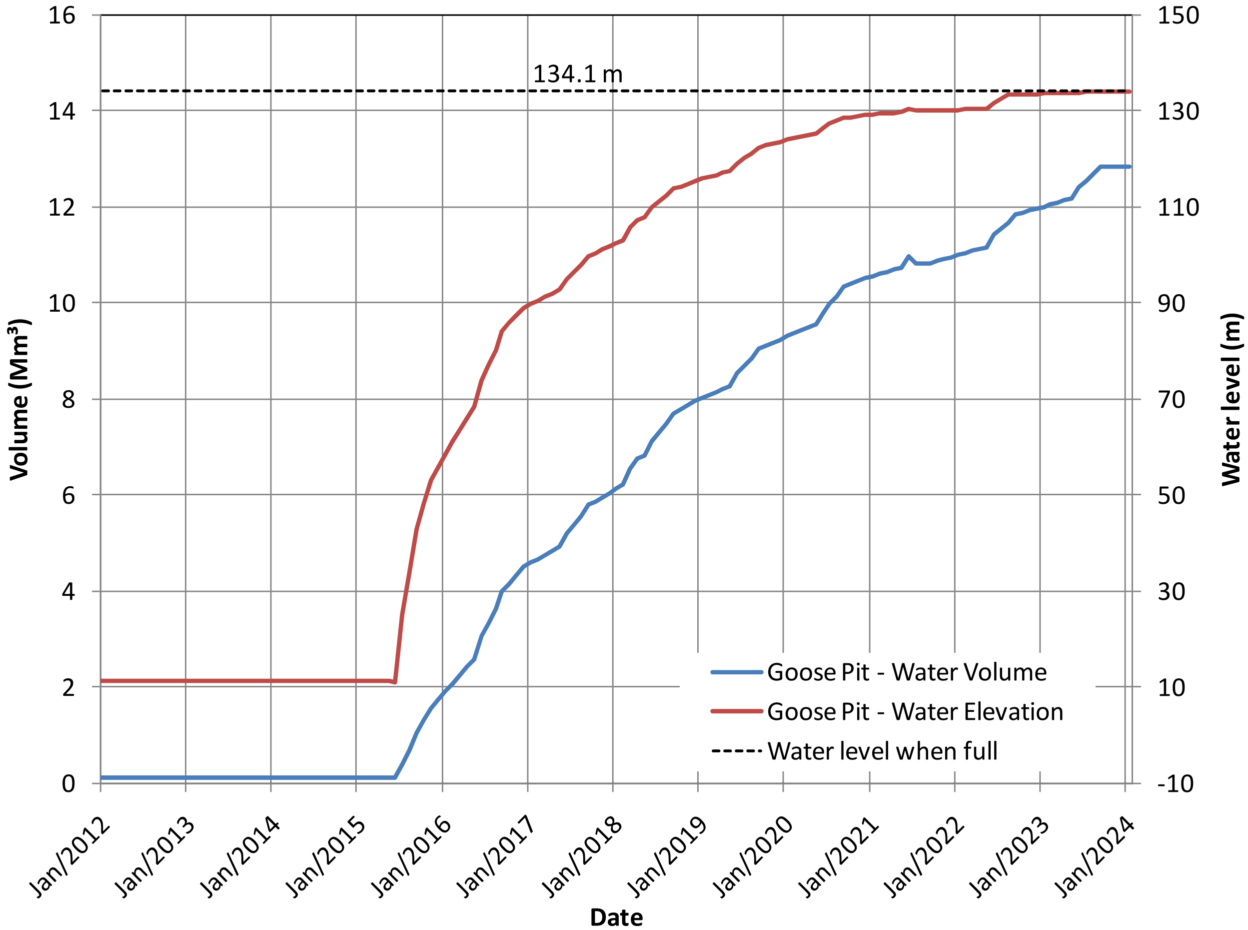


Figure 4-7: Portage Pit Flooding – Volume and Elevation

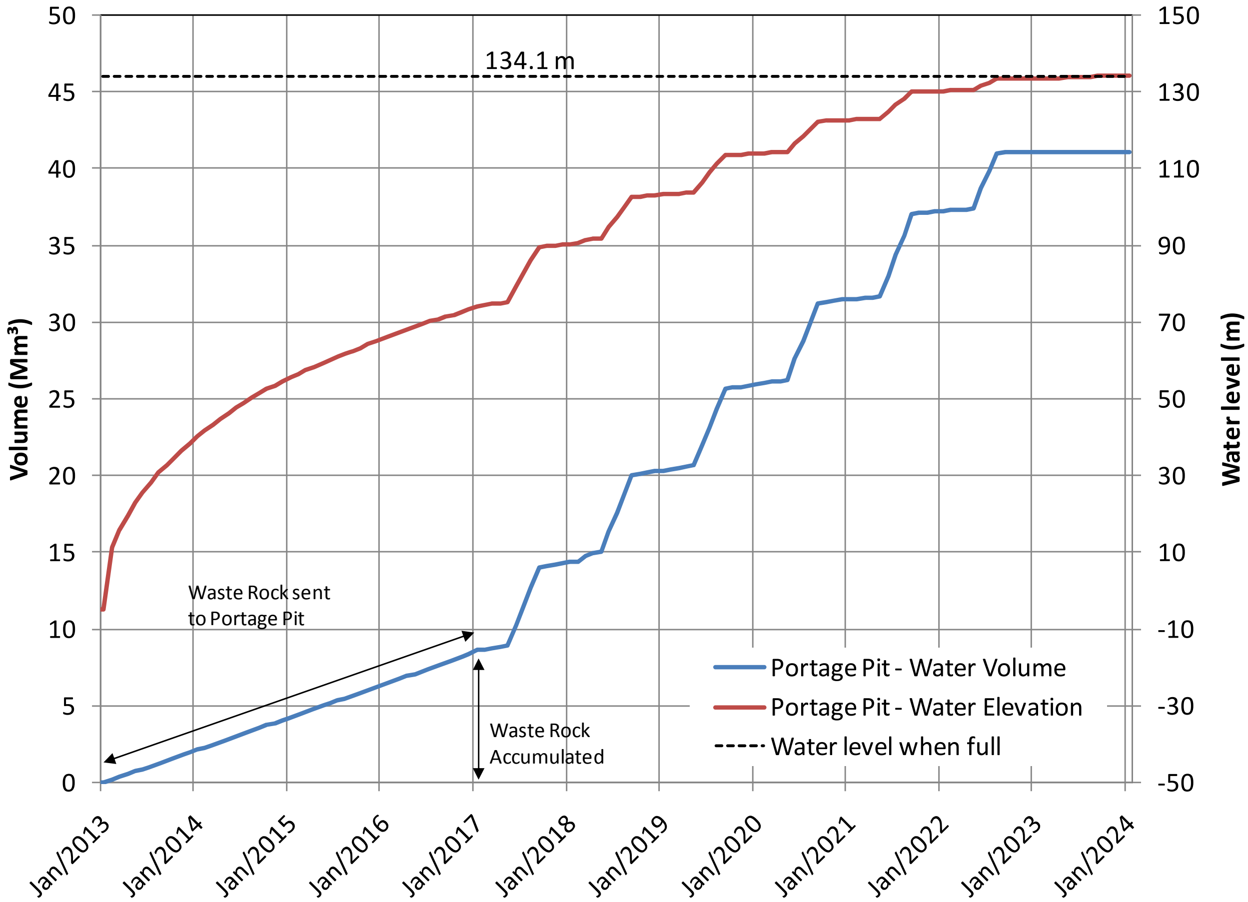
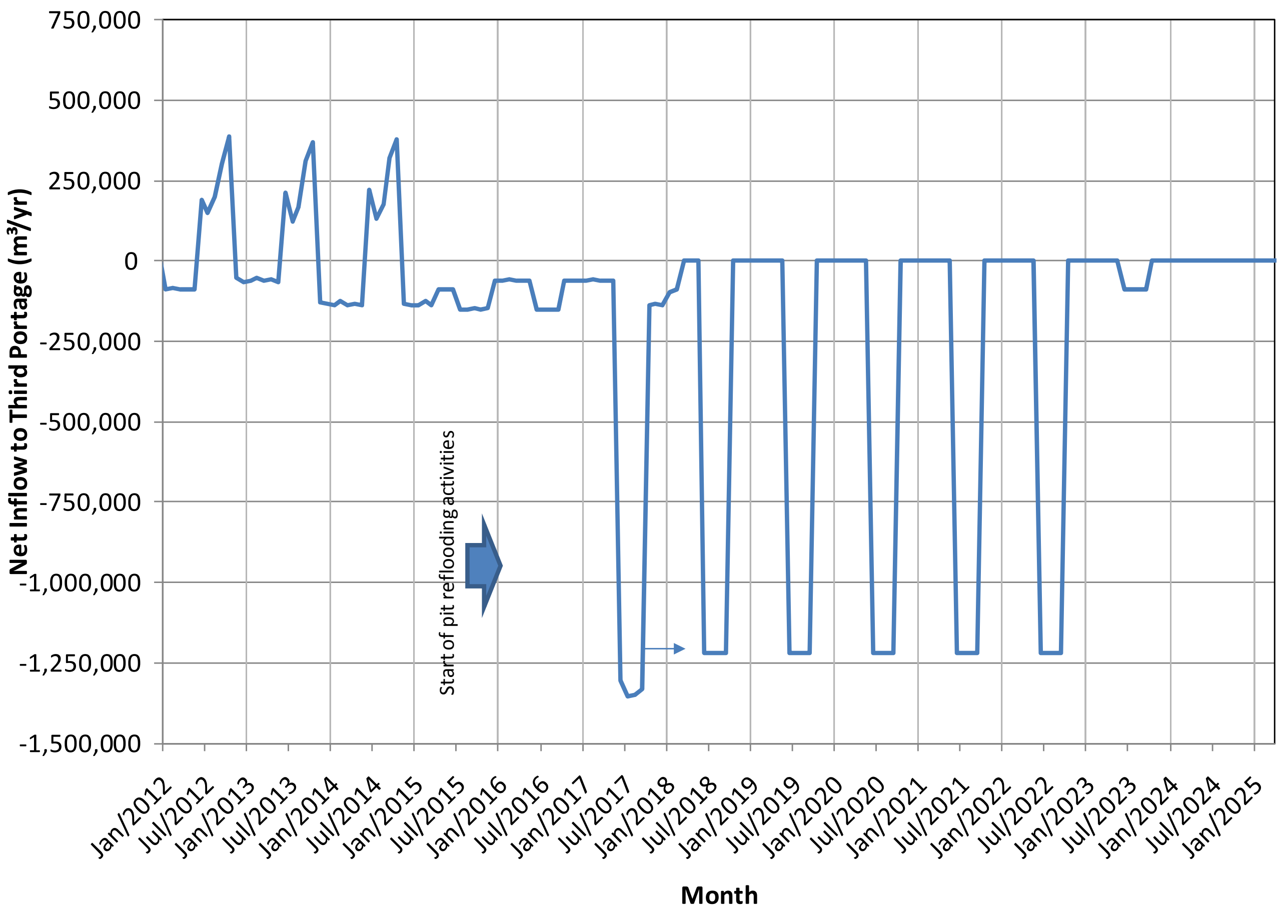


Figure 4-8: Net Inflow to Third Portage Lake



4.3.2 Vault Area

4.3.2.1 Vault Attenuation Pond

Runoff from the catchment area located south of the access road (Appendix A1, Figure A1-1) was originally planned to be diverted out of the Vault Dike catchment. However, the most recent mine plans show that the Vault Pit will extend into Phaser Lake. A water license amendment will be submitted prior to this activity. Therefore, in 2017 (depending on the mining sequence), Phaser Lake will be dewatered and its water sent to Wally Lake. This increases the Vault Attenuation Pond watershed by approximately 150 ha compared to the previous plan. The main catchment areas located in the Vault area are listed in Table 4-3.

Table 4-3: Vault Area Catchments

Attenuation Pond Drainage Area	502.7	ha
Rock Storage Area	80.2	ha
Diverted Area	0.0	ha
Total Basin	**582.9**	**ha**

Figure 4-9: Vault Attenuation Pond – Water Volume Treated for TSS

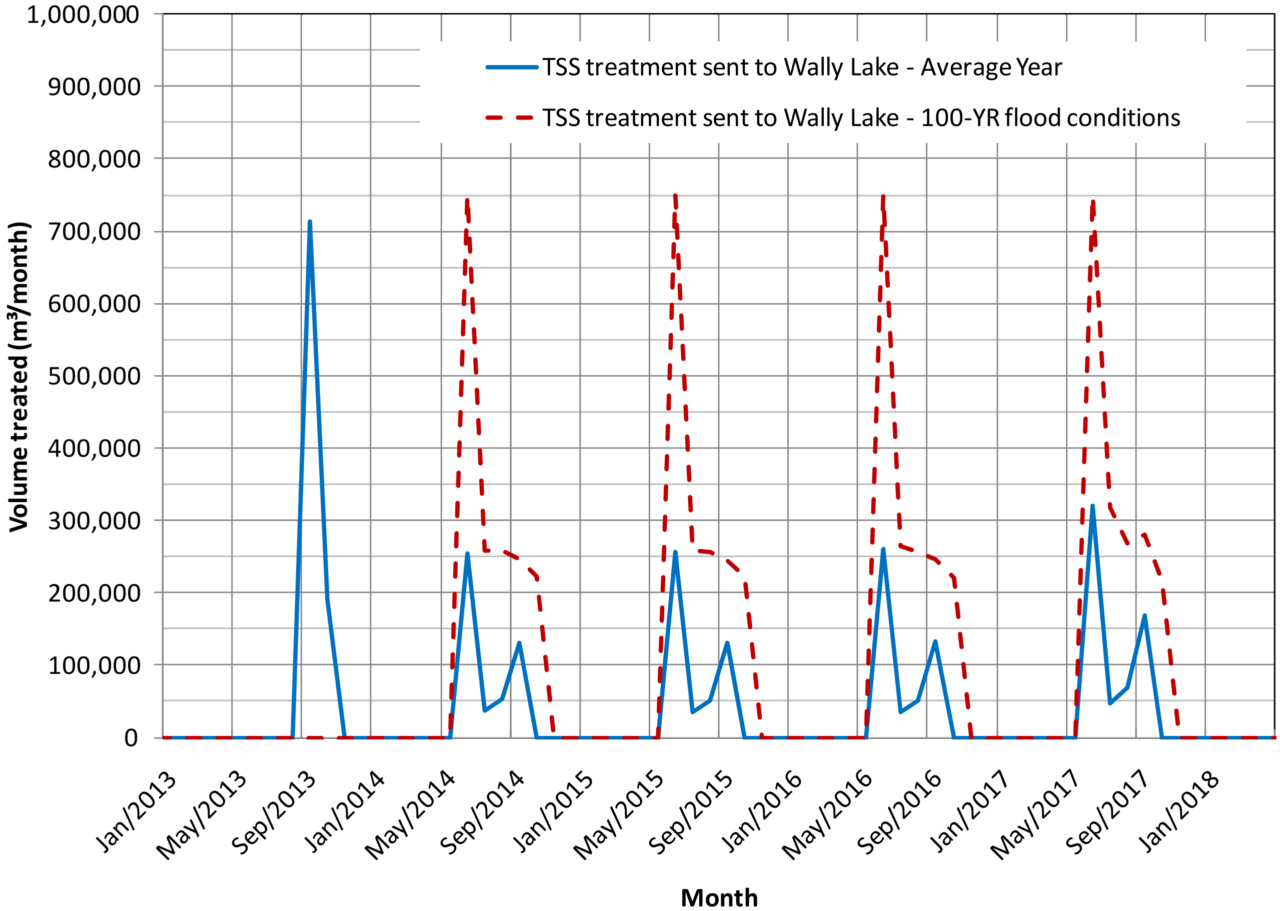


Figure 4-10: Vault Attenuation Pond – Volume and Level

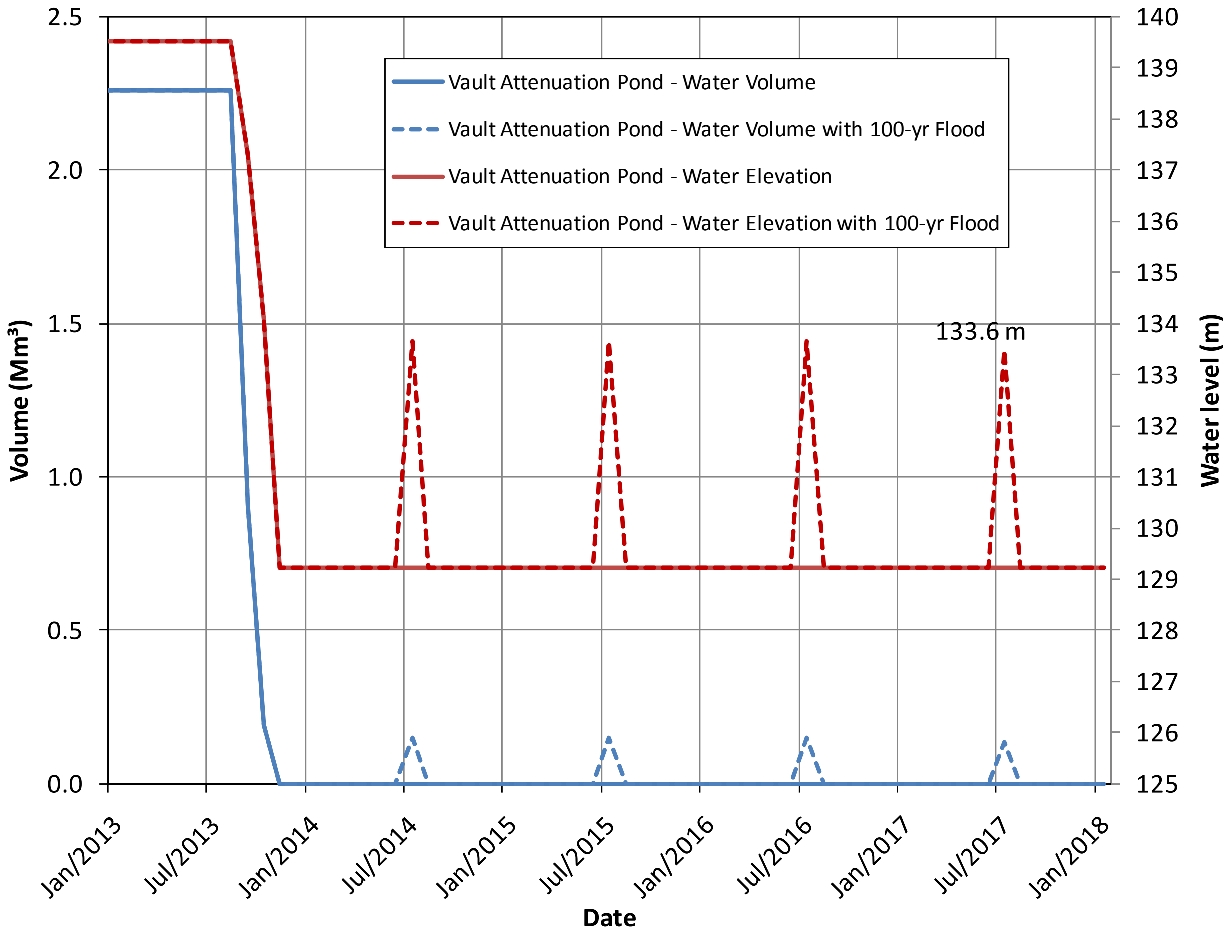


Figure 4-9 shows the required water treatment rate for TSS in m³/month in order to maintain the level of the Attenuation Pond at its minimum value of 0 m³ (or close to empty) and to allow for a maximum storage capacity of the flood volume during a normal year (solid line). The TSS treatment will follow the main dewatering activities described for Vault Lake in 2013 and Phaser Lake in 2016 (presented in more detail in Section 4.5). It should be noted that the required TSS treatment rate for the Vault Attenuation Pond shown on Figure 4-9 is below the capacity of the planned Actiflo system, which has a maximum capacity of 750,000 m³/month or 25,000 m³/day. The system capacity is adequate for its planned use.

During normal operation, the Vault Attenuation Pond level will be maintained at its minimum level by redirecting all inflows to Wally Lake through TSS treatment (If required), as shown in Figure 4-9 and Figure 4-10. Note that this will not be the case during the dewatering activities presented in Section 4.5.

In case of a wet year, the Vault Attenuation Pond level must be controlled to avoid flooding of the Vault Pit. According to the planned layout of the mine, Zone B of the Vault Attenuation Pond is separated from the Vault pit by an area at elevation 136.4 m (Figure A1-3, Appendix A1). Using the 2.0 m freeboard criteria for the 100-yr flood (section 4.1), the maximum allowable level in the pond is 134.4 m. To minimize the risk of flooding the pit, all flood water flowing into the Vault Rock Storage Facility will have to be kept within the facility and not sent to the Vault Attenuation Pond. In case of a wet year, operation rules to maintain the level below 134.4 m will have to be followed which including pumping the excess water to Wally Lake.

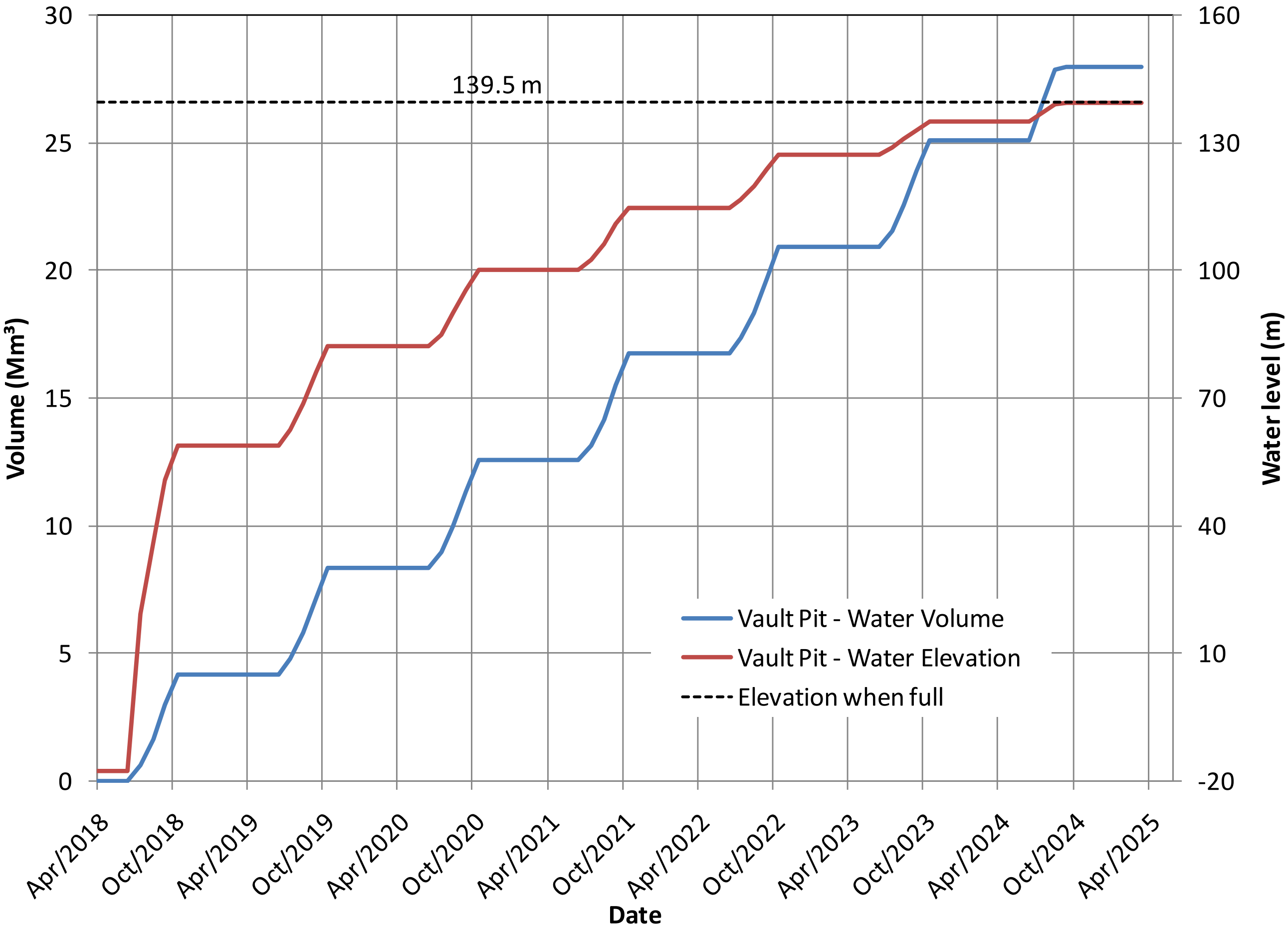
The TSS treatment plant will be in operation during the flood period to discharge excess water into Wally Lake and avoid the level to exceed 134.4 m. The required TSS treatment rate during the 100-yr flood year (wet year) is shown in Figure 4-9 (dotted line). The required treatment rate to control the flood is below the 750,000 m^3/month capacity of the planned system. The pumping system will have to be maintained operational each spring and during the whole period of activity of the Vault Attenuation pond, since it will have the important function of maintaining the pond volume below the pit flooding level.

Figure 4-10 shows that the 100-yr flood volume in the Vault Attenuation Pond is managed to maintain the level below 133.6 m by discharging the excess water into Wally Lake. This allows for a 0.8 m excess reserve (up to the maximum level of 134.4 m) that can be used to store 100,000 m^3 of water in the pond at the beginning of the winter to supply water to the drilling equipment.

4.3.2.2 Flooding of Vault Pit

Figure 4-11 shows the flooding sequence of Vault Pit, including the Vault Lake area. The total flooding volume required is 28 Mm^3. The lake (at pit location) is considered full at elevation 139.5 m which is the initial water level of the lake. This level will be attained in August 2024.

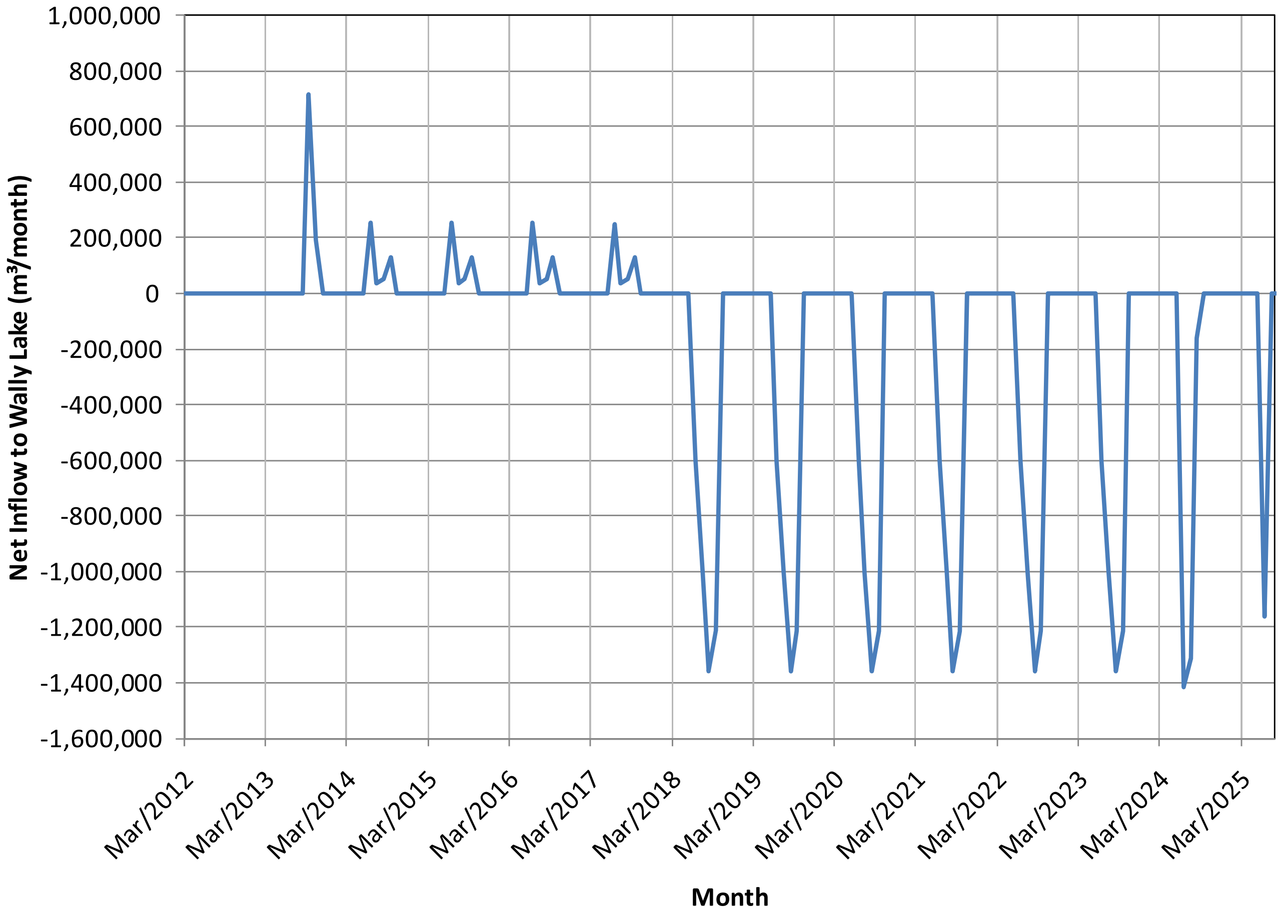
Figure 4-11: Vault Pit flooding – Volume and Elevation



The water required to fill Vault Lake will come from Wally Lake, as shown in Figure 4-12. From 2012 to 2018, the positive inflow to Wally Lake corresponds to the outflow from the TSS treatment unit. From 2018 onward, the net inflows are negative since Wally Lake is used to flood Vault Pit. The peak flow rate is 1.4 Mm^3/month and the total volume used is 4.18 Mm^3/year.

The flooding of Vault Pit will follow a similar procedure than for Portage Pit, with an incoming flow rate from Wally Lake equivalent to that of the spring freshet (4.2 Mm^3) through pump stations.

Figure 4-12: Net Inflow to Wally Lake



4.3.3 Post Closure Concept

In the Portage area, the post closure concept is presented in Appendix A2 (Phases 5 and 5B). The rock storage facility, the North and South Cells will be graded and capped. The dike will be gradually breached to fill the Portage and Goose pits until the water level is the same as the water level in Third Portage Lake.

In the Vault area, the rock storage facility will be graded. However, no capping is planned as it is expected that the excess alkalinity present in the Vault area bulk waste rock is sufficient to prevent acidification of the Vault rock storage facility (Ref. 2). The Vault dike will be breached and water will flow naturally from Phaser Lake to Vault Lake and finally to Wally Lake.

4.4 Vault Dike Crest Elevation

This analysis is performed to determine the minimum crest elevation of the Vault dike. This dike will be built between Vault Lake and Wally Lake, prior to dewatering the Vault and Phaser Lakes. The dike must be built with a crest elevation high enough to safely accumulate runoff water corresponding to the design spring freshet return period. A runoff frequency analysis was performed to determine the runoff volume accumulated in Vault Lake between dike construction and Vault and Phaser Lakes dewatering. Vault Lake maximum water level was then obtained by routing the design flood through the lake, and looking up the corresponding water level from the lake storage elevation curve.

4.4.1 Basic Assumptions

This section presents the basic assumptions used in the computation:

- The junction between Vault Lake and Wally Lake will be closed by January 1st, 2013 since Vault Dike will be built between February 2013 and May 2013 and since the channel is assumed to be frozen up to the channel bottom.
- Four scenarios were studied for Vault Lake dewatering, based on changing the start dates. The pumping will start in 2013 on July 1st, August 1st, September 1st, or October 1st depending of the scenario.
- The design flood consists of combining the 1 in 100 year snow melt (from snow that accumulated during the 2012-2013 winter), and the 1 in 100 year rainfall event, occurring between January 1st and the start date of Vault Lake dewatering.
- Infiltration is negligible, i.e. 100% of the precipitation accumulates in Vault Lake.
- Vault Lake watershed size is 549.4 km² (recalculated by SNC-Lavalin using topography provided by the client).
- Initial water level at Vault Lake is 139.52 m.
- Natural sill level between Vault Lake and Phaser Lake is 140.00 m.

- Natural sill level between Vault Lake and Wally Lake is 142.00 m.

4.4.2 Runoff Frequency Analysis

This section presents the runoff frequency analysis used to establish the 1:100-year spring runoff. Four different scenarios are defined according to the start of pumping operations, as presented in Table 4-4.

Table 4-4: Scenario Description

Scenario	Description
Scenario 1	Pumping begins on July 1st, 2013
Scenario 2	Pumping begins on August 1st, 2013
Scenario 3	Pumping begins on September 1st, 2013
Scenario 4	Pumping begins on October 1st, 2013

A frequency analysis was performed, using the Log Pearson-3 probability distribution, to determine the spring runoff water volume for different return periods. This water volume includes snowfall between September 1st of the preceding year to the day before pumping operation begins, and rainfall from January 1st to the day before pumping operation begins. The total water volume obtained for the 100-year return period is presented for each scenario in Table 4-5.

.

Table 4-5: 100-yr Spring Freshet (Snow and Rain)

Scenario	Spring freshet water equivalent over the watershed (mm)
Scenario 1	236
Scenario 2	294
Scenario 3	349
Scenario 4	400

4.4.3 Maximum Vault Lake Water Level

Using topographic data provided by Agnico-Eagle Mines, the Vault Lake storage curve was computed. It should be noted that the storage curve includes the Phaser Lake area, when Vault Lake starts to overflow in Phaser Lake. The maximum water level in Vault Lake after dike completion is computed by adding the volume of the cumulative runoff to the initial volume of the lake, and finding the corresponding water level based on the Vault Lake storage elevation curve.

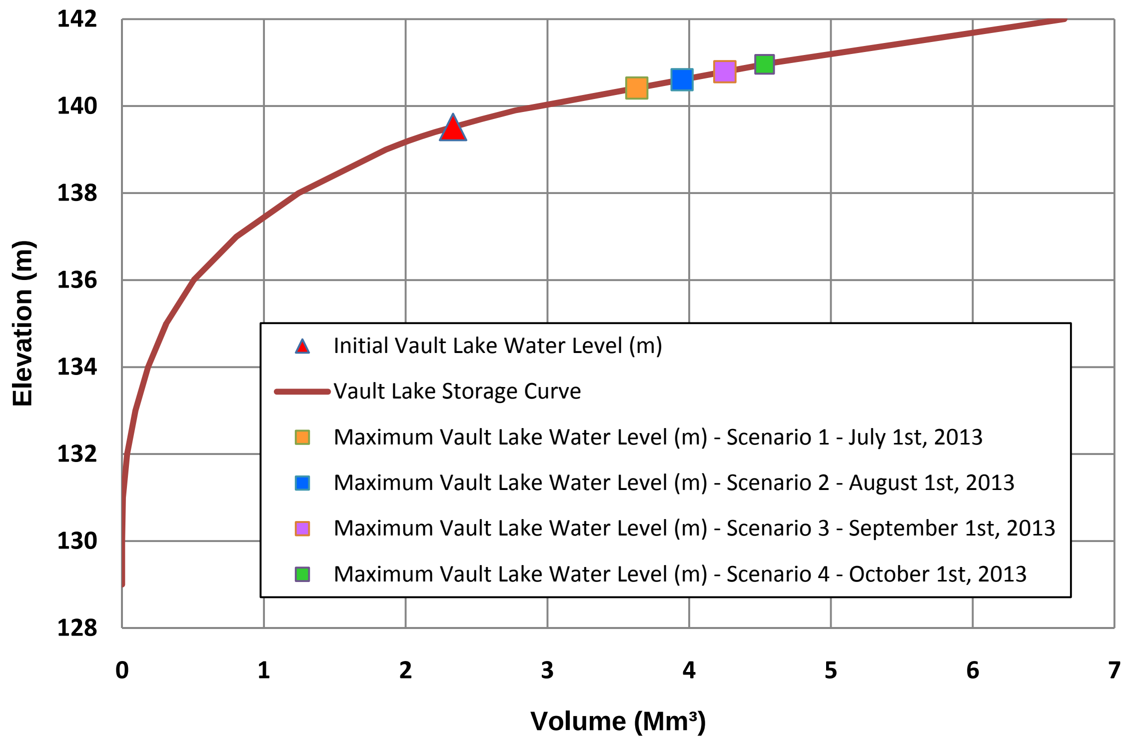
Due to the rainfall occurring during the months of July to October, the later the dewatering starts, the higher the Vault Lake water level will be, and the more pumping will be necessary.

Table 4-6: Maximum Vault Lake Water Level

Scenario	Maximum Water Level (m)
Scenario 1	140.41
Scenario 2	140.61
Scenario 3	140.79
Scenario 4	140.96

In order to minimize the risk and inconvenience associated with a rise in the Vault Lake water level, freshet water pumping from Vault Lake to Wally Lake could be initiated as early as the weather allows (approximately mid-May 2013) to maintain Vault Lake water level to its initial elevation until dewatering starts.

Figure 4-13: Vault Lake Storage Elevation Curve and Final Lake Elevation



4.5 Vault Lake Dewatering

Following the analysis of the four scenarios presented in the previous section, Agnico-Eagle Mines selected scenario 3 as the most likely one. In this case, Vault Lake would reach an elevation of 140.79 m at the start of the dewatering operations scheduled for the beginning of September. Therefore, computations were focused on this case, based on the following assumptions.

- The junction between Vault Lake and Wally Lake will be closed by January 1st, 2013 since Vault Dike will be built between February 2013 and May 2013 and since the channel will be frozen to the channel bottom;
- The initial water level in Vault Lake is 139.52 m and will be lowered and maintained at 139.40 m from May to the end of August;
- Lake water level reduction (full dewatering by pumping) will begin in September 2013 after fishout had been completed;
- Vault mine operations will begin in January 2014;
- The upper 60% of the lake water volume will be released to the receiving lake without treatment (based on AEM's experience dewatering Second Portage Lake);
- The remaining lower 40% of the lake water volume will be treated to remove excess TSS prior the release to the receiving lake;
- Pumps will be available on site for dewatering operations;
- Pumping capacity: 4000-4500 GPM per pump (21 800 - 24 500 m^3/day/pump);
- Pumps will operate continuously all day long;
- Treatment capacity (Actiflo) will be 25,000 m^3/day;
- Fish will be removed from Vault Lake, as soon as the ice will be melted, between mid-July and the end of August 2013;
- Dewatering of Vault Lake will start at the beginning of September 2013.

4.5.1 Methodology

The dewatering process is subject to the following constraints: the bottom 40% of the lake volume will be treated for TSS. The upper 60% slice of the total volume is considered clear water and will be pumped out from Vault Lake without TSS treatment. Effluent will be monitored to meet the TSS criteria in accordance with the requirements of the Water license (Ref.14)

According to the storage curve, at 139.52 m, the Vault Lake volume is 2 260,000 m^3. Starting from May 2013, the Vault Lake water level is lowered and maintained at 139.4 m.

The dewatering process is limited by the length of pumping pipelines available on site and the treatment capacity of the Actiflo unit. However, there is sufficient pipe length available to install two separate lines. On site, two different pumps are available, with capacity 4,000 GPM (21,800 m³/d) and 4,500 GPM (24,500 m³/d). When both are in operation the total pumping capacity is 46,300 m³/d.

As of September 1st, the two pumps will operate for 30 days until the water level in Vault Lake is lowered to 137.30 m. The net volume pumped out from the lake, between May 1st and September 30th, will be 1,356,100 m³ corresponding to the upper 60% of the lake volume. After that, TSS treatment should begin.

4.5.2 *TSS Treatment*

It is estimated that the last 40% of the pumped Vault Lake volume (904 100 m³) will be treated for TSS removal using the Actiflo system to meet the license requirement (Ref. 14 and AEM's experience on Goose dewatering). This treatment will begin when Vault Lake is lowered to a water level of 137.30 m. This level will be reached on September 30th, 2013, and treatment should begin on October 1st, 2013. At this time, the pumping rate will be reduced to 25,000 m³/d to match the treatment capacity.

The bathymetry of Vault Lake shows that at elevation 136.40 m, the lake splits into two main areas and, at a lower elevation, these areas further split down in a total of four separate areas. For simplification purposes, the dewatering computations are presented only for the two main areas identified as Vault A and Vault B.

From the lake level at the beginning of pumping (139.40 m) and level 136.40 m, there is an estimated water volume of 1,831,000 m³. Below elevation 136.40 m, the Vault A volume is 250,300 m³ and Vault B (Figure A1-3 in Appendix A1) volume is 348,600 m³.

The dewatering of Vault A will start on October 14th, followed by that of Vault B on October 25th. The complete dewatering of Vault A and B will be achieved on November 7th 2013.

4.5.3 *Results*

The total duration of the dewatering process is 71 days (approximately September 1st to November 7th). Pumping for the first 28 days is made, without treatment, at a rate of 46,300 m³/d. Then, pumping for the next 43 days, with Actiflo treatment, is made at a rate of 25,000 m³/d. Figure 4-13 presents the water level in Vault Lake over time during the dewatering process. Figure 4-14 presents the dewatering sequence over time at Vault A and B.

Figure 4-14: Vault Lake Water Level during the Dewatering Sequence (Year 2013)

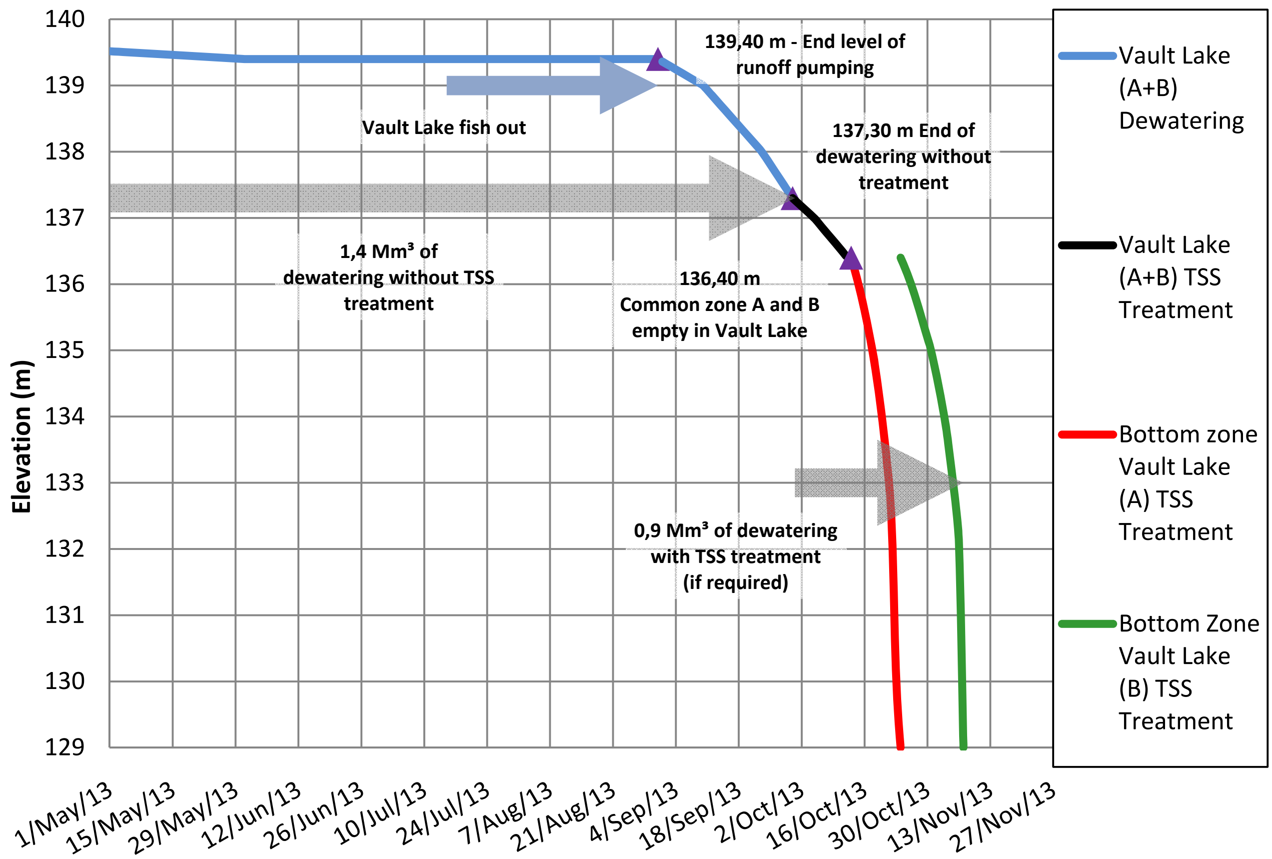
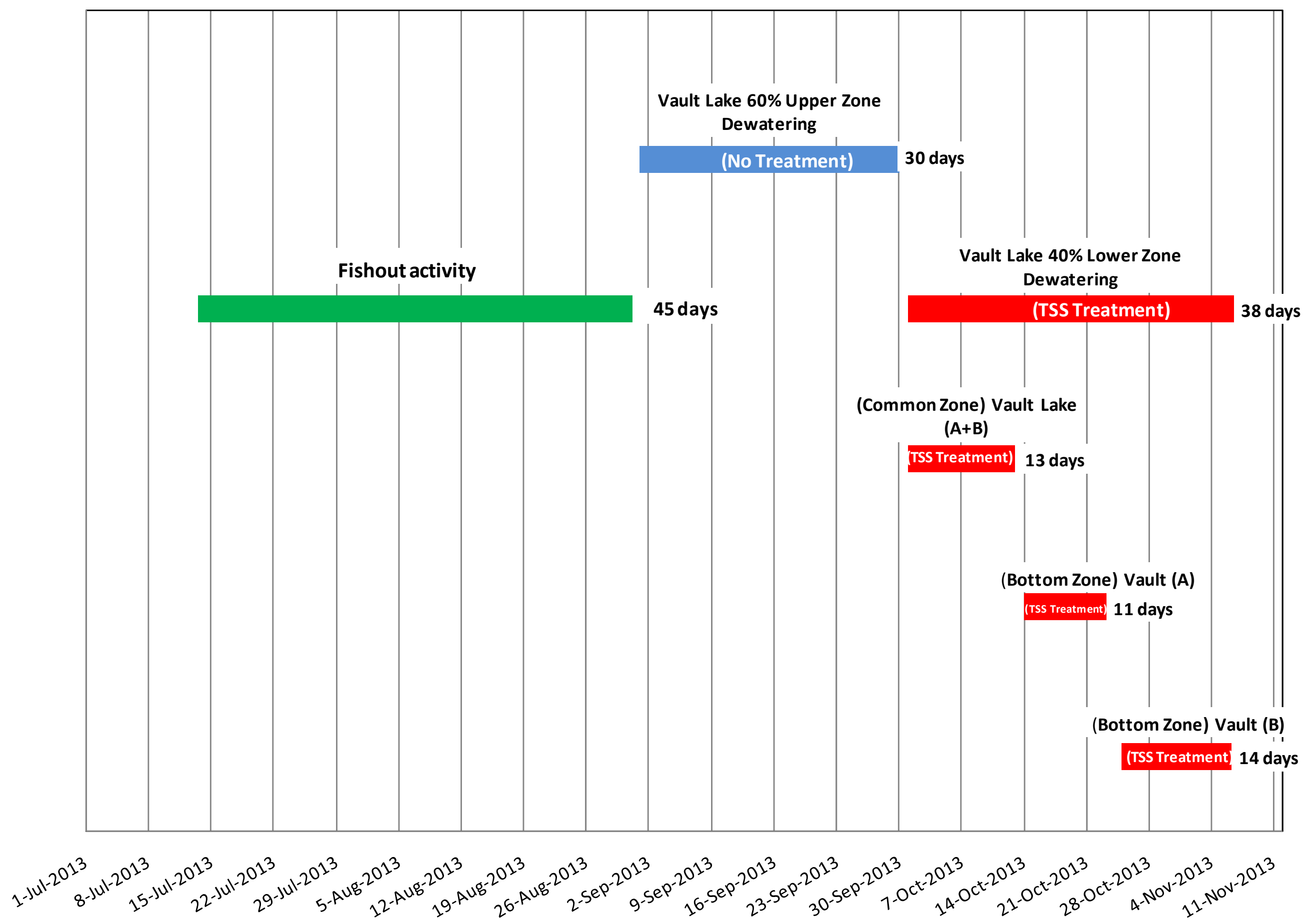


Figure 4-15: Vault Lake Dewatering Schedule (Year 2013)



4.6 Phaser Lake Dewatering

In 2017, Vault pit will extend into Phaser Lake. For this reason, Phaser Lake will need to be dewatered in 2016.

4.6.1 Assumptions

Computations of the dewatering process are based on the following assumptions:

- An amendment to the current water license will be obtained;
- Phaser/Vault Lake connecting saddle elevation is 140.0 m;
- Phaser Lake initial water level is 139.65 m;
- Dewatering by pumping starts in September 2016;

- Water is pumped into Wally Lake;
- The upper 60% of the volume is released to Wally Lake without treatment;
- The remaining lower 40% is treated to lower excess TSS (if required) at Vault WTP prior release to Wally Lake;
- Pumps are available on site for dewatering operations;
- Pumping capacity: 4,000-4,500 GPM per pump (21,800 - 24,500 m³/day/pump);
- Pumps operate continuously all day long;
- Treatment capacity (Actiflo) is 25,000 m³/day;
- The removal of Phaser Lake fish starts as soon as the ice melts (mid-July) and it ends at the end of August 2016;
- The dewatering of Phaser Lake starts at the beginning of September 2016.

Recent detailed bathymetry for Phaser Lake is not available. Therefore the existing capacity of the lake at elevation 139.65 m is assumed to be 700,000 m³ as estimated by Agnico-Eagle Mines.

4.6.2 Results

The total duration of the Phaser Lake dewatering process, using a single pump, is 30 days (September 1st to September 30th). Pumping for the first 18 days occurs without treatment, at a rate of 24,500 m³/d. After that, pumping for the next 12 days takes place using an Actiflo unit for TSS treatment, at a rate of 24,500 m³/d. Figure Figure 4-15 presents the lowering of the water level over time during the dewatering process. Figure Figure 4-16 presents the dewatering sequence over time.

Figure 4-16: Phaser Lake Water Level during the Dewatering Sequence (Year 2016)

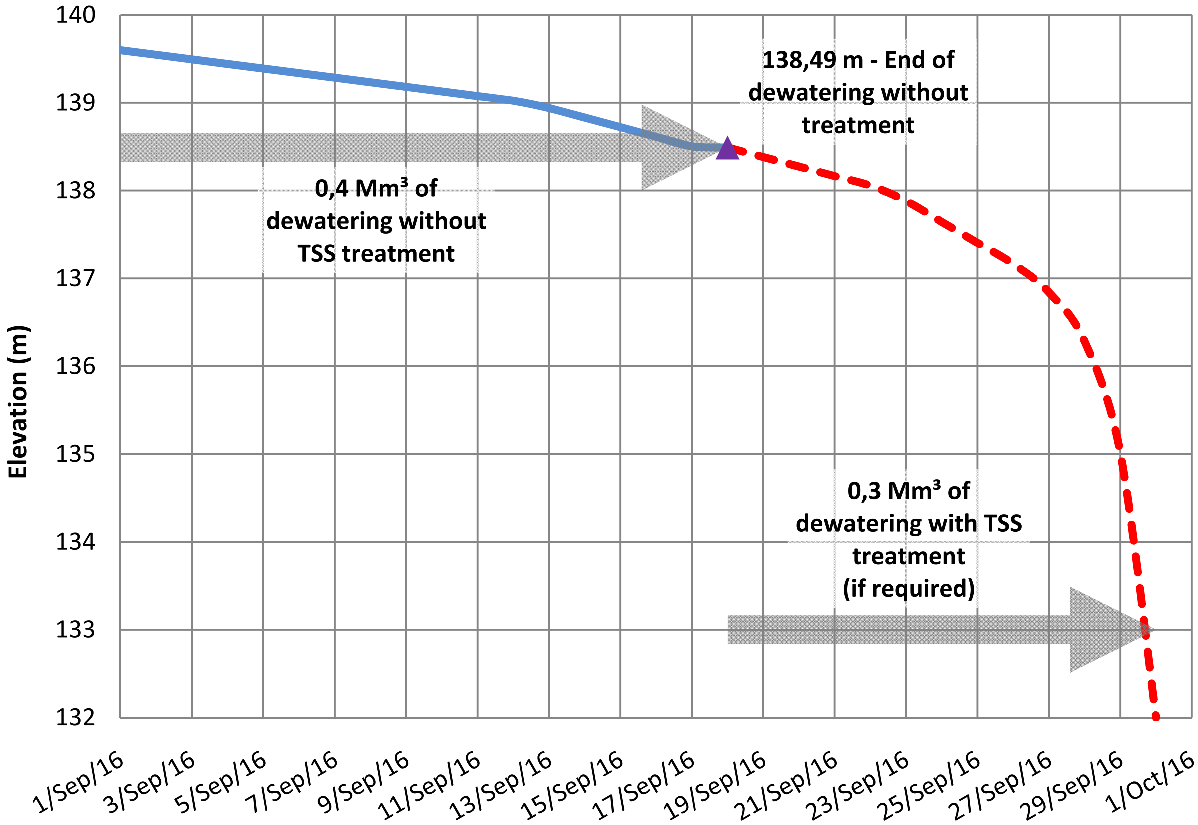
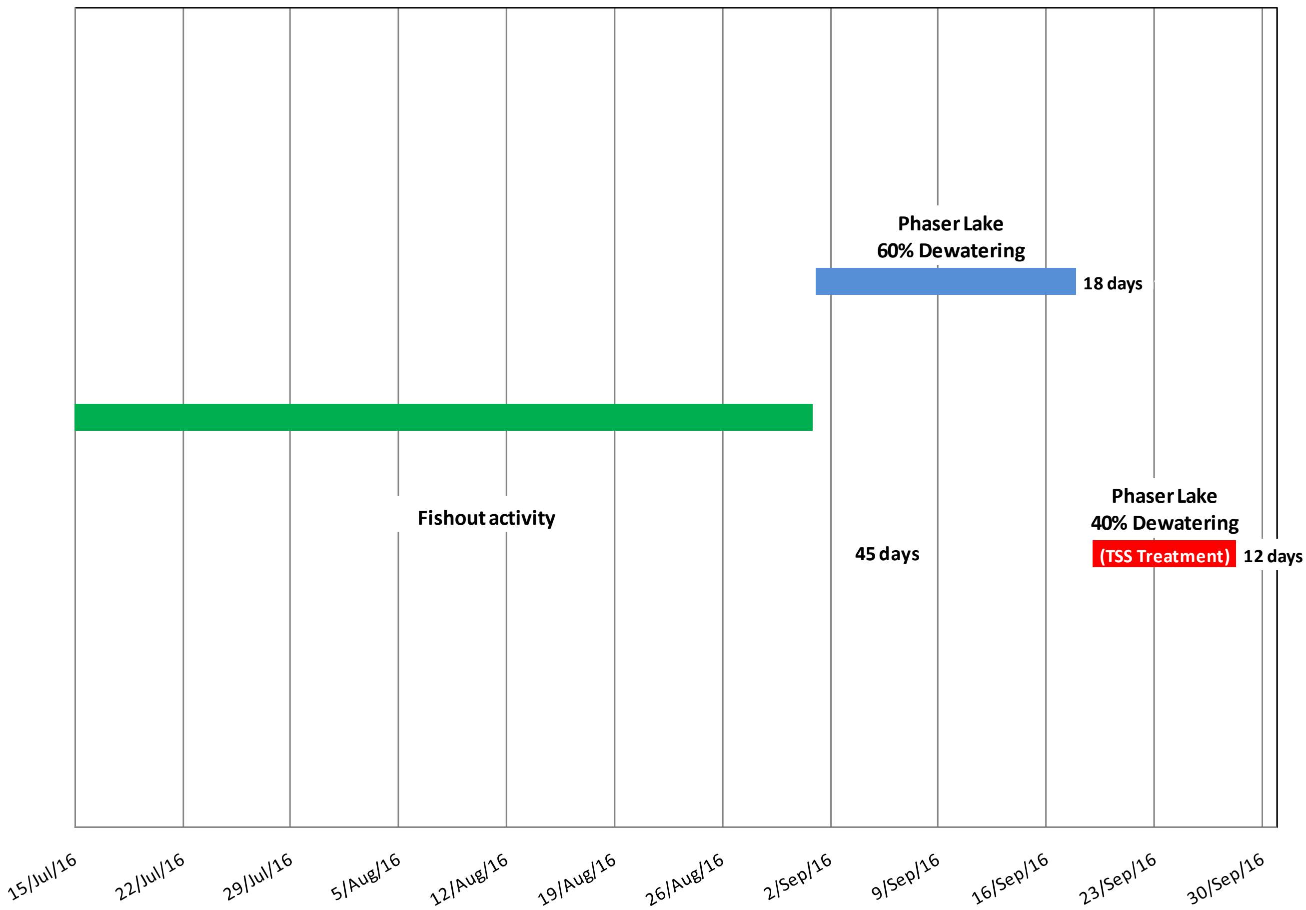


Figure 4-17: Phaser Lake Dewatering Schedule (Year 2016)



5 RECLAIM WATER DEFICIT AND FRESHWATER CONSUMPTION

During the course of this study, SNC-Lavalin evaluated freshwater consumption rate based on different scenarios. Detailed results and figures are presented in Appendix A4 as a series of scenarios studied to find the optimal future strategy. A detailed explanation of the reclaim water deficit and the potential remediation measures is presented in this section.

During the course of this analysis, it was found that the Mill freshwater consumption from Third Portage Lake will need to be adjusted in the future to avoid a reclaim water deficit at the Mill (shown as sudden increase in freshwater flow on Figure 4-1). Water balance computations showed that the average total freshwater consumption would exceed the water license value in 2013, mainly due to a decrease in water volume in the North Cell TSF reclaim pond to 750,000 m³.

5.1 Reclaim Water Deficit in the TSF Reclaim Pond

The reclaim water deficit shown in the 2012 WMP is caused by a number of positive and negative factors.

<u>Factors increasing reclaim water available</u>

- Even if the Mill production rate increases, the number of cubic meters of water per ore processed is reduced at the Mill. Computations were undertaken using a 50.4% tailings solid content[1] (based on actual production numbers), compared to a previous estimate of 50.0 % (Ref. 3 and 15).

<u>Factors reducing reclaim water available</u>

- The hydrology of the site was reviewed in the 2012 WMP (refer to section 3), and showed a 15% reduction in total precipitation compared to previous estimates, resulting in a reduction of runoff volume. This factor reduces water volume available for reclaim by approximately 120,000 m³/yr for the Portage area.
- The Mill production rate increased from an initial value of 8,500 t/day to 11 200 t/day. All other factors being equal, this factor alone increases the reclaim water deficit by 32%. For example, in 2013, this increase in Mill production rate represents an additional water consumption of 960,000 m³/yr.
- Previous studies estimated that RSF runoff would drain to the reclaim pond. However, this is not the case. During the last few years, AEM observed that the available storage in the waste rock mass voids was sufficient to capture all runoff water from the RSF drainage area. Therefore any drainage or precipitation to the

[1] Tailings solid content is defined as (dry weight of solid/ dry weight of solids + water)

RSF is entirely contained within the RSF. This reduces the available reclaim volume by 25,000 m³/yr.

- The 2012 WMP assumes (in concordance with previous models) that 40 % of the tailings discharge water remains permanently trapped in tailings and therefore cannot be pumped as reclaim water. This water is trapped as ice lenses and as void pore water in the tailings. For each reclaim-water-to-Mill cycle, only 60% of the water contained in the tailings (slurry) is released by the material and is available for pumping to the Mill. By increasing the production rate, the water losses to tailings also increases.

To maintain an acceptable water balance, based on the 2012 LOM increased production rate conditions, and in order to compensate for this deficit, the amount of freshwater pumped from Portage Lake should be increased and/or the re-routing of other inflows to the site (runoff water, groundwater and seepage flows) to the reclaim pond should be considered (or pumped directly to the mill).

5.2 Effect of Transferring Attenuation Pond Water to the Reclaim Pond

The first case evaluated during the sensitivity analysis was to reduce the reclaim water deficit by transferring 50% of the total attenuation contact water to the reclaim pond instead of pumping it to Third Portage Lake. For 2013, the annual groundwater infiltration volume (Portage and Goose pit) is 1.3 Mm³ and the runoff (freshet) water is 440,000 m³. Table 5-1 presents the annual contact water in the Portage Area that could be transferred to the TSF Reclaim Pond (or pumped directly to the Mill) by source.

Table 5-1: Annual contact water for the Portage Area

Year	Groundwater and seepage (m³/yr)	Runoff (freshet) (m³/yr)	Total flow from Portage and Goose pit (m³/yr)
2012	1,032,400	439,747	1,472,147
2013	1,314,800	440,611	1,755,411
2014	1,314,800	440,611	1,755,411
2015	1,032,305	272,409	1,304,714
2016	0	77,211	77,211
2017	0	82,254	82,254
2018	0	0	0

As shown in Figure 7 of Section 2 of Appendix A4 this scenario eliminates the reclaim water deficit. Listed below are the limitations and advantages of this scenario:

- There is uncertainty on the real amount of groundwater and seepage water entering the pits. The most probable available and conservative volume that can be assumed for the contact water transferred to the North Cell TSF Reclaim Pond is the 440,000 m³ freshet volume. Using this lower contact volume would create a reclaim water deficit in the range of 450,000 m³, when compared to the 50% transfer rate studied in this scenario.
- Maintaining a lower volume in the attenuation pond is beneficial to South Cell TSF dike construction activities. A lower water level in the pond eliminates the submergence of the TSF dike membrane before and during the winter, thus reducing the risk ice formation piercing the membrane.
- Water transfer from the South Cell Attenuation Pond to the North Cell TSF Reclaim Pond will be achieved during the summer months only. During winter time, the contact water would need to be stored in the attenuation pond and then transferred to the North Cell in the summer until the end of the deposition into the North Cell (2015). When tailings deposition is transferred to the South Cell TSF, the contact water will be pumped directly into the Reclaim Pond providing a more constant inflow to the TSF.

5.3 Water Required to Compensate the Reclaim Water Deficit

This section presents a summary of the annual water required to compensate the reclaim water deficit. The base case consists of a freshwater consumption rate of 80 m³/hr at the Mill. Table 5-2 presents the annual additional water required to eliminate the reclaim water deficit. For the base case, year 2014 is the most critical one since the reclaim pond volume is at (or close to) 750,000 m^3 throughout the entire year before the transfer to the South Cell TSF begins.

Table 5-2: Water volume required to compensate the reclaim water deficit

Year	Additional freshwater required above 80 m³/hr to avoid reclaim water deficit (m³)	Additional freshwater required above 120 m³/hr to avoid reclaim water deficit (m³)	Additional freshwater required above 140 m³/hr to avoid reclaim water deficit (m³)
2012	270,079	0	0
2013	376,744	0	0
2014	749,496	364,973	0
2015	312,950	139,190	161,314
2016	25,490	0	0
2017	469,363	0	0
2018	0	0	0

Figure 1 of Appendix A4 demonstrate that the base case of 80 m³/hr leads to an important freshwater deficit for all years of Mine operation; with high deficit values in 2014 (750,000 m³) and 2017 (470,000 m³). Compared to the alternative scenarios (contact water transfer from Attenuation Pond, freshwater consumption of 120 m³/hr and 140 m³/hr), the base case is the only case that shows a deficit during the South Cell TSF operation period (April 2015 to February 2018). Based on these results, SNC-Lavalin recommends selecting a scenario that would eliminate or greatly reduce the deficit.

Based on the results presented in Appendix A4 and the analysis of contact water transfer results (refer to section 5.2), it can be established that a revised freshwater limit of 120 m³/hr combined with an annual contact water transfer from the Attenuation Pond to the Reclaim pond (or directly to the Mill) would eliminate the reclaim water deficit. An annual contact water transfer from the Attenuation to the Reclaim Pond of 365,000 m³ would be required in 2014 and a volume of 140,000 m³ for 2015. These transfers would allow the TSF reclaim pond to maintain an appropriate water volume for the duration of mining activities.

5.4 General impact of contact water usage on the process water into the mill

The use of attenuation pond water at the mill would improve the water quality at the mill while ensuring a better mixing factor in the TSF. Maintaining a better reclaim water quality reduces the number of potential problems at the Mill (scaling and others issues) while ensuring a better mixing factor in prevision for pit flooding.

6 CONCLUSION

The present water management plan for the Meadowbank mine site update consists of:

1. The validation and update of the site hydrology, including the revision of drainage areas and the update of meteorological conditions.
2. The update of the short-term and long-term water management plan, taking into account changes to the following elements:
   - Mining schedule;
   - Mill operation rate;
   - Mine pits layout;
   - Rock storage facility extent;
   - Tailings management facilities filling.
3. The development of a water balance model for the entire site and for the complete duration of the mining activities until final site closure.

A review of the existing water management plans, the 2009 WMP, the 2010 UWMP and the 2012 Draft UWMP (Ref. 2, 3 and 15), as well as the validation and update of the design criteria were completed. In the long term, the effects of planned mining activities on the water management plan were analysed, and the duration of the mine pits flooding activities and the volume of water required from surrounding lakes were determined. A short-term analysis was performed for the Vault area, focusing on incoming mining activities. The maximum Vault Lake water level during construction of the Vault dike was established using different pumping scenarios, and the detailed dewatering plan for the Vault area was established with specific dewatering schedules for Vault and Phaser Lakes.

Mine water management was improved by decreasing the freshwater consumption and using a better sequencing of pit flooding activities. This leads to a lower reclaim water volume in the South Cell and reduced water levels at the end of the mining activities, compared to previous water management plans.

It should be noted that the actual freshwater licence allows for the use of 80 m^3/hr, which is less than the 123 m^3/hr required for 2013. This difference can be explained by the fact that the actual Mill production (11,280 t/day) is higher than the previously planned production (8,500 t/day), and because the site hydrology review yielded lower precipitation values than those estimated in former water management plans.

The freshwater consumption rate of 80 m^3/hr and the Mill production planned for the site leads to a reclaim water deficit with a decreasing water volume in the North Cell TSF Reclaim Pond. This condition remains true until tailings deposition is transferred to the

South Cell, at the beginning of April 2015. There is also a water deficit during the operation of the South Cell TSF Reclaim Pond. The deficit leads to the maintenance of the minimum processes reserve volume of 750,000 m³ in the South Cell Reclaim Pond and a subsequent increase in freshwater consumption to compensate for the lack of reclaim water.

7 RECOMMENDATIONS

This section presents a series of recommendations aimed at increasing the reliability and the estimates presented in the following WMP and addressing the reclaim water deficit identified.

General

- SNC-Lavalin recommends continuing with groundwater seepage measurements in all pits, and measurements of dike seepage flows, to improve or modify the assumptions used in the present report.
- Using flows and volumes measured at the site and the GoldSim model analysis, AEM should be able to better evaluate the value used for the groundwater inflow to the Attenuation Pond.

Portage Area

- A detailed deposition plan for the South Cell and North Cell should also be developed to maximize water use and availability as well as improve the accuracy of the forecast of the future water levels in the South Cell Reclaim Pond.
- The freshwater requirement analysis shows that Agnico-Eagle Mines would need to amend its freshwater license to allow for a freshwater increase of at least 123 m^3/hr for the mill for 2013 onward. Note that this does not include the freshwater use at the camp of approximately 5 m^3/hour. The freshwater intake rate may be reduced by pumping attenuation pond water directly to the mill. The effect of this freshwater amendment will be better analyzed in subsequent Water Management Plans that will include real process data and other data measured on site in 2013.
- Concurrently with increasing its freshwater consumption rate to 120 m^3/hr, Agnico-Eagle Mines should also consider re-routing the annual freshet water volume (440,000 m^3/yr) from the Attenuation Pond to the North Cell Reclaim Pond to compensate for the reclaim water deficit to the Mill and ensure that the revised freshwater consumption rate is not exceeded in the future.

Vault Area

- During a wet year, the Vault Attenuation Pond level must be controlled to avoid flooding of the Vault Pit. To minimize the flooding risk, all flood water flowing into the Vault Rock Storage Facility should be kept within the facility and not sent to the Attenuation Pond. A more detailed analysis should be performed to develop operation rules for the Vault area in case of a wet year.
- In the Vault Area, SNC-Lavalin recommends reviewing the possibility of using a passive flood control system between the Attenuation Pond and the pit to control

the flood water in case of a wet year, instead of relying on the pumping system reliability for this purpose. The addition of a passive system would make the water management system more robust.

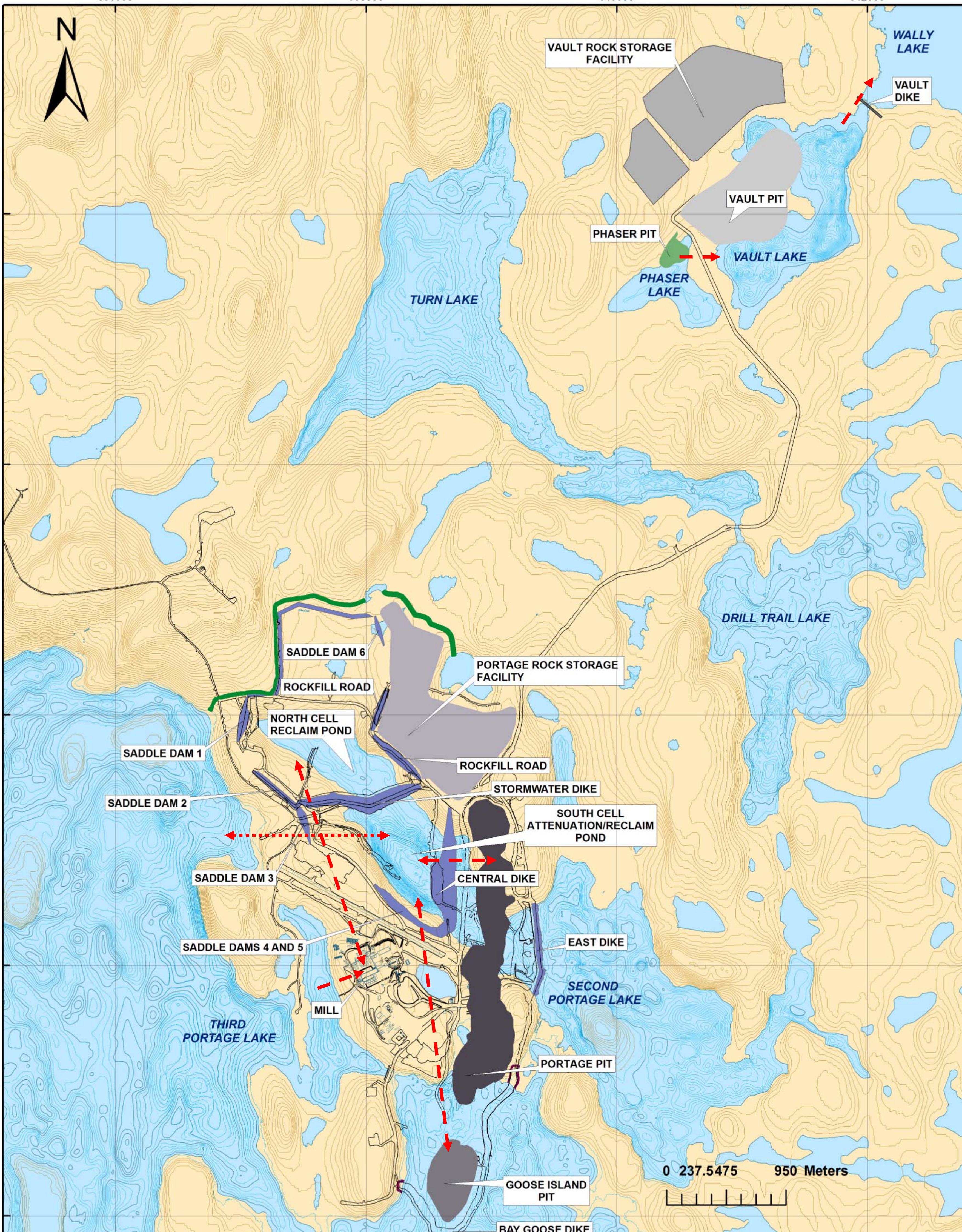
8 REFERENCES

1. Golder (2005) - Baseline Physical Ecosystem Report. Cumberland Resources Ltd. October 2005.
2. Golder (2009) - Updated Water Management Plan. Agnico-Eagle Mines. July 2009.
3. Golder (2010) - Site Wide Water Balance Model Update. Technical Memorendum. Agnico-Eagle Mines. Document No 1092. September 2010.
4. Golder (2012) - Tailings Deposition Plan 2012 Update. Agnico-Eagle Mines Ltd. Document No 1344. April 2012.
5. Golder (2012) – Draft – UPDATED WATER MANAGEMENT PLAN 2012 – May 2012Environnement Canada (2007) - Canadian Daily Climate Data (CDCD), ftp://arcdm20.tor.ec.gc.ca/pub/dist/CDCD/
6. Environnement Canada (2011a) - National Climate Data and Information Archive, http://climat.meteo.gc.ca/advanceSearch/searchHistoricData_f.html.
7. Fisheries and Environment Canada - Hydrological Atlas of Canada (1978).
8. Amec (2003) - Baseline Hydrology Study, AMEC Earth and Environmental, December 2003 and January 2007 errata sheets.
9. Amec (2005) - Cumberland Resources - Meadowbank Gold Project, Nunavut, Technical Report.
10. Environnement Canada (2011b) – IDF Station Locator, http://www.climate.weatheroffice.gc.ca/prods_servs/index_f.html
11. Agnico-Eagle (2012) - Mill Project Summary. Document number 6165 Fresh water reduction. Issued September 2012.
12. Agnico-Eagle (2012) – Life of Mine/LOM2012_20121019_v4b, received by email from Michel Groleau
13. SNC-Lavalin, Meadowbank Gold Project – GoldSim Model, November 2012
14. Nunnavut Water Board, Water Licence NO: 2AM-MEA0815, June 9 2008 to May 31 2015
15. Golder, Draft Water Management Plan (document in progress), May 2012

APPENDIX A1

MAPS

FIGURE A1-1 : GENERAL SITE LAYOUT



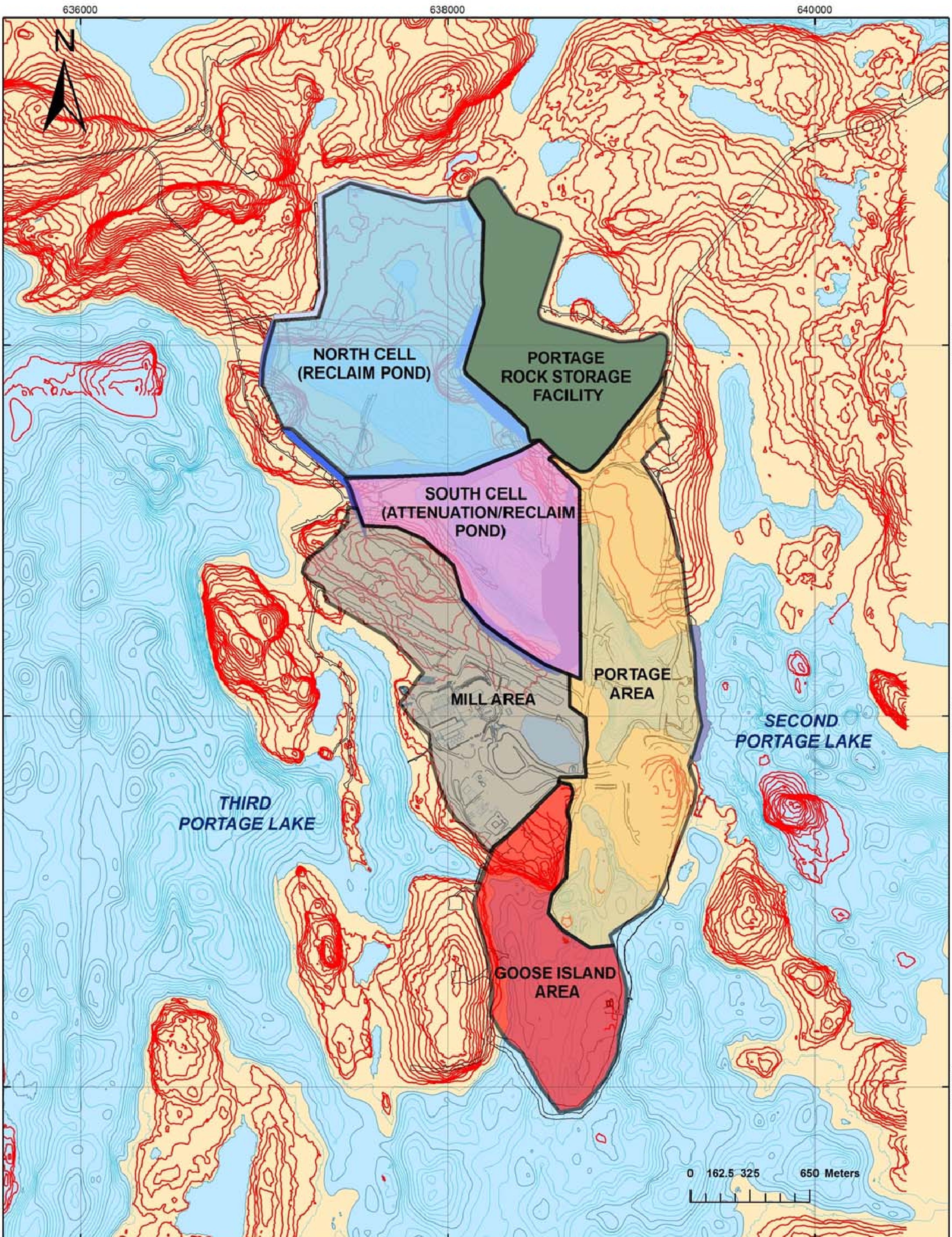
Notes	Projet / Project	Titre / Title
LEGEND PUMPING PLAN	**MEADOWBANK GOLD PROJECT**	**GENERAL SITE LAYOUT**

Client	Consultant	Échelle / Scale	No. projet / Project #
AEM AGNICO-EAGLE MINES LIMITED	Directeur de projet / Project Director: Patrick Scholz; Consultant: SNC·LAVALIN	1:30 000	610756

No.	aaaa/mm/jj yyyy/mm/dd	Description	Dessiné/Drawn	Vérifié/Verified

Envir01 :\PROJ\603737\Carto\Arcgis\1ProjetMXD\Rapport\Tome_2\Fig2-05_RoutesGNL.mxd

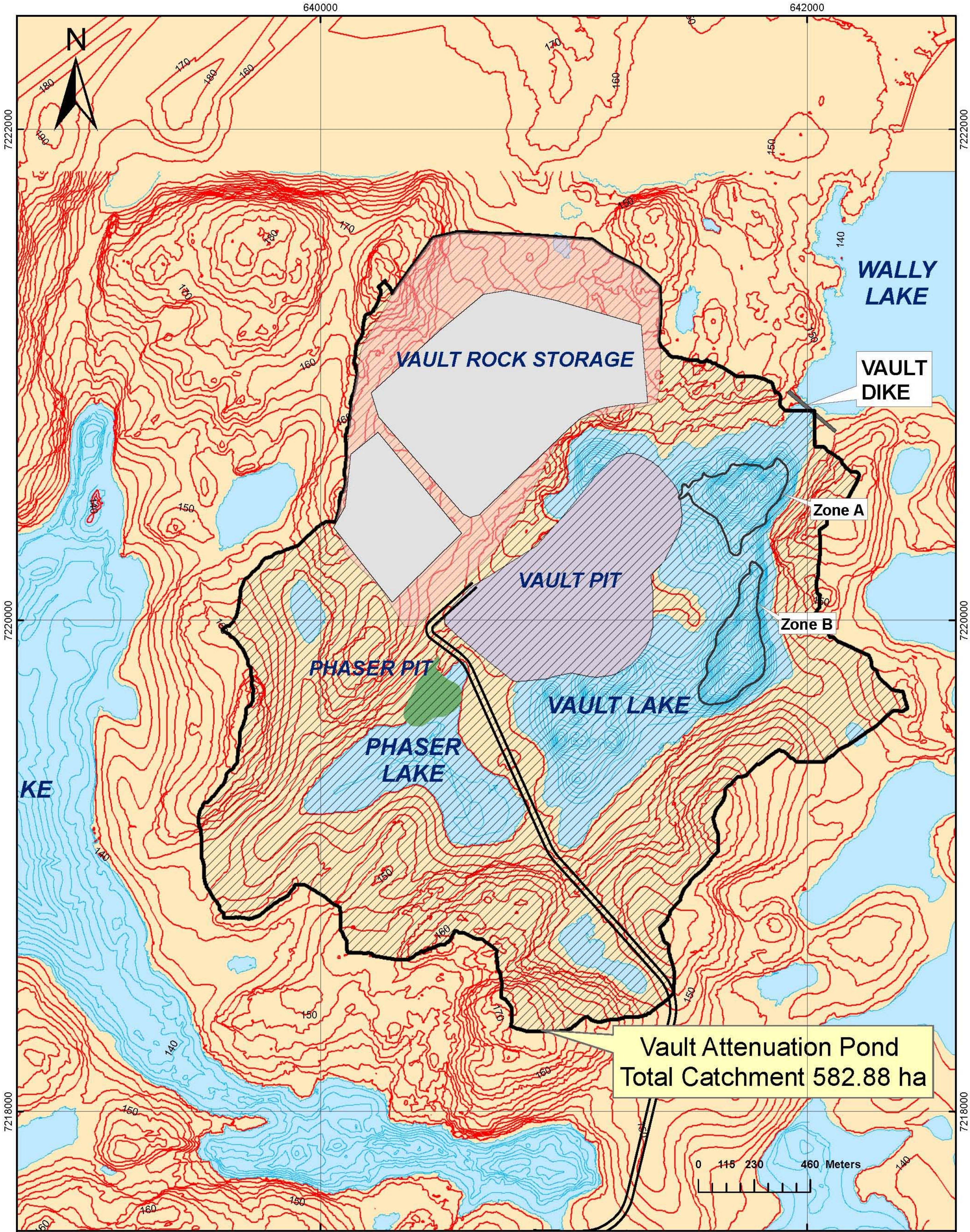
FIGURE A1-2 : PORTAGE AREA CATCHMENTS



Notes	Projet / Project	Titre / Title
	MEADOWBANK GOLD PROJECT	PORTAGE AREA CATCHMENTS
	Client: AEM AGNICO-EAGLE MINES LIMITED	Échelle / Scale: 1:20 000
	Consultant: Directeur de projet / Project Director: Patrick Scholz	No. projet / Project #: 610756
	Consultant: SNC·LAVALIN	YZ / MP
		No. / aaaa/mm/jj yyyy/mm/dd / Description / Dessiné/Drawn / Vérifié/Verified

Envir01 :\PROJ\603737\Carto\Arcgis\1ProjetMXD\Rapport\Tome_2\Fig2-05_RoutesGNL.mxd

FIGURE A1-3 : VAULT AREA CATCHMENTS



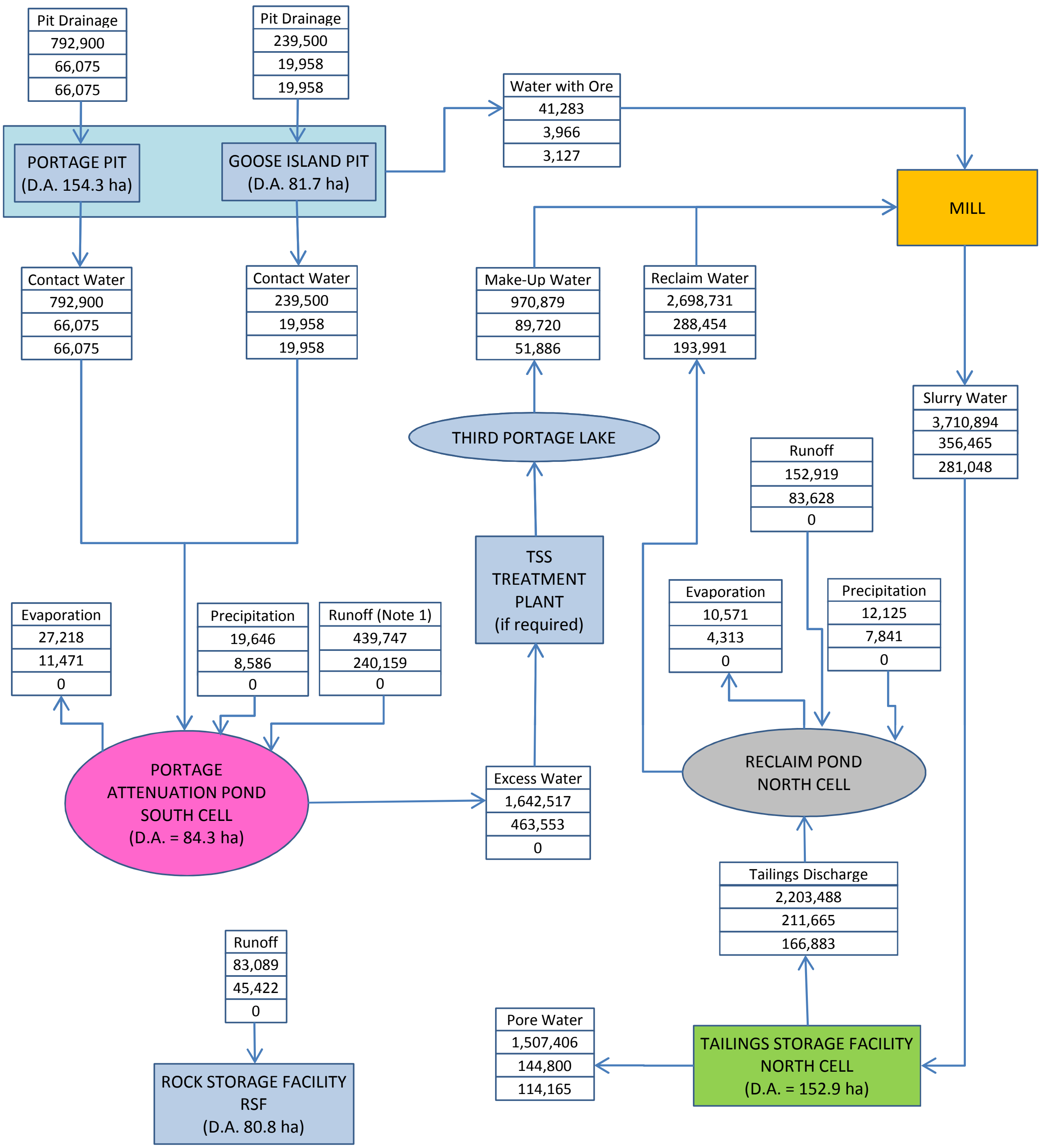
Notes	Projet / Project	Titre / Title
	MEADOWBANK GOLD PROJECT	VAULT AREA CATCHMENTS
	Client: AEM AGNICO-EAGLE MINES LIMITED	Échelle / Scale: 1:15 000
	Consultant — Directeur de projet / Project Director: Patrick Scholz	No. projet / Project #: 610756
	Consultant: SNC·LAVALIN	No. — aaaa/mm/jj yyyy/mm/dd — Description — Dessiné/Drawn — Vérifié/Verified

Envir01 :\PROJ\603737\Carto\Arcgis\1ProjetMXD\Rapport\Tome_2\Fig2-05_RoutesGNL.mxd

APPENDIX A2

WATER BALANCE SCHEMATICS

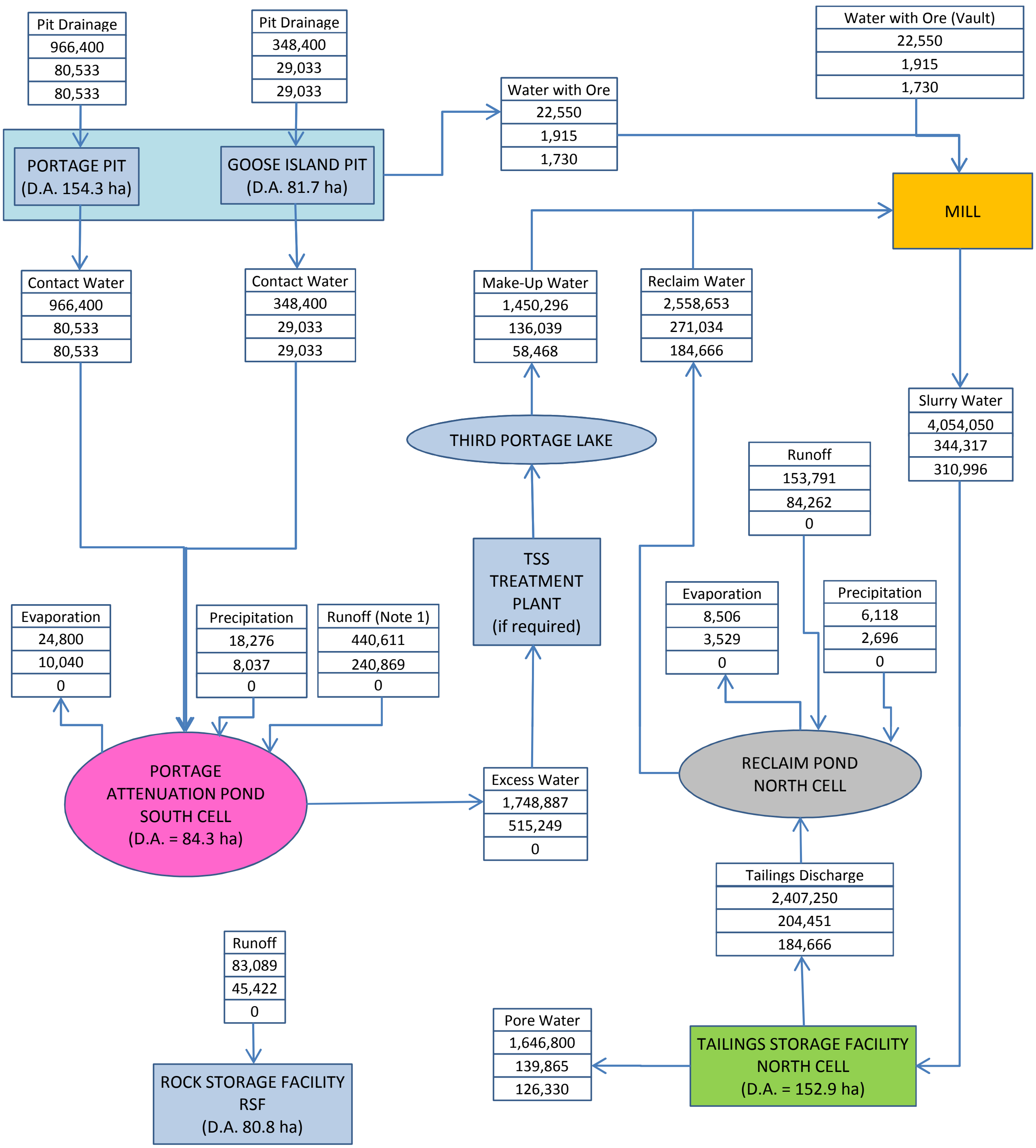
Figure A2-1
Phase 1 - Portage Area - 2013
Portage and Goose Pit Active



Legend	
Annual Total (m³)	100,000
Maximum Monthly Total (m³)	10,000
Minimum Monthly Total (m³)	0

Note 1 : Runoff to Attenuation pond includes the following areas : Portage and Goose Pit, Tear Drop Lake (Mill Area), South Cell for a total of 438.6 ha

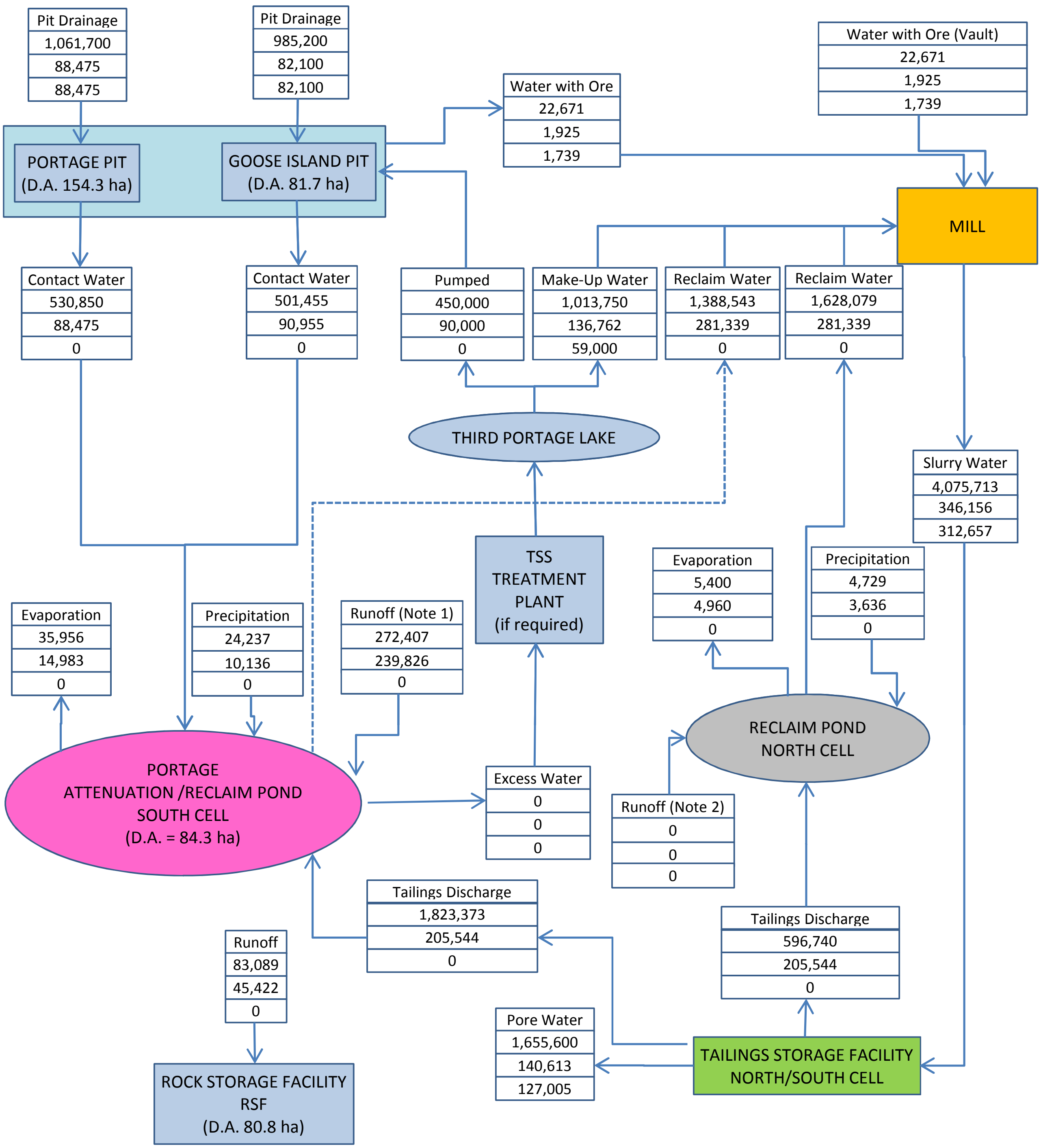
Figure A2-2
Phase 1 - Portage Area - 2014
Portage and Goose Pit Active



Note 1 : Runoff to Attenuation pond includes the following areas : Portage and Goose Pit, Tear Drop Lake (Mill Area), South Cell for a total of 438.6 ha

Legend	
Annual Total (m³)	100,000
Maximum Monthly Total (m³)	10,000
Minimum Monthly Total (m³)	0

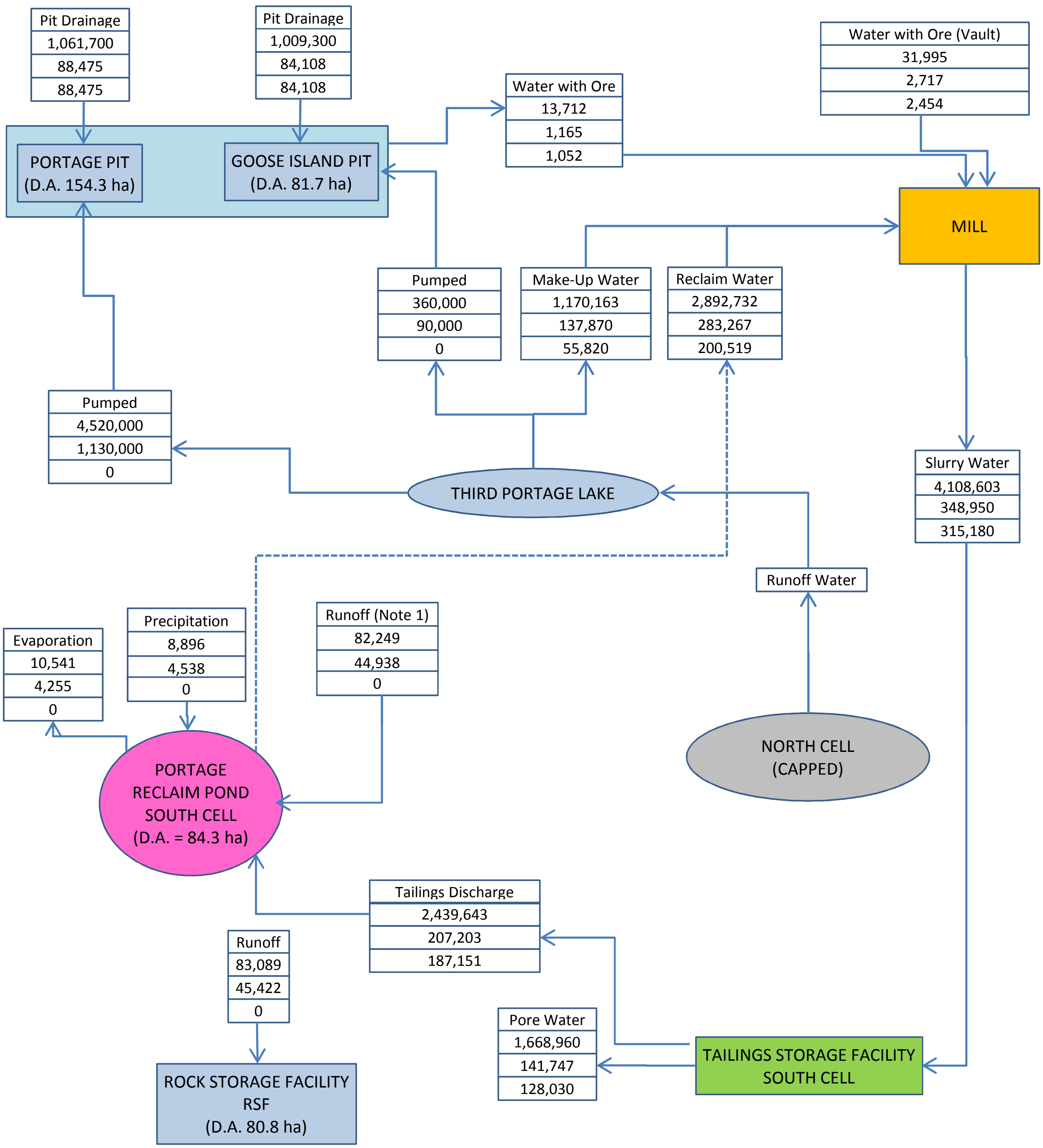
Figure A2-3
Phase 2 - Portage Area - 2015
Portage and Vault Pit Active



Note 1 : Runoff to Attenuation pond includes the following areas : Portage and Goose Pit, South Cell for a total of 320.3 ha. Mill area redirected to Goose pit
Note 2 : Following end of tailings deposition in North Cell it will be capped and runoff water will flow to Third Portage Lake

Legend	
Annual Total (m³)	100,000
Maximum Monthly Total (m³)	10,000
Minimum Monthly Total (m³)	0

Figure A2-4
Phase 3 - Portage Area - 2017
Portage and Vault Pit Active



Note 1 : Runoff to Attenuation pond includes the following areas : Portage and Goose Pit, South Cell for a total of 320.3 ha. Mill area redirected to Pits

Legend	
Annual Total (m³)	100,000
Maximum Monthly Total (m³)	10,000
Minimum Monthly Total (m³)	0

Figure A2-5
Phase 5 - Portage Area - 2025
Post Closure Concept

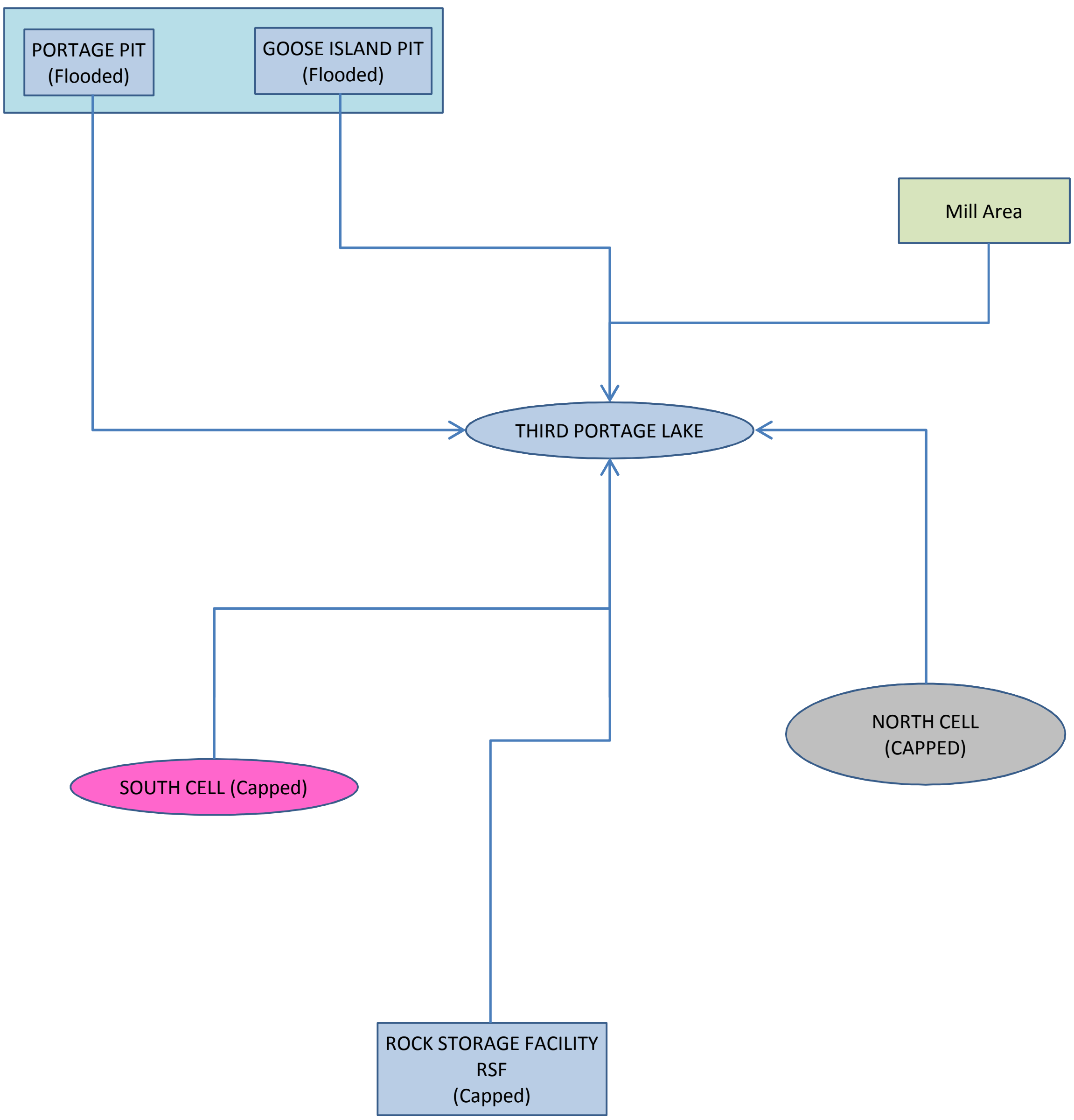
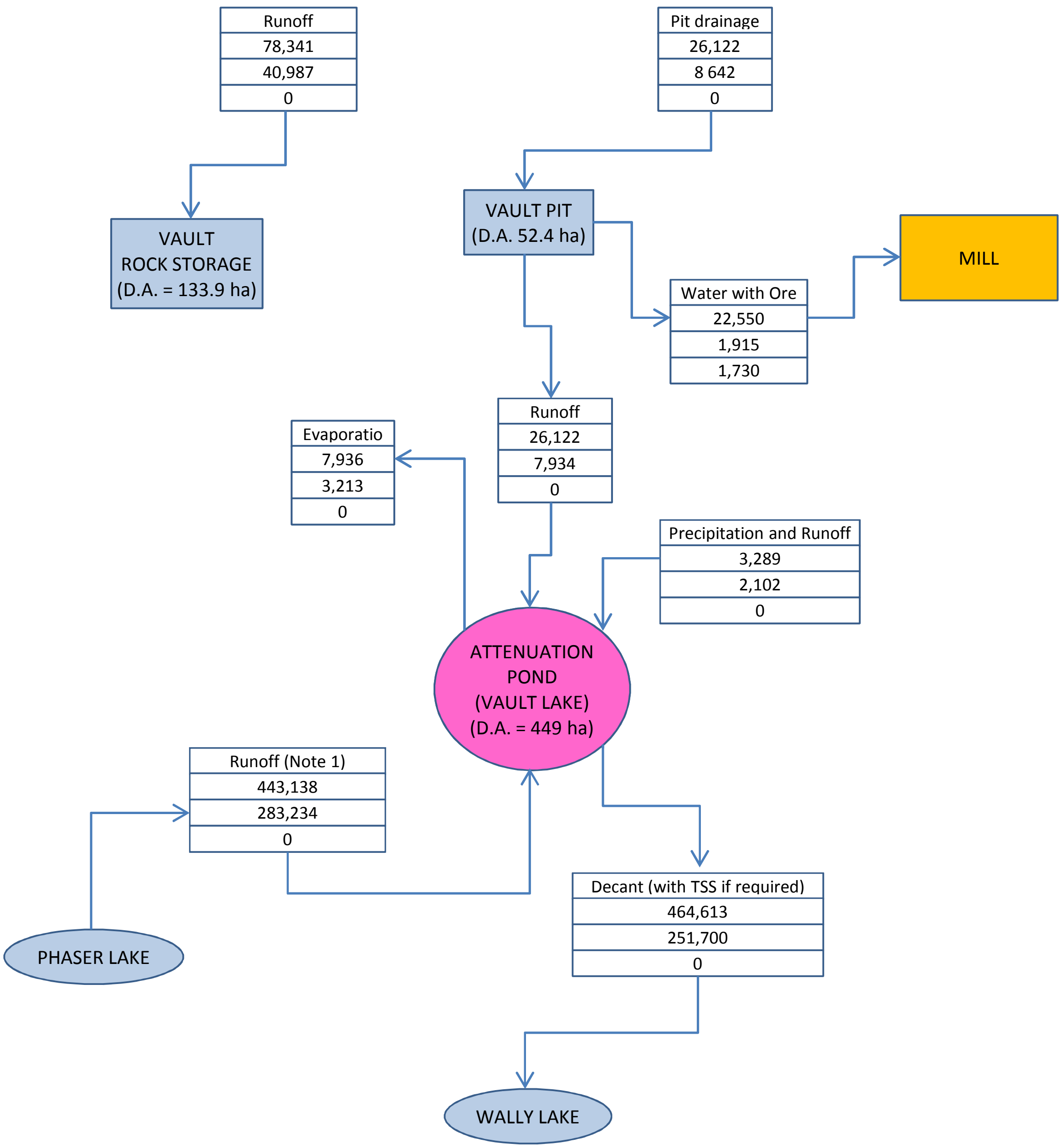


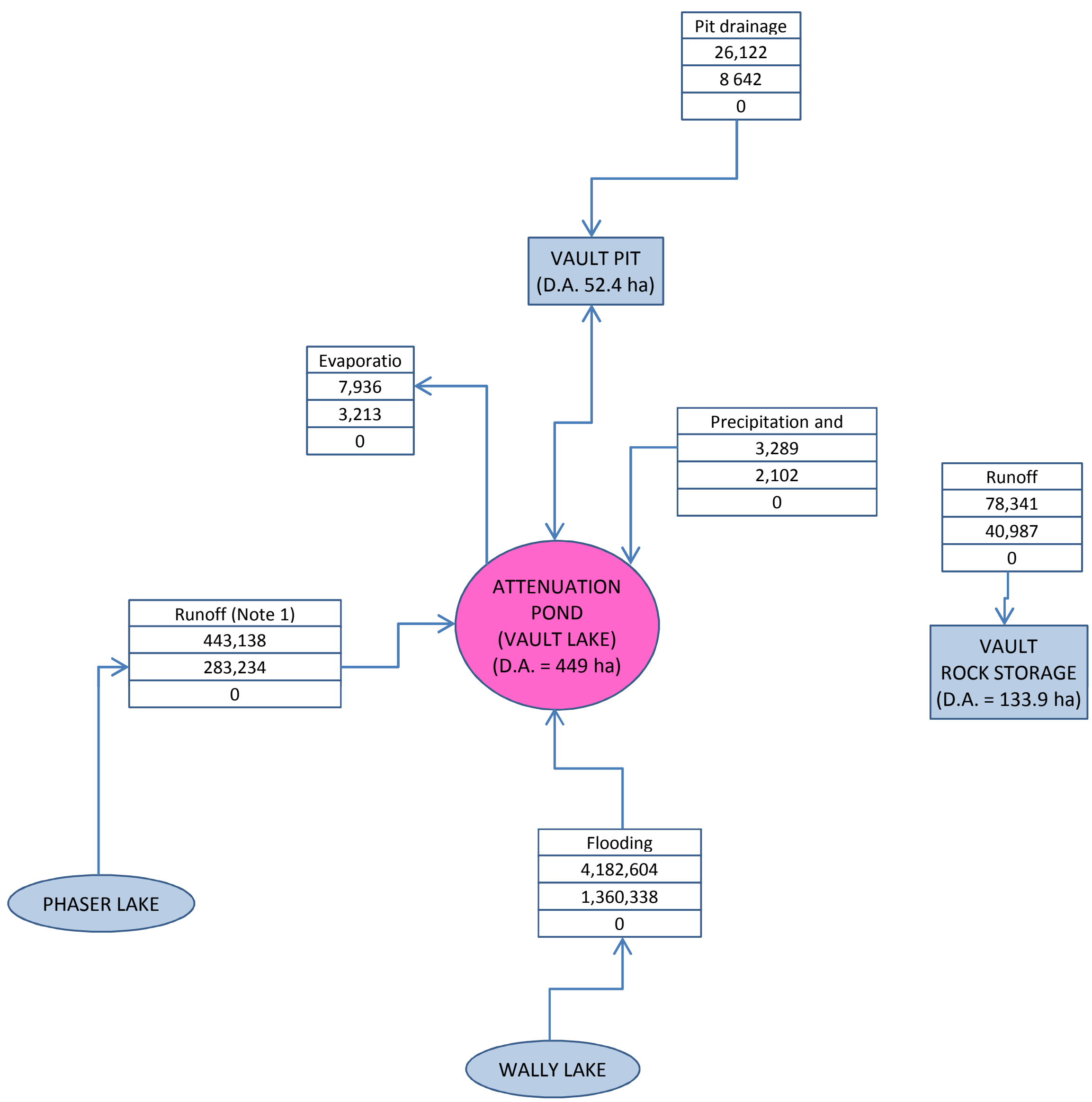
Figure A2-6
Phase 2 - Vault Area - 2014
Vault Pit Active



Note 1 : Runoff to Attenuation pond includes the Phaser lake area and all tributary areas for a total area of 449 ha

Legend	
Annual Total (m³)	100,000
Maximum Monthly Total (m³)	10,000
Minimum Monthly Total (m³)	0

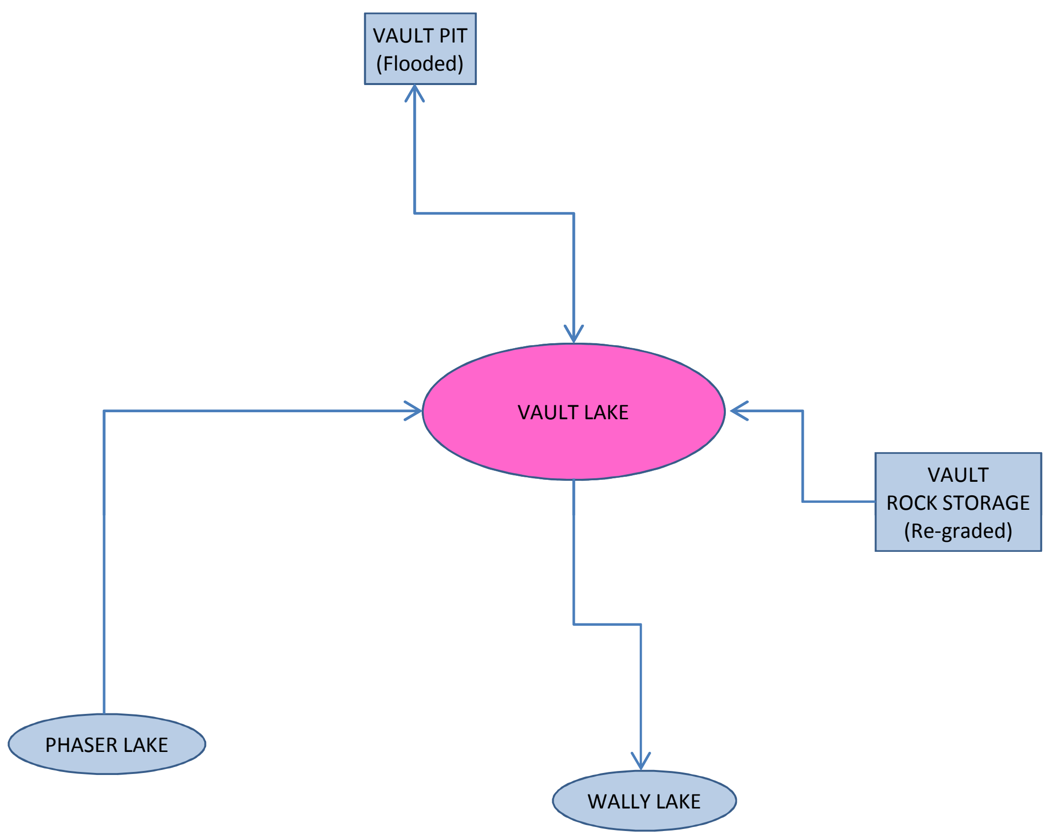
Figure A2-7
Phase 4 - Vault Area - 2018
Vault Pit Reflooding



Note 1 : Runoff to Attenuation pond includes the Phaser lake area and all tributary areas for a total area of 449 ha

Legend	
Annual Total (m^3)	100,000
Maximum Monthly Total (m^3)	10,000
Minimum Monthly Total (m^3)	0

Figure A2-8
Phase 5 - Vault Area - 2025
Vault Area - Post Closure



APPENDIX A3

WATER BALANCE
MONTHLY VALUES – 2012 to 2025

TABLE A3-1: YEAR 2012 (MONTHLY)

	Year 2012												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	29	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	305,096	285,412	305,096	295,254	305,096	295,254	305,096	325,096	310,254	358,860	316,000	362,000	**3,768,515**
Cumulative Tailings (tonnes):	5,036,143	5,321,555	5,626,651	5,921,906	6,227,002	6,522,256	6,827,352	7,152,448	7,462,702	7,821,562	8,137,562	8,499,562	
Cumulative Tailings (tonnes) - North Cell	5,036,143	5,321,555	5,626,651	5,921,906	6,227,002	6,522,256	6,827,352	7,152,448	7,462,702	7,821,562	8,137,562	8,499,562	
Cumulative Tailings (tonnes) - South Cell	0	0	0	0	0	0	0	0	0	0	0	0	
Processe rate (%)	116%	116%	116%	116%	116%	116%	116%	123%	122%	136%	124%	137%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	1,425,000	1,398,434	1,373,737	1,347,171	1,321,540	1,294,974	1,359,488	1,341,109	1,312,875	1,315,381	1,256,176	1,187,535	
Treated Sewage (m³)	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	28,927
Tributary area runoff (m³)	0	0	0	0	0	83,628	10,764	16,080	42,448	0	0	0	152,919
Water from tailings - drainage (m³)	178,393	166,883	178,393	172,638	178,393	172,638	178,393	190,087	181,409	209,829	184,768	211,665	2,203,488
Direct Precipitation on Pond (m³)	0	0	0	0	0	891	1,686	1,856	1,708	0	0	0	6,141
Snow and Ice melt on Pond (m³)	0	0	0	0	0	5,985	0	0	0	0	0	0	5,985
Total Inflow (m³)	180,803	169,294	180,803	175,049	180,803	265,552	193,253	210,434	227,975	212,240	187,179	214,075	**2,397,459**
Evaporation from pond (m³)	0	0	0	0	0	359	4,261	4,313	1,634	4	0	0	10,571
Reclaim water to mill (m³)	207,369	193,991	207,369	200,680	207,369	200,680	207,369	234,355	223,835	271,440	255,820	288,454	2,698,731
Total Outflow (m³)	207,369	193,991	207,369	200,680	207,369	201,039	211,631	238,668	225,469	271,444	255,820	288,454	**2,709,303**
Net Inflow (m³)	-26,566	-24,697	-26,566	-25,631	-26,566	64,513	-18,378	-28,234	2,505	-59,204	-68,642	-74,378	**-311,844**
Water Elevation (m)	139.5	139.7	140.0	140.2	140.4	140.7	141.2	141.4	141.7	142.0	142.2	142.3	
End-of-Month Volume (m³)	1,398,434	1,373,737	1,347,171	1,321,540	1,294,974	1,359,488	1,341,109	1,312,875	1,315,381	1,256,176	1,187,535	1,113,156	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	350,000	436,033	522,067	608,100	694,133	780,167	833,559	704,828	550,358	377,520	0	86,033	
Pumped From Goose Pit (m³)	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	239,500
Pumped from Portage pit (m³)	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	792,900
Tributary area runoff (m³)	0	0	0	0	0	240,159	30,934	46,295	122,358	0	0	0	439,747
Tailings storage Runoff and Seepage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	2,463	4,538	4,675	4,060	0	0	0	15,735
Snow and ice melt on Pond (m³)	0	0	0	0	0	3,911	0	0	0	0	0	0	3,911
Total Inflow (m³)	86,033	86,033	86,033	86,033	86,033	332,567	121,506	137,003	212,451	86,033	86,033	86,033	**1,491,793**
Evaporation (m³)	0	0	0	0	0	991	11,471	10,862	3,885	9	0	0	27,218
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m³)	0	0	0	0	0	278,183	238,766	280,610	381,405	463,553	0	0	1,642,517
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	279,175	250,237	291,473	385,289	463,562	0	0	**1,669,735**
Net Inflow (m³)	86,033	86,033	86,033	86,033	86,033	53,392	-128,731	-154,469	-172,839	-377,528	86,033	86,033	**-177,942**
End-of-Month Volume (m³)	436,033	522,067	608,100	694,133	780,167	833,559	704,828	550,358	377,520	0	86,033	172,067	
Pond Elevation (m):	101.8	102.7	103.7	104.5	105.4	106.1	106.6	105.5	104.0	102.1	97.8	97.9	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	386	321	377	530	623	0	0	
Mill													
Ore water (m³)	3,342	3,127	3,342	3,234	3,342	3,234	3,342	3,561	3,399	3,931	3,462	3,966	41,283
Reclaim water (m³)	207,369	193,991	207,369	200,680	207,369	200,680	207,369	234,355	223,835	271,440	255,820	288,454	2,698,731
Freshwater from Third Portage Lake (m³)	89,720	83,931	89,720	86,825	89,720	86,825	89,720	82,209	78,276	78,002	51,886	64,045	970,879
Total Inflow (m³)	300,431	281,048	300,431	290,740	300,431	290,740	300,431	320,125	305,510	353,373	311,168	356,465	**3,710,894**
Tailings transport water (Slurry water) (m³)	300,431	281,048	300,431	290,740	300,431	290,740	300,431	320,125	305,510	353,373	311,168	356,465	3,710,894
Total Outflow (m³):	300,431	281,048	300,431	290,740	300,431	290,740	300,431	320,125	305,510	353,373	311,168	356,465	**3,710,894**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	279	279	279	279	279	279	279	315	311	365	355	388	
Freshwater from Third Portage Lake (m³/hr)	121	121	121	121	121	121	121	110	109	105	72	86	

	Year 2012												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	300,431	281,048	300,431	290,740	300,431	290,740	300,431	320,125	305,510	353,373	311,168	356,465	3,710,894
Total Inflow (m³):	300,431	281,048	300,431	290,740	300,431	290,740	300,431	320,125	305,510	353,373	311,168	356,465	**3,710,894**
Void Losses = Pore Water: (m³)	122,038	114,165	122,038	118,102	122,038	118,102	122,038	130,038	124,102	143,544	126,400	144,800	1,507,406
Total Outflow (m³)	122,038	114,165	122,038	118,102	122,038	118,102	122,038	130,038	124,102	143,544	126,400	144,800	**1,507,406**
Net Inflow (m³)	178,393	166,883	178,393	172,638	178,393	172,638	178,393	190,087	181,409	209,829	184,768	211,665	**2,203,488**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	239,500
Pumped from Third Portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
From Portage pit during reflooding (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	**239,500**
Pumped to Attenuation/Reclaim (m³)	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	239,500
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	19,958	**239,500**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m³):	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	
Water Elevation (m)	11	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	
Pumped from the pit (m³/hr)	27	29	27	28	27	28	27	27	28	27	28	27	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	792,900
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	**792,900**
Pumped to Attenuation/Reclaim (m³)	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	792,900
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer to Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	66,075	**792,900**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m³):	0	0	0	0	0	0	0	0	0	0	0	0	
Water Elevation (m)	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	
Pumped from the pit (m³/hr)	89	95	89	92	89	92	89	89	92	89	92	89	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	249,266	249,266	249,266	249,266	249,266	294,688	300,543	309,290	332,355	332,355	332,355	332,355	**3,480,270**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	278,183	238,766	280,610	381,405	463,553	0	0	1,642,517
Total Inflow (m³):	0	0	0	0	0	278,183	238,766	280,610	381,405	463,553	0	0	**1,642,517**
Pumped from lake (m³)	89,720	83,931	89,720	86,825	89,720	86,825	89,720	82,209	78,276	78,002	51,886	64,045	970,879
Total Outflow (m³):	89,720	83,931	89,720	86,825	89,720	86,825	89,720	82,209	78,276	78,002	51,886	64,045	**970,879**
Net Inflow (m³):	-89,720	-83,931	-89,720	-86,825	-89,720	191,358	149,047	198,401	303,128	385,551	-51,886	-64,045	671,638
Pumped from Lake for Mill and Pitss flooding (m³/hr)	121	121	121	121	121	121	121	110	109	105	72	86	

	Year 2012												ANNUAL TOTAL
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Vault Attenuation Pond													
Attenuation Pond Volume (m^3)	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault pit Runoff and Seepage (drainage) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Direct Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m^3):	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	
Elevation (m):	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	
Pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3):	3	3	3	3	3	3	3	3	3	3	3	3	
Vault Open Pit													
Runoff on the pit (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**

TABLE A3-2: YEAR 2013 (MONTHLY)

	Year 2013												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	347,837	314,175	347,837	336,616	347,837	336,616	347,837	347,837	336,616	347,837	336,616	347,837	**4,095,500**
Cumulative Tailings (tonnes):	8,847,399	9,161,575	9,509,412	9,846,028	10,193,865	10,530,482	10,878,319	11,226,156	11,562,772	11,910,609	12,247,225	12,595,062	
Cumulative Tailings (tonnes) - North Cell	8,847,399	9,161,575	9,509,412	9,846,028	10,193,865	10,530,482	10,878,319	11,226,156	11,562,772	11,910,609	12,247,225	12,595,062	
Cumulative Tailings (tonnes) - South Cell	0	0	0	0	0	0	0	0	0	0	0	0	
Processe rate (%)	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%	
Reclaim Pond (North Cell)													
Pond Volume (m^3)	1,113,156	1,037,712	969,570	894,126	821,115	750,000	763,084	750,000	750,000	750,000	750,000	750,000	
Treated Sewage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m^3)	0	0	0	0	0	84,332	10,867	16,230	42,785	0	0	0	154,213
Water from tailings - drainage (m^3)	203,384	183,701	203,384	196,823	203,384	196,823	203,384	203,384	196,823	203,384	196,823	203,384	2,394,679
Direct Precipitation on Pond (m^3)	0	0	0	0	0	617	1,128	1,259	1,220	0	0	0	4,225
Snow and Ice melt on Pond (m^3)	0	0	0	0	0	1,394	0	0	0	0	0	0	1,394
Total Inflow (m^3)	203,384	183,701	203,384	196,823	203,384	283,166	215,378	220,873	240,828	203,384	196,823	203,384	**2,554,510**
Evaporation from pond (m^3)	0	0	0	0	0	248	2,851	2,926	1,168	3	0	0	7,196
Reclaim water to mill (m^3)	278,828	251,844	278,828	269,833	274,499	269,833	225,611	217,946	239,660	203,381	196,823	203,384	2,910,470
Total Outflow (m^3)	278,828	251,844	278,828	269,833	274,499	270,082	228,462	220,873	240,828	203,384	196,823	203,384	**2,917,666**
Net Inflow (m^3)	-75,444	-68,143	-75,444	-73,010	-71,115	13,084	-13,084	0	0	0	0	0	**-363,156**
Water Elevation (m)	142.4	142.5	142.7	142.8	143.0	143.1	143.4	143.6	143.8	144.0	144.3	144.5	
End-of-Month Volume (m^3)	1,037,712	969,570	894,126	821,115	750,000	763,084	750,000	750,000	750,000	750,000	750,000	750,000	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m^3)	172,067	281,633	391,200	500,767	610,333	719,900	806,088	703,050	565,507	396,806	-10	109,557	
Pumped From Goose Pit (m^3)	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	348,400
Pumped from Portage pit (m^3)	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	966,400
Tributary area runoff (m^3)	0	0	0	0	0	240,869	31,048	46,384	122,311	0	0	0	440,611
Tailings storage Runoff and Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m^3)	0	0	0	0	0	2,187	3,924	4,321	4,128	0	0	0	14,560
Snow and ice melt on Pond (m^3)	0	0	0	0	0	3,435	0	0	0	0	0	0	3,435
Total Inflow (m^3)	109,567	109,567	109,567	109,567	109,567	356,057	144,539	160,271	236,005	109,567	109,567	109,567	**1,773,405**
Evaporation (m^3)	0	0	0	0	0	880	9,920	10,040	3,950	10	0	0	24,800
Reclaim water to mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m^3)	0	0	0	0	0	268,989	237,657	287,774	400,756	506,373	0	0	1,701,549
To Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3)	0	0	0	0	0	269,869	247,577	297,814	404,706	506,383	0	0	**1,726,349**
Net Inflow (m^3)	109,567	109,567	109,567	109,567	109,567	86,188	-103,038	-137,542	-168,701	-396,816	109,567	109,567	**47,057**
End-of-Month Volume (m^3)	281,633	391,200	500,767	610,333	719,900	806,088	703,050	565,507	396,806	-10	109,557	219,123	
Pond Elevation (m):	99.4	100.9	102.2	103.4	104.6	105.6	106.4	105.4	104.1	102.3	97.8	98.3	
Pumping rate through TSS Facility (m^3/hr)	0	0	0	0	0	374	319	387	557	681	0	0	
Mill													
Ore water (m^3)	3,810	3,442	3,810	3,688	3,810	3,688	3,810	3,810	3,688	3,810	3,688	3,810	44,865
Reclaim water (m^3)	278,828	251,844	278,828	269,833	274,499	269,833	225,611	217,946	239,660	203,381	196,823	203,384	2,910,470
Freshwater from Third Portage Lake (m^3)	59,880	54,086	59,880	57,949	64,209	57,949	113,097	120,762	88,122	135,327	130,959	135,324	1,077,544
Total Inflow (m^3)	342,518	309,372	342,518	331,469	342,518	331,469	342,518	342,518	331,469	342,518	331,469	342,518	**4,032,879**
Tailings transport water (Slurry water) (m^3)	342,518	309,372	342,518	331,469	342,518	331,469	342,518	342,518	331,469	342,518	331,469	342,518	4,032,879
Total Outflow (m^3):	342,518	309,372	342,518	331,469	342,518	331,469	342,518	342,518	331,469	342,518	331,469	342,518	**4,032,879**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m^3/hr)	375	375	375	375	369	375	303	293	333	273	273	273	
Freshwater from Third Portage Lake (m^3/hr)	80	80	80	80	86	80	152	162	122	182	182	182	

	Year 2013												ANNUAL TOTAL
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m^3)	342,518	309,372	342,518	331,469	342,518	331,469	342,518	342,518	331,469	342,518	331,469	342,518	4,032,879
Total Inflow (m^3):	342,518	309,372	342,518	331,469	342,518	331,469	342,518	342,518	331,469	342,518	331,469	342,518	**4,032,879**
Void Losses = Pore Water: (m^3)	139,135	125,670	139,135	134,647	139,135	134,647	139,135	139,135	134,647	139,135	134,647	139,135	1,638,200
Total Outflow (m^3)	139,135	125,670	139,135	134,647	139,135	134,647	139,135	139,135	134,647	139,135	134,647	139,135	**1,638,200**
Net Inflow (m^3)	203,384	183,701	203,384	196,823	203,384	196,823	203,384	203,384	196,823	203,384	196,823	203,384	**2,394,679**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m^3)	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	348,400
Pumped from Third Portage lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
From Portage pit during reflooding (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	**348,400**
Pumped to Attenuation/Reclaim (m^3)	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	348,400
Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer to Portage pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	**348,400**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m^3):	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	
Water Elevation (m)	11	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	
Pumped from the pit (m^3/hr)	39	43	39	40	39	40	39	39	40	39	40	39	
Portage Pit													
Runoff and seepage (Pit drainage) (m^3)	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	966,400
Treated water from reclaim pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from Goose pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	**966,400**
Pumped to Attenuation/Reclaim (m^3)	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	966,400
Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer to Goose pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	**966,400**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m^3):	0	177,472	354,945	532,417	709,890	887,362	1,064,834	1,242,307	1,419,779	1,597,251	1,774,724	1,952,196	
Water Elevation (m)	-5.0	11.2	15.9	19.7	22.8	25.7	28.3	30.7	32.7	34.7	36.6	38.4	
Pumped from the pit (m^3/hr)	108	120	108	112	108	112	108	108	112	108	112	108	
Portage Rock Storage Facility													
Runoff from RSF (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m^3):	332,355	332,355	332,355	332,355	332,355	377,777	383,632	392,378	415,443	415,443	415,443	415,443	**4,477,334**
Third Portage Lake													
Decant - with TSS treatment (m^3)	0	0	0	0	0	268,989	237,657	287,774	400,756	506,373	0	0	1,701,549
Total Inflow (m^3):	0	0	0	0	0	268,989	237,657	287,774	400,756	506,373	0	0	**1,701,549**
Pumped from lake (m^3)	59,880	54,086	59,880	57,949	64,209	57,949	113,097	120,762	88,122	135,327	130,959	135,324	1,077,544
Total Outflow (m^3):	59,880	54,086	59,880	57,949	64,209	57,949	113,097	120,762	88,122	135,327	130,959	135,324	**1,077,544**
Net Inflow (m^3):	-59,880	-54,086	-59,880	-57,949	-64,209	211,040	124,560	167,012	312,634	371,046	-130,959	-135,324	624,005
Pumped from Lake for Mill and Pitss flooding (m^3/hr)	80	80	80	80	86	80	152	162	122	182	182	182	

	Year 2013												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	904,088	190,345	13	13	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Direct Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m³)	0	0	0	0	0	0	0	1,356,112	0	0	0	0	1,356,112
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	0	0	0	713,743	190,332	0	0	904,075
Total Outflow (m³):	0	0	0	0	0	0	0	1,356,112	713,743	190,332	0	0	**2,260,187**
Net Inflow (m³):	0	0	0	0	0	0	0	-1,356,112	-713,743	-190,332	0	0	-2,260,187
End-of-Month Volume (m³):	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	2,260,200	904,088	190,345	13	13	13	
Elevation (m):	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	137.3	134.1	129.2	129.2	
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³):	4	4	4	4	4	4	4	4	4	4	4	4	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	0	0	0	713,743	190,332	0	0	904,075
Total Inflow (m³):	0	0	0	0	0	0	0	0	713,743	190,332	0	0	**904,075**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m³):	0	0	0	0	0	0	0	0	713,743	190,332	0	0	**904,075**

TABLE A3-3: YEAR 2014 (MONTHLY)

	Year 2014												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	349,663	315,825	349,663	338,384	349,663	338,384	349,663	349,663	338,384	349,663	338,384	349,663	**4,117,000**
Cumulative Tailings (tonnes):	12,944,725	13,260,550	13,610,213	13,948,597	14,298,260	14,636,643	14,986,306	15,335,969	15,674,353	16,024,016	16,362,399	16,712,062	
Cumulative Tailings (tonnes) - North Cell	12,944,725	13,260,550	13,610,213	13,948,597	14,298,260	14,636,643	14,986,306	15,335,969	15,674,353	16,024,016	16,362,399	16,712,062	
Cumulative Tailings (tonnes) - South Cell	0	0	0	0	0	0	0	0	0	0	0	0	
Processe rate (%)	133%	133%	133%	133%	133%	133%	133%	133%	133%	133%	133%	133%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	750,000	750,000	750,000	750,000	750,000	750,000	762,565	750,000	750,000	750,000	750,000	750,000	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	84,262	10,842	16,165	42,522	0	0	0	153,791
Water from tailings - drainage (m³)	204,451	184,666	204,451	197,856	204,451	197,856	204,451	204,451	197,856	204,451	197,856	204,451	2,407,250
Direct Precipitation on Pond (m³)	0	0	0	0	0	644	1,259	1,519	1,600	0	0	0	5,022
Snow and Ice melt on Pond (m³)	0	0	0	0	0	1,096	0	0	0	0	0	0	1,096
Total Inflow (m³)	204,451	184,666	204,451	197,856	204,451	283,859	216,553	222,135	241,978	204,451	197,856	204,451	**2,567,159**
Evaporation from pond (m³)	0	0	0	0	0	259	3,183	3,529	1,531	4	0	0	8,506
Reclaim water to mill (m³)	204,451	184,666	204,451	197,856	204,451	271,034	225,935	218,606	240,447	204,447	197,856	204,451	2,558,653
Total Outflow (m³)	204,451	184,666	204,451	197,856	204,451	271,294	229,118	222,135	241,978	204,451	197,856	204,451	**2,567,159**
Net Inflow (m³)	0	0	0	0	0	12,565	-12,565	0	0	0	0	0	**0**
Water Elevation (m)	144.6	144.8	145.0	145.2	145.4	145.6	146.0	146.2	146.5	146.8	146.9	147.0	
End-of-Month Volume (m³)	750,000	750,000	750,000	750,000	750,000	762,565	750,000	750,000	750,000	750,000	750,000	750,000	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	219,123	328,690	438,257	547,823	657,390	766,957	841,592	729,678	583,259	405,682	-10	109,557	
Pumped From Goose Pit (m³)	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	348,400
Pumped from Portage pit (m³)	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	966,400
Tributary area runoff (m³)	0	0	0	0	0	240,869	31,048	46,384	122,311	0	0	0	440,611
Tailings storage Runoff and Seepage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	2,187	3,924	4,321	4,128	0	0	0	14,560
Snow and ice melt on Pond (m³)	0	0	0	0	0	3,717	0	0	0	0	0	0	3,717
Total Inflow (m³)	109,567	109,567	109,567	109,567	109,567	356,339	144,539	160,271	236,005	109,567	109,567	109,567	**1,773,687**
Evaporation (m³)	0	0	0	0	0	880	9,920	10,040	3,950	10	0	0	24,800
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m³)	0	0	0	0	0	280,824	246,533	296,650	409,632	515,249	0	0	1,748,887
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	281,704	256,453	306,690	413,582	515,259	0	0	**1,773,687**
Net Inflow (m³)	109,567	109,567	109,567	109,567	109,567	74,635	-111,914	-146,418	-177,577	-405,692	109,567	109,567	**0**
End-of-Month Volume (m³)	328,690	438,257	547,823	657,390	766,957	841,592	729,678	583,259	405,682	-10	109,557	219,123	
Pond Elevation (m):	100.1	101.5	102.8	103.9	105.0	106.0	106.7	105.7	104.3	102.4	97.8	98.3	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	390	331	399	569	693	0	0	
Mill													
Ore water (m³)	3,830	3,460	3,830	3,707	3,830	3,707	3,830	3,830	3,707	3,830	3,707	3,830	45,100
Reclaim water (m³)	204,451	184,666	204,451	197,856	204,451	271,034	225,935	218,606	240,447	204,447	197,856	204,451	2,558,653
Freshwater from Third Portage Lake (m³)	136,035	122,870	136,035	131,647	136,035	58,468	114,551	121,880	89,055	136,039	131,647	136,035	1,450,296
Total Inflow (m³)	344,317	310,996	344,317	333,210	344,317	333,210	344,317	344,317	333,210	344,317	333,210	344,317	**4,054,050**
Tailings transport water (Slurry water) (m³)	344,317	310,996	344,317	333,210	344,317	333,210	344,317	344,317	333,210	344,317	333,210	344,317	4,054,050
Total Outflow (m³):	344,317	310,996	344,317	333,210	344,317	333,210	344,317	344,317	333,210	344,317	333,210	344,317	**4,054,050**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	275	275	275	275	275	376	304	294	334	275	275	275	
Freshwater from Third Portage Lake (m³/hr)	183	183	183	183	183	81	154	164	124	183	183	183	

	Year 2014												ANNUAL TOTAL
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m^3)	344,317	310,996	344,317	333,210	344,317	333,210	344,317	344,317	333,210	344,317	333,210	344,317	4,054,050
Total Inflow (m^3):	344,317	310,996	344,317	333,210	344,317	333,210	344,317	344,317	333,210	344,317	333,210	344,317	**4,054,050**
Void Losses = Pore Water: (m^3)	139,865	126,330	139,865	135,353	139,865	135,353	139,865	139,865	135,353	139,865	135,353	139,865	1,646,800
Total Outflow (m^3)	139,865	126,330	139,865	135,353	139,865	135,353	139,865	139,865	135,353	139,865	135,353	139,865	**1,646,800**
Net Inflow (m^3)	204,451	184,666	204,451	197,856	204,451	197,856	204,451	204,451	197,856	204,451	197,856	204,451	**2,407,250**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m^3)	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	348,400
Pumped from Third Portage lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
From Portage pit during reflooding (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	**348,400**
Pumped to Attenuation/Reclaim (m^3)	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	348,400
Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer to Portage pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	29,033	**348,400**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m^3):	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	119,750	
Water Elevation (m)	11	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	
Pumped from the pit (m^3/hr)	39	43	39	40	39	40	39	39	40	39	40	39	
Portage Pit													
Runoff and seepage (Pit drainage) (m^3)	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	966,400
Treated water from reclaim pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from Goose pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	**966,400**
Pumped to Attenuation/Reclaim (m^3)	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	966,400
Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer to Goose pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	80,533	**966,400**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m^3):	2,129,669	2,307,141	2,484,613	2,662,086	2,839,558	3,017,031	3,194,503	3,371,975	3,549,448	3,726,920	3,904,392	4,081,865	
Water Elevation (m)	40.1	41.7	43.3	44.8	46.2	47.6	49.0	50.3	51.4	52.5	53.5	54.6	
Pumped from the pit (m^3/hr)	108	120	108	112	108	112	108	108	112	108	112	108	
Portage Rock Storage Facility													
Runoff from RSF (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m^3):	415,443	415,443	415,443	415,443	415,443	460,865	466,720	475,467	498,532	498,532	498,532	498,532	**5,474,398**
Third Portage Lake													
Decant - with TSS treatment (m^3)	0	0	0	0	0	280,824	246,533	296,650	409,632	515,249	0	0	1,748,887
Total Inflow (m^3):	0	0	0	0	0	280,824	246,533	296,650	409,632	515,249	0	0	**1,748,887**
Pumped from lake (m^3)	136,035	122,870	136,035	131,647	136,035	58,468	114,551	121,880	89,055	136,039	131,647	136,035	1,450,296
Total Outflow (m^3):	136,035	122,870	136,035	131,647	136,035	58,468	114,551	121,880	89,055	136,039	131,647	136,035	**1,450,296**
Net Inflow (m^3):	-136,035	-122,870	-136,035	-131,647	-136,035	222,355	131,981	174,770	320,577	379,210	-131,647	-136,035	298,591
Pumped from Lake for Mill and Pitss flooding (m^3/hr)	183	183	183	183	183	81	154	164	124	183	183	183	

	Year 2014												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Vault Attenuation Pond													
Attenuation Pond Volume (m^3)	13	13	13	13	13	13	13	13	13	13	13	13	
Attenuation Pond area (ha)	3	3	3	3	3	3	3	3	3	3	3	3	
Tributary area (ha)	431	431	431	431	431	431	431	431	431	431	431	431	
Vault pit Runoff and Seepage (drainage) (m^3)	0	0	0	0	0	7,934	5,769	6,352	6,068	0	0	0	26,122
Other area runoff (m^3)	0	0	0	0	0	82,029	31,226	46,650	123,012	0	0	0	282,917
Snow and ice melt on other area (m^3)	0	0	0	0	0	160,221	0	0	0	0	0	0	160,221
Direct Precipitation (m^3)	0	0	0	0	0	609	232	346	913	0	0	0	2,100
Direct (Snow and ice melt) (m^3)	0	0	0	0	0	1,189	0	0	0	0	0	0	1,189
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	251,982	37,226	53,348	129,993	0	0	0	**472,549**
Direct Evaporation (m^3)	0	0	0	0	0	282	3,174	3,213	1,264	3	0	0	7,936
Dewatering (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m^3)	0	0	0	0	0	251,700	34,052	50,135	128,729	-3	0	0	464,613
Total Outflow (m^3):	0	0	0	0	0	251,982	37,226	53,348	129,993	0	0	0	**472,549**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m^3):	13	13	13	13	13	13	13	13	13	13	13	13	
Elevation (m):	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	
Pumping rate (m^3/hr)	0	0	0	0	0	1,042	341	343	338	298	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m^3):	0	0	0	0	0	15,253	5,806	8,674	22,873	0	0	0	52,607
Snow and ice melt (m^3):	0	0	0	0	0	25,734	0	0	0	0	0	0	25,734
Total Inflow (m^3):	0	0	0	0	0	40,987	5,806	8,674	22,873	0	0	0	**78,341**
Net Inflow (m^3):	0	0	0	0	0	40,987	5,806	8,674	22,873	0	0	0	**78,341**
End-of-Month Volume (m^3):	5	5	5	5	5	40,992	46,798	55,472	78,346	78,346	78,346	78,346	
Vault Open Pit													
Runoff on the pit (m^3):	0	0	0	0	0	3,214	5,769	6,352	6,068	0	0	0	21,402
Snowmelt on the pit (m^3):	0	0	0	0	0	4,719	0	0	0	0	0	0	4,719
Total Inflow (m^3):	0	0	0	0	0	7,934	5,769	6,352	6,068	0	0	0	**26,122**
Pumped to Attenuation pond (m^3)	0	0	0	0	0	7,934	5,769	6,352	6,068	0	0	0	26,122
Total Outflow (m^3):	0	0	0	0	0	7,934	5,769	6,352	6,068	0	0	0	**26,122**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m^3/hr)	0	0	0	0	0	11	8	9	8	0	0	0	
Wally Lake													
Decant from attenuation pond (m^3)	0	0	0	0	0	251,700	34,052	50,135	128,729	-3	0	0	464,613
Total Inflow (m^3):	0	0	0	0	0	251,700	34,052	50,135	128,729	-3	0	0	**464,613**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3):	0	0	0	0	0	251,700	34,052	50,135	128,729	-3	0	0	**464,613**

TABLE A3-4: YEAR 2015 (MONTHLY)

	Year 2015												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	351,532	317,512	351,532	340,192	351,532	340,192	351,532	351,532	340,192	351,532	340,192	351,532	**4,139,000**
Cumulative Tailings (tonnes):	17,063,594	17,381,106	17,732,638	18,072,830	18,424,361	18,764,553	19,116,084	19,467,616	19,807,808	20,159,339	20,499,531	20,851,062	
Cumulative Tailings (tonnes) - North Cell	17,063,594	17,381,106	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	0	0	0	340,192	691,723	1,031,915	1,383,447	1,734,978	2,075,170	2,426,701	2,766,893	3,118,425	
Processe rate (%)	133%	133%	133%	133%	133%	133%	133%	133%	133%	133%	133%	133%	
Reclaim Pond (North Cell)													
Pond Volume (m^3)	750,000	750,000	750,000	750,000	500,000	250,000	2,327	0	0	0	0	0	
Treated Sewage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m^3)	205,544	185,653	205,544	0	0	0	0	0	0	0	0	0	596,740
Direct Precipitation on Pond (m^3)	0	0	0	0	0	1,093	1,962	0	0	0	0	0	3,056
Snow and Ice melt on Pond (m^3)	0	0	0	0	0	1,674	0	0	0	0	0	0	1,674
Total Inflow (m^3)	205,544	185,653	205,544	0	0	2,767	1,962	0	0	0	0	0	**601,470**
Evaporation from pond (m^3)	0	0	0	0	0	440	4,960	0	0	0	0	0	5,400
Reclaim water to mill (m^3)	205,544	185,653	205,544	250,000	250,000	250,000	281,339	0	0	0	0	0	1,628,079
Total Outflow (m^3)	205,544	185,653	205,544	250,000	250,000	250,440	286,299	0	0	0	0	0	**1,633,479**
Net Inflow (m^3)	0	0	0	-250,000	-250,000	-247,673	-284,337	0	0	0	0	0	**-1,032,009**
Water Elevation (m)	147.1	147.2	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m^3)	750,000	750,000	750,000	500,000	250,000	2,327	-282,009	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m^3)	219,123	389,698	560,273	730,848	1,100,337	1,476,456	2,099,862	2,301,807	2,224,983	2,171,900	2,096,091	2,022,741	
Pumped From Goose Pit (m^3)	82,100	82,100	82,100	82,100	82,100	90,955	0	0	0	0	0	0	501,455
Pumped from Portage pit (m^3)	88,475	88,475	88,475	88,475	88,475	88,475	0	0	0	0	0	0	530,850
Tributary area runoff (m^3)	0	0	0	0	0	239,826	5,059	7,506	20,015	0	0	0	272,407
Tailings storage Runoff and Seepage (m^3)	0	0	0	198,913	205,544	198,913	205,544	205,544	198,913	205,544	198,913	205,544	1,823,373
Direct Precipitation on Pond (m^3)	0	0	0	0	0	2,593	5,667	6,448	5,841	0	0	0	20,549
Snow and ice melt on Pond (m^3)	0	0	0	0	0	3,688	0	0	0	0	0	0	3,688
Total Inflow (m^3)	170,575	170,575	170,575	369,488	376,119	624,450	216,271	219,499	224,769	205,544	198,913	205,544	**3,152,322**
Evaporation (m^3)	0	0	0	0	0	1,043	14,326	14,983	5,589	14	0	0	35,956
Reclaim water to mill (m^3)	0	0	0	0	0	0	0	281,339	272,263	281,339	272,263	281,339	1,388,543
Decant - TSS to Third Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3)	0	0	0	0	0	1,043	14,326	296,322	277,853	281,352	272,263	281,339	**1,424,498**
Net Inflow (m^3)	170,575	170,575	170,575	369,488	376,119	623,406	201,945	-76,823	-53,084	-75,808	-73,350	-75,795	**1,727,823**
End-of-Month Volume (m^3)	389,698	560,273	730,848	1,100,337	1,476,456	2,099,862	2,301,807	2,224,983	2,171,900	2,096,091	2,022,741	1,946,947	
Pond Elevation (m):	100.1	102.2	104.1	108.0	112.6	116.4	120.9	123.0	123.7	124.6	125.4	126.1	
Pumping rate through TSS Facility (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m^3)	3,851	3,478	3,851	3,727	3,851	3,727	3,851	3,851	3,727	3,851	3,727	3,851	45,341
Reclaim water (m^3)	205,544	185,653	205,544	250,000	250,000	250,000	281,339	281,339	272,263	281,339	272,263	281,339	3,016,622
Freshwater from Third Portage Lake (m^3)	136,762	123,527	136,762	81,263	92,306	81,263	60,967	60,967	59,000	60,967	59,000	60,967	1,013,750
Total Inflow (m^3)	346,156	312,657	346,156	334,990	346,156	334,990	346,156	346,156	334,990	346,156	334,990	346,156	**4,075,713**
Tailings transport water (Slurry water) (m^3)	346,156	312,657	346,156	334,990	346,156	334,990	346,156	346,156	334,990	346,156	334,990	346,156	4,075,713
Total Outflow (m^3):	346,156	312,657	346,156	334,990	346,156	334,990	346,156	346,156	334,990	346,156	334,990	346,156	**4,075,713**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m^3/hr)	276	276	276	347	336	347	378	378	378	378	378	378	
Freshwater from Third Portage Lake (m^3/hr)	184	184	184	113	124	113	82	82	82	82	82	82	

	Year 2015												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	346,156	312,657	346,156	334,990	346,156	334,990	346,156	346,156	334,990	346,156	334,990	346,156	4,075,713
Total Inflow (m³):	346,156	312,657	346,156	334,990	346,156	334,990	346,156	346,156	334,990	346,156	334,990	346,156	**4,075,713**
Void Losses = Pore Water: (m³)	140,613	127,005	140,613	136,077	140,613	136,077	140,613	140,613	136,077	140,613	136,077	140,613	1,655,600
Total Outflow (m³)	140,613	127,005	140,613	136,077	140,613	136,077	140,613	140,613	136,077	140,613	136,077	140,613	**1,655,600**
Net Inflow (m³)	205,544	185,653	205,544	198,913	205,544	198,913	205,544	205,544	198,913	205,544	198,913	205,544	**2,420,113**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	985,200
Pumped from Third Portage lake (m³)	0	0	0	0	0	0	90,000	90,000	90,000	90,000	90,000	0	450,000
From Portage pit during reflooding (m³)	0	0	0	0	0	0	88,475	88,475	88,475	88,475	88,475	88,475	530,850
Total Inflow (m³):	82,100	82,100	82,100	82,100	82,100	90,955	292,128	305,401	367,878	260,575	260,575	170,575	**2,158,587**
Pumped to Attenuation/Reclaim (m³)	82,100	82,100	82,100	82,100	82,100	90,955	0	0	0	0	0	0	501,455
Evaporation (m³)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	82,100	82,100	82,100	82,100	82,100	92,275	14,880	15,060	5,925	15	0	0	**538,655**
Net Inflow (m³):	0	0	0	0	0	-1,320	277,248	290,341	361,953	260,560	260,575	170,575	1,619,932
End-of-Month Volume (m³):	119,750	119,750	119,750	119,750	119,750	118,430	395,678	686,019	1,047,972	1,308,532	1,569,107	1,739,682	
Water Elevation (m)	11	11.2	11.2	11.2	11.2	11.1	25.0	33.9	42.9	48.4	53.1	55.9	
Pumped from the pit (m³/hr)	110	122	110	114	110	126	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	1,061,700
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	**1,061,700**
Pumped to Attenuation/Reclaim (m³)	88,475	88,475	88,475	88,475	88,475	88,475	0	0	0	0	0	0	530,850
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer to Goose pit (m³)	0	0	0	0	0	0	88,475	88,475	88,475	88,475	88,475	88,475	530,850
Total Outflow (m³):	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	**1,061,700**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m³):	4,259,337	4,436,810	4,614,282	4,791,754	4,969,227	5,146,699	5,324,172	5,501,644	5,679,116	5,856,589	6,034,061	6,211,533	
Water Elevation (m)	55.5	56.5	57.4	58.3	59.2	60.0	60.9	61.7	62.5	63.4	64.2	65.0	
Pumped from the pit (m³/hr)	119	132	119	123	119	123	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	498,532	498,532	498,532	498,532	498,532	543,954	549,809	558,556	581,621	581,621	581,621	581,621	**6,471,462**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	136,762	123,527	136,762	81,263	92,306	81,263	150,967	150,967	149,000	150,967	149,000	60,967	1,463,750
Total Outflow (m³):	136,762	123,527	136,762	81,263	92,306	81,263	150,967	150,967	149,000	150,967	149,000	60,967	**1,463,750**
Net Inflow (m³):	-136,762	-123,527	-136,762	-81,263	-92,306	-81,263	-150,967	-150,967	-149,000	-150,967	-149,000	-60,967	-1,463,750
Pumped from Lake for Mill and Pitss flooding (m³/hr)	184	184	184	113	124	113	203	203	207	203	207	82	

	Year 2015												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	13	13	13	13	13	13	13	13	13	13	13	13	
Attenuation Pond area (ha)	3	3	3	3	3	3	3	3	3	3	3	3	
Tributary area (ha)	431	431	431	431	431	431	431	431	431	431	431	431	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	7,934	5,769	6,352	6,068	0	0	0	26,122
Other area runoff (m³)	0	0	0	0	0	82,029	31,226	46,650	123,012	0	0	0	282,917
Snow and ice melt on other area (m³)	0	0	0	0	0	160,221	0	0	0	0	0	0	160,221
Direct Precipitation (m³)	0	0	0	0	0	609	232	346	913	0	0	0	2,100
Direct (Snow and ice melt) (m³)	0	0	0	0	0	1,189	0	0	0	0	0	0	1,189
Pumped from Wally Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	251,982	37,226	53,348	129,993	0	0	0	**472,549**
Direct Evaporation (m³)	0	0	0	0	0	282	3,174	3,213	1,264	3	0	0	7,936
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	251,700	34,052	50,135	128,729	-3	0	0	464,613
Total Outflow (m³):	0	0	0	0	0	251,982	37,226	53,348	129,993	0	0	0	**472,549**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m³):	13	13	13	13	13	13	13	13	13	13	13	13	
Elevation (m):	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	
Pumping rate (m³/hr)	0	0	0	0	0	1,042	341	343	338	298	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	15,253	5,806	8,674	22,873	0	0	0	52,607
Snow and ice melt (m³):	0	0	0	0	0	25,734	0	0	0	0	0	0	25,734
Total Inflow (m³):	0	0	0	0	0	40,987	5,806	8,674	22,873	0	0	0	**78,341**
Net Inflow (m³):	0	0	0	0	0	40,987	5,806	8,674	22,873	0	0	0	**78,341**
End-of-Month Volume (m³):	6	6	6	6	6	40,993	46,799	55,473	78,347	78,347	78,347	78,347	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	3,214	5,769	6,352	6,068	0	0	0	21,402
Snowmelt on the pit (m³):	0	0	0	0	0	4,719	0	0	0	0	0	0	4,719
Total Inflow (m³):	0	0	0	0	0	7,934	5,769	6,352	6,068	0	0	0	**26,122**
Pumped to Attenuation pond (m³)	0	0	0	0	0	7,934	5,769	6,352	6,068	0	0	0	26,122
Total Outflow (m³):	0	0	0	0	0	7,934	5,769	6,352	6,068	0	0	0	**26,122**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	11	8	9	8	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	251,700	34,052	50,135	128,729	-3	0	0	464,613
Total Inflow (m³):	0	0	0	0	0	251,700	34,052	50,135	128,729	-3	0	0	**464,613**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m³):	0	0	0	0	0	251,700	34,052	50,135	128,729	-3	0	0	**464,613**

TABLE A3-5: YEAR 2016 (MONTHLY)

	Year 2016												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	29	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	353,400	330,600	353,400	342,000	353,400	342,000	353,400	353,400	342,000	353,400	342,000	353,400	**4,172,400**
Cumulative Tailings (tonnes):	21,204,462	21,535,062	21,888,462	22,230,462	22,583,862	22,925,862	23,279,262	23,632,662	23,974,662	24,328,062	24,670,062	25,023,462	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	3,471,825	3,802,425	4,155,825	4,497,825	4,851,225	5,193,225	5,546,625	5,900,025	6,242,025	6,595,425	6,937,425	7,290,825	
Processe rate (%)	134%	134%	134%	134%	134%	134%	134%	134%	134%	134%	134%	134%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	1,946,947	1,870,974	1,799,903	1,723,931	1,650,410	1,574,437	1,548,841	1,472,643	1,399,702	1,347,959	1,271,979	1,198,457	
Pumped From Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	41,998	5,423	8,152	21,628	0	0	0	77,202
Tailings storage Runoff and Seepage (m³)	206,636	193,305	206,636	199,971	206,636	199,971	206,636	206,636	199,971	206,636	199,971	206,636	2,439,643
Direct Precipitation on Pond (m³)	0	0	0	0	0	2,089	3,697	3,869	3,507	0	0	0	13,163
Snow and ice melt on Pond (m³)	0	0	0	0	0	4,679	0	0	0	0	0	0	4,679
Total Inflow (m³)	206,636	193,305	206,636	199,971	206,636	248,737	215,757	218,658	225,106	206,636	199,971	206,636	**2,534,686**
Evaporation (m³)	0	0	0	0	0	841	9,346	8,991	3,356	8	0	0	22,542
Reclaim water to mill (m³)	282,609	264,376	282,609	273,492	282,609	273,492	282,609	282,609	273,492	282,609	273,492	282,609	3,336,606
Decant - TSS to Third Portage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	282,609	264,376	282,609	273,492	282,609	274,333	291,955	291,599	276,848	282,617	273,492	282,609	**3,359,148**
Net Inflow (m³)	-75,972	-71,071	-75,972	-73,522	-75,972	-25,596	-76,198	-72,941	-51,742	-75,980	-73,522	-75,972	**-824,461**
End-of-Month Volume (m³)	1,870,974	1,799,903	1,723,931	1,650,410	1,574,437	1,548,841	1,472,643	1,399,702	1,347,959	1,271,979	1,198,457	1,122,485	
Pond Elevation (m):	126.9	127.5	128.2	128.8	129.5	130.1	130.8	131.3	131.8	132.4	132.9	133.4	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m³)	3,871	3,622	3,871	3,747	3,871	3,747	3,871	3,871	3,747	3,871	3,747	3,871	45,707
Reclaim water (m³)	282,609	264,376	282,609	273,492	282,609	273,492	282,609	282,609	273,492	282,609	273,492	282,609	3,336,606
Freshwater from Third Portage Lake (m³)	61,516	57,548	61,516	59,532	61,516	59,532	61,516	61,516	59,532	61,516	59,532	61,516	726,290
Total Inflow (m³)	347,996	325,545	347,996	336,771	347,996	336,771	347,996	347,996	336,771	347,996	336,771	347,996	**4,108,603**
Tailings transport water (Slurry water) (m³)	347,996	325,545	347,996	336,771	347,996	336,771	347,996	347,996	336,771	347,996	336,771	347,996	4,108,603
Total Outflow (m³):	347,996	325,545	347,996	336,771	347,996	336,771	347,996	347,996	336,771	347,996	336,771	347,996	**4,108,603**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	380	380	380	380	380	380	380	380	380	380	380	380	
Freshwater from Third Portage Lake (m³/hr)	83	83	83	83	83	83	83	83	83	83	83	83	

	Year 2016												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	347,996	325,545	347,996	336,771	347,996	336,771	347,996	347,996	336,771	347,996	336,771	347,996	4,108,603
Total Inflow (m³):	347,996	325,545	347,996	336,771	347,996	336,771	347,996	347,996	336,771	347,996	336,771	347,996	**4,108,603**
Void Losses = Pore Water: (m³)	141,360	132,240	141,360	136,800	141,360	136,800	141,360	141,360	136,800	141,360	136,800	141,360	1,668,960
Total Outflow (m³)	141,360	132,240	141,360	136,800	141,360	136,800	141,360	141,360	136,800	141,360	136,800	141,360	**1,668,960**
Net Inflow (m³)	206,636	193,305	206,636	199,971	206,636	199,971	206,636	206,636	199,971	206,636	199,971	206,636	**2,439,643**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	82,100	985,200
Pumped from Third Portage lake (m³)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
From Portage pit during reflooding (m³)	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	1,061,700
Total Inflow (m³):	170,575	170,575	170,575	170,575	170,575	468,551	292,128	305,401	367,878	170,575	170,575	170,575	**2,798,558**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	**37,200**
Net Inflow (m³):	170,575	170,575	170,575	170,575	170,575	467,231	277,248	290,341	361,953	170,560	170,575	170,575	2,761,358
End-of-Month Volume (m³):	1,910,257	2,080,832	2,251,407	2,421,982	2,592,557	3,059,788	3,337,036	3,627,377	3,989,330	4,159,890	4,330,465	4,501,040	
Water Elevation (m)	59	61.3	63.8	66.2	68.4	74.0	77.1	80.3	84.1	85.8	87.5	89.0	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	1,061,700
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	**1,061,700**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer to Goose pit (m³)	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	1,061,700
Total Outflow (m³):	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	**1,061,700**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m³):	6,389,006	6,566,478	6,743,951	6,921,423	7,098,895	7,276,368	7,453,840	7,631,313	7,808,785	7,986,257	8,163,730	8,341,202	
Water Elevation (m)	65.7	66.5	67.3	68.0	68.7	69.5	70.1	70.8	71.4	72.0	72.6	73.2	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	581,621	581,621	581,621	581,621	581,621	627,043	632,898	641,644	664,709	664,709	664,709	664,709	**7,468,526**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	61,516	57,548	61,516	59,532	61,516	149,532	151,516	151,516	149,532	61,516	59,532	61,516	1,086,290
Total Outflow (m³):	61,516	57,548	61,516	59,532	61,516	149,532	151,516	151,516	149,532	61,516	59,532	61,516	**1,086,290**
Net Inflow (m³):	-61,516	-57,548	-61,516	-59,532	-61,516	-149,532	-151,516	-151,516	-149,532	-61,516	-59,532	-61,516	-1,086,290
Pumped from Lake for Mill and Pitss flooding (m³/hr)	83	83	83	83	83	208	204	204	208	83	83	83	

	Year 2016												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	13	13	13	13	13	13	13	13	13	13	13	13	
Attenuation Pond area (ha)	3	3	3	3	3	3	3	3	3	3	3	3	
Tributary area (ha)	431	431	431	431	431	431	431	431	431	431	431	431	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	8,096	5,887	6,481	6,192	0	0	0	26,655
Other area runoff (m³)	0	0	0	0	0	81,972	31,204	46,617	122,927	0	0	0	282,720
Snow and ice melt on other area (m³)	0	0	0	0	0	160,110	0	0	0	0	0	0	160,110
Direct Precipitation (m³)	0	0	0	0	0	609	232	346	913	0	0	0	2,100
Direct (Snow and ice melt) (m³)	0	0	0	0	0	1,189	0	0	0	0	0	0	1,189
Pumped from Wally Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	251,975	37,322	53,445	130,031	0	0	0	**472,774**
Direct Evaporation (m³)	0	0	0	0	0	282	3,174	3,213	1,264	3	0	0	7,936
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	251,694	34,148	50,232	128,767	-3	0	0	464,838
Total Outflow (m³):	0	0	0	0	0	251,975	37,322	53,445	130,031	0	0	0	**472,774**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m³):	13	13	13	13	13	13	13	13	13	13	13	13	
Elevation (m):	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	
Pumping rate (m³/hr)	0	0	0	0	0	1,042	341	343	338	298	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	15,253	5,806	8,674	22,873	0	0	0	52,607
Snow and ice melt (m³):	0	0	0	0	0	25,734	0	0	0	0	0	0	25,734
Total Inflow (m³):	0	0	0	0	0	40,987	5,806	8,674	22,873	0	0	0	**78,341**
Net Inflow (m³):	0	0	0	0	0	40,987	5,806	8,674	22,873	0	0	0	**78,341**
End-of-Month Volume (m³):	7	7	7	7	7	40,994	46,800	55,474	78,348	78,348	78,348	78,348	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	3,280	5,887	6,481	6,192	0	0	0	21,839
Snowmelt on the pit (m³):	0	0	0	0	0	4,816	0	0	0	0	0	0	4,816
Total Inflow (m³):	0	0	0	0	0	8,096	5,887	6,481	6,192	0	0	0	**26,655**
Pumped to Attenuation pond (m³)	0	0	0	0	0	8,096	5,887	6,481	6,192	0	0	0	26,655
Total Outflow (m³):	0	0	0	0	0	8,096	5,887	6,481	6,192	0	0	0	**26,655**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	11	8	9	9	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	251,694	34,148	50,232	128,767	-3	0	0	464,838
Total Inflow (m³):	0	0	0	0	0	251,694	34,148	50,232	128,767	-3	0	0	**464,838**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m³):	0	0	0	0	0	251,694	34,148	50,232	128,767	-3	0	0	**464,838**

TABLE A3-6: YEAR 2017 (MONTHLY)

	Year 2017												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	354,368	320,075	354,368	342,937	354,368	342,937	354,368	354,368	342,937	354,368	342,937	354,368	**4,172,400**
Cumulative Tailings (tonnes):	25,377,831	25,697,905	26,052,273	26,395,210	26,749,579	27,092,516	27,446,884	27,801,252	28,144,189	28,498,557	28,841,494	29,195,862	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	7,645,193	7,965,267	8,319,636	8,662,573	9,016,941	9,359,878	9,714,246	10,068,614	10,411,551	10,765,919	11,108,856	11,463,225	
Processe rate (%)	134%	134%	134%	134%	134%	134%	134%	134%	134%	134%	134%	134%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	1,122,485	1,046,421	977,718	901,654	828,043	751,979	750,000	750,000	750,000	750,000	750,000	750,000	
Pumped From Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	44,938	5,796	8,663	22,853	0	0	0	82,249
Tailings storage Runoff and Seepage (m³)	207,203	187,151	207,203	200,519	207,203	200,519	207,203	207,203	200,519	207,203	200,519	207,203	2,439,643
Direct Precipitation on Pond (m³)	0	0	0	0	0	945	1,678	1,831	1,735	0	0	0	6,189
Snow and ice melt on Pond (m³)	0	0	0	0	0	2,706	0	0	0	0	0	0	2,706
Total Inflow (m³)	207,203	187,151	207,203	200,519	207,203	249,108	214,676	217,697	225,107	207,203	200,519	207,203	**2,530,788**
Evaporation (m³)	0	0	0	0	0	380	4,241	4,255	1,660	4	0	0	10,541
Reclaim water to mill (m³)	283,267	255,854	283,267	274,129	283,267	250,706	210,435	213,441	223,446	207,198	200,519	207,203	2,892,732
Decant - TSS to Third Portage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	283,267	255,854	283,267	274,129	283,267	251,087	214,676	217,697	225,107	207,203	200,519	207,203	**2,903,273**
Net Inflow (m³)	-76,064	-68,703	-76,064	-73,611	-76,064	-1,979	0	0	0	0	0	0	**-372,485**
End-of-Month Volume (m³)	1,046,421	977,718	901,654	828,043	751,979	750,000	750,000	750,000	750,000	750,000	750,000	750,000	
Pond Elevation (m):	133.9	134.3	134.8	135.2	135.7	136.1	136.7	137.2	137.8	138.3	138.8	139.3	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m³)	3,882	3,506	3,882	3,757	3,882	3,757	3,882	3,882	3,757	3,882	3,757	3,882	45,707
Reclaim water (m³)	283,267	255,854	283,267	274,129	283,267	250,706	210,435	213,441	223,446	207,198	200,519	207,203	2,892,732
Freshwater from Third Portage Lake (m³)	61,801	55,820	61,801	59,807	61,801	83,230	134,632	131,626	110,490	137,870	133,418	137,865	1,170,163
Total Inflow (m³)	348,950	315,180	348,950	337,693	348,950	337,693	348,950	348,950	337,693	348,950	337,693	348,950	**4,108,603**
Tailings transport water (Slurry water) (m³)	348,950	315,180	348,950	337,693	348,950	337,693	348,950	348,950	337,693	348,950	337,693	348,950	4,108,603
Total Outflow (m³):	348,950	315,180	348,950	337,693	348,950	337,693	348,950	348,950	337,693	348,950	337,693	348,950	**4,108,603**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	381	381	381	381	381	348	283	287	310	278	278	278	
Freshwater from Third Portage Lake (m³/hr)	83	83	83	83	83	116	181	177	153	185	185	185	

	Year 2017												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	348,950	315,180	348,950	337,693	348,950	337,693	348,950	348,950	337,693	348,950	337,693	348,950	4,108,603
Total Inflow (m³):	348,950	315,180	348,950	337,693	348,950	337,693	348,950	348,950	337,693	348,950	337,693	348,950	**4,108,603**
Void Losses = Pore Water: (m³)	141,747	128,030	141,747	137,175	141,747	137,175	141,747	141,747	137,175	141,747	137,175	141,747	1,668,960
Total Outflow (m³)	141,747	128,030	141,747	137,175	141,747	137,175	141,747	141,747	137,175	141,747	137,175	141,747	**1,668,960**
Net Inflow (m³)	207,203	187,151	207,203	200,519	207,203	200,519	207,203	207,203	200,519	207,203	200,519	207,203	**2,439,643**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	1,009,300
Pumped from Third Portage lake (m³)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
From Portage pit during reflooding (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	84,108	84,108	84,108	84,108	84,108	282,524	192,828	199,762	230,856	84,108	84,108	84,108	**1,578,836**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	**37,200**
Net Inflow (m³):	84,108	84,108	84,108	84,108	84,108	281,204	177,948	184,702	224,931	84,093	84,108	84,108	1,541,636
End-of-Month Volume (m³):	4,585,149	4,669,257	4,753,365	4,837,474	4,921,582	5,202,786	5,380,734	5,565,436	5,790,366	5,874,460	5,958,568	6,042,676	
Water Elevation (m)	90	90.5	91.2	92.0	92.7	95.0	96.5	98.0	99.8	100.5	101.1	101.8	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	88,475	1,061,700
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	4,520,000
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	88,475	88,475	88,475	88,475	88,475	1,326,891	1,237,195	1,244,129	1,275,222	88,475	88,475	88,475	**5,791,236**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	**37,200**
Net Inflow (m³):	88,475	88,475	88,475	88,475	88,475	1,325,571	1,222,315	1,229,069	1,269,297	88,460	88,475	88,475	5,754,036
End-of-Month Volume (m³):	8,607,149	8,695,624	8,784,099	8,872,574	8,961,049	10,286,620	11,508,935	12,738,003	14,007,301	14,095,761	14,184,236	14,272,711	
Water Elevation (m)	74.1	74.4	74.7	75.0	75.2	79.3	82.8	86.2	89.5	89.8	90.0	90.2	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	664,709	664,709	664,709	664,709	664,709	710,131	715,986	724,733	747,798	747,798	747,798	747,798	**8,465,590**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	61,801	55,820	61,801	59,807	61,801	1,303,230	1,354,632	1,351,626	1,330,490	137,870	133,418	137,865	6,050,163
Total Outflow (m³):	61,801	55,820	61,801	59,807	61,801	1,303,230	1,354,632	1,351,626	1,330,490	137,870	133,418	137,865	**6,050,163**
Net Inflow (m³):	-61,801	-55,820	-61,801	-59,807	-61,801	-1,303,230	-1,354,632	-1,351,626	-1,330,490	-137,870	-133,418	-137,865	-6,050,163
Pumped from Lake for Mill and Pitss flooding (m³/hr)	83	83	83	83	83	1,810	1,821	1,817	1,848	185	185	185	

	Year 2017												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	13	13	13	13	13	13	13	13	13	13	13	13	
Attenuation Pond area (ha)	3	3	3	3	3	3	3	3	3	3	3	3	
Tributary area (ha)	421	421	421	421	421	421	421	421	421	421	421	421	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	13,493	9,811	10,802	10,319	0	0	0	44,425
Other area runoff (m³)	0	0	0	0	0	80,069	30,480	45,535	120,073	0	0	0	276,157
Snow and ice melt on other area (m³)	0	0	0	0	0	156,393	0	0	0	0	0	0	156,393
Direct Precipitation (m³)	0	0	0	0	0	609	232	346	913	0	0	0	2,100
Direct (Snow and ice melt) (m³)	0	0	0	0	0	1,189	0	0	0	0	0	0	1,189
Pumped from Wally Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	251,753	40,522	56,684	131,305	0	0	0	**480,264**
Direct Evaporation (m³)	0	0	0	0	0	282	3,174	3,213	1,264	3	0	0	7,936
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	251,471	37,348	53,471	130,041	-3	0	0	472,328
Total Outflow (m³):	0	0	0	0	0	251,753	40,522	56,684	131,305	0	0	0	**480,264**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
End-of-Month Volume (m³):	13	13	13	13	13	13	13	13	13	13	13	13	
Elevation (m):	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	129.2	
Pumping rate (m³/hr)	0	0	0	0	0	1,042	322	341	336	291	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	15,253	5,806	8,674	22,873	0	0	0	52,607
Snow and ice melt (m³):	0	0	0	0	0	25,734	0	0	0	0	0	0	25,734
Total Inflow (m³):	0	0	0	0	0	40,987	5,806	8,674	22,873	0	0	0	**78,341**
Net Inflow (m³):	0	0	0	0	0	40,987	5,806	8,674	22,873	0	0	0	**78,341**
End-of-Month Volume (m³):	8	8	8	8	8	40,995	46,801	55,475	78,349	78,349	78,349	78,349	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	5,467	9,811	10,802	10,319	0	0	0	36,399
Snowmelt on the pit (m³):	0	0	0	0	0	8,026	0	0	0	0	0	0	8,026
Total Inflow (m³):	0	0	0	0	0	13,493	9,811	10,802	10,319	0	0	0	**44,425**
Pumped to Attenuation pond (m³)	0	0	0	0	0	13,493	9,811	10,802	10,319	0	0	0	44,425
Total Outflow (m³):	0	0	0	0	0	13,493	9,811	10,802	10,319	0	0	0	**44,425**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	19	13	15	14	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	251,471	37,348	53,471	130,041	-3	0	0	472,328
Total Inflow (m³):	0	0	0	0	0	251,471	37,348	53,471	130,041	-3	0	0	**472,328**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m³):	0	0	0	0	0	251,471	37,348	53,471	130,041	-3	0	0	**472,328**

TABLE A3-7: YEAR 2018 (MONTHLY)

	Year 2018												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	252,488	228,054	0	0	0	0	0	0	0	0	0	0	**480,542**
Cumulative Tailings (tonnes):	29,448,351	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	11,715,713	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	
Processe rate (%)	96%	96%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	750,000	750,000	750,000	250,000	0	0	0	0	0	0	0	0	
Pumped From Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailings storage Runoff and Seepage (m³)	147,632	133,345	0	0	0	0	0	0	0	0	0	0	280,978
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on Pond (m³)	0	0	0	0	0	1,195	0	0	0	0	0	0	1,195
Total Inflow (m³)	147,632	133,345	0	0	0	1,195	0	0	0	0	0	0	**282,173**
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	147,632	133,345	0	0	0	0	0	0	0	0	0	0	280,978
Decant - TSS to Third Portage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m³)	0	0	250,000	125,000	0	0	0	0	0	0	0	0	375,000
To Goose Pit (m³)	0	0	250,000	125,000	0	0	0	0	0	0	0	0	375,000
Total Outflow (m³)	147,632	133,345	500,000	250,000	0	1,195	0	0	0	0	0	0	**1,032,173**
Net Inflow (m³)	0	0	-500,000	-250,000	0	0	0	0	0	0	0	0	**-750,000**
End-of-Month Volume (m³)	750,000	750,000	250,000	0	0	0	0	0	0	0	0	0	
Pond Elevation (m):	139.7	140.0	140.0	139.1	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m³)	2,766	2,498	0	0	0	0	0	0	0	0	0	0	5,264
Reclaim water (m³)	147,632	133,345	0	0	0	0	0	0	0	0	0	0	280,978
Freshwater from Third Portage Lake (m³)	98,229	88,723	0	0	0	0	0	0	0	0	0	0	186,953
Total Inflow (m³)	248,628	224,567	0	0	0	0	0	0	0	0	0	0	**473,195**
Tailings transport water (Slurry water) (m³)	248,628	224,567	0	0	0	0	0	0	0	0	0	0	473,195
Total Outflow (m³):	248,628	224,567	0	0	0	0	0	0	0	0	0	0	**473,195**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	198	198	0	0	0	0	0	0	0	0	0	0	
Freshwater from Third Portage Lake (m³/hr)	132	132	0	0	0	0	0	0	0	0	0	0	

	Year 2018												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m^3)	248,628	224,567	0	0	0	0	0	0	0	0	0	0	473,195
Total Inflow (m^3):	248,628	224,567	0	0	0	0	0	0	0	0	0	0	**473,195**
Void Losses = Pore Water: (m^3)	100,995	91,222	0	0	0	0	0	0	0	0	0	0	192,217
Total Outflow (m^3)	100,995	91,222	0	0	0	0	0	0	0	0	0	0	**192,217**
Net Inflow (m^3)	147,632	133,345	0	0	0	0	0	0	0	0	0	0	**280,978**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m^3)	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	84,108	1,009,300
Pumped from Third Portage lake (m^3)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
From Portage pit during reflooding (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	84,108	84,108	334,108	209,108	84,108	282,524	192,828	199,762	230,856	84,108	84,108	84,108	**1,953,836**
Pumped to Attenuation/Reclaim (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m^3)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Portage pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	**37,200**
Net Inflow (m^3):	84,108	84,108	334,108	209,108	84,108	281,204	177,948	184,702	224,931	84,093	84,108	84,108	1,916,636
End-of-Month Volume (m^3):	6,126,785	6,210,893	6,545,001	6,754,110	6,838,218	7,119,422	7,297,370	7,482,072	7,707,003	7,791,096	7,875,204	7,959,313	
Water Elevation (m)	102	103.1	105.7	107.2	107.9	109.8	111.0	112.3	113.8	114.3	114.9	115.4	
Pumped from the pit (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m^3)	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	919,500
Treated water from reclaim pond (m^3)	0	0	250,000	125,000	0	0	0	0	0	0	0	0	375,000
Pumped from third portage lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	4,520,000
Transfer from Goose pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	76,625	76,625	326,625	201,625	76,625	1,315,041	1,225,345	1,232,279	1,263,372	76,625	76,625	76,625	**6,024,036**
Pumped to Attenuation/Reclaim (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m^3)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Goose pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	**37,200**
Net Inflow (m^3):	76,625	76,625	326,625	201,625	76,625	1,313,721	1,210,465	1,217,219	1,257,447	76,610	76,625	76,625	5,986,836
End-of-Month Volume (m^3):	14,349,336	14,425,961	14,752,586	14,954,211	15,030,836	16,344,556	17,555,021	18,772,240	20,029,687	20,106,297	20,182,922	20,259,547	
Water Elevation (m)	90.4	90.5	91.3	91.7	91.9	94.8	97.5	100.0	102.6	102.8	103.0	103.1	
Pumped from the pit (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m^3):	747,798	747,798	747,798	747,798	747,798	793,220	799,075	807,822	830,887	830,887	830,887	830,887	**9,462,654**
Third Portage Lake													
Decant - with TSS treatment (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m^3)	98,229	88,723	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	5,066,953
Total Outflow (m^3):	98,229	88,723	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	**5,066,953**
Net Inflow (m^3):	-98,229	-88,723	0	0	0	-1,220,000	-1,220,000	-1,220,000	-1,220,000	0	0	0	-5,066,953
Pumped from Lake for Mill and Pitss flooding (m^3/hr)	132	132	0	0	0	1,694	1,640	1,640	1,694	0	0	0	

	Year 2018												ANNUAL TOTAL
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	13	13	13	13	13	13	605,844	1,612,150	2,972,488	4,184,665	4,184,665	4,184,665	
Attenuation Pond area (ha)	3	3	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	412	412	0	0	0	0	0	0	0	0	0	412	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m³)	0	0	0	0	0	2,048	0	0	0	0	0	0	2,048
Direct Precipitation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m³)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Inflow (m³):	0	0	0	0	0	605,831	1,006,306	1,360,338	1,212,177	0	0	0	**4,184,651**
Direct Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	605,831	1,006,306	1,360,338	1,212,177	0	0	0	4,184,651
End-of-Month Volume (m³):	13	13	13	13	13	605,844	1,612,150	2,972,488	4,184,665	4,184,665	4,184,665	4,184,665	
Elevation (m):	129.2	129.2	-17.5	-17.5	-17.5	-17.5	19.1	36.1	50.6	58.7	58.7	58.7	
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³):	9	9	9	9	9	9	9	9	9	9	9	9	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Outflow (m³):	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Net Inflow (m³):	0	0	0	0	0	-603,783	-1,006,306	-1,360,338	-1,212,177	0	0	0	**-4,182,604**

TABLE A3-8: YEAR 2019 (MONTHLY)

	Year 2019												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cumulative Tailings (tonnes):	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	
Processe rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Reclaim Pond (North Cell)													
Pond Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	
Pumped From Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailings storage Runoff and Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	
Pond Elevation (m):	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	
Pumping rate through TSS Facility (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings transport water (Slurry water) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Freshwater from Third Portage Lake (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

	Year 2019												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Void Losses = Pore Water: (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	751,300
Pumped from Third Portage lake (m³)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
From Portage pit during reflooding (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	62,608	62,608	62,608	62,608	62,608	261,024	171,328	178,262	209,356	62,608	62,608	62,608	**1,320,836**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	**37,200**
Net Inflow (m³):	62,608	62,608	62,608	62,608	62,608	259,704	156,448	163,202	203,431	62,593	62,608	62,608	1,283,636
End-of-Month Volume (m³):	8,021,921	8,084,529	8,147,138	8,209,746	8,272,354	8,532,058	8,688,506	8,851,708	9,055,139	9,117,732	9,180,340	9,242,949	
Water Elevation (m)	116	116.2	116.7	117.1	117.5	119.1	120.1	121.2	122.4	122.8	123.2	123.6	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	919,500
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	4,520,000
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	76,625	76,625	76,625	76,625	76,625	1,315,041	1,225,345	1,232,279	1,263,372	76,625	76,625	76,625	**5,649,036**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	**37,200**
Net Inflow (m³):	76,625	76,625	76,625	76,625	76,625	1,313,721	1,210,465	1,217,219	1,257,447	76,610	76,625	76,625	5,611,836
End-of-Month Volume (m³):	20,336,172	20,412,797	20,489,422	20,566,047	20,642,672	21,956,392	23,166,857	24,384,076	25,641,523	25,718,133	25,794,758	25,871,383	
Water Elevation (m)	103.3	103.4	103.6	103.7	103.9	106.5	108.9	111.2	113.4	113.5	113.6	113.8	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	830,887	830,887	830,887	830,887	830,887	876,309	882,164	890,910	913,975	913,975	913,975	913,975	**10,459,718**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	0	0	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	4,880,000
Total Outflow (m³):	0	0	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	**4,880,000**
Net Inflow (m³):	0	0	0	0	0	-1,220,000	-1,220,000	-1,220,000	-1,220,000	0	0	0	-4,880,000
Pumped from Lake for Mill and Pitss flooding (m³/hr)	0	0	0	0	0	1,694	1,640	1,640	1,694	0	0	0	

	Year 2019												ANNUAL TOTAL
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	4,184,665	4,184,665	4,184,665	4,184,665	4,184,665	4,184,665	4,790,496	5,796,802	7,157,139	8,369,316	8,369,316	8,369,316	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	412	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m³)	0	0	0	0	0	2,048	0	0	0	0	0	0	2,048
Direct Precipitation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m³)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Inflow (m³):	0	0	0	0	0	605,831	1,006,306	1,360,338	1,212,177	0	0	0	**4,184,651**
Direct Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	605,831	1,006,306	1,360,338	1,212,177	0	0	0	4,184,651
End-of-Month Volume (m³):	4,184,665	4,184,665	4,184,665	4,184,665	4,184,665	4,790,496	5,796,802	7,157,139	8,369,316	8,369,316	8,369,316	8,369,316	
Elevation (m):	58.7	58.7	58.7	58.7	58.7	58.7	62.5	68.7	76.0	82.1	82.1	82.1	
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³):	10	10	10	10	10	10	10	10	10	10	10	10	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Outflow (m³):	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Net Inflow (m³):	0	0	0	0	0	-603,783	-1,006,306	-1,360,338	-1,212,177	0	0	0	**-4,182,604**

TABLE A3-9: YEAR 2020 (MONTHLY)

	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	29	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cumulative Tailings (tonnes):	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	
Processe rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pumped From Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailings storage Runoff and Seepage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pond Elevation (m):	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater from Third Portage Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings transport water (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Freshwater from Third Portage Lake (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Void Losses = Pore Water: (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m^3)	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	62,608	751,300
Pumped from Third Portage lake (m^3)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
From Portage pit during reflooding (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	62,608	62,608	62,608	62,608	62,608	261,024	171,328	178,262	209,356	62,608	62,608	62,608	**1,320,836**
Pumped to Attenuation/Reclaim (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m^3)	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	37,200
Transfer to Portage pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	1,320	14,880	15,060	5,925	15	0	0	**37,200**
Net Inflow (m^3):	62,608	62,608	62,608	62,608	62,608	259,704	156,448	163,202	203,431	62,593	62,608	62,608	1,283,636
End-of-Month Volume (m^3):	9,305,557	9,368,165	9,430,774	9,493,382	9,555,990	9,815,694	9,972,142	10,135,344	10,338,775	10,401,368	10,463,977	10,526,585	
Water Elevation (m)	124	124.4	124.7	125.1	125.4	126.7	127.3	127.9	128.6	128.8	129.0	129.1	
Pumped from the pit (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m^3)	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	76,625	919,500
Treated water from reclaim pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	4,520,000
Transfer from Goose pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	76,625	76,625	76,625	76,625	76,625	1,346,328	1,246,144	1,255,179	1,285,249	76,625	76,625	76,625	**5,745,900**
Pumped to Attenuation/Reclaim (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m^3)	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	168,640
Transfer to Goose pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	**168,640**
Net Inflow (m^3):	76,625	76,625	76,625	76,625	76,625	1,340,344	1,178,688	1,186,907	1,258,389	76,557	76,625	76,625	5,577,260
End-of-Month Volume (m^3):	25,948,008	26,024,633	26,101,258	26,177,883	26,254,508	27,594,852	28,773,540	29,960,447	31,218,836	31,295,393	31,372,018	31,448,643	
Water Elevation (m)	113.9	114.0	114.2	114.3	114.4	116.7	118.6	120.4	122.3	122.5	122.6	122.7	
Pumped from the pit (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m^3):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m^3):	913,975	913,975	913,975	913,975	913,975	959,397	965,252	973,999	997,064	997,064	997,064	997,064	**11,456,782**
Third Portage Lake													
Decant - with TSS treatment (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m^3)	0	0	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	4,880,000
Total Outflow (m^3):	0	0	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	**4,880,000**
Net Inflow (m^3):	0	0	0	0	0	-1,220,000	-1,220,000	-1,220,000	-1,220,000	0	0	0	-4,880,000
Pumped from Lake for Mill and Pitss flooding (m^3/hr)	0	0	0	0	0	1,694	1,640	1,640	1,694	0	0	0	

	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Vault Attenuation Pond													
Attenuation Pond Volume (m^3)	8,369,316	8,369,316	8,369,316	8,369,316	8,369,316	8,369,316	8,975,330	9,981,635	11,341,973	12,554,150	12,554,150	12,554,150	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	449	
Vault pit Runoff and Seepage (drainage) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m^3)	0	0	0	0	0	2,230	0	0	0	0	0	0	2,230
Direct Precipitation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Inflow (m^3):	0	0	0	0	0	606,013	1,006,306	1,360,338	1,212,177	0	0	0	**4,184,834**
Direct Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	606,013	1,006,306	1,360,338	1,212,177	0	0	0	4,184,834
End-of-Month Volume (m^3):	8,369,316	8,369,316	8,369,316	8,369,316	8,369,316	8,975,330	9,981,635	11,341,973	12,554,150	12,554,150	12,554,150	12,554,150	
Elevation (m):	82.1	82.1	82.1	82.1	82.1	82.1	85.1	89.9	95.4	100.2	100.2	100.2	
Pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3):	11	11	11	11	11	11	11	11	11	11	11	11	
Vault Open Pit													
Runoff on the pit (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Outflow (m^3):	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Net Inflow (m^3):	0	0	0	0	0	-603,783	-1,006,306	-1,360,338	-1,212,177	0	0	0	**-4,182,604**

TABLE A3-10: YEAR 2021 (MONTHLY)

	Year 2021												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cumulative Tailings (tonnes):	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	
Processe rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pumped From Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailings storage Runoff and Seepage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pond Elevation (m):	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater from Third Portage Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings transport water (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Freshwater from Third Portage Lake (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

	Year 2021												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Void Losses = Pore Water: (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	495,900
Pumped from Third Portage lake (m³)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
From Portage pit during reflooding (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	41,325	41,325	41,325	41,325	41,325	254,499	159,856	167,781	198,392	41,325	41,325	41,325	**1,111,126**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	99,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	270,197	127,621	182,592	0	0	0	580,409
Total Outflow (m³):	0	0	0	0	0	3,520	309,877	167,781	198,392	40	0	0	**679,609**
Net Inflow (m³):	41,325	41,325	41,325	41,325	41,325	250,979	-150,022	0	0	41,285	41,325	41,325	431,517
End-of-Month Volume (m³):	10,567,910	10,609,235	10,650,560	10,691,885	10,733,210	10,984,189	10,834,167	10,834,167	10,834,167	10,875,452	10,916,777	10,958,102	
Water Elevation (m)	129	129.4	129.5	129.6	129.7	130.4	130.0	130.0	130.0	130.1	130.1	130.2	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	504,700
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	4,520,000
Transfer from Goose pit (m³)	0	0	0	0	0	0	270,197	127,621	182,592	0	0	0	580,409
Total Inflow (m³):	42,058	42,058	42,058	42,058	42,058	1,311,761	1,481,774	1,348,233	1,433,274	42,058	42,058	42,058	**5,911,509**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	168,640
Transfer to Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	**168,640**
Net Inflow (m³):	42,058	42,058	42,058	42,058	42,058	1,305,777	1,414,318	1,279,961	1,406,414	41,990	42,058	42,058	5,742,869
End-of-Month Volume (m³):	31,490,701	31,532,759	31,574,818	31,616,876	31,658,934	32,964,712	34,379,030	35,658,991	37,065,405	37,107,395	37,149,453	37,191,512	
Water Elevation (m)	122.7	122.8	122.9	122.9	123.0	124.8	126.7	128.3	130.0	130.0	130.1	130.2	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	997,064	997,064	997,064	997,064	997,064	1,042,486	1,048,341	1,057,088	1,080,153	1,080,153	1,080,153	1,080,153	**12,453,846**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	0	0	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	4,880,000
Total Outflow (m³):	0	0	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	**4,880,000**
Net Inflow (m³):	0	0	0	0	0	-1,220,000	-1,220,000	-1,220,000	-1,220,000	0	0	0	-4,880,000
Pumped from Lake for Mill and Pitss flooding (m³/hr)	0	0	0	0	0	1,694	1,640	1,640	1,694	0	0	0	

	Year 2021												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	12,554,150	12,554,150	12,554,150	12,554,150	12,554,150	12,554,150	13,160,163	14,166,469	15,526,807	16,738,983	16,738,983	16,738,983	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	449	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m³)	0	0	0	0	0	2,230	0	0	0	0	0	0	2,230
Direct Precipitation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m³)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Inflow (m³):	0	0	0	0	0	606,013	1,006,306	1,360,338	1,212,177	0	0	0	**4,184,834**
Direct Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	606,013	1,006,306	1,360,338	1,212,177	0	0	0	4,184,834
End-of-Month Volume (m³):	12,554,150	12,554,150	12,554,150	12,554,150	12,554,150	13,160,163	14,166,469	15,526,807	16,738,983	16,738,983	16,738,983	16,738,983	
Elevation (m):	100.2	100.2	100.2	100.2	100.2	100.2	102.4	106.1	110.9	114.7	114.7	114.7	
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³):	12	12	12	12	12	12	12	12	12	12	12	12	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Outflow (m³):	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Net Inflow (m³):	0	0	0	0	0	-603,783	-1,006,306	-1,360,338	-1,212,177	0	0	0	**-4,182,604**

TABLE A3-11: YEAR 2022 (MONTHLY)

Year Month Number	Year 2022												ANNUAL TOTAL
	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	
	183	**184**	**185**	**186**	**187**	**188**	**189**	**190**	**191**	**192**	**193**	**194**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cumulative Tailings (tonnes):	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	
Processe rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pumped From Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailings storage Runoff and Seepage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pond Elevation (m):	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater from Third Portage Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings transport water (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Freshwater from Third Portage Lake (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

	Year 2022												
Year	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	**ANNUAL TOTAL**
Month Number	**183**	**184**	**185**	**186**	**187**	**188**	**189**	**190**	**191**	**192**	**193**	**194**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Void Losses = Pore Water: (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	495,900
Pumped from Third Portage lake (m³)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
From Portage pit during reflooding (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	41,325	41,325	41,325	41,325	41,325	254,499	159,856	167,781	198,392	41,325	41,325	41,325	**1,111,126**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	99,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	**99,200**
Net Inflow (m³):	41,325	41,325	41,325	41,325	41,325	250,979	120,176	127,621	182,592	41,285	41,325	41,325	1,011,926
End-of-Month Volume (m³):	10,999,427	11,040,752	11,082,077	11,123,402	11,164,727	11,415,706	11,535,881	11,663,502	11,846,093	11,887,378	11,928,703	11,970,028	
Water Elevation (m)	130	130.3	130.4	130.4	130.5	131.6	132.5	133.3	133.5	133.5	133.5	133.6	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	504,700
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	4,520,000
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	42,058	42,058	42,058	42,058	42,058	1,311,761	1,211,577	1,220,612	1,250,682	42,058	42,058	42,058	**5,331,100**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	168,640
Transfer to Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	**168,640**
Net Inflow (m³):	42,058	42,058	42,058	42,058	42,058	1,305,777	1,144,121	1,152,340	1,223,822	41,990	42,058	42,058	5,162,460
End-of-Month Volume (m³):	37,233,570	37,275,628	37,317,687	37,359,745	37,401,803	38,707,581	39,851,702	41,004,042	41,052,605	41,052,605	41,052,605	41,052,605	
Water Elevation (m)	130.2	130.3	130.4	130.4	130.5	131.6	132.5	133.3	133.5	133.5	133.5	133.6	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	1,080,153	1,080,153	1,080,153	1,080,153	1,080,153	1,125,575	1,131,430	1,140,176	1,163,241	1,163,241	1,163,241	1,163,241	**13,450,910**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	0	0	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	4,880,000
Total Outflow (m³):	0	0	0	0	0	1,220,000	1,220,000	1,220,000	1,220,000	0	0	0	**4,880,000**
Net Inflow (m³):	0	0	0	0	0	-1,220,000	-1,220,000	-1,220,000	-1,220,000	0	0	0	-4,880,000
Pumped from Lake for Mill and Pitss flooding (m³/hr)	0	0	0	0	0	1,694	1,640	1,640	1,694	0	0	0	

Year Month Number	Year 2022												ANNUAL TOTAL
Year	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	
Month Number	**183**	**184**	**185**	**186**	**187**	**188**	**189**	**190**	**191**	**192**	**193**	**194**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	16,738,983	16,738,983	16,738,983	16,738,983	16,738,983	16,738,983	17,344,997	18,351,303	19,711,640	20,923,817	20,923,817	20,923,817	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	449	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m³)	0	0	0	0	0	2,230	0	0	0	0	0	0	2,230
Direct Precipitation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m³)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Inflow (m³):	0	0	0	0	0	606,013	1,006,306	1,360,338	1,212,177	0	0	0	**4,184,834**
Direct Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	606,013	1,006,306	1,360,338	1,212,177	0	0	0	4,184,834
End-of-Month Volume (m³):	16,738,983	16,738,983	16,738,983	16,738,983	16,738,983	17,344,997	18,351,303	19,711,640	20,923,817	20,923,817	20,923,817	20,923,817	
Elevation (m):	114.7	114.7	114.7	114.7	114.7	114.7	116.6	119.8	123.7	127.1	127.1	127.1	
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³):	13	13	13	13	13	13	13	13	13	13	13	13	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Outflow (m³):	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Net Inflow (m³):	0	0	0	0	0	-603,783	-1,006,306	-1,360,338	-1,212,177	0	0	0	**-4,182,604**

TABLE A3-12: YEAR 2023 (MONTHLY)

	Year 2023												
Year	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	**ANNUAL TOTAL**
Month Number	**195**	**196**	**197**	**198**	**199**	**200**	**201**	**202**	**203**	**204**	**205**	**206**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cumulative Tailings (tonnes):	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	
Processe rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Reclaim Pond (North Cell)													
Pond Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	
Pumped From Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailings storage Runoff and Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	
Pond Elevation (m):	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	
Pumping rate through TSS Facility (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings transport water (Slurry water) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Freshwater from Third Portage Lake (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

Year Month Number	Year 2023												ANNUAL TOTAL
Year	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	
Month Number	**195**	**196**	**197**	**198**	**199**	**200**	**201**	**202**	**203**	**204**	**205**	**206**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Void Losses = Pore Water: (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	495,900
Pumped from Third Portage lake (m³)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
From Portage pit during reflooding (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	41,325	41,325	41,325	41,325	41,325	254,499	159,856	167,781	198,392	41,325	41,325	41,325	**1,111,126**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	99,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	**99,200**
Net Inflow (m³):	41,325	41,325	41,325	41,325	41,325	250,979	120,176	127,621	182,592	41,285	41,325	41,325	1,011,926
End-of-Month Volume (m³):	12,011,353	12,052,678	12,094,003	12,135,328	12,176,653	12,427,632	12,547,808	12,675,428	12,835,871	12,835,871	12,835,871	12,835,871	
Water Elevation (m)	134	133.6	133.6	133.7	133.7	133.8	133.9	134.0	134.1	134.1	134.1	134.1	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	504,700
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	42,058	42,058	42,058	42,058	42,058	181,761	81,577	90,612	120,682	42,058	42,058	42,058	**811,100**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	168,640
Transfer to Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	**168,640**
Net Inflow (m³):	42,058	42,058	42,058	42,058	42,058	175,777	14,121	22,340	93,822	41,990	42,058	42,058	642,460
End-of-Month Volume (m³):	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	
Water Elevation (m)	133.6	133.6	133.6	133.7	133.7	133.8	133.9	134.0	134.1	134.1	134.1	134.1	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	1,163,241	1,163,241	1,163,241	1,163,241	1,163,241	1,208,663	1,214,518	1,223,265	1,246,330	1,246,330	1,246,330	1,246,330	**14,447,974**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	360,000
Total Outflow (m³):	0	0	0	0	0	90,000	90,000	90,000	90,000	0	0	0	**360,000**
Net Inflow (m³):	0	0	0	0	0	-90,000	-90,000	-90,000	-90,000	0	0	0	-360,000
Pumped from Lake for Mill and Pitss flooding (m³/hr)	0	0	0	0	0	125	121	121	125	0	0	0	

Year Month Number	Year 2023												ANNUAL TOTAL
	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	
	195	**196**	**197**	**198**	**199**	**200**	**201**	**202**	**203**	**204**	**205**	**206**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Vault Attenuation Pond													
Attenuation Pond Volume (m^3)	20,923,817	20,923,817	20,923,817	20,923,817	20,923,817	20,923,817	21,529,831	22,536,136	23,896,474	25,108,651	25,108,651	25,108,651	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	449	
Vault pit Runoff and Seepage (drainage) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m^3)	0	0	0	0	0	2,230	0	0	0	0	0	0	2,230
Direct Precipitation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Inflow (m^3):	0	0	0	0	0	606,013	1,006,306	1,360,338	1,212,177	0	0	0	**4,184,834**
Direct Evaporation (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	606,013	1,006,306	1,360,338	1,212,177	0	0	0	4,184,834
End-of-Month Volume (m^3):	20,923,817	20,923,817	20,923,817	20,923,817	20,923,817	21,529,831	22,536,136	23,896,474	25,108,651	25,108,651	25,108,651	25,108,651	
Elevation (m):	127.1	127.1	127.1	127.1	127.1	127.1	128.8	130.9	133.0	134.9	134.9	134.9	
Pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3):	14	14	14	14	14	14	14	14	14	14	14	14	
Vault Open Pit													
Runoff on the pit (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m^3):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Total Outflow (m^3):	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	4,182,604
Net Inflow (m^3):	0	0	0	0	0	-603,783	-1,006,306	-1,360,338	-1,212,177	0	0	0	**-4,182,604**

TABLE A3-13: YEAR 2024 (MONTHLY)

	Year 2024												
Year	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	**ANNUAL TOTAL**
Month Number	**207**	**208**	**209**	**210**	**211**	**212**	**213**	**214**	**215**	**216**	**217**	**218**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
No. of days:	31	29	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cumulative Tailings (tonnes):	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	
Processe rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pumped From Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailings storage Runoff and Seepage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pond Elevation (m):	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater from Third Portage Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings transport water (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Freshwater from Third Portage Lake (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

Year Month Number	Year 2024												ANNUAL TOTAL
Year	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	
Month Number	**207**	**208**	**209**	**210**	**211**	**212**	**213**	**214**	**215**	**216**	**217**	**218**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Void Losses = Pore Water: (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	495,900
Pumped from Third Portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
From Portage pit during reflooding (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	41,325	41,325	41,325	41,325	41,325	164,499	69,856	77,781	108,392	41,325	41,325	41,325	**751,126**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	99,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	**99,200**
Net Inflow (m³):	41,325	41,325	41,325	41,325	41,325	160,979	30,176	37,621	92,592	41,285	41,325	41,325	651,926
End-of-Month Volume (m³):	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	
Water Elevation (m)	134	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	504,700
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	42,058	42,058	42,058	42,058	42,058	181,761	81,577	90,612	120,682	42,058	42,058	42,058	**811,100**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	168,640
Transfer to Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	**168,640**
Net Inflow (m³):	42,058	42,058	42,058	42,058	42,058	175,777	14,121	22,340	93,822	41,990	42,058	42,058	642,460
End-of-Month Volume (m³):	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	
Water Elevation (m)	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	1,246,330	1,246,330	1,246,330	1,246,330	1,246,330	1,291,752	1,297,607	1,306,354	1,329,419	1,329,419	1,329,419	1,329,419	**15,445,038**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Lake for Mill and Pitss flooding (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

	Year 2024												ANNUAL TOTAL
Year	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	
Month Number	**207**	**208**	**209**	**210**	**211**	**212**	**213**	**214**	**215**	**216**	**217**	**218**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	25,108,651	25,108,651	25,108,651	25,108,651	25,108,651	25,108,651	26,526,081	27,840,181	28,000,013	28,000,013	28,000,013	28,000,013	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	449	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m³)	0	0	0	0	0	2,230	0	0	0	0	0	0	2,230
Direct Precipitation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m³)	0	0	0	0	0	1,415,200	1,314,100	159,832	0	0	0	0	2,889,132
Total Inflow (m³):	0	0	0	0	0	1,417,430	1,314,100	159,832	0	0	0	0	**2,891,362**
Direct Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	1,417,430	1,314,100	159,832	0	0	0	0	2,891,362
End-of-Month Volume (m³):	25,108,651	25,108,651	25,108,651	25,108,651	25,108,651	26,526,081	27,840,181	28,000,013	28,000,013	28,000,013	28,000,013	28,000,013	
Elevation (m):	134.9	134.9	134.9	134.9	134.9	134.9	137.2	139.2	139.5	139.5	139.5	139.5	
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³):	15	15	15	15	15	15	15	15	15	15	15	15	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	1,415,200	1,314,100	159,832	0	0	0	0	2,889,132
Total Outflow (m³):	0	0	0	0	0	1,415,200	1,314,100	159,832	0	0	0	0	2,889,132
Net Inflow (m³):	0	0	0	0	0	-1,415,200	-1,314,100	-159,832	0	0	0	0	**-2,889,132**

TABLE A3-14: YEAR 2025 (MONTHLY)

	Year 2025												
Year	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	**ANNUAL TOTAL**
Month Number	**219**	**220**	**221**	**222**	**223**	**224**	**225**	**226**	**227**	**228**	**229**	**230**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
No. of days:	31	28	31	30	31	30	31	31	30	31	30	31	
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cumulative Tailings (tonnes):	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	29,676,405	
Cumulative Tailings (tonnes) - North Cell	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	17,732,638	
Cumulative Tailings (tonnes) - South Cell	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	11,943,767	
Processe rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Reclaim Pond (North Cell)													
Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Treated Sewage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water from tailings - drainage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and Ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation from pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water Elevation (m)	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	147.3	
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Attenuation/Reclaim (South Cell)													
Attenuation Pond Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pumped From Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tributary area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailings storage Runoff and Seepage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Precipitation on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on Pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water to mill (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant - TSS to Third Portage (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Portage Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
To Goose Pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Pond Elevation (m):	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	138.7	
Pumping rate through TSS Facility (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mill													
Ore water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater from Third Portage Lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings transport water (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaim water pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Freshwater from Third Portage Lake (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

	Year 2025												
Year	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	**ANNUAL TOTAL**
Month Number	**219**	**220**	**221**	**222**	**223**	**224**	**225**	**226**	**227**	**228**	**229**	**230**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Talings storage (North Cell or South Cell)													
Tails (Slurry water) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Void Losses = Pore Water: (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Goose Island Pit													
Runoff and seepage (Pit drainage) (m³)	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	41,325	495,900
Pumped from Third Portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
From Portage pit during reflooding (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	41,325	41,325	41,325	41,325	41,325	164,499	69,856	77,781	108,392	41,325	41,325	41,325	**751,126**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	99,200
Transfer to Portage pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	3,520	39,680	40,160	15,800	40	0	0	**99,200**
Net Inflow (m³):	41,325	41,325	41,325	41,325	41,325	160,979	30,176	37,621	92,592	41,285	41,325	41,325	651,926
End-of-Month Volume (m³):	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	12,835,871	
Water Elevation (m)	134	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Pit													
Runoff and seepage (Pit drainage) (m³)	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	42,058	504,700
Treated water from reclaim pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from third portage lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer from Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	42,058	42,058	42,058	42,058	42,058	181,761	81,577	90,612	120,682	42,058	42,058	42,058	**811,100**
Pumped to Attenuation/Reclaim (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation (m³)	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	168,640
Transfer to Goose pit (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	5,984	67,456	68,272	26,860	68	0	0	**168,640**
Net Inflow (m³):	42,058	42,058	42,058	42,058	42,058	175,777	14,121	22,340	93,822	41,990	42,058	42,058	642,460
End-of-Month Volume (m³):	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	41,052,605	
Water Elevation (m)	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	134.1	
Pumped from the pit (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Portage Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
Total Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	**83,089**
Net Inflow (m³):	0	0	0	0	0	45,422	5,855	8,747	23,065	0	0	0	83,089
End-of-Month Volume (m³):	1,329,419	1,329,419	1,329,419	1,329,419	1,329,419	1,374,841	1,380,696	1,389,442	1,412,507	1,412,507	1,412,507	1,412,507	**16,442,102**
Third Portage Lake													
Decant - with TSS treatment (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from lake (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Lake for Mill and Pitss flooding (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	

	Year 2025												ANNUAL TOTAL
Year	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	
Month Number	**219**	**220**	**221**	**222**	**223**	**224**	**225**	**226**	**227**	**228**	**229**	**230**	
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Vault Attenuation Pond													
Attenuation Pond Volume (m³)	28,000,013	28,000,013	28,000,013	28,000,013	28,000,013	28,000,013	29,164,743	29,164,743	29,164,743	29,164,743	29,164,743	29,164,743	
Attenuation Pond area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	
Tributary area (ha)	0	0	0	0	0	0	0	0	0	0	0	449	
Vault pit Runoff and Seepage (drainage) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other area runoff (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt on other area (m³)	0	0	0	0	0	2,230	0	0	0	0	0	0	2,230
Direct Precipitation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct (Snow and ice melt) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumped from Wally Lake (m³)	0	0	0	0	0	1,162,500	0	0	0	0	0	0	1,162,500
Total Inflow (m³):	0	0	0	0	0	1,164,730	0	0	0	0	0	0	**1,164,730**
Direct Evaporation (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Decant to Wally Lake (with TSS treatment) (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	1,164,730	0	0	0	0	0	0	1,164,730
End-of-Month Volume (m³):	28,000,013	28,000,013	28,000,013	28,000,013	28,000,013	29,164,743	29,164,743	29,164,743	29,164,743	29,164,743	29,164,743	29,164,743	
Elevation (m):	139.5	139.5	139.5	139.5	139.5	139.5	140.3	140.3	140.3	140.3	140.3	140.3	
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Vault Rock Storage Facility													
Runoff from RSF (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snow and ice melt (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m³):	16	16	16	16	16	16	16	16	16	16	16	16	
Vault Open Pit													
Runoff on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowmelt on the pit (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Outflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping rate (m³/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Wally Lake													
Decant from attenuation pond (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Inflow (m³):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Attenuation Pond (m³)	0	0	0	0	0	1,162,500	0	0	0	0	0	0	1,162,500
Total Outflow (m³):	0	0	0	0	0	1,162,500	0	0	0	0	0	0	1,162,500
Net Inflow (m³):	0	0	0	0	0	-1,162,500	0	0	0	0	0	0	**-1,162,500**

APPENDIX A4

FRESHWATER USAGE SENSITIVITY ANALYSIS

SECTION 1 –BASE CASE (FRESHWATER TARGET OF 80 M³/HR)

The section 1 of this document presents the main graphs used in the WMP 2012.

Figure 1 – Flow to the Mill

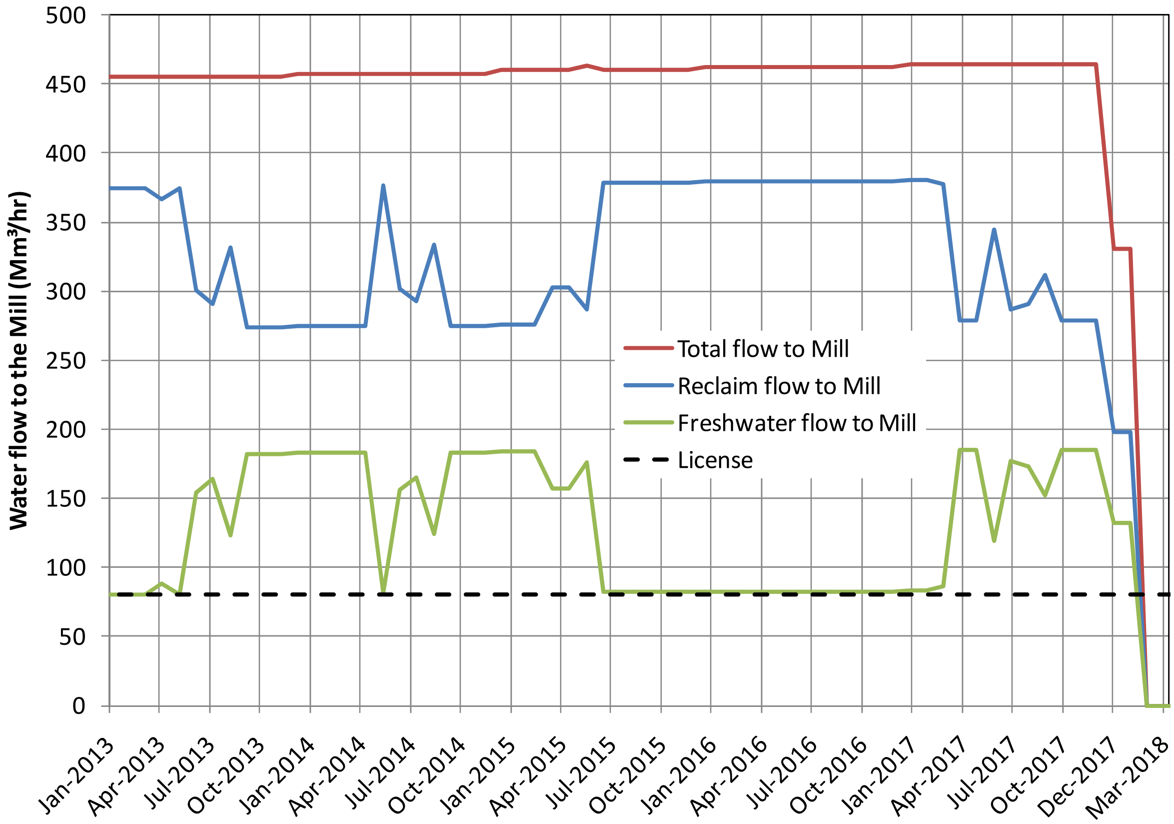


Figure 2 – North Cell TSF - Reclaim Pond

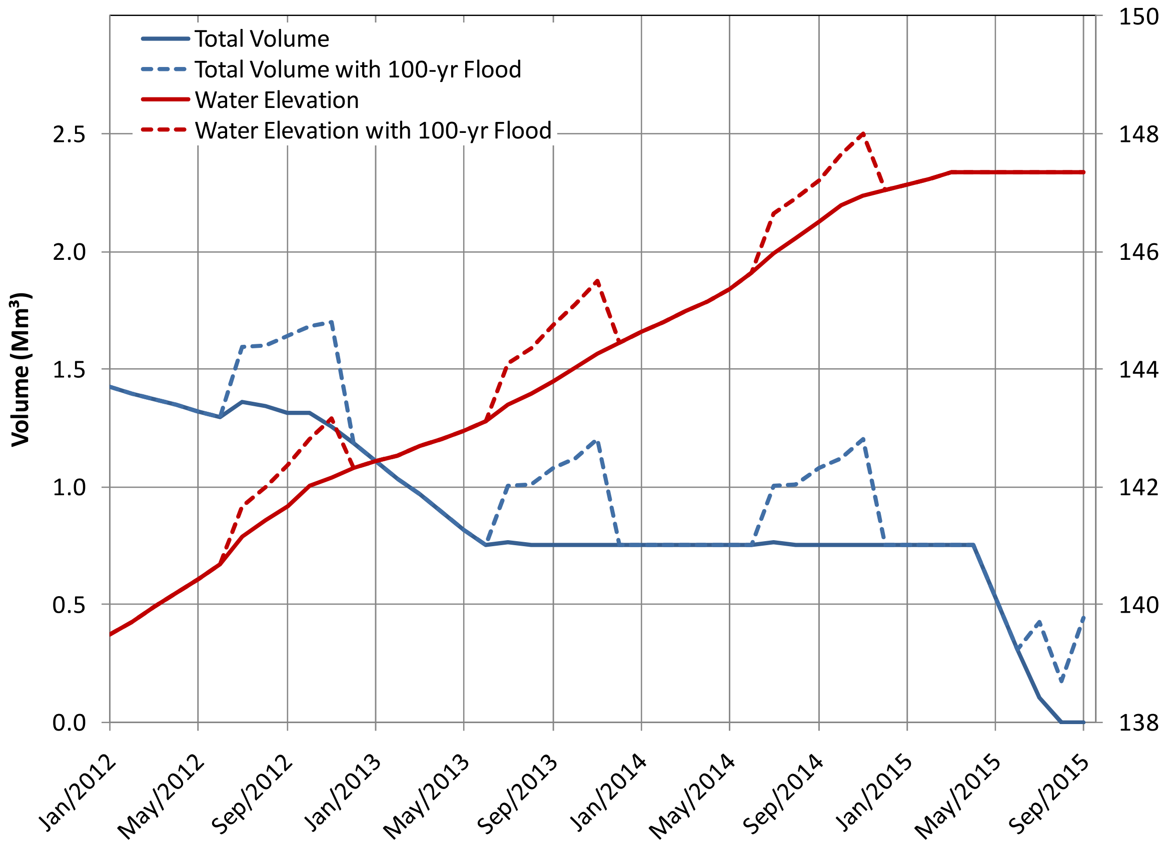


Figure 3 – South Cell TSF – Attenuation Pond

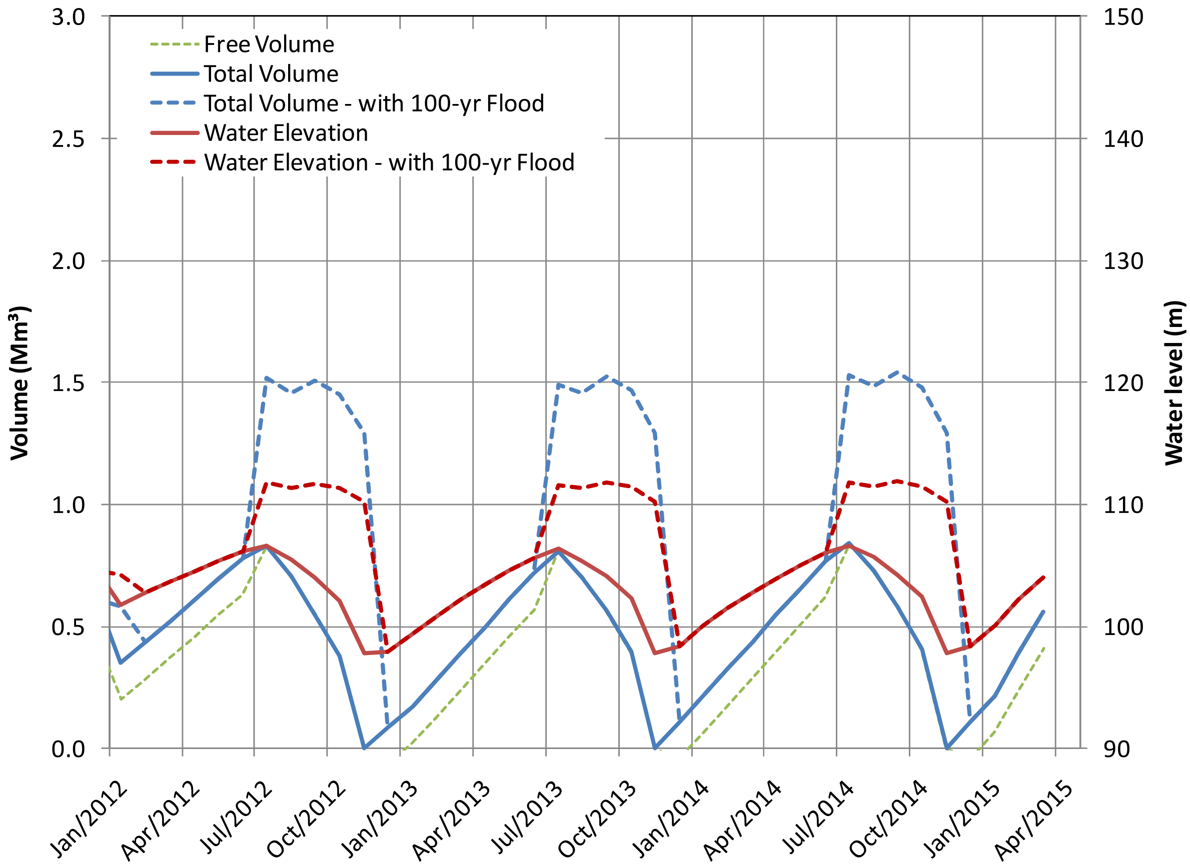


Figure 4 – South Cell TSF – Reclaim Pond

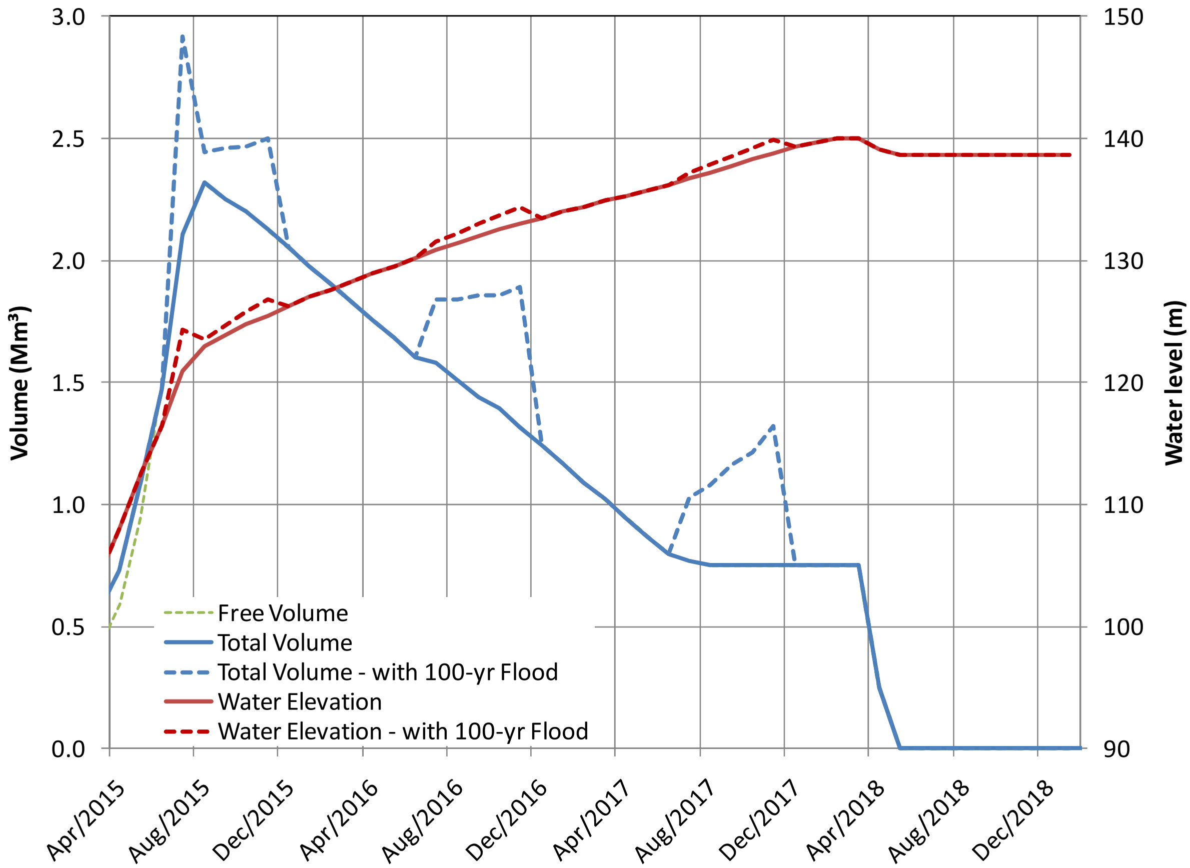


Figure 5 – Flooding Portage Pit

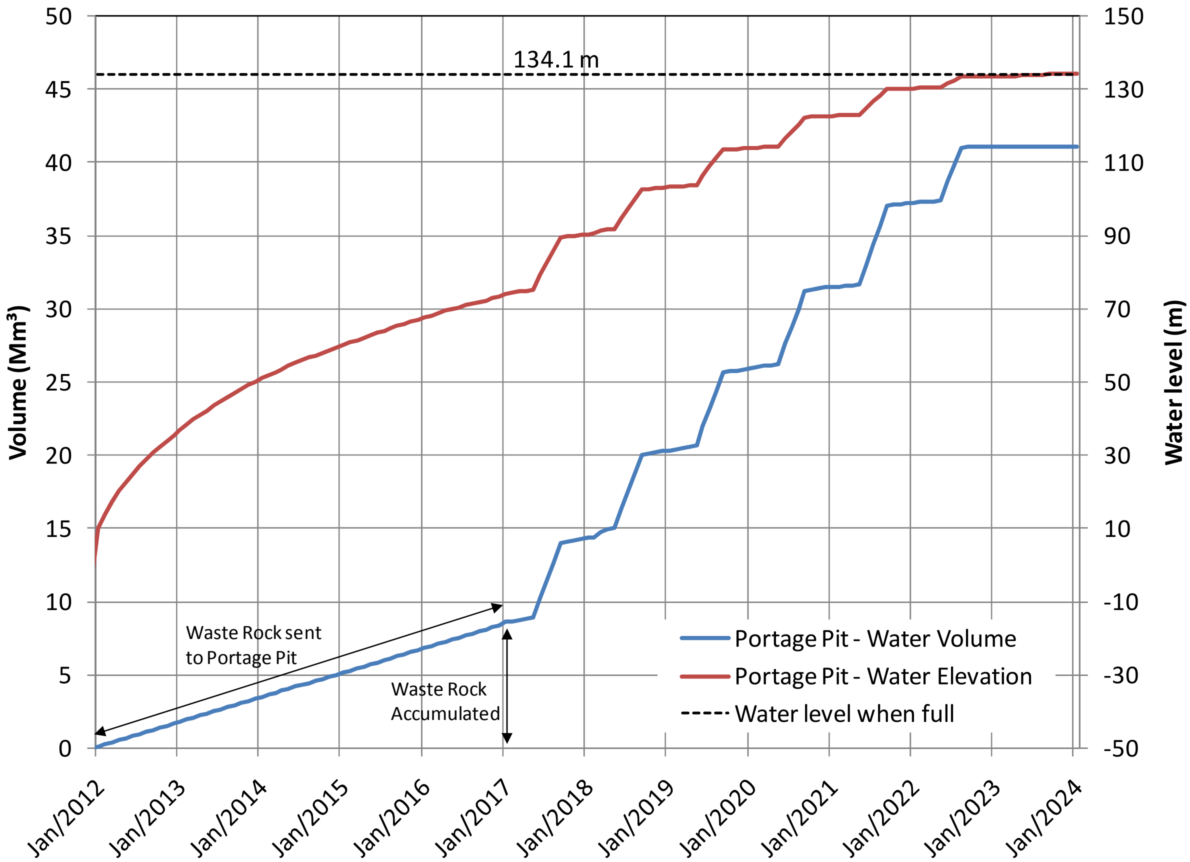
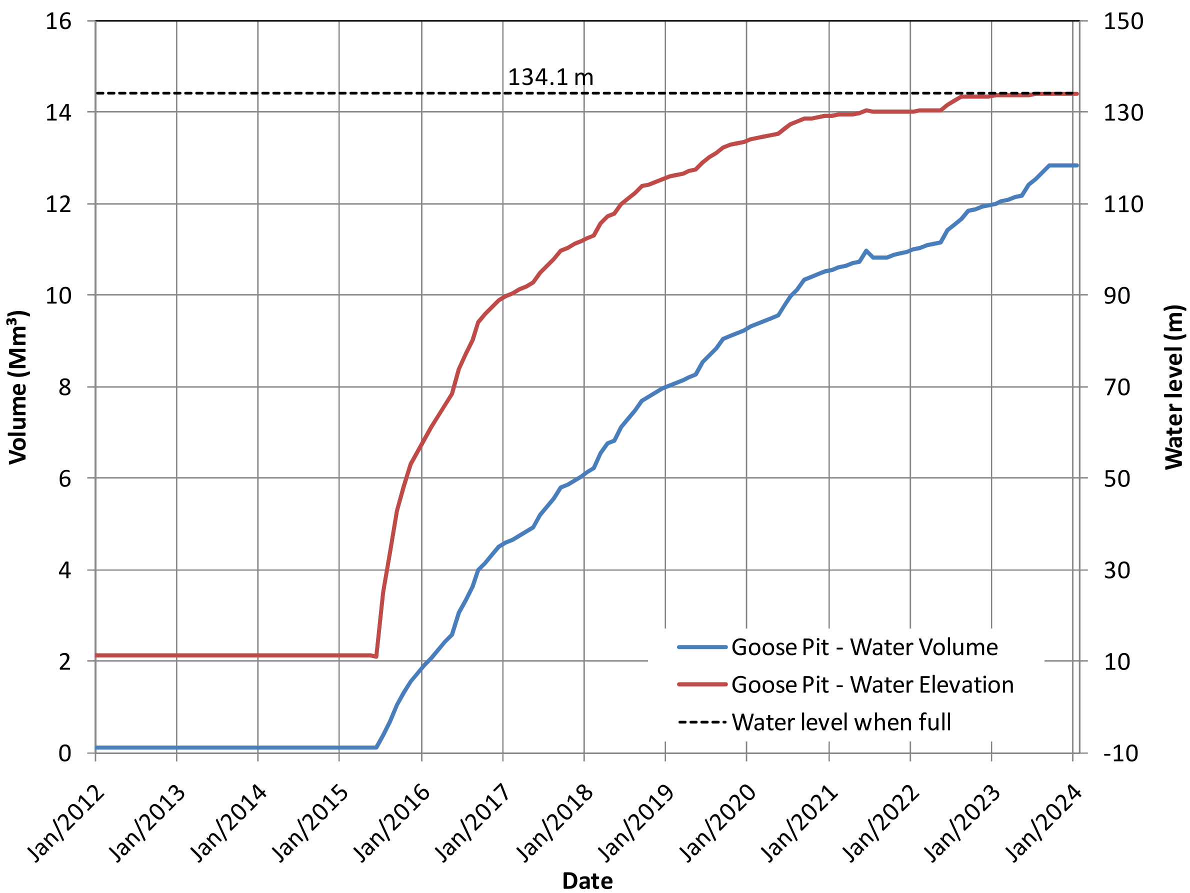


Figure 6 – Flooding Goose Pit



SECTION 2 – SENSITIVITY ANALYSIS OF PORTAGE PIT DRAINAGE WATER SENT TO TSF

This section presents a sensitivity analysis where the Portage pit drainage water is sent to the North Cell and South Cell TSF. The main assumptions used in this calculation are as follows:

- The freshwater consumption to the Mill is maintained at 80 m^3/hr.
- The total Portage pit drainage water is 966 400 m^3 on an annual basis (roughly 110 m^3/hr);
- 50% of the Portage pit drainage water will be routed to the North Cell TSF Reclaim pond passing through the South Cell Attenuation pond for the period of March 2012 to March 2015. The remaining 50% will still be routed to the South Cell attenuation pond. The main model assumes that all of that water is sent to the attenuation pond;
- From April 2015 to March 2017, 100% of the Portage drainage water will be sent to the South Cell TSF reclaim pond. The main model assumes that this water is sent to the attenuation pond until July 2015 when it start to be sent to Goose pit to assist in pit flooding;
- Important note: During the sensitivity analysis, the actual volume transferred to the North Cell TSF has been optimized. If too much drainage water is sent to the North Cell TSF, the water level will exceed 148 m before the tailings deposition is completed.

Figure 7 – Flow to the Mill

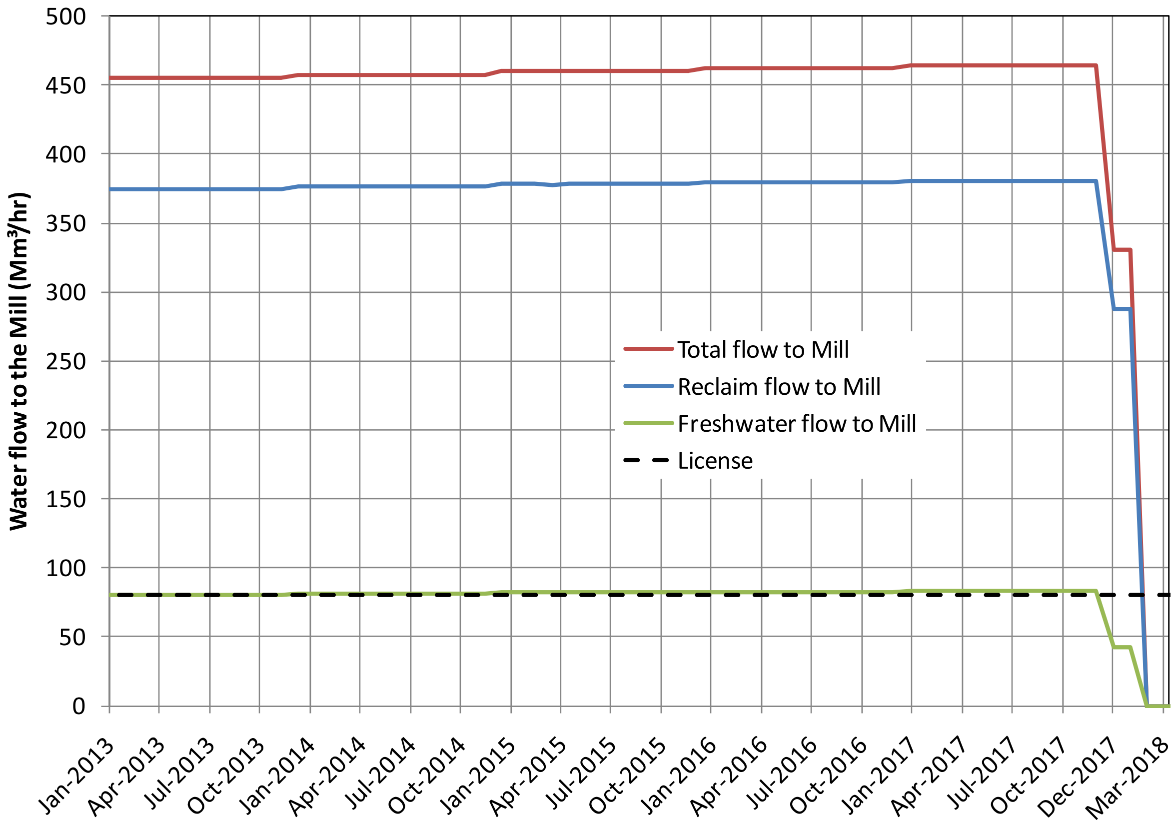


Figure 8 – North Cell TSF - Reclaim Pond

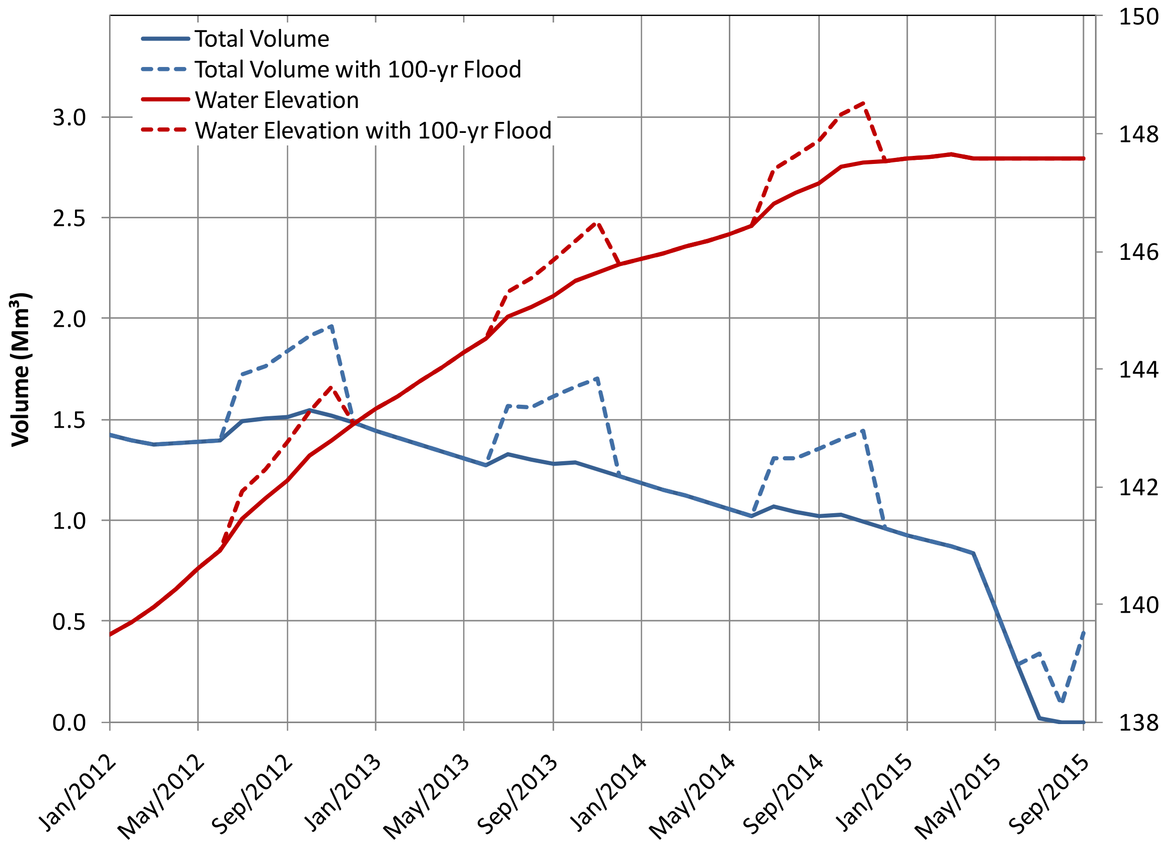


Figure 9 – South Cell TSF – Attenuation Pond

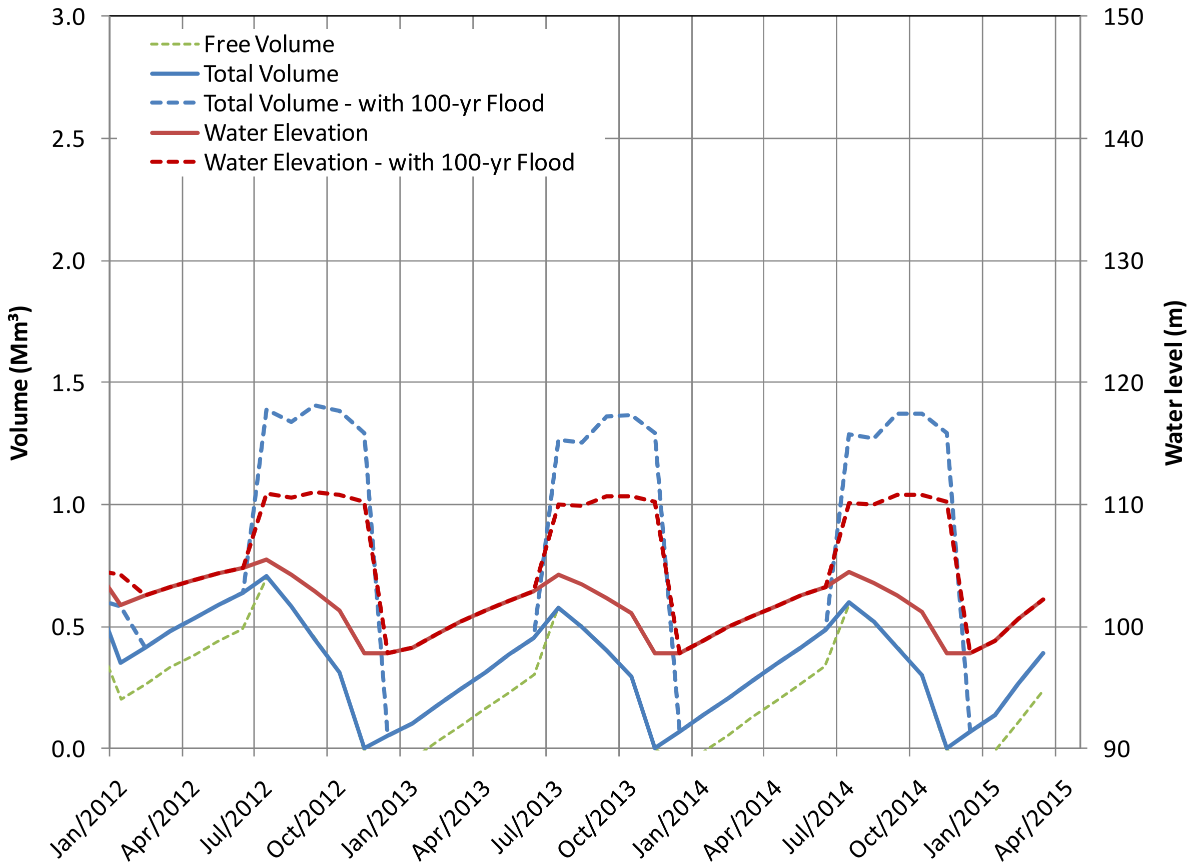
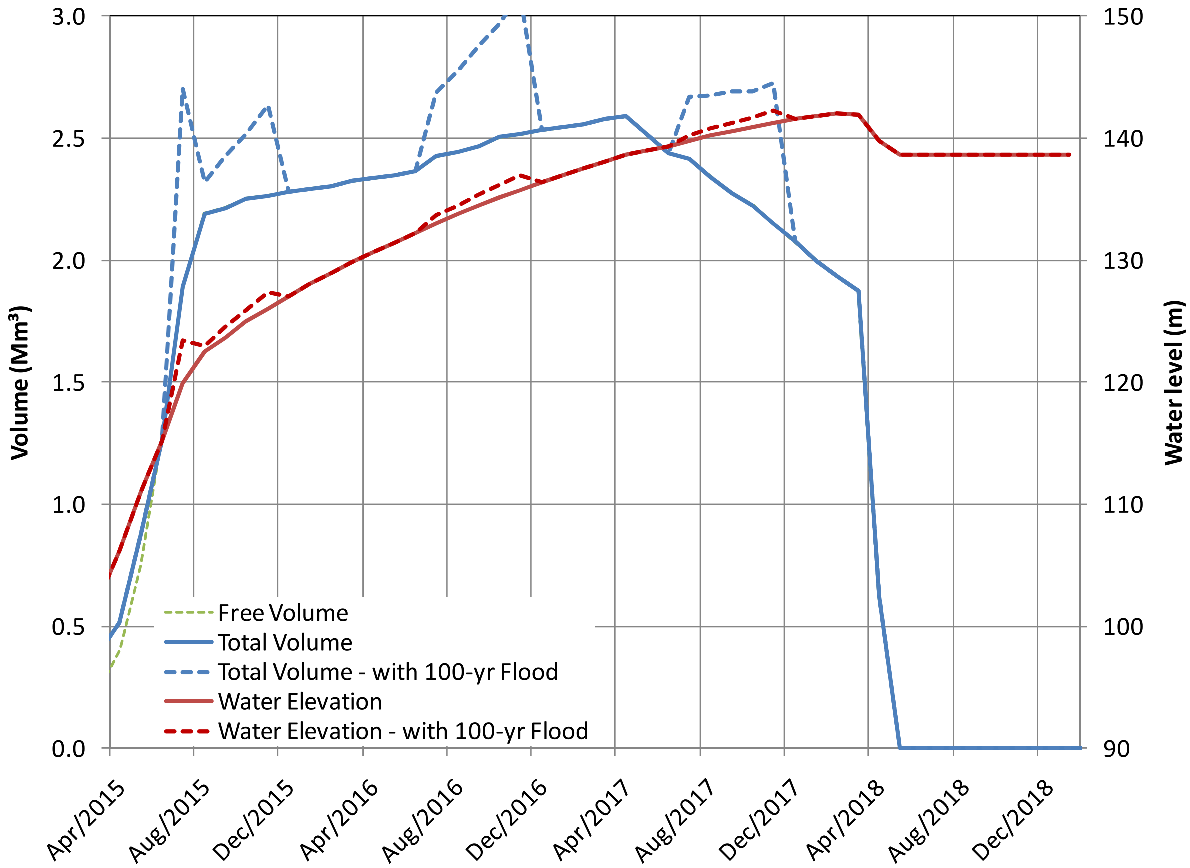


Figure 10 – South Cell TSF – Reclaim Pond



SECTION 3 –SENSITIVITY ANALYSIS BY INCREASING FRESHWATER USE TO 120 M³/HR

This section presents a sensitivity analysis where the freshwater consumption is increased to 120 m³/hr from 80 m³/hr (base case). All other assumptions and flow routing logics are the same as the base case.

Figure 11 – Flow to the Mill

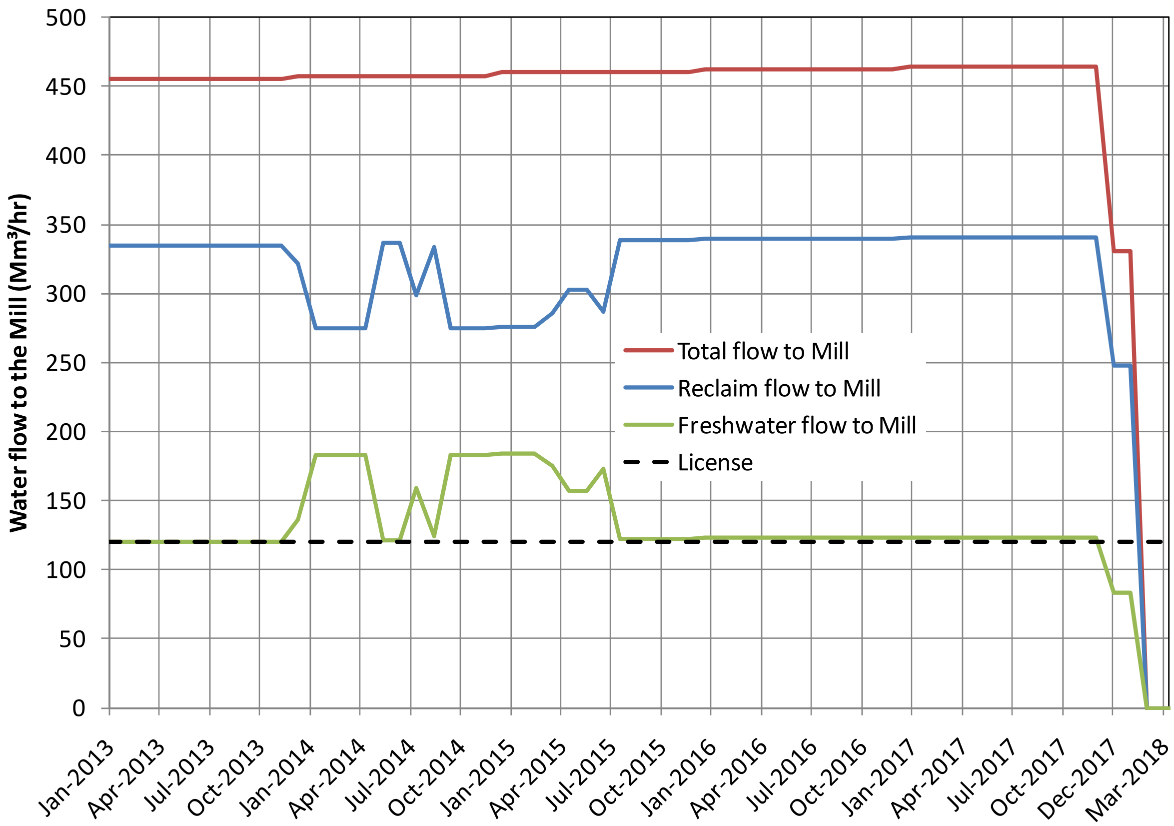


Figure 12 – North Cell TSF - Reclaim Pond

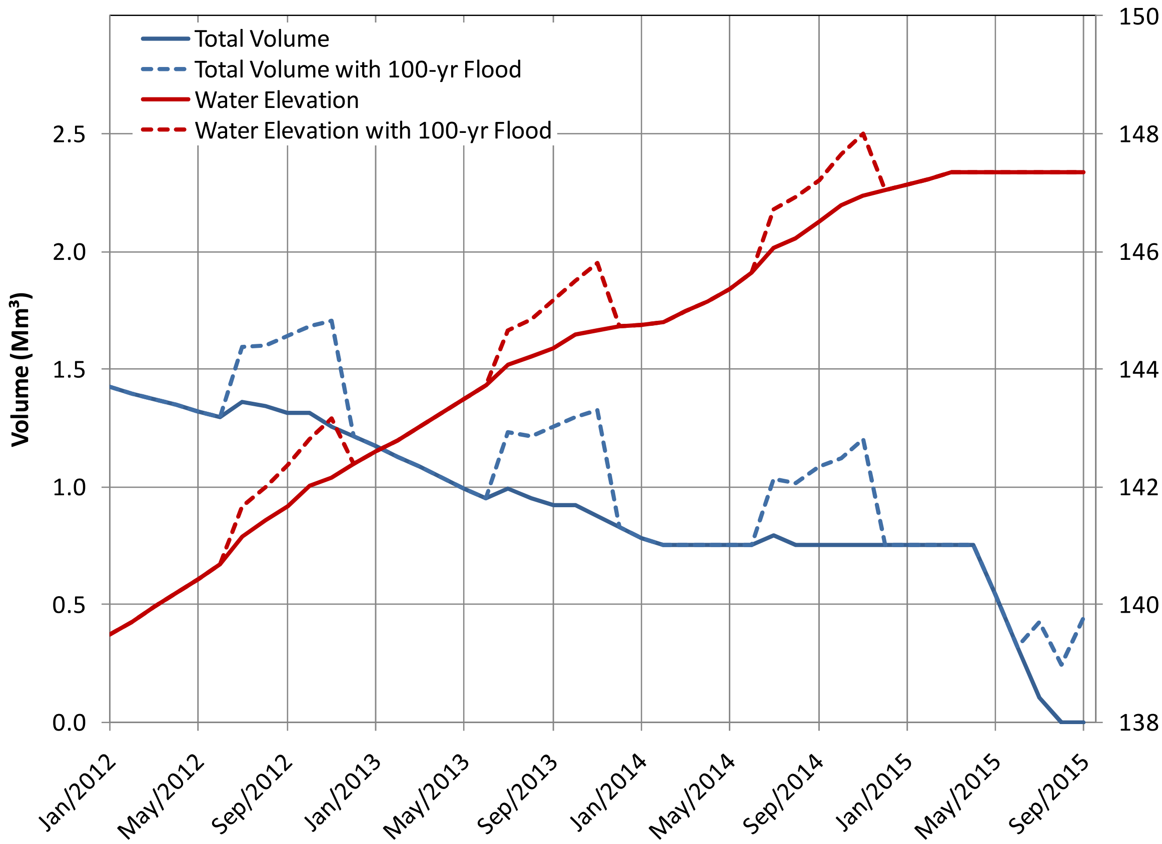


Figure 13 – South Cell TSF – Attenuation Pond

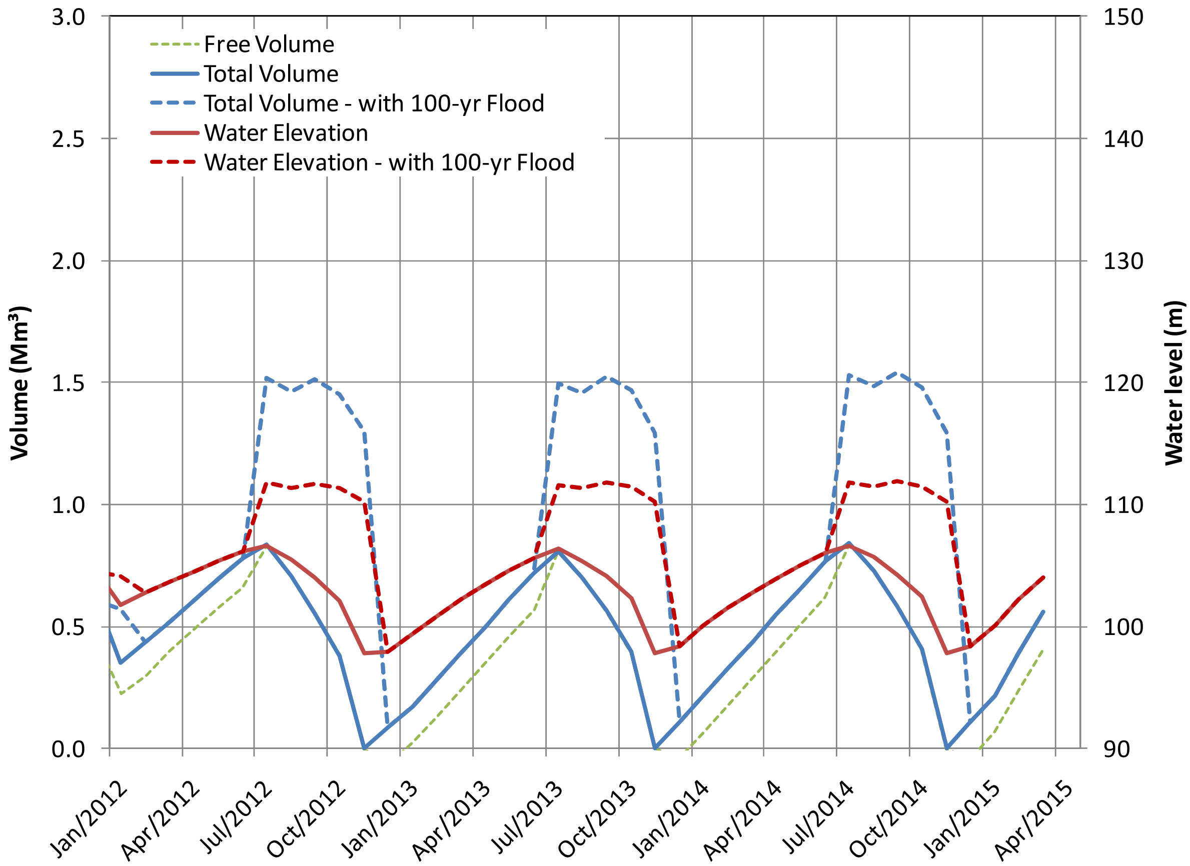
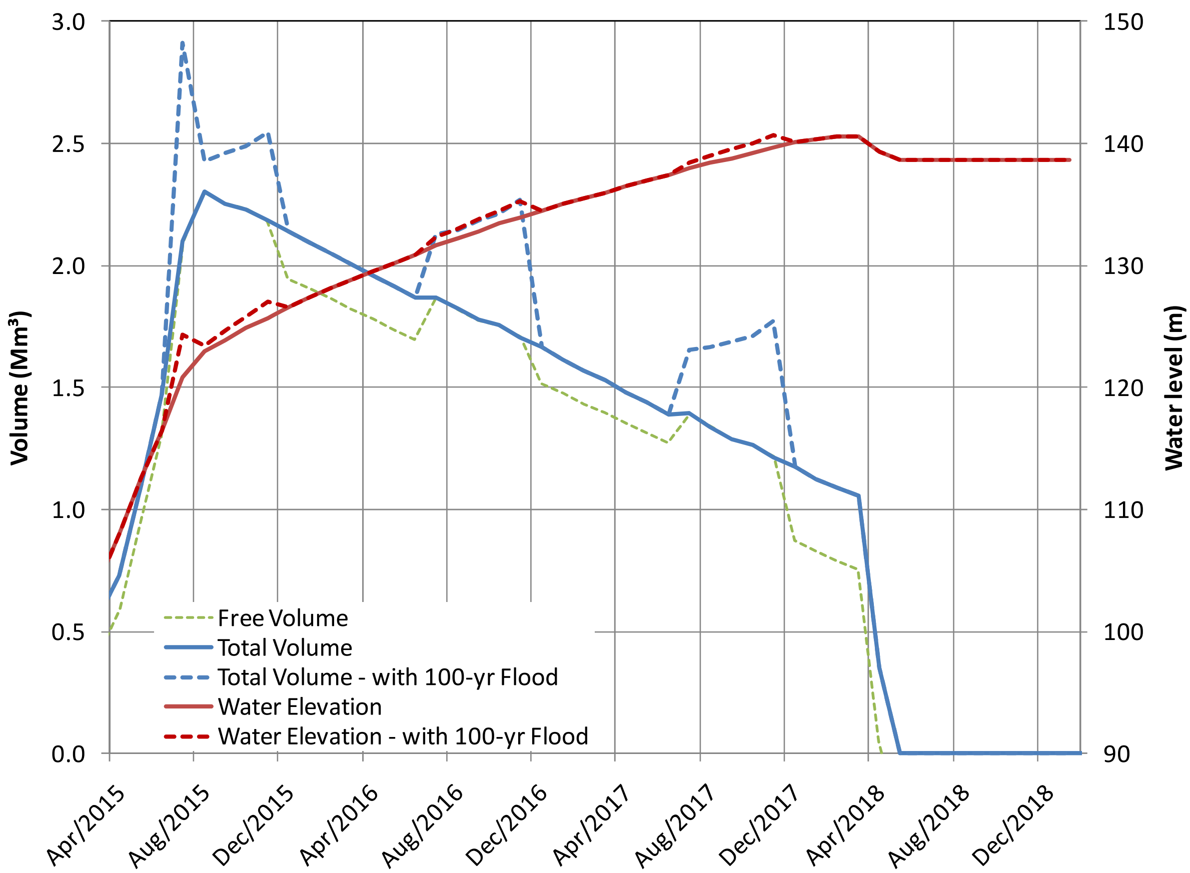


Figure 14 – South Cell TSF – Reclaim Pond



SECTION 4 –SENSITIVITY ANALYSIS BY INCREASING FRESHWATER USE TO 140 M³/HR

This section presents a sensitivity analysis where the freshwater consumption is increased to 140 m³/hr from 80 m³/hr (base case). All other assumptions and flow routing logics are the same as the base case.

Figure 15 – Flow to the Mill

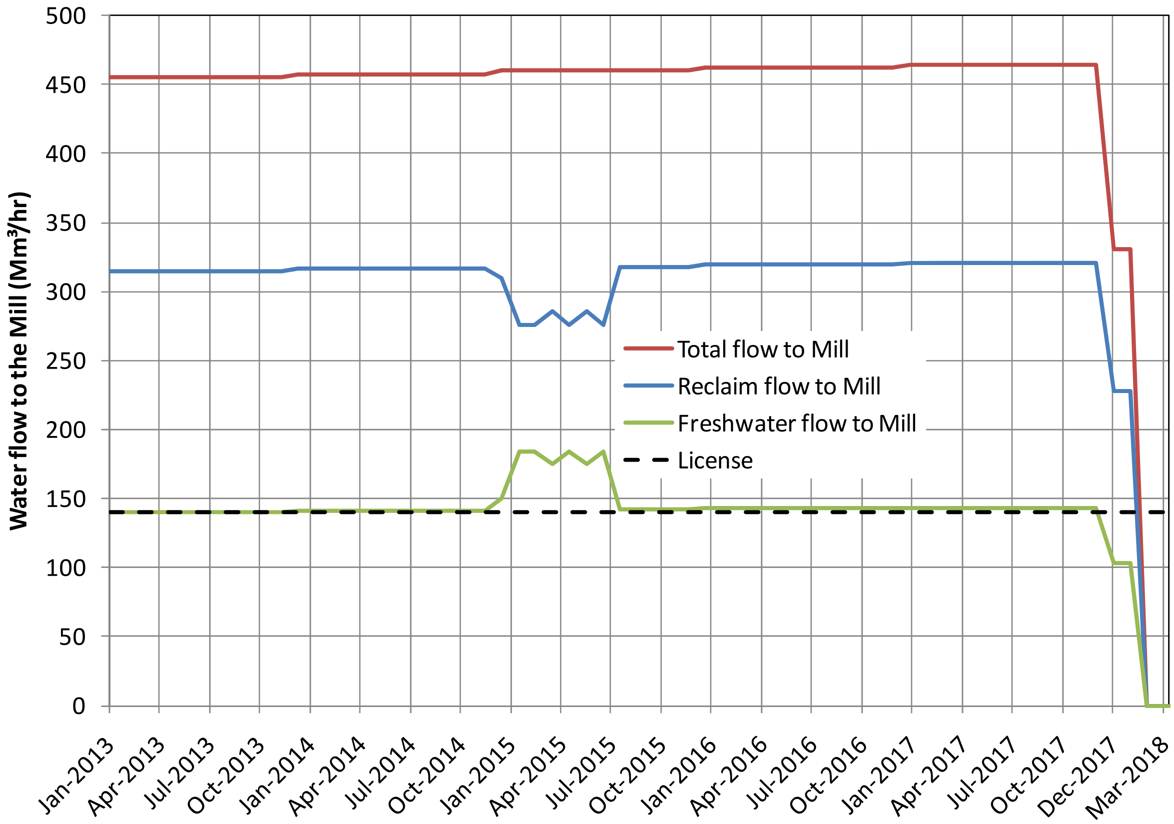


Figure 16 – North Cell TSF - Reclaim Pond

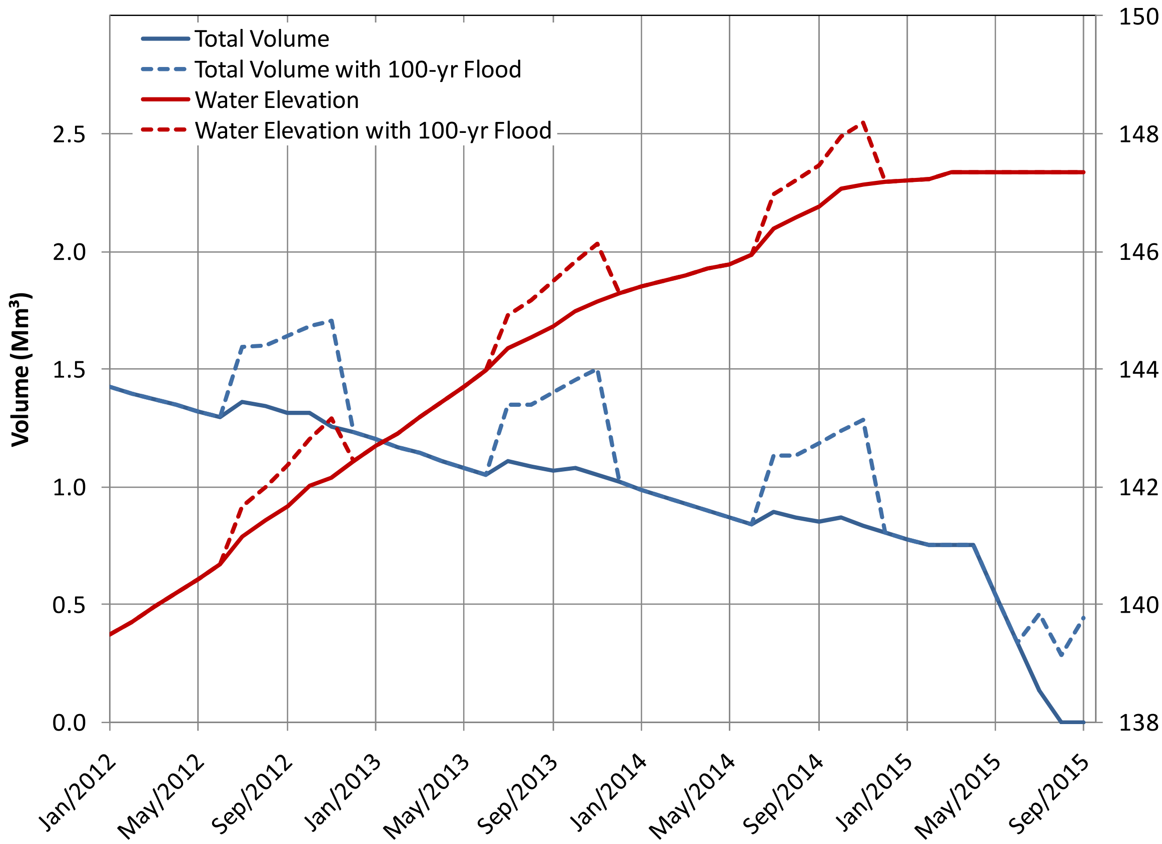


Figure 17 – South Cell TSF – Attenuation Pond

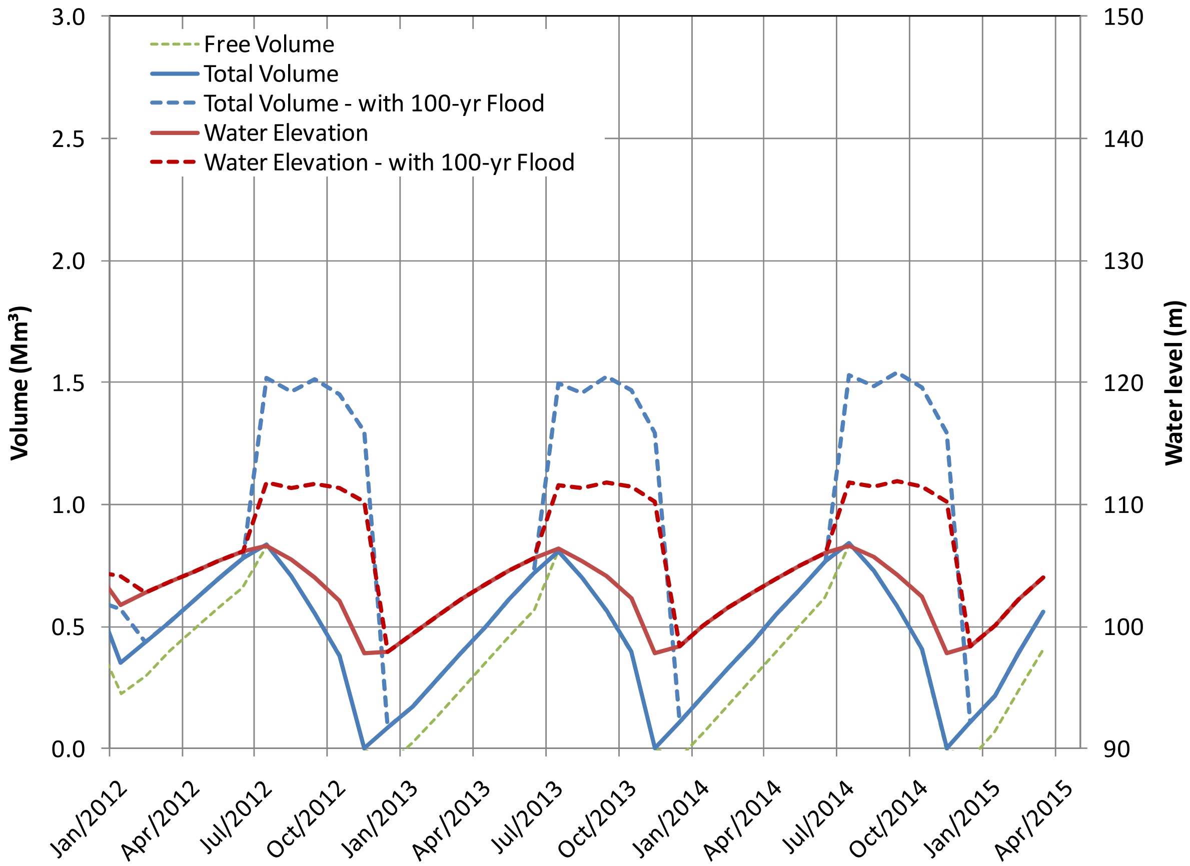
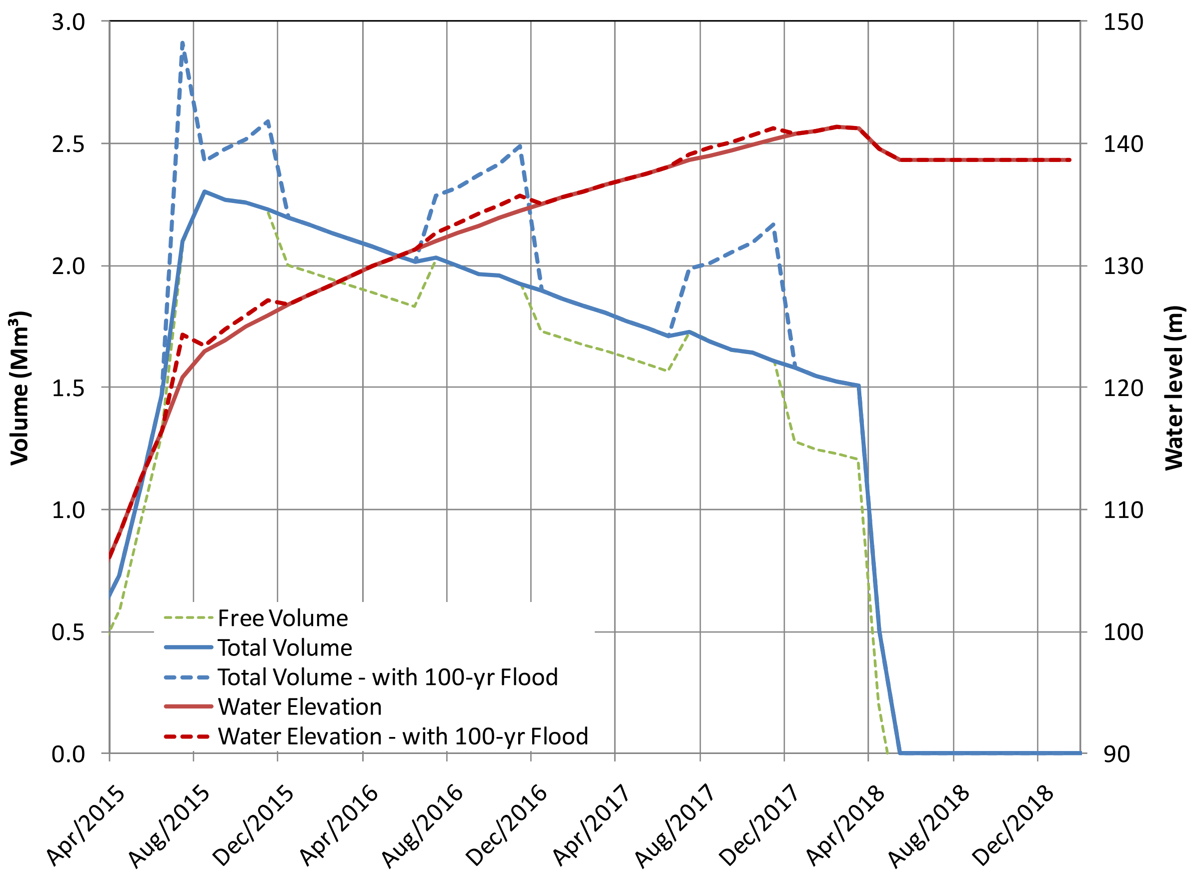


Figure 18 – South Cell TSF – Reclaim Pond



APPENDIX B

WATER QUALITY FOR THE PORTAGE AREA (2012-2025)

SNC·LAVALIN

SUSTAINABLE MINE DEVELOPMENT

AGNICO-EAGLE MINES

FINAL TECHNICAL NOTE

MEADOWBANK GOLD PROJECT WATER TREATMENT AND MASS BALANCE

Our file: 610756-0000-40ER-0002-01

March 2013

Certified ISO 9001

WE CARE
NOUS VEILLONS

Title of document: **Water Quality Forecasting for the Portage Area 2012-2025**

Client : **AGNICO-EAGLE MINES**

Project : **Meadowbank Gold Project**

Prepared by: Stéphanie Trottier, ing., M.Eng.

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

Approved by: Patrick Scholz, ing., M.Eng.

REVISION INDEX

Revision				Pages Revised	Remarks
#	Prep.	App.	Date		
PA	ST	ALN	24-10-2012	All	For internal review
PB	ST	ALN	26-10-2012	All	For client review
00	ST	ALN	19-12-2012	All	
01	ST	ALN	15-03-2012	All	

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

SNC-Lavalin (SLI) was mandated by Agnico-Eagle Mines (AEM) to review and update the water management plan of the Meadowbank Gold Project in accordance with the new Life of Mine (LOM) and mine development sequence.

1.1 MANDATE

The primary objective of this mandate was to undertake different studies related to water management at the Meadowbank Gold Project. More specifically, the mandate was divided into four (4) sections:

1. Water Management Plan 2012. This study includes a review and an update of the 2009 and 2012 Water Management Plans (Golder) based on the new LOM and mine development sequence.
2. Water Treatment and Mass Balance. This study is based on the Water Management Plan 2012 and provides a mass balance model for parameters of concern from now to closure (2012-2025).
3. Water Balance Model. This water balance is a probabilistic and modular model that will allow testing different scenarios by adjusting water flows, volumes and environmental site conditions, using the Goldsim software.
4. An Ammonia Management Plan. This plan proposes monitoring strategies for the different sources of ammonia on site and how to use the results to adjust operating practices to lower ammonia levels.

1.2 STUDY OBJECTIVES AND CONTENT

This Technical Note will present the study on Water Treatment and Mass Balance at the Meadowbank Gold Project. The water quality mass balance developed in this study was based on the Water Management Plan 2012 (SLI), on the new LOM and mine development sequence provided by AEM in February 2013 and summarized in Table 1-1; and applies to the North and South Cells TSF Reclaim Pond, and the Portage and Goose pits.

The objective of this Technical Note is to forecast the concentration of selected parameters in the Portage Area, including the North and South Cells TSF Reclaim Pond and the Portage and Goose Pits from 2012 until closure, and to determine whether water treatment will be required.

1.3 WATER MANAGEMENT PLAN (SLI, 2012)

The Water Management Plan (2012) (WMP 2012) and water balance developed by SLI were built using data received from AEM (topography, bathymetry, mine layout, updated mining sequence, etc.). They evaluate the monthly flows and volumes in the Portage and Vault areas, including the maximum storage volumes required for the water management infrastructures during the active life of mine, pit re-flooding activities and post closure, all under average hydrologic conditions.

The Water Management Plan (2012) was based on the revised mining schedule presented in Table 1-1 below.

1.4 WATER MANAGEMENT SCENARIO

During the development of the Water Management Plan 2012, a specific base case water balance scenario was evaluated. This scenario included the following points:

- The freshwater consumption at the mill is a function of the water volume available in the North or South Cell TSF Reclaim Pond.
- The freshwater consumption meets the maximum uptake of 80 m^3/hr stipulated in the water license (Nunavut Water Board License, 2008), when sufficient reclaim water is available.
- The total mill water demand is approximately 455 m^3/hr, for a tailings production of 11,200 metric tons/day.
- A minimum volume of 750,000 m^3 is maintained in the North or South Cell TSF Reclaim Pond for mine reclaim until the end of the usage of the pond.

It should also be noted that precipitation (rain and snowfall events) integrated in the water balance model are conservative average values. It was noted that the flows used in the model are higher than the flows observed on site.

For further information on the water balance, refer to the Water Management Plan 2012 (document no. 610756-0000-40ER-0001).

Table 1-1: Water Management Phases

ACTIVITY	UPDATED START DATE[1]	UPDATED END DATE[1]	ORIGINAL START DATE	ORIGINAL END DATE
Pits Mining				
Portage Pit	January 2010	December 2016	January 2009	December 2015
North	January 2010	December 2015	January 2009	December 2015
Central	January 2010	December 2013	January 2010	December 2015
South	January 2010	December 2016	January 2009	December 2015
Goose Island Pit	April 2012	June 2015	January 2014	December 2017
Vault Pit	January 2014	February 2018	January 2015	December 2019
Tailings Storage Facility Operations				
North Cell	January 2010	March 2015	January 2010	December 2012
South Cell	April 2015	February 2018	January 2013	December 2019
Rock Storage Facility (RSF) Operations				
Portage RSF	January 2009	December 2016	January 2009	December 2017
Vault RSF	January 2014	February 2018	January 2015	December 2019
Attenuation / Reclaim Pond Water Management				
Attenuation Pond (South Cell) [2]	January 2009	March 2015	January 2009	January 2013
Attenuation Pond Vault Lake	January 2014	February 2018	January 2014	December 2019
Mill Operations	January 2010	February 2018	January 2010	December 2019
Other Key Activities				
Dewatering of Vault Lake	September 2013	November 2013	January 2013	
Dewatering of Phaser Lake	September 2016	October 2016	n/a	
Flooding of Portage Pit	March 2017	September 2023	January 2017	
Flooding of Goose Island Pit	July 2015	September 2023	January 2018	
Flooding of Vault Pit	March 2018	October 2023	January 2020	
Mine Closure completed	n/a	January 2024	January 2025	

Note :
[1] Periods are given from the beginning of the starting month to the end of the ending month.
[2] After March 2015, the Reclaim Pond is relocated to the South Cell TSF. After this date, there is no Attenuation Pond.

2.0 REVIEW OF MEADOWBANK WATER QUALITY DATA

2.1 DOCUMENTS REVIEWED

A review of the available water quality data for the Meadowbank Gold Project was undertaken by SLI. This included a review of the following documents:

- Updated Water Management Plan (Golder 2009 and 2010);
- Chemical analysis results for the Portage Area from 2010 to 2012. The chemical analysis results of interest for this Technical Note are presented in Appendix B1, specifically:
  - North Cell TSF Reclaim Pond (ST-21) from 2010 to 2012.
  - Attenuation Pond (future South Cell TSF Reclaim Pond) (ST-18) from November 2011 to November 2012.
  - Mill effluent metal and cyanide concentrations from April to December 2012.
  - Third Portage Lake (EMM) for 2012.
- Meadowbank Water License (Nunavut Water Board Water License, 2008);
- Updated mine development sequence[1].

Moreover, given the limited water quality data available for the mill effluent, additional chemical analyses were requested by SLI in October 2012. These results are presented in section 2.2.3. It should be noted that the mill effluent is currently discharged to the North Cell TSF. The North Cell TSF Reclaim Pond thus collects water from the mill effluent; and additional runoff water from surrounding areas. It is important to remember that the review of the Meadowbank quality data was undertaken to gain a better understanding of the water quality in the Portage Area, particularly as it affects the TSF Reclaim Pond, and to provide a basis for the development of the mass balance.

2.2 REVIEW OF MEADOWBANK WATER QUALITY DATA

Based on the flows in the Portage Area, it was determined that the most important contributor to the water quality in the TSF Reclaim Pond was the mill effluent, since the other inflows consist of snow and ice melt, precipitation, and runoff from nearby areas (assumed to be *non-contact water*, i.e. not contaminated water).

[1] The updated mine development sequence for the Portage Area was provided by AEM in an e-mail dated September 26, 2012 and further revised during AEM's review of SLI's Water Management Plan (2012), Rev. 01.

2.2.1 North Cell TSF Reclaim Pond (ST-21)

A review of the chemical analysis for water samples collected in the North Cell TSF Reclaim Pond (station ST-21) was undertaken by SLI in order to identify contaminants that were either above discharge criteria (as stipulated in the MMER, CCME and/or the Water License, Part F) or whose concentration had significantly increased since 2010. It is understood that the MMER, CCME and Water License criteria apply to mining effluents discharged to the environment and are as such not applicable to the TSF Reclaim Pond since no effluent is discharged from this area to the environment. However, the MMER, CCME and Water License criteria were used as a guide, to identify potential parameters that may become a problem should they be discharged to the environment without treatment.

It should also be noted that the parameters of concern were only determined based on the chemical analyses provided by Meadowbank and summarized in Appendix B1. As such, parameters for which the North Cell TSF Reclaim Pond were not analyzed (such as total suspended solids) were not evaluated within the framework of this study.

The water quality review showed that the concentrations of the following parameters should be estimated since they may represent a potential long-term contamination risk (Figure 2-1):

- Cyanide (total)
- Copper
- Iron
- Nitrate
- Chloride
- Ammonia

Table 2-1 presents the MMER, Water License and CCME discharge criteria for these parameters that may represent a potential contamination risk in the Portage Area when filling Portage and Goose pits after the mining sequence is complete. These criteria are also presented in Figure 2-1, when applicable.

Table 2-1: Discharge Criteria for the Parameters Evaluated

PARAMETER	DISCHARGE CRITERIA		
	MMER (1)	*Water License* (2)*(Part F)*	*CCME* (3) *(criteria date)*
Cyanide (CN)	1.00 mg/L	0.5 mg/L	5 µg/L (as free CN) (1987)
Copper (Cu)	0.30 mg/L	0.1 mg/L	4 µg/L (4) (1987)
Iron (Fe)	*no criteria*	*no criteria*	0.3 mg/L (1987)
Ammonia (NH_3)	*no criteria*	16 mg N/L	0.86 mg N/L (5) (2001)
Nitrate (NO_3)	*no criteria*	20 mg N/L	2.94 mg N/L (2012)
Chloride (Cl)	*no criteria*	1,000 mg/L	120 mg/L (6) (2011)

Notes:
(1) MMER criteria corresponding to the maximum average monthly concentration
(2) Water License (Part F) criteria corresponding to the maximum average concentration
(3) CCME criteria as per the Water Quality Guidelines for the Protection of Aquatic Life for freshwater and long-term exposure. Criteria referenced from www.ccme.ca in Feb. 2013.
(4) The copper discharge criterion depends on hardness. For water hardness between 200 to 1000 mg/L of $CaCO_3$ (average hardness levels in the North Cell TSF Reclaim Pond and in Third Portage Lake) the copper limit is 4 µg/L.
(5) The ammonia concentration limit depends on temperature and pH (an increase in temperatures and pH leads to a more stringent ammonia concentration limit). In this case, 1.04 mg/L of NH_3, or 0.855 mg N/L was determined assuming a temperature of 10°C and a pH of 8.0.
(6) This is the long-term ammonia concentration limit. The short term concentration limit is 640 mg/L.

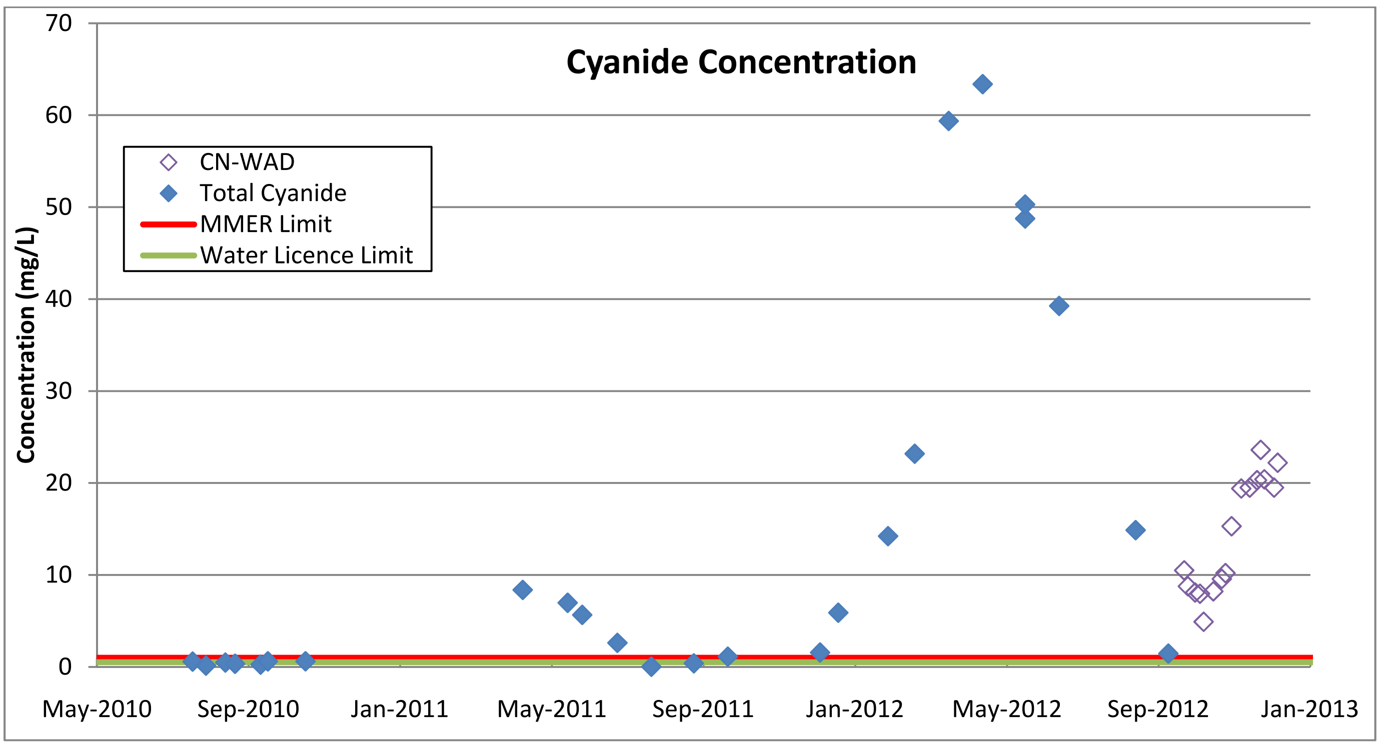


Figure 2-1: Concentration in the North Cell TSF Reclaim Pond

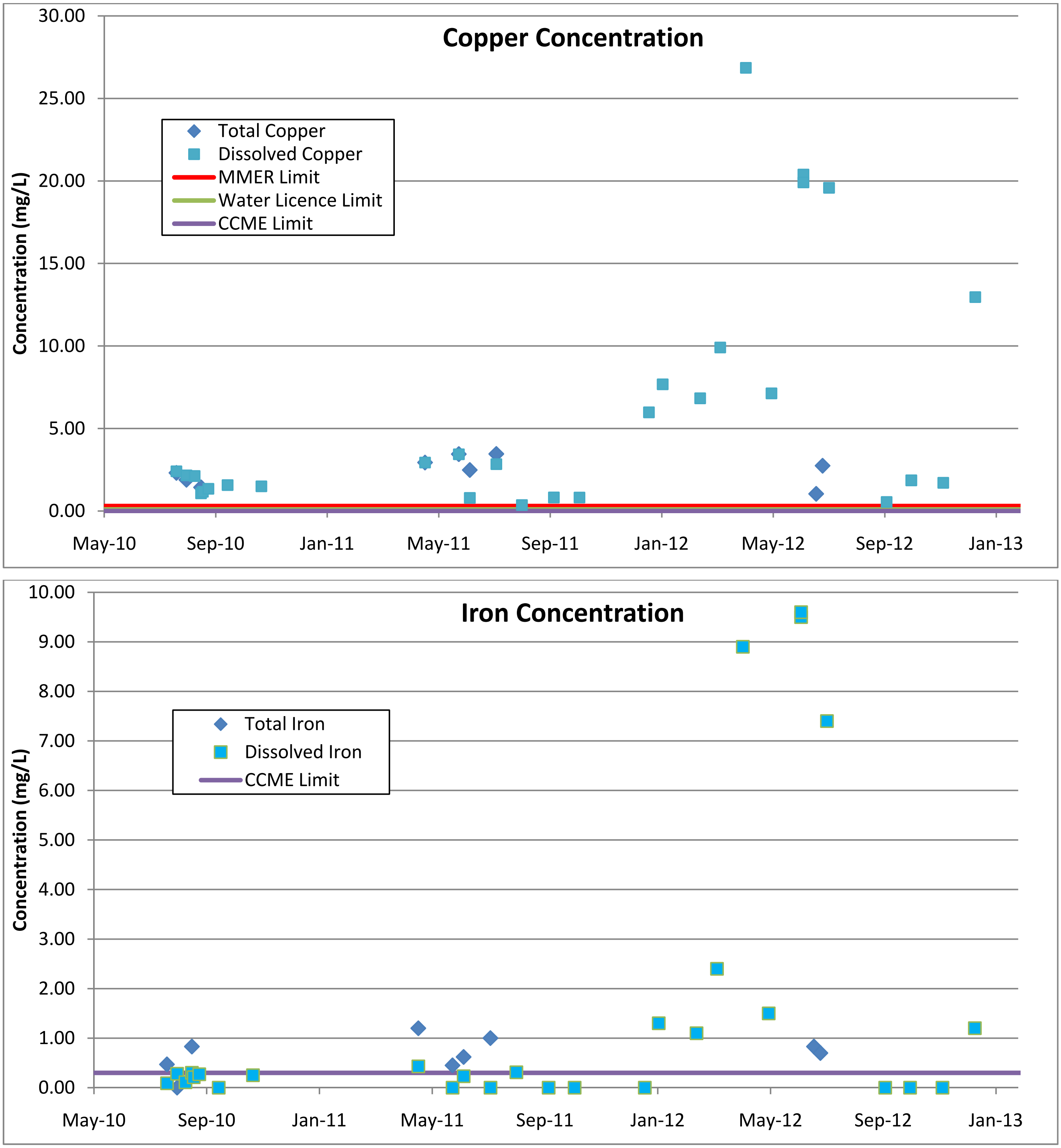
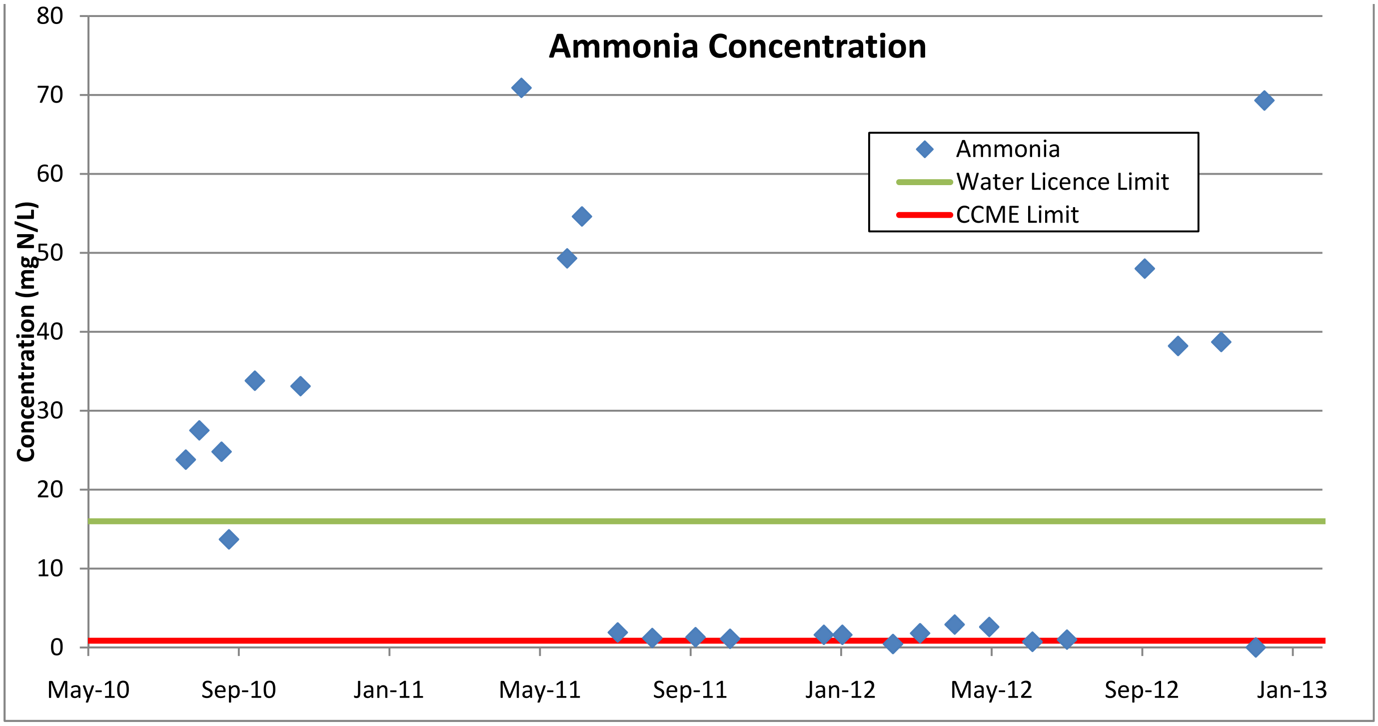


Figure 2-1: (continued) Concentration in the North Cell TSF Reclaim Pond



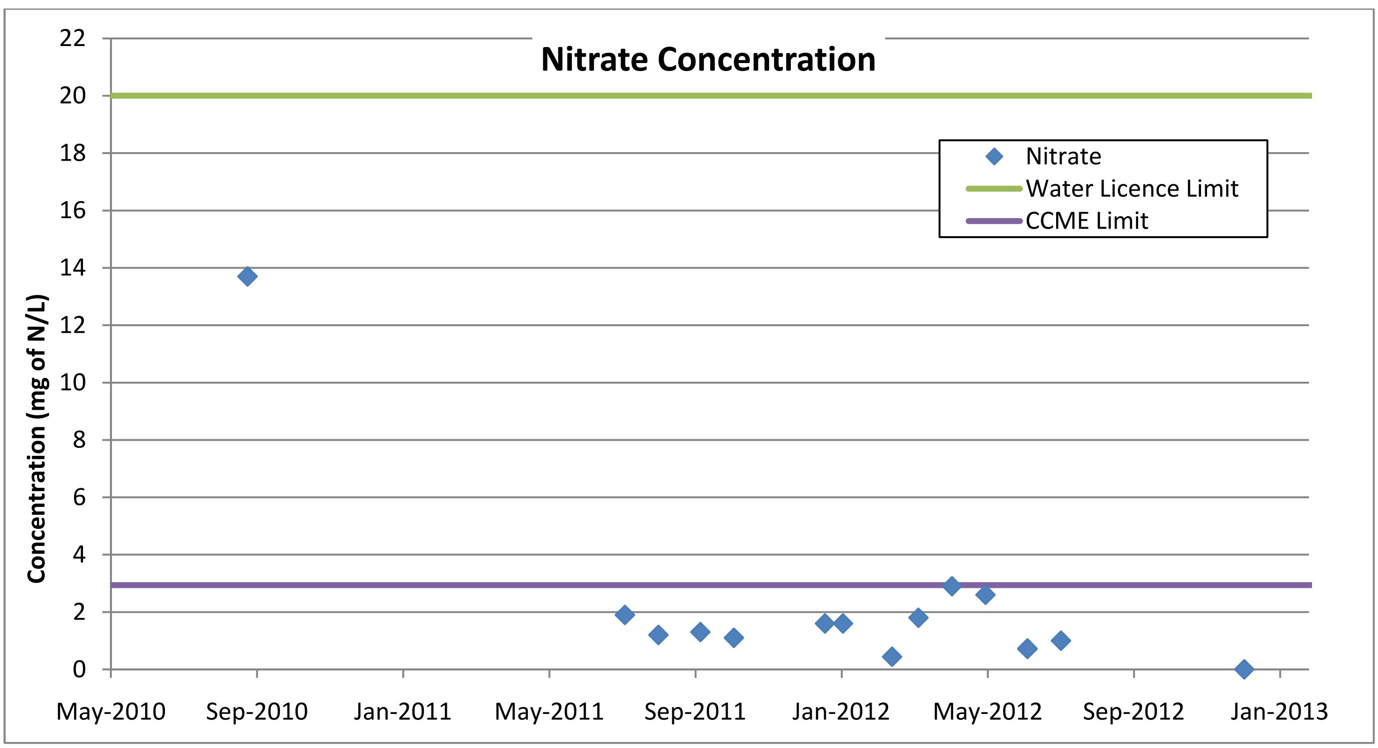


Figure 2-1: (continued) Concentration in the North Cell TSF Reclaim Pond

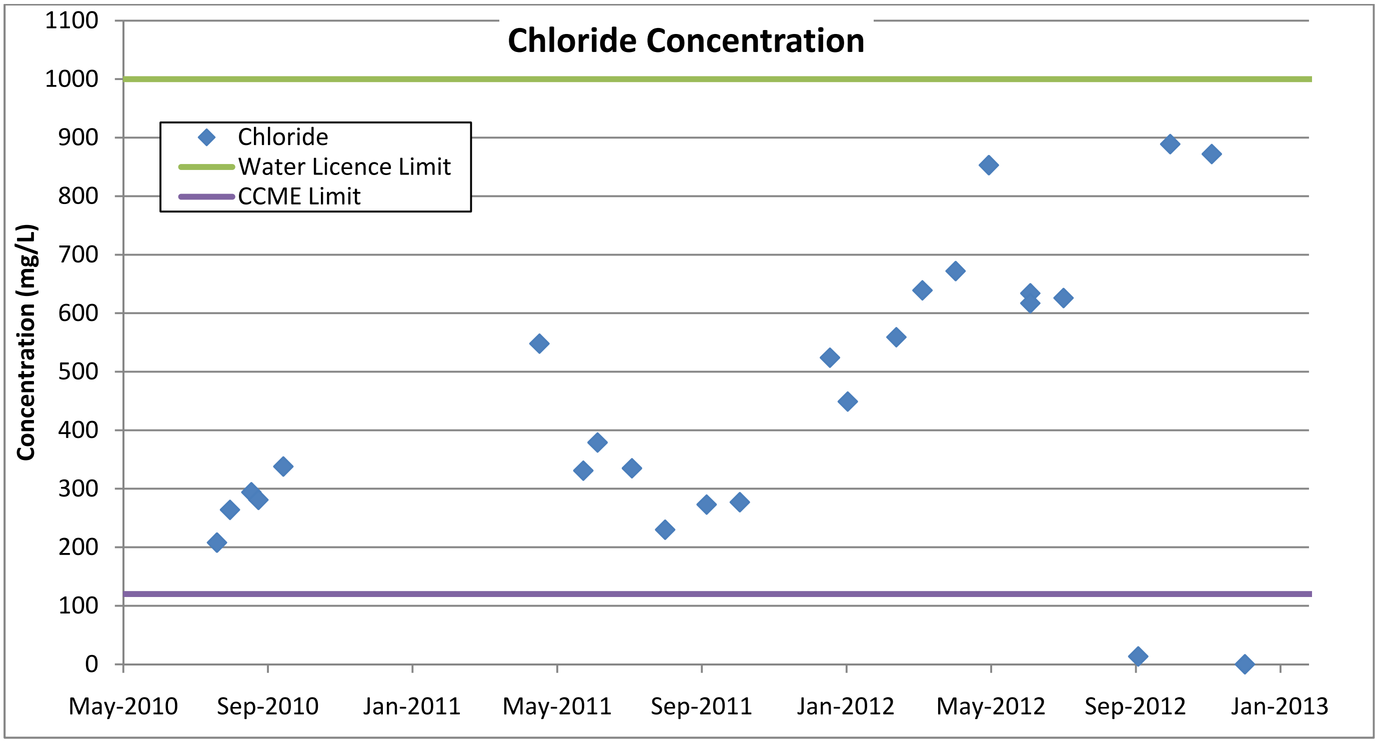


Figure 2-1: (continued) Concentration in the North Cell TSF Reclaim Pond

The graphs presented in Figure 2-1 show that cyanide and copper are above MMER discharge criteria. From January to August 2012, cyanide and copper concentrations were particularly high in the North Cell TSF Reclaim Pond and were most likely caused by operating problems with the SO_2/air cyanide destruction system at the mill. Because of this, the back-up sodium metabisulfite cyanide destruction system had to be used: pH control is difficult with this type of system, which leads to the re-dissolution of metals (i.e. high dissolved copper and iron concentrations at the mill effluent); and a lack of required chemicals for this backup system lead to higher cyanide concentration at the effluent. Thus, the concentrations measured for these parameters are not expected to be representative of normal future operational values (refer to Figure 2-2). It should be noted that the SO_2/air system is now operational and that there is a one (1)-year supply of chemicals required for the backup sodium metabisulfite system, if required.

AEM provided CN-WAD (weak acid dissociable) concentrations at the mill effluent from April to December 2012. These water quality results for the mill effluent showed that there has been a steady decrease in CN concentration since May 2012 (when CN peaked at 180 ppm), and now, on average, the mill effluent meets the AEM operational CN-WAD target of 15 ppm.

Similarly, iron concentrations in the North Cell TSF Reclaim Pond are above the CCME guidelines. There is no criterion for iron in the Water License (Part F) or in the MMER.

The dissolved fractions of iron and copper concentrations presented in Figure 2-1 are above the total iron and copper concentrations respectively, since the dissolved and total fractions were not always analyzed on the same day or at the same frequency. From July 2010 to August 2012, dissolved iron and copper were analyzed 24 times, whereas total iron and copper were analyzed nine (9) times. This explains why dissolved iron and copper concentrations are higher than the total iron and copper concentrations.

As for ammonia and nitrate, there was a notable increase in ammonia concentration from July 2010 to June 2011, followed by a sharp decrease in July 2012. Similarly, there was a general increase in nitrate concentration since June 2011, followed by a sharp drop in May 2012. These fluctuations may be explained by the following:

- The cyanide destruction system converts cyanide to cyanate which then hydrolyzes to form ammonia. Therefore, when the cyanide destruction system is operating efficiently, there should be a higher removal efficiency of cyanide, leading to a higher concentration of cyanate, and consequently a higher chance for it to hydrolyze to ammonia.
- Blasting operations at the pits can leave un-reacted explosive residues on the ore, mainly ammonium nitrate. The ammonium nitrate would then be processed through the mill and could end up in the mill effluent tailings. AEM confirmed that in order to curb the increase in ammonia and nitrate, Dyno Nobel (the company responsible for blasting operations on site) changed some of its blasting procedures. Since then, ammonia and nitrate levels have dropped. However, it should be noted that the pit water is currently pumped to the Attenuation pond and is not used at the mill. Therefore, at this time, high cyanide concentrations in the mill cannot be attributed to blasting operations. The Ammonia Management Plan (Document No. 610756-0000-40ER-0004, Rev. 00) provides a more detailed description of blasting operations and their management.

Chloride concentrations have been steadily increasing in the North Cell TSF Reclaim Pond and are above the CCME guideline yet still below the Water License criteria. AEM has asserted that chlorides are used as a dust suppressant in the mill, which would explain the increase in chloride concentration in the North Cell TSF Reclaim Pond. Note that chloride concentrations decreased considerably toward the end of 2012.

2.2.2 Mill Effluent

A review of the chemical analysis for the mill effluent was undertaken by SLI in order to identify the impact of the mill effluent water quality on the water quality observed in the North Cell TSF Reclaim Pond (section 2.2.1). The mill effluent is tested twice daily for gold (solid and dissolved) and iron (dissolved), copper (dissolved) and cyanide (CN-WAD). These chemical analyses were provided to SLI for April to December 2012 and the results are presented in Appendix B1.

Figure 2-2 shows the daily average dissolved metal concentrations and cyanide (CN-WAD) in the mill effluent. This figure illustrates the following:

- Dissolved iron and copper concentrations are particularly high in the mill effluent. Thus the main source of iron and copper in the TSF Reclaim Pond comes from the mill effluent.
- Dissolved iron and copper concentrations peaked in April-May 2012, i.e. when there were issues with the SO_2/air cyanide destruction system at the mill.
- There is a relationship between iron, copper and cyanide concentrations at the mill effluent. This is clearly represented in Figure 2-2, where all three (3) graphs behaved similarly in 2012.
- Cyanide concentrations have been decreasing since April-May 2012. The cyanide destruction system is now working and in general, cyanide (CN-WAD) concentrations in the mill effluent meet the 15 ppm discharge criterion.

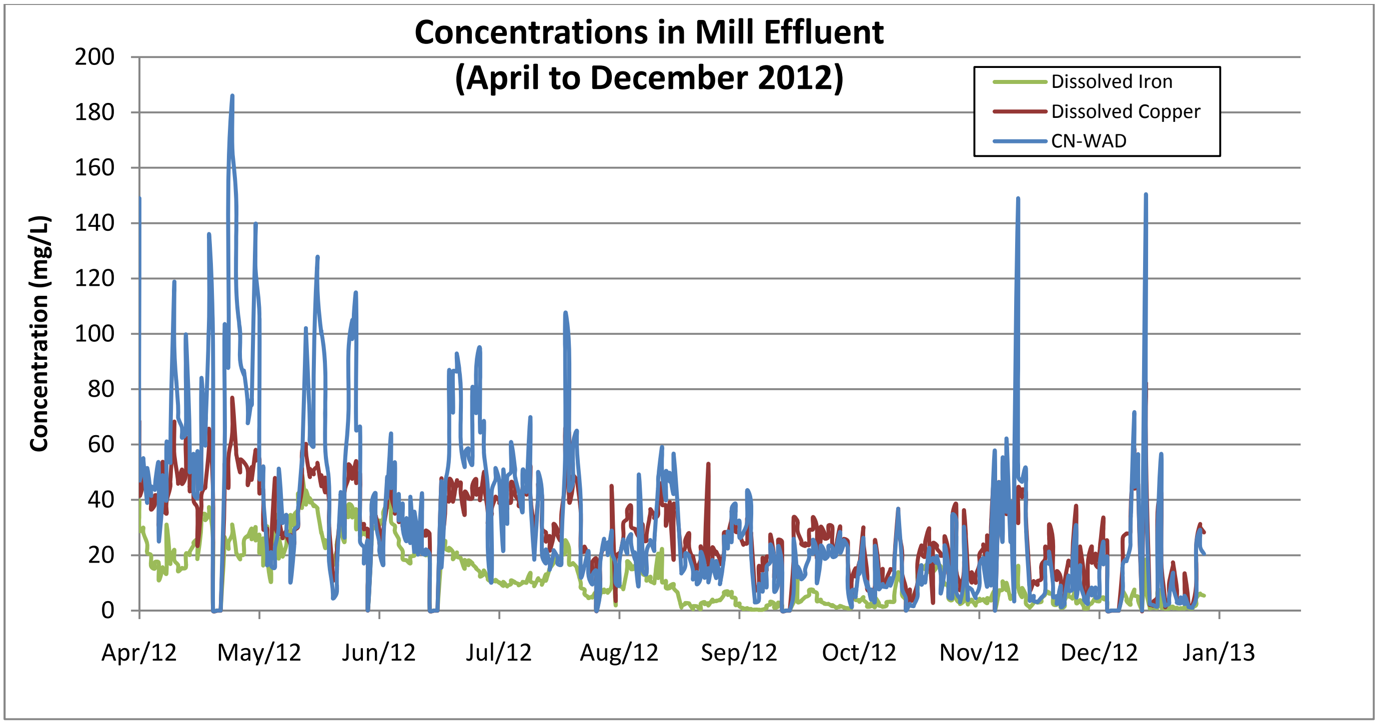


Figure 2-2: Dissolved Metal Concentrations and Cyanide (CN-WAD) in the Mill Effluent from April to December 2012

2.2.3 Additional Mill Effluent Water Quality Results

Given the limited water quality data available for the development of the water balance model, SLI requested that additional chemical analyses be made on the mill effluent water quality in order to identify the impact of the mill effluent water quality on the TSF Reclaim Pond.

Two (2) additional samples were collected at the mill effluent: one (1) on October 10, 2012 and the other on October 11, 2012. It is understood that these data points represent a very limited sampling campaign that may not be representative of the mill effluent water quality from 2010 until the end of operations.

The chemical analysis results of the additional sampling undertaken for the mill effluent are presented in Appendix B1 and are summarized in Table 2-2. The average (2010 to 2012) concentration in the North Cell TSF Reclaim Pond is also presented in Table 2-2 so as to compare the concentration coming from the mill effluent and the resulting concentration in the North Cell TSF Reclaim Pond.

Table 2-2: Mill Effluent Concentrations on October 10 and 11, 2012

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)		AVERAGE (2010-2012) CONCENTRATION IN THE NORTH CELL TSF RECLAIM POND
	October 10, 2012	October 11, 2012	
Total Cyanide (CN)	4.7	10.13	14.52
Copper (Cu)	10.08	9.02	2.42
Dissolved Copper	9.53	7.07	6.23 [(1)]
Iron (Fe)	1.8	2.2	0.76
Dissolved Iron	0.83	0.83	2.45 [(1)]
Ammonia (NH_3)	0.12	0.16	15.93
Nitrate (NO_3)	13.2	10.8	6.57
Chloride (Cl)	1288	1375	444

Table 2-2 shows that concentrations in the mill effluent are much higher than those observed in the North Cell TSF Reclaim Pond (with the exception of total cyanide, dissolved iron and ammonia). This shows that the main parameters of concern identified in the North Cell TSF Reclaim Pond can be traced to the mill effluent.

The discrepancies observed for the total cyanide and dissolved iron– in other words that the average 2010-2012 concentrations in the North Cell TSF Reclaim Pond are higher than the October 10-11, 2012 concentrations in the mill effluent – may be caused by the reported operating problems with the cyanide destruction system at the mill from April to May 2012 because:

[1] Dissolved and total fractions of iron and copper were not always analyzed on the same day or at the same frequency. From July 2010 to August 2012, dissolved iron and copper were analyzed 24 times, whereas total iron and copper were analyzed 9 times. This explains why the average dissolved iron and copper concentrations are above the average total iron and copper concentrations.

- The operating problems with the cyanide destruction system lead to high concentrations of cyanide in the mill effluent during that time period; therefore higher cyanide concentrations in the 2010-2012 North Cell TSF Reclaim Pond average than in the mill effluent samples collected in October 2012.

- Cyanide destruction triggers the formation of insoluble iron hydroxides that precipitate out of the solution. Therefore iron remained mainly in dissolved form from April to May 2012, leading to higher dissolved iron concentrations in the mill effluent. As such, the average 2010-2012 dissolved iron concentrations were higher in the North Cell TSF Reclaim Pond than they were in the mill effluent in the samples collected in October 2012.

2.2.4 Attenuation Pond

In April 2015, tailings will be deposited in the South Cell TSF and there will no longer be an Attenuation Pond. Once the South Cell TSF becomes operational, there will be a new reclaim pond in the South Cell. In April 2015 and prior to any mill effluent discharge, there is an initial water volume of 730,000 m^3 in the South Cell TSF Reclaim Pond. The initial cyanide, copper, iron, ammonia, nitrate and chloride concentrations in this pond should be considered to better represent the long-term concentrations in the South Cell and, later on, in the Portage and Goose Pits. Table 2-3 presents the average concentrations (November 2011 to November 2012) observed in the Attenuation Pond. These average values were selected as representing the initial (April 2015) concentrations in the South Cell TSF Reclaim Pond.

Table 2-3: Average (November 2011 to November 2012) Concentrations in the Attenuation Pond

PARAMETER	AVERAGE CONCENTRATIONS IN THE ATTENUATION POND (mg/L)
Total Cyanide (CN)	0.114 [(1)]
Copper (Cu)	0.005
Iron (Fe)	1.3
Ammonia (NH_3)	0.15 (mg N/L)
Nitrate (NO_3)	8.6 (mg N/L)
Chloride (Cl)	39.5

[1] This is a one-time CN-WAD measurement that took place in April 2012.

3.0 MASS BALANCE MODEL

3.1 DESCRIPTION

The water quality mass balance model presented in this Technical Note was developed to help forecast trends in water quality in the Portage Area of Meadowbank for different parameters of interest from July 2012 to mine closure in 2025. This mass balance model was based on the following:

- Flows and volumes provided in the water balance developed in the Water Management Plan 2012 (SLI, 2012);
- Assumptions presented below in section 3.2;
- Chemical analyses for ST-21 (North Cell TSF Reclaim Pond) (2010-2012);
- Chemical analyses for Third Portage Lake (2012);
- Chemical analyses for ST-18 (Attenuation Pond) (2011-2012);
- Chemical analyses for the mill effluent (2012).

3.2 ASSUMPTIONS

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

- For simplification of the model, the North and South Cell TSF Reclaim Ponds and the Portage and Goose pits are assumed to be completely mixed systems.
- The main source of cyanide, copper, ammonia, iron, nitrate, and chloride in the TSF Reclaim Pond is the mill effluent. All other inflow contaminant concentrations (Third Portage Lake[1], precipitation, runoff, etc.) are assumed to be negligible.
- The water quality of the mill effluent is constant over time.
- The pH in the TSF Reclaim Pond remains constant at 8 (July 2010 to December 2012 average pH value).
- For simplification of the model, the parameters of interest are assumed to be inert: they do not degrade or react with other elements in the system, with the exception of cyanide.
- For cyanide, it is assumed that the mill effluent meets AEM's CN-WAD operational target of 15 mg/L at all times.

[1] 2012 water quality data showed that the concentrations observed in Third Portage Lake were on average 95% lower than those in the North Cell TSF Reclaim Pond. It was therefore assumed that any input of contaminants from Third Portage Lake would be negligible.

- The total cyanide in the TSF Reclaim Pond is comprised of free cyanide and metal-cyanide complexes (weak and strong metal cyanide complexes). As per discussions with AEM, most of the iron- and metal-cyanide complexes are precipitated in the mill. However, since the reaction is not complete or perfect, some dissolved iron- and metal-cyanide complexes are expected to remain in the mill effluent. Therefore it was assumed that 10% of the total cyanide concentration was bound as strong iron-cyanide complexes, and that another 10% of the total cyanide concentration was present as weak metal-cyanide complexes (cyanide bound with copper, zinc, and nickel). The balance is present as free cyanide (i.e. HCN and CN^-). This agrees with values observed at other gold mine tailings sites (Simovic, 1984). These same proportions are assumed to apply to the cyanide at the mill effluent.
- The initial concentration of total cyanide, copper, iron, ammonia, nitrate, and chloride in the Portage and Goose Pits are assumed to be negligible.
- The initial concentration of total cyanide, copper, iron, ammonia, nitrate, and chloride in the North Cell TSF Reclaim Pond is the concentration obtained in July 2012 for station ST-21.
- The initial concentration of total cyanide, copper, iron, ammonia, nitrate, and chloride in the South Cell TSF Reclaim Pond is assumed to be the average concentration obtained from November 2011 to November 2012 for station ST-18 (current Attenuation Pond).
- For this analysis, it is assumed that no treatment will take place at the North or South Cell TSF Reclaim Pond, or at the Portage or Goose Pits.
- Assumed average hydrologic conditions precipitations.

3.3 LIMITATIONS

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

- In order to simplify the model, the mass balance model assumes that the pond and pits are completely mixed systems. It is understood that given the nature, size, and location of the ponds and pits, and based on the nature of their inflows and outflows, these ponds and pits are not actual well-mixed systems. Therefore, the concentration may be higher in certain areas within the pond/pit and lower in other areas. Consequently, the results from this model provide only an indication of the concentrations in the ponds and pits and should not to be considered as an absolute value at this time. Future monitoring results both for flows and water quality will provide for a better indication of concentrations of contaminants.
- The mass balance model is based on the water quality analysis results provided by AEM:

- Water quality data provided for ST-21 is taken from samples collected at the surface of the North Cell TSF Reclaim Pond. Therefore the concentrations provided by AEM for ST-21 may not be representative of the entire TSF Reclaim Pond water quality.
- There is limited water quality data available for the mill effluent, in terms of contaminants analyzed: the mill effluent is only analyzed for a total of four (4) parameters: gold, iron, copper, cyanide (CN-WAD).
- There is limited water quality data available for some of the inflows and outflows of the TSF Reclaim Pond (runoff from other areas, reclaim water to mill, etc.).

- In 2010 and from January to August 2012, there were problems with the cyanide destruction system on site. Therefore the cyanide, ammonia and metal concentrations observed during that time may not be representative of normal operating conditions.
- The model does not make allowances for the impact that changes in the TSF (surface area, volume, tailings characteristics, etc.) will have on the TSF Reclaim Pond water quality over time.
- The model is based on a monthly time-step and the resulting concentrations provided represent monthly values.
- The average flows used to develop the model were based on the base case presented in the water balance in the Water Management Plan 2012. These average flows integrated within the water balance are conservative and higher than the average flows currently observed on site (refer to section 1.4). Therefore, the concentrations estimated in the mass balance may be lower than future actual concentrations.
- It should be noted that at this point, given the limitations, assumptions and limited data currently available, the model should be used as a preliminary means to evaluate the impact of mill effluent on the future water quality in the North and South Cell TSF Reclaim Pond and Portage and Goose Pits.
- Furthermore, this model is intended as an initial model for the mass balance in the Portage Area and should be updated and calibrated as concentrations of different flows in the Portage Area become available. Refer to section 5.3 for recommendations on improving the mass balance.

3.4 INPUT PARAMETERS

The mass balance model for the Portage area of Meadowbank was developed to forecast the long-term concentration of cyanide, copper, ammonia, nitrate and chloride in the North and South Cell TSF Reclaim Pond and in the pits, based on the assumptions presented in section 3.2 and on the following input parameters:

- Mill effluent concentration;
- Initial concentration in the North and South Cells TSF Reclaim Pond;
- Initial concentration in the Portage and Goose Pits.

3.4.1 Mill Effluent Concentration

Table 3-1 presents the mill effluent concentrations considered for the mass balance. The average mill effluent concentrations selected were based on the chemical analyses provided and presented in Appendix B1, for the mill effluent and station ST-21. It is understood that the chemical analysis results for station ST-21 represent the water quality at the North Cell TSF Reclaim Pond, and not at the mill effluent. However, it was determined that the concentrations observed at station ST-21 were representative of mill effluent concentrations because:

- The Reclaim Pond concentrations are primarily influenced by the mill effluent water quality.
- On average, 95% of the total Reclaim Pond inflow comes from the mill. Consequently, the TSF water volume is made up primarily of mill effluent.
- ST-21 samples are collected at the surface of the Reclaim Pond; therefore they may provide a more accurate depiction of the influent mill flow.

Table 3-1: Average 2012 Mill Effluent Concentrations Selected for the Mass Balance Model

PARAMETER	AVERAGE 2012 MILL EFFLUENT CONCENTRATION (mg/L)
Total Cyanide (CN)	16.7 [(1)]
Copper (Cu)	28.3 [(2)]
Iron (Fe)	11.8 [(2)]
Ammonia (NH_3)	17.1 [(3)]
Nitrate (NO_3)	9.9 [(3)]
Chloride (Cl)	674 [(3)]

[1] The internal CN-WAD criterion for the mill effluent is a CN-WAD concentration of 15 mg/L. Assuming that CN-WAD represents 90% of total CN (refer to section 3.2), then this CN-WAD internal criterion translates to a CN total criterion of 16.7 mg/L.
[2] Average April to December 2012 mill effluent concentrations.
[3] Average January to December 2012 ST-21 concentrations.

3.4.2 Initial Concentrations in the TSF Reclaim Ponds and Pits

The mass balance model begins in July 2012. Therefore, the initial concentrations selected for the North Cell TSF Reclaim Pond correspond to the July 2012 chemical analysis results from station ST-21. These initial concentrations are presented in Table 3-2. A 6- or 12-month average concentration was not used as the initial North Cell TSF Reclaim Pond concentration since concentrations observed earlier in 2012 are not representative of normal concentrations, mainly because of the issues with the cyanide destruction system at the mill.

On the other hand, the initial (April 2015) concentrations selected for the South Cell TSF Reclaim Pond (former Attenuation Pond) correspond to the 12-month (November 2011 to November 2012) average concentration results from station ST-18 (current Attenuation Pond). Note that in general, the concentrations observed in the Attenuation Pond had little variation from one month to the other. These initial concentrations are also presented in Table 3-2.

At this time, the Portage and Goose Pits collect non-contact water (such as runoff and seepage). Therefore it was assumed that the initial concentration (cyanide, copper, iron, ammonia, nitrate, and chloride) in the Portage and Goose Pits was 0, until the transfer from the TSF Reclaim Pond to the pits begins in 2018.

The results of the mass balance model are presented in section 4.0.

Table 3-2: Initial Concentration in the North and South Cells TSF Reclaim Pond

PARAMETER	INITIAL CONCENTRATION (mg/L)	
	NORTH CELL TSF RECLAIM POND (June 2012)	SOUTH CELL TSF RECLAIM POND (April 2015)
Total Cyanide (CN)	39.3	0.114[1]
Copper (Cu)	19.6 (2)	0.005
Iron (Fe)	7.4 (1)	1.3
Ammonia (NH_3)	1.0	0.15
Nitrate (NO_3)	8.6	8.6
Chloride (Cl)	626	39.5

[1] This is a one-time CN-WAD measurement that took place in April 2012.
[2] Initial iron and copper concentrations in July were available for the dissolved fractions only. It was assumed that the dissolved iron and copper concentrations in July were equal to the total iron and copper concentrations.

3.5 CYANIDE DECAY

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

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

Cyanide volatilization can be summarized as a two (2)-step process presented in Figure 3-1 below. First, metal-cyanide complexes dissociate to free cyanide (HCN and CN^-)[1] based on a first-order decay constant[2] (k_1); followed by HCN volatilization based on a first-order decay constant[2] (k_v). Both decay constants k_1 and k_v depend on the presence of UV light (sun) and air (wind), and water temperature and pH. The volatilization decay constant, k_v, also depends on the surface area to volume ratio of the pond.

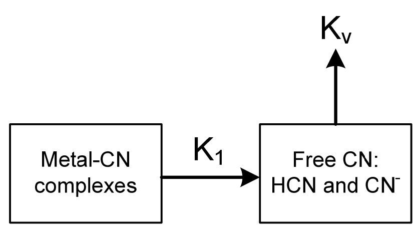


Figure 3-1: Cyanide Volatilization Process

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

- Summer conditions: an average water temperature of 10°C, presence of air and UV light. Furthermore, since metal-CN dissociation and HCN volatilization by air and UV is particularly important in the summer months, the decay constant factors in the physical property of the tailings impoundment, represented by the open surface area to volume ratio. Multiplying the decay constant by this ratio takes into account the accelerated reaction due to a large exposed surface area of the Reclaim Pond.

[1] Equilibrium between HCN and CN^- is based on pH.
[2] A first order decay constant signifies that the final concentration (C_f) can be estimated as, $C_f=C_ie^{-kt}$, where k is the first order decay constant.

- Winter conditions: an average water temperature of 4°C, no air and no UV, since there the TSF Reclaim Pond is covered by a layer of ice in the winter, metal-CN dissociation and HCN volatilization due to UV and wind is negligible.
- The pH in the Reclaim Pond is maintained constant at 8.0, which means that most (94%)[1] of the free cyanide will be present as HCN. Note that as the pH decreases, the proportion of free cyanide as HCN increases, which increases cyanide degradation through volatilization.
- As stated in section 3.2, it was assumed that 10% of the total cyanide concentration was bound as iron-cyanide complexes, another 10% as metal (copper, nickel and zinc) cyanide complexes, and 80% as free cyanide. This agrees with values observed at other gold mine tailings impoundments.

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

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

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

DECAY CONSTANT	DESCRIPTION	WINTER CONDITIONS[2]			SUMMER CONDITIONS		
		Conditions	k_0	Calibrated value (k)	Conditions	k_0	Calibrated value (k)
K_1	Metal-CN dissociation	4° No air No UV	0.00198/hr	1.45/month	10° Air (wind) UV (sunlight)	0.01443/hr	2.11/month
K_V [3]	HCN volatilization		0.0164/hr	3.07/month		2.382 cm/hr	58.0 m/month

[1] The dissociation constant for HCN is pKa = $10^{-9.2}$.
[2] During the winter, most of the Reclaim Pond is covered in ice and/or snow.
[3] In the summer k_v strongly depends on the presence of air and UV, and thus it also depends on the surface area to volume ratio (A/V). Therefore, the k_v value for the summer season has units of cm/h or m/month and should be multiplied by A/V.

4.0 MASS BALANCE RESULTS

4.1 RESULTS

The results of the mass balance model are presented in the Figures 4-1 to 4-14, for total cyanide, copper, iron, ammonia, nitrate, and chloride. The graphs show the forecasted monthly concentration of the parameter from 2012 to 2025. A total of two (2) graphs are presented per parameter: the first shows the forecasted concentration in the North and South Cells TSF Reclaim Pond and the second shows the forecasted concentration in the Portage and Goose Pits, assuming that the water is pumped without treatment. The applicable Water License and CCME limits (refer to Table 2-1) were also included in the figures, when applicable.

Again, it is important to remember that the results presented in Figures 4-1 to 4-14 are based on the concentrations presented in Tables 3-1 and 3-2, and summarized in the following Table 4-1. It is also important to note that the results from this model assume that no treatment of the Reclaim Pond effluent is undertaken; and provide only a forecast of the concentrations of the parameters selected. These results must be reviewed while keeping in mind the assumptions and limitations described in section 3.2 and 3.3.

Table 4-1: Summary of Input Parameter Concentrations in the Mass Balance Model

PARAMETER	CONCENTRATION (mg/L)		
	NORTH CELL TSF RECLAIM POND July 2012	MILL EFFLUENT	SOUTH CELL TSF RECLAIM POND April 2015
Total Cyanide (CN)	39.3	16.7	0.114
Copper (Cu)	19.6	28.3	0.005
Iron (Fe)	7.4	11.8	1.3
Ammonia (NH_3)	1.0	17.1	0.15
Nitrate (NO_3)	8.6	9.9	8.6
Chloride (Cl)	626	674	39.5

4.2 DISCUSSION

4.2.1 Key Dates

The mass balance model presented in this Technical Note is based on the updated water management plan. The following key dates are important to keep in mind while reviewing the forecasted concentration data presented in Figures 4-1 to 4-14:

1. April 2015: The former Attenuation Pond becomes the South Cell and TSF Reclaim Pond.

2. March-April 2018: Any excess water transferred from the South Cell TSF Reclaim Pond to Portage and Goose Pits.
3. May 2018: South Cell TSF Reclaim Pond is completely empty.
4. July 2015 to September 2025: Pumping water from Third Portage Lake to Goose Pit.
5. June 2017 to September 2022: Pumping water from Third Portage Lake to Portage Pit.

4.2.2 Forecasted Concentrations in the North and South Cells TSF Reclaim Pond

Table 4-2 summarizes the observations noted in Figures 4-1 to 4-12, specifically for the forecasted concentrations in the Reclaim Pond (North and South cells).

Table 4-2: Summary of Forecasted Concentrations in Reclaim Pond

PARAMETER	FORECASTED CONCENTRATION (mg/L)				WATER LICENSE PART F (CCME) (mg/L)
	NORTH CELL TSF RECLAIM POND		SOUTH CELL TSF RECLAIM POND		
	July 2012 (initial)	2012 to 2015	April 2015 (initial)	2015 to 2018	
Total Cyanide (CN)	39.3	Fluctuate from 0.41 to 1.96	0.114	Fluctuate from 0.14 to 0.55	0.5 (free CN 0.005)
Copper (Cu)	19.6	Fluctuate from 20 to 28	0.005	Fluctuate from 8 to 28	0.1 (0.004)
Iron (Fe)	7.4	Fluctuate from 8 to 12	1.3	Fluctuate from 4 to 12	n/a (0.3)
Ammonia (NH_3)	1.0 (mg N/L)	Fluctuate from 3 to 17	0.15 (mg N/L)	Fluctuate from 3 to 17	16 (0.86) (mg N/L)
Nitrate (NO_3)	8.6 (mg N/L)	Fluctuate from 9 to 10	8.6 (mg N/L)	Fluctuate from 6 to 10	20 (2.9) (mg N/L)
Chloride (Cl)	626	Fluctuate from 600 to 660	39.5	Fluctuate from 148 to 660	1000 (120)

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

i. The fluctuations observed from 2012 to 2018 are primarily due on seasonal variability (runoff from nearby areas, snow and ice melt, temperature, etc.).

ii. Natural degradation of cyanide plays a significant role in reducing the concentration of cyanide in the TSF Reclaim Pond.

iii. For ammonia, it is important to note that (1) the mass balance model developed here does not include seasonal variability (sunlight, microbial or algae degradation of ammonia, etc.), and (2) ammonia concentrations can vary significantly depending on temperature, pH, sunlight, algae activity, etc. Ammonia concentrations may be lower in the summer and higher in the winter.

iv. Similarly, for nitrate, it is important to remember that (1) the mass balance model developed here does not include seasonal variability, and (2) ammonia decomposes to nitrate, therefore nitrate concentrations can vary significantly depending on temperature, pH, sunlight, algae activity, etc. Nitrate concentrations may be lower in the winter and higher in the summer.

v. Guidelines:

   a. For comparison purposes, the forecasted concentrations for the following parameters are above the Water License discharge criteria: total cyanide, copper and ammonia.

   b. For comparison purposes, the forecasted concentrations for the following parameters are above the CCME guidelines for the protection of aquatic life: cyanide, copper, iron, ammonia, nitrate, and chloride.

   c. However, it is important to note that no water in the TSF Reclaim Pond from 2012 to July 2018 is discharged to the environment. Thus, the Water License discharge criteria are not applicable.

vi. Future ammonia concentrations may be higher than the values projected in the water quality model because the model does not take into account the hydrolysis of cyanate into ammonia. This hydrolysis was not included as part of the natural degradation process of cyanide, but may lead to lower cyanide concentration in the Reclaim Pond but higher concentrations of ammonia.

4.2.3 Forecasted Concentrations in Portage and Goose Pits

Table 4-3 summarizes the observations noted in Figures 4-1 to 4-12, specifically for the forecasted concentrations in Portage and Goose Pits.

Table 4-3: Summary of Forecasted Concentrations in Portage and Goose Pits

PARAMETER	FORECASTED CONCENTRATION (mg/L)				CCME (mg/L)
	PORTAGE PIT		GOOSE PIT		
	April 2018 (initial)	Dec. 2025 [1] (end)	April 2018 (initial)	Dec. 2025 [1] (end)	
Total Cyanide (CN)	0.0163	0.00312	0.003	0	0.005 as free CN
Copper (Cu)	1.88	0.38	1.79	0.89	0.004
Iron (Fe)	0.85	0.17	0.81	0.41	0.3
Ammonia (NH_3)	0.83 (mg N/L)	0.17 (mg N/L)	0.79 (mg N/L)	0.40 (mg N/L)	0.86 (mg N/L)
Nitrate (NO_3)	0.41 (mg N/L)	0.08 (mg N/L)	0.39 (mg N/L)	0.19 (mg N/L)	2.9 (mg N/L)
Chloride (Cl)	29.7	6.0	28.3	14.1	120

Based on the model for forecasting of the concentrations in the Reclaim Pond, the following notes and observations can be made:

i. In general, the concentrations of all parameters in the pits are initially elevated but then decrease when the pits are flooded with water from Third Portage Lake, and from runoff and seepage inflows to the pits.

ii. Guidelines:

   a. In December 2025, the forecasted concentrations for the Portage and Goose Pits are above the CCME guidelines limits for copper.

   b. In December 2025, the forecasted concentrations for Goose Pit are above the CCME guidelines for iron.

   c. However, it is important to note that the water quality in the pits will be subject to CCME guidelines once the water level in the Goose and Portage pits are equal to the water level in Second Portage Lake, and the dikes are breached.

Future ammonia concentrations may be higher than the values projected in the water quality model because the model does not take into account the hydrolysis of cyanate or nitrate into ammonia. This hydrolysis may lead to lower cyanate and nitrate concentrations in the Pits, but higher concentrations of ammonia.

Consequently, the parameters of concern are copper, iron and potentially ammonia. The water quality model was used to project the concentrations required at the mill effluent and/or the TSF Reclaim Pond in order to meet the CCME guidelines for these parameters in both Portage and Goose Pits once they were flooded. Table 4-4 present these values.

[1] This represents the final, stable concentration in the Pits.

Table 4-4: Projected Concentrations Required at the Mill Effluent/TSF Reclaim Pond to meet CCME Guidelines

PARAMETER	MAXIMUM CONCENTRATIONS AT THE MILL EFFLUENT OR TSF RECLAIM POND TO MEET CCME GUIDELINES (mg/L)
Copper (Cu)	0.1 to 0.3
Iron (Fe)	10
Ammonia (NH_3)	30 (mg N/L)

The values listed in Table 4-4 can be used as a guideline when monitoring the concentrations in the TSF Reclaim Pond. If the concentrations tend to stay above these, actions will have to be taken prior to the transfer of the TSF Reclaim Pond water to the pits.

4.2.4 Treatment Requirements

Based on the results of the water quality mass balance presented in section 4.2, treatment may be required for copper and iron. Treatment should be undertaken at the South Cell TSF Reclaim Pond, or prior to discharge in the Portage and Goose Pits.

Also, it may possible to improve the treatment already in place at the mill. For example, the use of the SO_2/air cyanide destruction system over the sodium metabisulfite cyanide destruction system would yield lower dissolved copper and iron concentrations because it is easier to control pH with SO_2/air cyanide destruction system, which leads to more efficient copper and iron precipitation; thus any iron or copper precipitate would settle in the TSF.

If high copper and iron concentrations persist, these metals may be removed through pH adjustment: caustic or lime can be added to the effluent to increase the pH, causing the formation of metal hydroxide precipitates, which settle out.

Furthermore, if ammonia concentrations are too high, ammonia can be removed through a variety of treatment methods:

- Biological treatment;
- Chemical oxidation;
- Membrane processes such as reverse osmosis;
- Ion exchange.

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

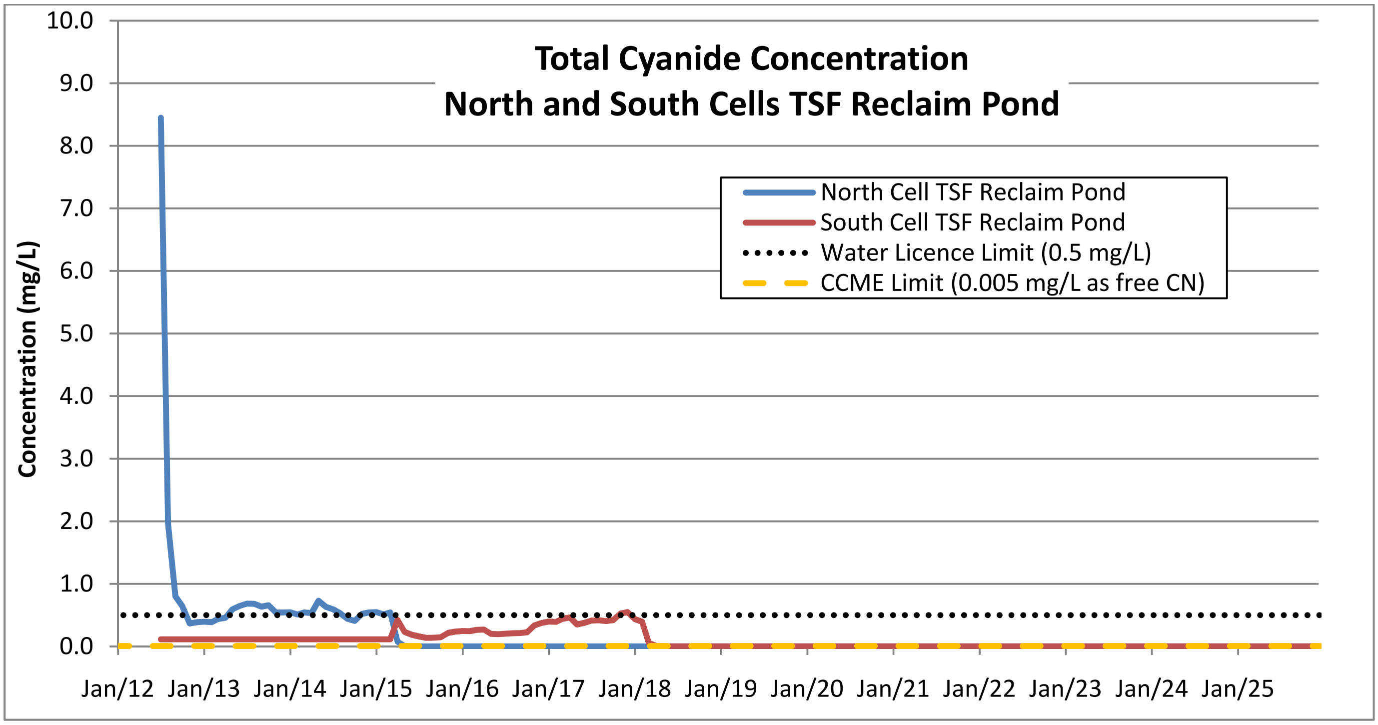


Figure 4-1: Total Cyanide Concentration in the North and South Cells TSF Reclaim Pond

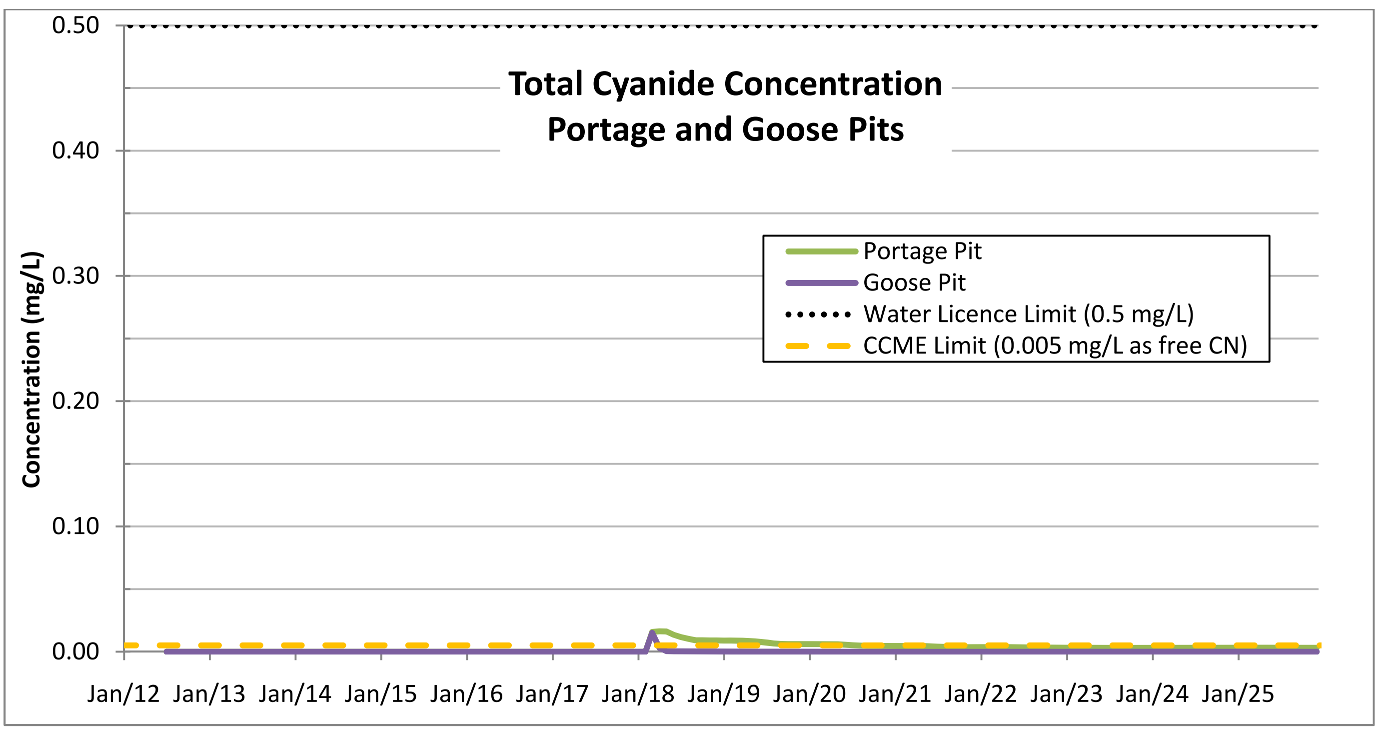


Figure 4-2: Total Cyanide Concentration in the Portage and Goose Pits

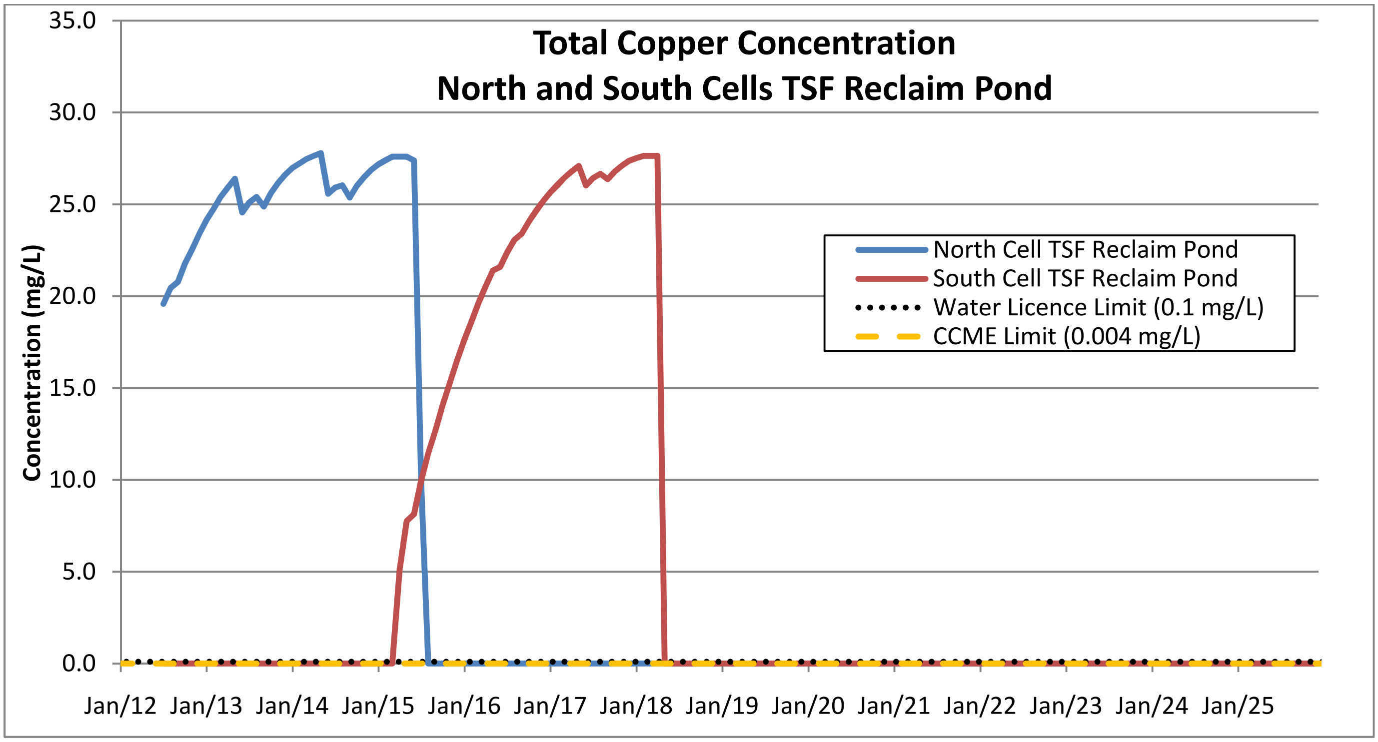


Figure 4-3: Total Copper Concentration in the North and South Cells TSF Reclaim Pond

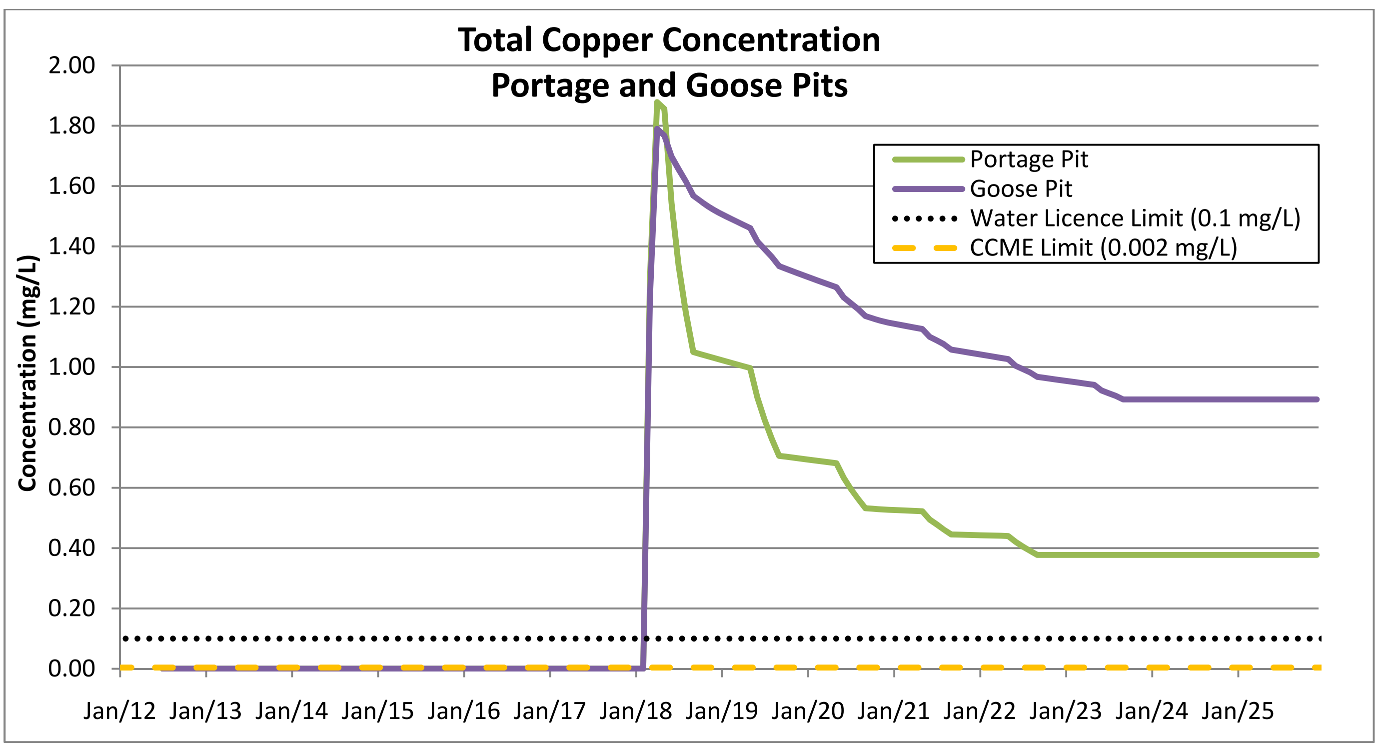


Figure 4-4: Total Copper Concentration in the Portage and Goose Pits

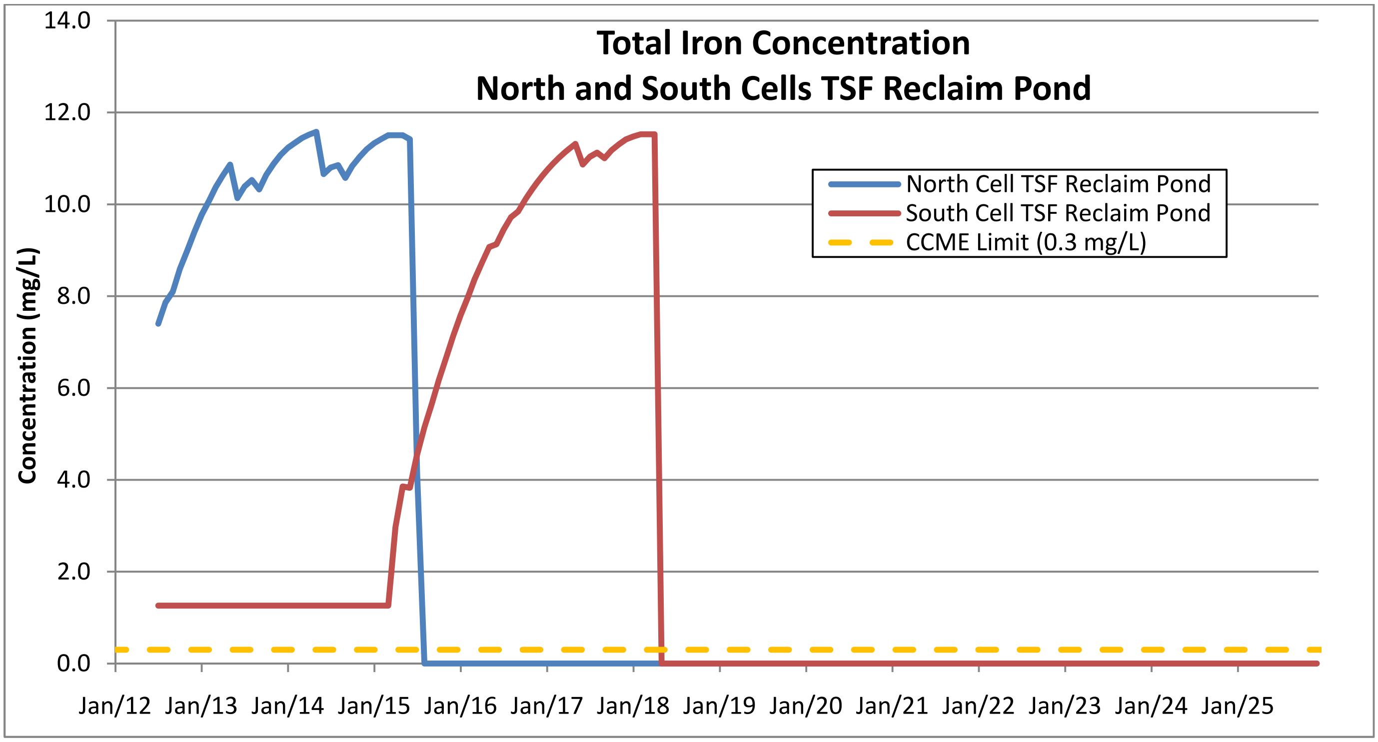


Figure 4-5: Total Iron Concentration in the North and South Cells TSF Reclaim Pond

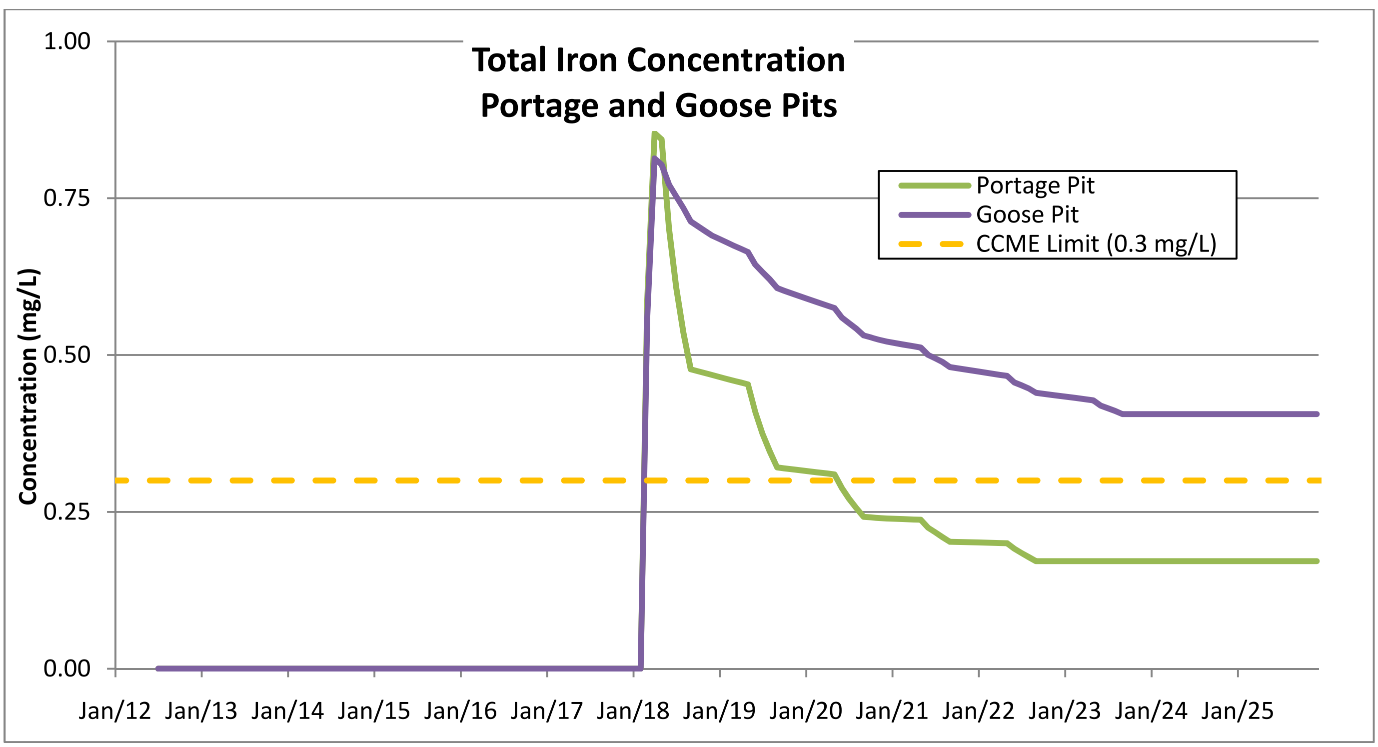


Figure 4-6: Total Iron Concentration in the Portage and Goose Pits

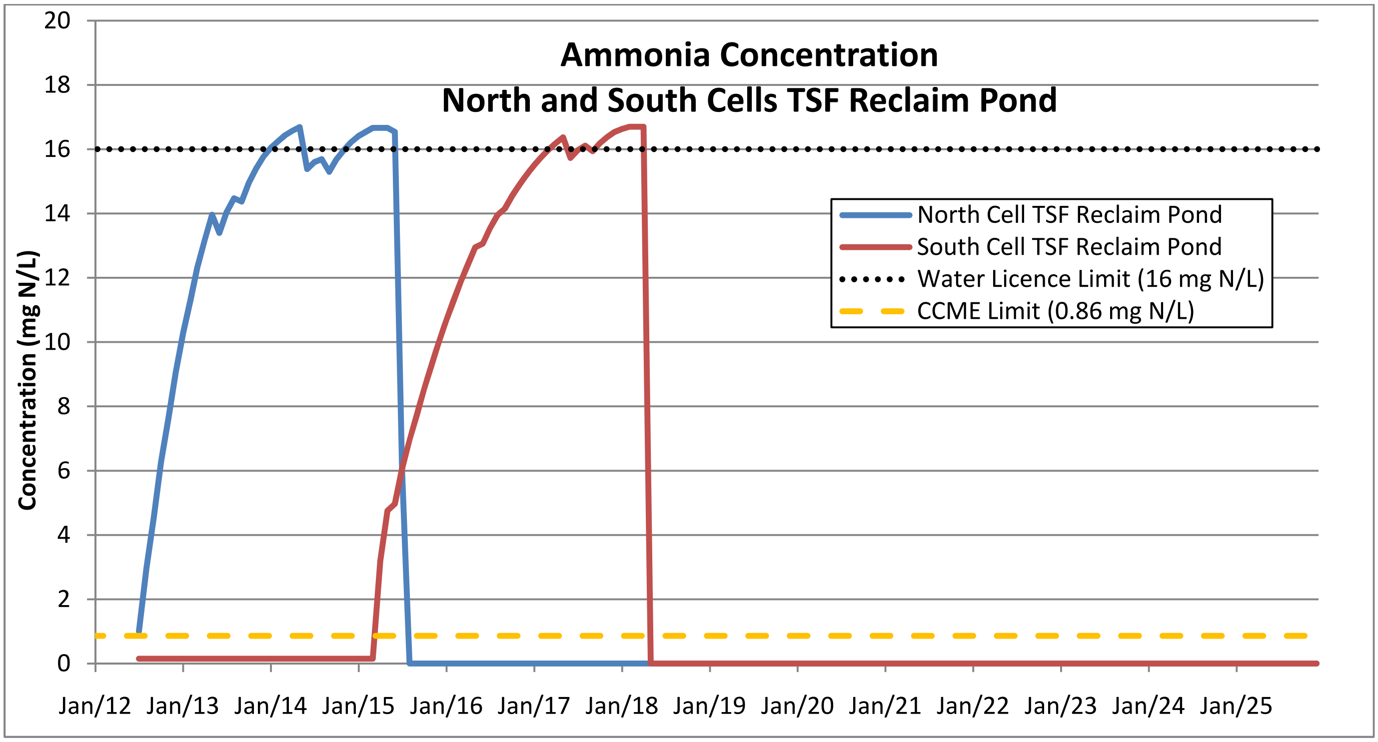


Figure 4-7: Ammonia Concentration in the North and South Cells TSF Reclaim Pond

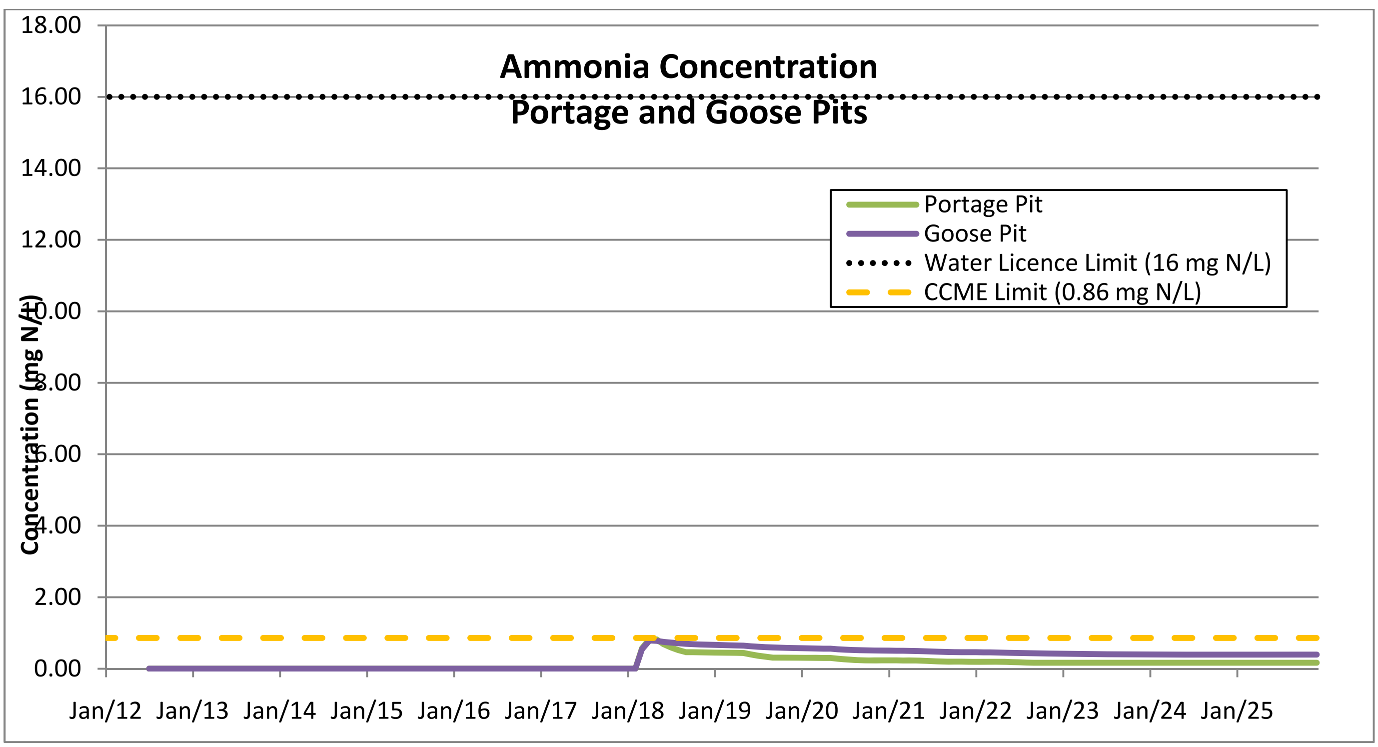


Figure 4-8: Ammonia Concentration in the Portage and Goose Pits

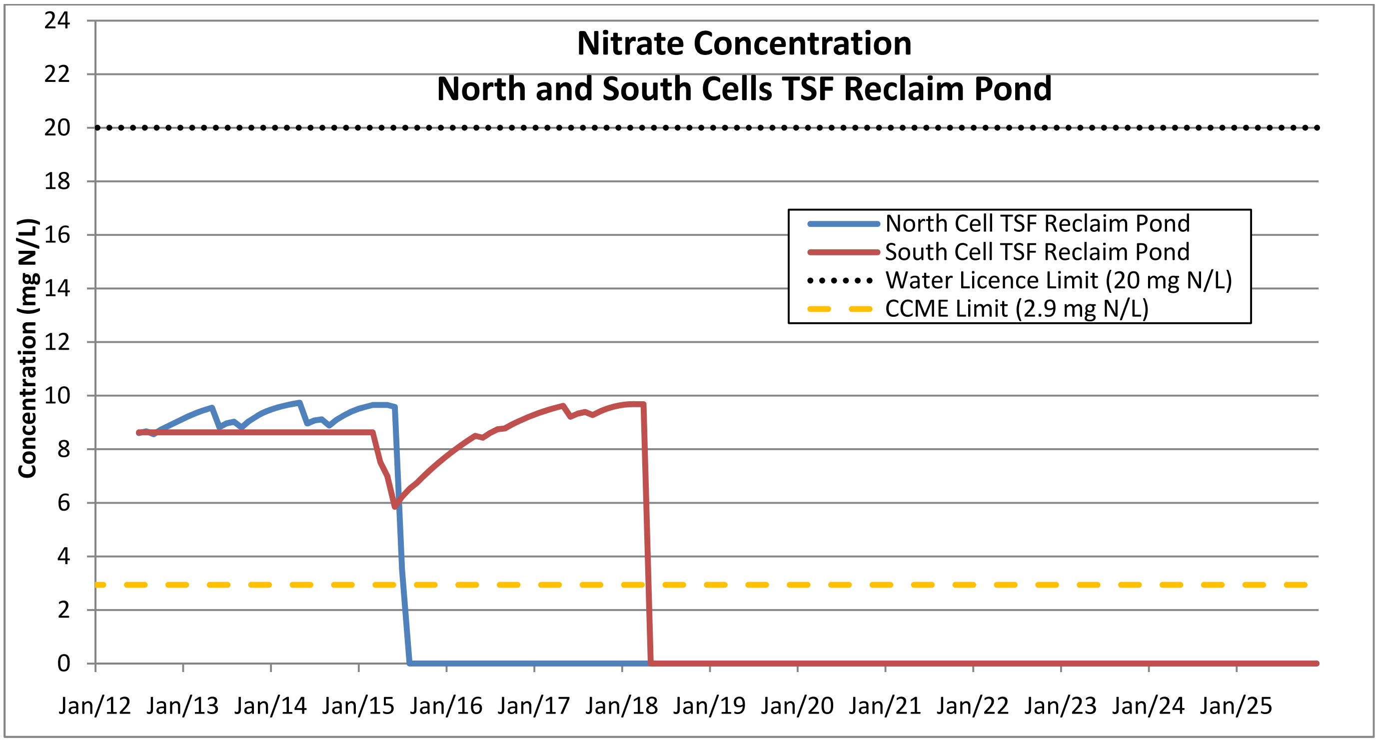


Figure 4-9: Nitrate Concentration in the North and South Cells TSF Reclaim Pond

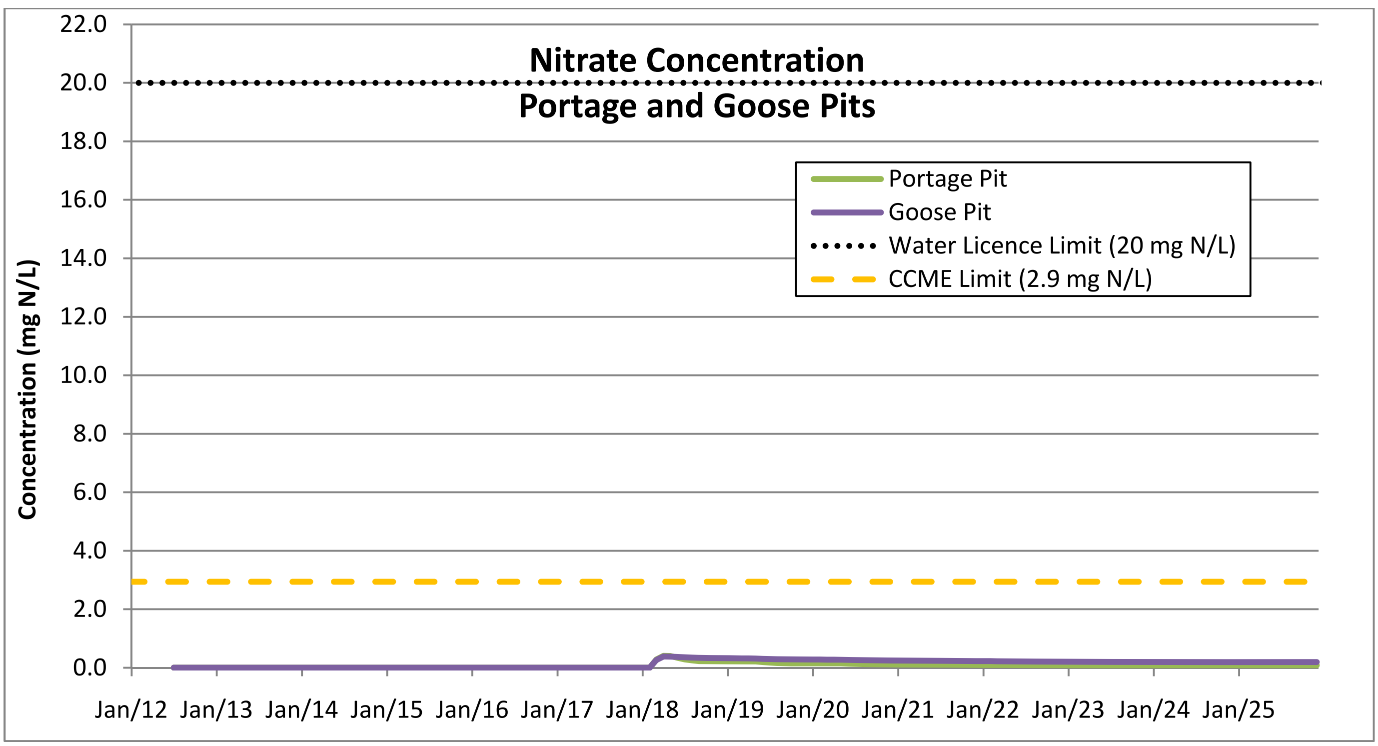


Figure 4-10: Nitrate Concentration in the Portage and Goose Pits

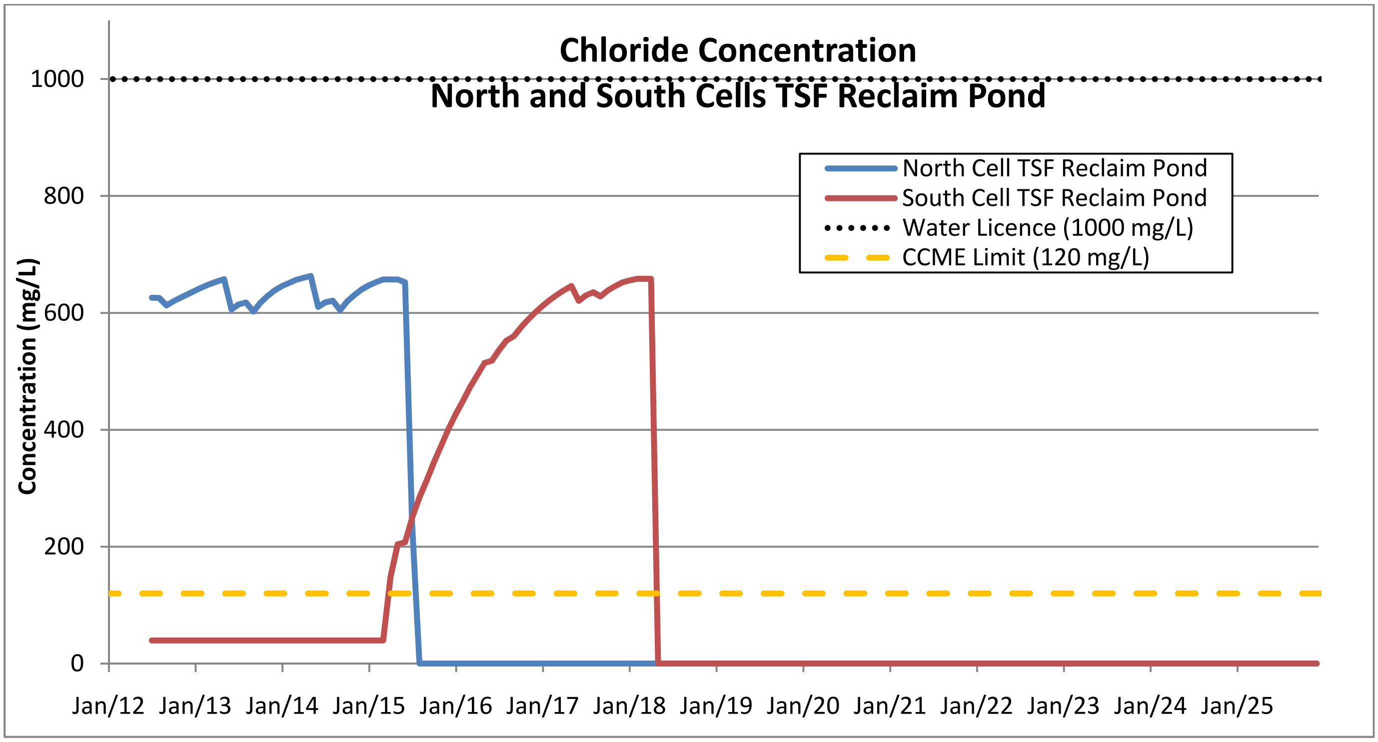


Figure 4-11: Chloride Concentration in the North and South Cells TSF Reclaim Pond

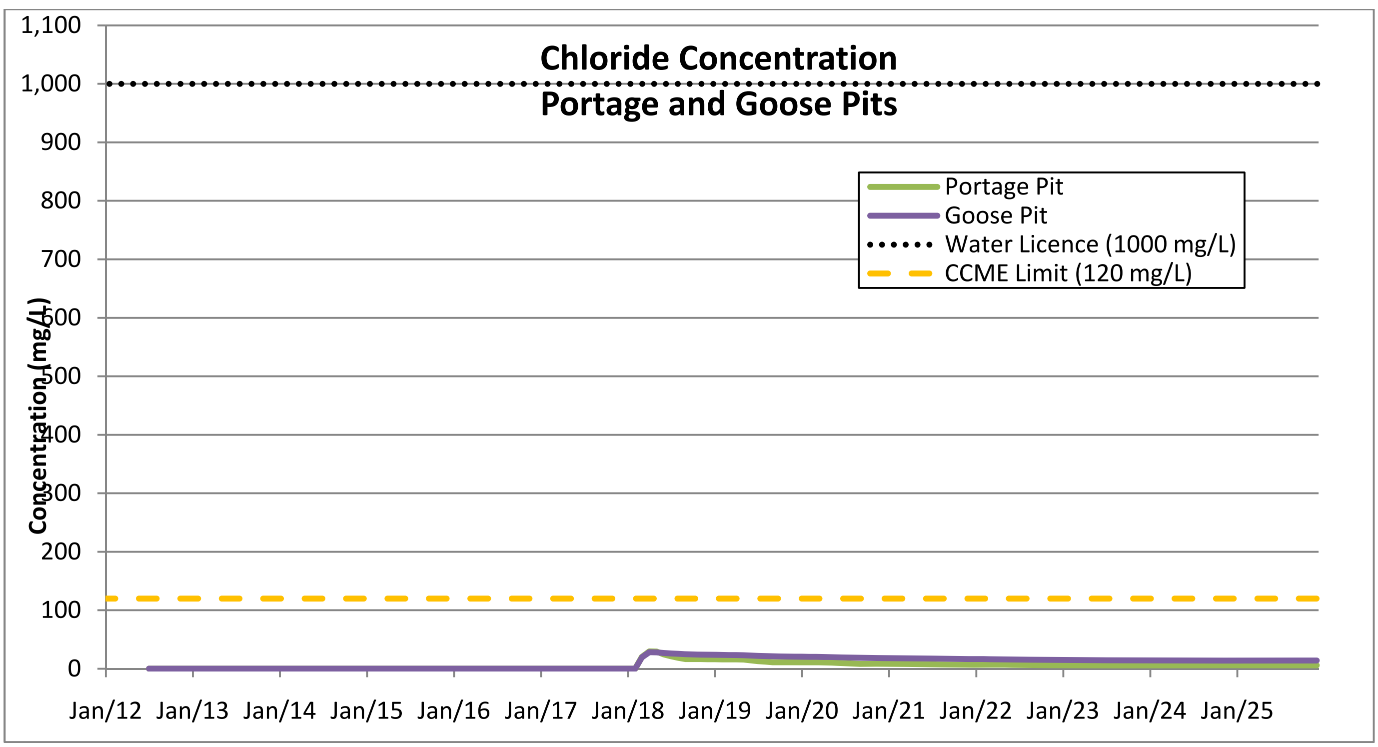


Figure 4-12: Chloride Concentration in the Portage and Goose Pits

5.0 CONCLUSION

SLI was mandated by AEM to review and update the water management plan of the Meadowbank Gold Project in accordance with the new Life of Mine (LOM) and mine development sequence. The objective of this Technical Note was to forecast the long term concentration of different contaminants in the North and South Cells TSF Reclaim Pond and in the Portage and Goose Pits from 2012 until closure in 2025. A water quality mass balance model was developed to forecast these long-term concentrations.

5.1 LIMITATIONS

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

- In order to simplify the model, the mass balance model assumes the following:
  - Pond and pits are completely mixed systems;
  - No change in the water quality of the mill effluent;
  - A monthly time-step.
- The mass balance model is based on a limited set of water quality analysis results provided by AEM:
  - Water quality data provided for ST-21 is taken from samples collected at the surface of the North Cell TSF Reclaim Pond;
  - Limited water quality data available for the mill effluent;
  - Limited water quality data for some of the inflows and outflows of the Reclaim Pond.
- Future ammonia concentrations may be higher than the values projected in the water quality model because the model does not take into account the hydrolysis of cyanate and nitrate into ammonia.

5.2 RESULTS SUMMARY AND TREATMENT

Based on the results of the water quality mass balance presented in section 4.2, treatment may be required for the copper and iron. Treatment should be undertaken at the Reclaim Pond, or prior to discharge in the Portage and Goose Pits. A potential treatment option for the removal of copper and iron prior to discharge in Portage and Goose Pit is caustic or lime precipitation. However, before such a treatment is installed, an evaluation of improving the cyanide destruction at the mill should be undertaken, to ensure (1) that the efficiency of the cyanide destruction system is maximized; and (2) that a separate water treatment operation for copper and iron removal is necessary.

5.3 RECOMMENDATIONS

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

1. In addition to the current set of chemical analyses, regular (at least monthly) monitoring of all inflows and outflows of the North and South Cells TSF Reclaim Pond for cyanide, copper, iron, ammonia, nitrate, and chloride should be undertaken. In the future, the addition of total copper and iron, free CN in addition to other contaminants regulated by the CCME guidelines should be evaluated.
2. Evaluate the possibility of improving water treatment at the mill (such as improving the reliability of the SO_2/air cyanide destruction system) for, among other parameters, copper and iron, and cyanide, if required. These improvements would result in lower contaminant concentrations at the mill effluent, which in turn would lead to lower concentrations at the TSF Reclaim Pond, and subsequently at the Pits, and may eliminate the need for additional treatment at the Pits altogether.
3. Once transfer begins in the Portage and Goose Pits (2017 and 2015, respectively), regular (at least monthly) monitoring of all inflows of the TSF Reclaim Pond for cyanide, copper, iron, ammonia, nitrate, and chloride should be undertaken.
4. Sample and analyze the North and South Cell TSF Reclaim Pond at different depths and locations to determine if there is a concentration gradient in the Reclaim Pond.
5. Continued monitoring of the water in the South Cell TSF Reclaim Pond in 2015 on a regular basis to monitor the evolution of the parameters of concern listed in section 2.2.1. It is understood that this recommendation is required as per the water license.
6. Model the Portage and Goose pits to evaluate the concentration gradients that could occur in the pits water column when untreated water from the Reclaim Ponds is pumped to these pits and then subsequently flooded with Third Portage lake water.
7. Update the water balance regularly based on new hydrology data, water license freshwater intake limits, mine sequences, LOM, etc.
8. The water quality model should be updated and calibrated based on the results of the studies, tests and monitoring proposed above.

6.0 REFERENCES

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

CCME . *Water Quality Guidelines for the Protection of Aquatic Life*. Canadian Environmental Quality Guidelines Summary Table. <http://st-ts.ccme.ca/?chems=all&chapters=1>. Accessed on February 28, 2013.

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

Golder (2010). Site Wide Water Balance Model Update. Technical Memorandum. Agnico-Eagle Mines. Document No. 1092. September 2010.

Nunavut Water Board License (2008). Water License No: 2AM-MEA0815. Agnico-Eagle Mines Ltd. June 2008.

SLI (2012). Water Management Plan 2012. Agnico-Eagle Mines. Document No. 610756-0000-4GER-0001, Rev. 00. December 2012.

SLI (2013). Ammonia Management Plan. Agnico-Eagle Mines. Document No. 610756-0000-40ER-0004, Rev. 00. February 2013.

APPENDIX B1
WATER QUALITY ANALYSES

1. North Cell TSF Reclaim Pond (ST-21)
2. Attenuation Pond (future South Cell TSF Reclaim Pond) (ST-18)
3. Mill Effluent for metal and cyanide (CN-WAD)
4. Additional tests requested for the mill effluent

NORTH CELL TSF RECLAIM POND (ST-21)

DATE	pH	Alkalinity	Turbidity	Hardness	Ammonia nitrogen (NH_3)	Nitrate (NO_3)	Nitrite (NO_2)	Nitrite - Nitrate	Chloride	Fluoride	Sulphate	TDS	Total Cyanide	CN-WAD	Dissolved Aluminum	Dissolved Arsenic	Dissolved Barium
	Units	mg $CaCO_3$/L	NTU	mg CaCO3/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2010/07/20	7.12	50	7.7	482	23.8			3.4	208	0.5	1181	1369	0.57		<0.01	0.044	0.025
2010/07/31	7.63	63	1.8	381	27.5	3.5	0.09		264	0.4	800	1178	0.136		<0.01	0.143	0.022
2010/08/09	7.34	55													<0.01	0.152	0.026
2010/08/16	7.47	58											0.475		0.03	0.087	0.02
2010/08/18	7.6	58	17.5	565	24.8	3.9	0.12		294	0.5	1380	1180			0.05	0.089	0.019
2010/08/24	7.4	61	2.6	611	13.7	3.9	0.11		281	0.54	1003	1012	0.34		0.02	0.075	0.022
2010/09/14	7.56	73	4	728	33.8	3.8	0.12		338	0.64	1255	1190	0.25		0.02	0.107	0.025
2010/09/20													0.6				
2010/10/21	7.81	79		713	33.1							1443	0.602		0.06	0.087	0.029
2011/04/18	8.48	90	5.7	1110	70.9	7.2	0.13		548	0.11	2170	3580	8.37		0.06	0.091	0.055
2011/05/25	10.19	108	6.8	714	49.3	6.0	0.10		331	0.11	1400	1696	6.97		0.08	0.033	0.020
2011/06/06	7.81	72	12.35	774	54.6	6.1	0.10		379	0.1	1557	2350	5.7		<0.01	0.040	0.043
2011/07/05	7.84	81	27.2	757	1.9	3.5	0.08		335	0.1	1157	2002	2.61		0.02	0.036	0.040
2011/08/02	8.09	147	4.4	808	1.2	4.3	0.33		230	0.32	1532	2106	0.014		0.01	0.050	0.038
2011/09/06	7.87	139	6.58	858	1.3	5.1	0.26		273	0.05	1737	2250	0.39		<0.01	0.046	<0.037
2011/10/04	7.93	121	7.75	748	1.1	4.8	0.21		277	0.07	1458	2322	1.11		0.03	0.036	0.038
2011/12/19	8.21	132	3.35	818	1.6	7.0	0.20		524	0.02	1659	2465	1.56		0.01	0.007	0.046
2012/01/03	8.42	126	0.88	914	1.6	7.2	0.23		449	0.5	1825	3012	5.89		0.02	0.045	0.048
2012/02/13	8.03	125	2.53	1087	0.44	8.6	0.22		559	0.49	2173	3334	14.22		<0.01	0.018	0.078
2012/03/06	8.49	147	6.49	1057	1.8	10.4	0.21		639	0.54	2477	3620	23.18		<0.01	0.015	0.096
2012/04/03	9.06	157	2.51	1369	2.9	11.8	0.2		672	0.3	2384	3843	59.37		0.02	0.041	0.066
2012/05/01	9.39	145	2.21	1008	2.6	10.5	0.17		853	2.5	2508	3374	63.38		0.41	0.071	0.052
2012/06/05	8.74	75	14.74	1001	0.73	7.3	0.12		634	<0.02	1555	4955	48.76		<0.01	0.006	0.029
2012/06/05	8.74	73	14.74	974	0.71	7.9	0.12		617	<0.02	1580	5445	50.29		<0.01	0.005	0.029
2012/06/19	7.89		12.36														
2012/06/26																	
2012/07/03	8.94	98	16.8	574	1	8.6	0.1		626	0.06	1457	2343	39.26		<0.01	0.011	0.034
2012/08/02	8.47		4.18														
2012/09/04	8.04	117	3.87	1045	48	10	0.15		13.5	0.52	1703	3213	14.87		0.02	0.009	0.057
2012/10/01	7.89	114	4.16	1313	38.2	10	0.12		889	0.48	1910	3206	1.44		0.05	0.008	0.077
2012/10/03														8.68			
2012/10/07														17			
2012/10/10														8.26			
2012/10/14														10.5			
2012/10/17														8.77			
2012/10/23														8.09			
2012/10/27														7.96			
2012/10/30														4.91			
2012/11/05	8.09	129	4.94	1177	38.7	11.9	0.07		872	0.07	2332		3.26		0.02	0.011	0.082
2012/11/07														8.22			
2012/11/14														9.57			
2012/11/17														10.2			
2012/11/22														15.3			
2012/11/30														19.4			
2012/12/03	8.59		1.9														
2012/12/07														19.5			
2012/12/10	8.14	134	1.13	1497	69.3	14.1	0.19		1267	0.22	2644		16.45		0.04	0.012	0.084
2012/12/13														20.3			
2012/12/16														23.6			
2012/12/19														20.4			
2012/12/27														19.5			
2012/12/30														22.2			

NORTH CELL TSF RECLAIM POND (ST-21)

DATE	Dissolved Cadmium mg/L	Dissolved Copper mg/L	Dissolved Iron mg/L	Dissolved Lead mg/L	Dissolved Manganese mg/L	Dissolved Mercury mg/L	Dissolved Molybdenum mg/L	Dissolved Nickel mg/L	Dissolved Selenium mg/L	Dissolved Silver mg/L	Dissolved Thallium mg/L	Dissolved Zinc mg/L	Aluminum mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L
2010/07/20	<0.005	2.41	0.09	<0.005	0.184	<0.0005	0.061	0.121	0.01	<0.005	<0.01	0.012	0.146		0.0716	0.0234	
2010/07/31	<0.005	2.16	0.28	<0.005	0.1	<0.0005	0.072	0.05	0.009	<0.005	<0.01	0.01	0.1		0.174	0.0206	
2010/08/09	<0.005	2.12	0.11	<0.005	0.063	<0.0005	0.064	0.043	0.008	<0.005	<0.01	<0.005					
2010/08/16	<0.005	1.07	0.3	<0.005	0.045	<0.0005	0.073	0.026	<0.005	<0.005	<0.01	0.005	0.24		0.1057	0.0201	
2010/08/18	<0.005	1.17	0.21	<0.005	0.05	<0.0005	0.072	0.109	0.01	<0.005	<0.01	<0.005					
2010/08/24	<0.005	1.35	0.27	<0.005	0.089	<0.0005	<0.005	0.024	0.008	<0.005	<0.01	0.008					
2010/09/14	<0.005	1.57	<0.05	0.017	0.062	<0.0005	0.1	0.061	0.007	0.005	<0.01	0.009					
2010/09/20																	
2010/10/21	<0.005	1.5	0.25	<0.005	0.036	<0.0005	0.09	0.03	0.029	0.005	<0.01	<0.005					
2011/04/18	<0.005	2.938	0.43	<0.005	0.013	<0.0005	0.055	0.087	0.009	0.008	<0.01	<0.005	0.122		0.0909	0.0574	
2011/05/25	<0.005	3.44	<0.05	0.006	0.005	<0.0005	0.174	0.457	<0.005	<0.005	<0.01	0.013	0.184		0.0586	0.0221	
2011/06/06	<0.005	0.794	0.23	<0.005	0.045	<0.0005	0.176	0.335	0.006	0.005	<0.01	<0.005	0.555	0.0014	0.0565	0.0466	<0.0005
2011/07/05	<0.005	2.84	<0.05	<0.005	0.130	0.0006	0.158	0.330	0.006	0.005	<0.01	<0.005			0.0508		
2011/08/02	<0.005	0.361	0.31	<0.005	0.113	<0.0005	0.180	0.093	<0.005	<0.005	<0.01	0.010					
2011/09/06	<0.005	0.823	<0.05	<0.005	0.106	<0.0005	0.210	0.050	<0.005	<0.005	<0.01	<0.005					
2011/10/04	<0.005	0.820	<0.05	<0.005	0.097	<0.0005	0.198	0.047	0.005	<0.005	<0.01	0.010					
2011/12/19	<0.005	5.98	<0.05	<0.005	0.027	<0.0005	0.286	0.138	<0.005	<0.005	<0.01	<0.005					
2012/01/03	<0.005	7.68	1.3	<0.005	0.023	<0.0005	0.29	0.455	<0.005	0.006	<0.01	0.018					
2012/02/13	<0.005	6.83	1.1	<0.005	0.034	<0.0005	0.308	0.887	<0.005	0.008	<0.01	0.01					
2012/03/06	<0.005	9.91	2.4	<0.005	0.032	<0.0005	0.332	1.52	0.006	<0.005	<0.01	0.006					
2012/04/03	<0.005	26.85	8.9	0.009	<0.005	<0.0005	0.0005	0.6	0.014	<0.005	<0.01	<0.005					
2012/05/01	<0.005	7.13	1.5	<0.005	0.032	<0.0005	0.31	1.21	0.021	0.005	<0.01	1.39					
2012/06/05	<0.005	20.39	9.5	<0.005	<0.005	<0.0005	0.232	2.01	0.013	<0.005	<0.01	<0.005					
2012/06/05	<0.005	19.91	9.6	<0.005	<0.005	<0.0005	0.232	2.02	0.013	<0.005	<0.01	<0.005					
2012/06/19													0.158	0.0007	0.0049	0.0305	<0.0005
2012/06/26													0.263	<0.0001	0.0119	0.0321	<0.0005
2012/07/03	<0.005	19.58	7.4	<0.005	0.009	<0.0005	0.262	2.54	0.009	0.068	<0.01	0.034					
2012/08/02																	
2012/09/04	<0.005	0.549	<0.05	<0.005	0.017	<0.0005	0.349	1.28	0.015	<0.005	<0.01	<0.005					
2012/10/01	<0.005	1.86	<0.05	<0.005	0.095	<0.0005	0.361	1.08	0.014	<0.005	<0.01	0.006					
2012/10/03																	
2012/10/07																	
2012/10/10																	
2012/10/14																	
2012/10/17																	
2012/10/23																	
2012/10/27																	
2012/10/30																	
2012/11/05	<0.005	1.71	<0.05	<0.005	0.039	<0.0005	0.411	0.183	0.019	<0.005	<0.01	<0.005					
2012/11/07																	
2012/11/14																	
2012/11/17																	
2012/11/22																	
2012/11/30																	
2012/12/03																	
2012/12/07																	
2012/12/10	<0.005	12.96	1.2	<0.005	0.007	0.0003	0.437	0.152	0.021	0.015	<0.01	0.006					
2012/12/13																	
2012/12/16																	
2012/12/19																	
2012/12/27																	
2012/12/30																	

NORTH CELL TSF RECLAIM POND (ST-21)

DATE	Cadmium mg/L	Lead mg/L	Lithium mg/L	Manganese mg/L	Chromium mg/L	Cobalt mg/L	Copper mg/L	Iron mg/L	Mercury mg/L	Molybdenum mg/L	Nickel mg/L	Selenium mg/L	Silver mg/L	Strontium mg/L	Thallium mg/L	Tin mg/L	Titanium mg/L
2010/07/20	<0.00008	<0.0003		0.1856			2.31	0.47	0.00024	0.0585	0.1233	0.006	0.0032				
2010/07/31	0.00013	<0.0003		0.0869			1.89	<0.01	0.00027	0.07	0.0557	0.006	0.0043		<0.01		
2010/08/09																	
2010/08/16	0.00011	0.0014		0.0488			1.431	0.83	0.00028	0.0733	0.0294	0.007	0.0045		<0.01		
2010/08/18																	
2010/08/24																	
2010/09/14																	
2010/09/20																	
2010/10/21																	
2011/04/18	0.00074	<0.0003		0.0181			2.938	1.2		0.2483	0.2047	0.010			<0.005		
2011/05/25	0.00022	0.0097		0.0240			3.447	0.45		0.1687	0.4597	<0.001			<0.005		
2011/06/06	0.00033	<0.0003	<0.005	0.0530	0.0043	0.1622	2.484	0.62		0.1791	0.3598	0.008		0.435	<0.005	<0.001	0.22
2011/07/05		0.0102					3.459	1.0			0.4109						
2011/08/02																	
2011/09/06																	
2011/10/04																	
2011/12/19																	
2012/01/03																	
2012/02/13																	
2012/03/06																	
2012/04/03																	
2012/05/01																	
2012/06/05																	
2012/06/05																	
2012/06/19	0.00055	0.0006	<0.005	0.0194	<0.0006	0.0092	1.038	0.83		0.2209	1.354	0.009		1.1	<0.005	<0.001	0.34
2012/06/26	0.00019	<0.0003	<0.005	0.0314	0.0106	0.0213	2.744	0.7		0.2576	1.68	0.008		0.837	<0.005	<0.001	0.43
2012/07/03																	
2012/08/02																	
2012/09/04																	
2012/10/01																	
2012/10/03																	
2012/10/07																	
2012/10/10																	
2012/10/14																	
2012/10/17																	
2012/10/23																	
2012/10/27																	
2012/10/30																	
2012/11/05																	
2012/11/07																	
2012/11/14																	
2012/11/17																	
2012/11/22																	
2012/11/30																	
2012/12/03																	
2012/12/07																	
2012/12/10																	
2012/12/13																	
2012/12/16																	
2012/12/19																	
2012/12/27																	
2012/12/30																	

NORTH CELL TSF RECLAIM POND (ST-21)

DATE	Uranium mg/L	Vanadium mg/L	Zinc mg/L	TSS mg/L
2010/07/20			0.004	
2010/07/31			0.002	
2010/08/09				
2010/08/16			0.005	
2010/08/18				
2010/08/24				
2010/09/14				
2010/09/20				
2010/10/21				
2011/04/18			0.001	
2011/05/25			0.009	
2011/06/06	0.070	<0.0005	0.003	
2011/07/05			0.008	
2011/08/02				
2011/09/06				
2011/10/04				
2011/12/19				
2012/01/03				
2012/02/13				
2012/03/06				
2012/04/03				
2012/05/01				30
2012/06/05				
2012/06/05				
2012/06/19	0.01	<0.0005	<0.001	
2012/06/26	0.009	<0.0005	0.015	
2012/07/03				
2012/08/02				
2012/09/04				
2012/10/01				
2012/10/03				
2012/10/07				
2012/10/10				
2012/10/14				
2012/10/17				
2012/10/23				
2012/10/27				
2012/10/30				
2012/11/05				
2012/11/07				
2012/11/14				
2012/11/17				
2012/11/22				
2012/11/30				
2012/12/03				
2012/12/07				
2012/12/10				
2012/12/13				
2012/12/16				
2012/12/19				
2012/12/27				
2012/12/30				

ATTENUATION POND, SOUTH CELL (ST-18)

Date Units	pH Units	Alkalinity mg $CaCO_3$/L	Turbidity NTU	Carbonate Alkalinity mg $CaCO_3$/L	Ammonia mg N/L	Ammonia-Nitrogen (NH3-NH4)	Arsenic mg/L	Chloride mg/L	Copper mg/L	Dissolved Aluminum mg/L	Dissolved Arsenic mg/L	Dissolved Barium mg/L	Dissolved Cadmium mg/L	Dissolved Copper mg/L
20/11/2011	6.97	116	4.3		0.06		0.0042	30.3	0.0034		<0.005	0.115	<0.005	<0.005
05/12/2011	7.64	126	87		0.12		0.0077	34.2	0.0073	0.01	<0.005	0.140	<0.005	0.005
12/12/2011	6.96	132	4.6		0.17		0.0050	37.4	0.0032	<0.01	<0.005	0.124	<0.005	<0.005
09/01/2012	7.51		9		<0.05		<0.0005	91.4	<0.0049	<0.01	<0.005	0.01	<0.005	<0.005
14/02/2012	7.32		4.07		<0.05		0.0014	44.3	0.0044	<0.01	<0.005	0.157	<0.005	<0.005
06/03/2012	7.50		10		0.16		<0.0005	38.4	0.0107	<0.01	<0.0005	0.141	<0.005	<0.005
03/04/2012	7.41		13		0.13		0.0041	41.8	0.0058	0.01	0.0041	0.156	<0.005	0.006
10/04/2012	7.50	139	22.5	<2	0.18	6.6	0.0011	33.4	0.0052	<0.01	<0.0005	0.108	<0.005	<0.005
16/04/2012	7.35	206	3.77	<2	0.12	8.1	<0.0005	46.2	0.0094	<0.01	<0.005	0.167	<0.005	0.005
23/04/2012	7.37	161	25.4	<2	0.1	6.6	0.0102	53.4	0.0049	<0.01	<0.005	0.117	<0.005	<0.005
30/04/2012	7.33	142	11.01	<2	0	5.4	0.0108	53.1	0.0035	<0.01	<0.005	0.083	<0.005	<0.005
08/05/2012	7.67	118	56.8	<2	0.1	5	0.0081	45.2	0.0065	<0.01	<0.005	0.048	<0.005	<0.005
15/05/2012	7.83	85	37.7	<2	<0.05	3.3	<0.0005	24.5	0.0072	0.01	<0.005	0.041	<0.00002	<0.005
05/06/2012	7.2	77	59.6	<2	0.12	3.7	0.0054	29.4	0.0056	<0.01	<0.005	0.057	<0.005	<0.005
05/06/2012	7.2	77	59.6	<2	0.10	3.7	0.0047	28.4	0.0049	<0.01	<0.005	0.053	<0.005	<0.005
03/07/2012	7.99		15.5											
10/07/2012		86		<2	0.09	3.2	0.008	33.3	0.0019	0.01	0.008	0.106	<0.005	<0.005
07/08/2012	7.68	107	8.59	<2	0.19	3.8	0.0214	27.3	0.0024	0.05	0.011	0.135	<0.005	<0.005
03/09/2012	7.47	129.0	1.71	<2	0.90	15.5	0.0059	19.5	0.01	0.01	0.005	0.08	<0.005	0.01
24/09/2012														
02/10/2012	7.58	102	33.3		0.19		0.0137		0.0059					
15/10/2012														
18/10/2012														
22/10/2012														
29/10/2012														
05/11/2012	7.46	124.0	10.78				0.0136		0.0056					
09/11/2012	7.15		18.14											

ATTENUATION POND, SOUTH CELL (ST-18)

Date Units	Dissolved Iron mg/L	Dissolved Lead mg/L	Dissolved Manganese mg/L	Dissolved Mercury mg/L	Dissolved Molybdenum mg/L	Dissolved Nickel mg/L	Dissolved Selenium mg/L	Dissolved Silver mg/L	Dissolved Thallium mg/L	Dissolved Zinc mg/L	Fluoride mg/L	Hardness mg CaCO3/L	Lead mg/L	Nickel mg/L
20/11/2011	<0.05	<0.005	2.06	<0.0005	<0.005	0.013	<0.005	<0.005	<0.01	0.017	0.61	273	0.0028	0.0140
05/12/2011	<0.05	<0.005	1.79	<0.0005	0.030	0.014	<0.005	<0.005	<0.01	0.015	0.78	281	0.0020	0.0142
12/12/2011	<0.05	<0.005	2.54	<0.0005	0.022	0.014	<0.005	<0.005	<0.01	0.016	0.74	264	<0.0003	0.0183
09/01/2012	<0.05	<0.005	0.227	<0.0005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.02	268	0.0063	0.0147
14/02/2012	<0.05	<0.005	3.18	<0.0005	0.033	0.011	<0.005	<0.005	<0.01	0.011	0.98	351	<0.0003	0.0114
06/03/2012	<0.05	<0.005	2.62	<0.0005	0.032	0.01	<0.005	<0.005	<0.01	0.016	1	288	<0.0003	0.0105
03/04/2012	<0.05	<0.005	2.85	<0.0005	0.033	0.011	<0.005	<0.005	<0.01	<0.005	0.18	374	0.0017	0.011
10/04/2012	<0.05	<0.005	1.8	<0.0005	0.024	0.008	<0.005	<0.005	<0.01	0.008	0.75	225	0.0006	0.0095
16/04/2012	<0.05	<0.005	2.91	<0.0005	0.032	0.012	<0.005	<0.005	<0.01	0.007	1	315	<0.0003	0.0152
23/04/2012	<0.005	<0.005	2.71	<0.0005	0.028	0.008	<0.005	<0.005	<0.01	0.005	0.74	147	0.0275	0.0077
30/04/2012	<0.05	<0.005	1.7	<0.0005	0.021	0.024	<0.005	<0.005	<0.01	0.019	0.29	314	<0.0003	0.024
08/05/2012	<0.05	<0.005	1.1	<0.0005	0.012	0.015	<0.005	<0.005	<0.01	<0.005	0.61	259	<0.0003	0.0226
15/05/2012	<0.05	<0.005	0.987	<0.0005	0.016	0.012	<0.005	<0.005	0.01	<0.005	<0.02	254	0.0053	0.0173
05/06/2012	<0.05	<0.005	1.2	<0.0005	0.011	0.018	<0.005	<0.005	<0.01	<0.005	0.36	240	0.0009	0.0195
05/06/2012	<0.05	<0.005	1.07	<0.0005	0.01	0.016	<0.005	<0.005	<0.01	<0.005	0.34	229	0.0005	0.0182
03/07/2012														
10/07/2012	<0.05	<0.005	2.23	<0.0005	0.016	0.012	<0.005	<0.005	<0.01	<0.005	0.51	42	<0.0003	0.0249
07/08/2012	<0.05	<0.005	1.28	<0.0005	0.019	0.013	<0.005	<0.005	0.01	0.007	1	233	<0.0003	0.0137
03/09/2012	0.06	<0.005	0.903	<0.0005	0.056	0.016	<0.005	<0.005	<0.01	<0.005	0.53	214	0.0012	0.0146
24/09/2012														
02/10/2012													0.0018	0.0305
15/10/2012														
18/10/2012														
22/10/2012														
29/10/2012														
05/11/2012													0.0073	0.0436
09/11/2012														

ATTENUATION POND, SOUTH CELL (ST-18)

Date Units	Nitrate mgN/L	Nitrite mgN/L	Sulphate mg/L	TDS mg/L	Zinc mg/L	Calcium mg/L	Conductivity	DOC mg/L	Magnesium mg/L	Ortho-phosphate mg/L	Potassium mg/L	Reactive Silica mg/L	Sodium mg/L	TKN (Kjeldahl) mg/L as N
20/11/2011	4.7	0.11	240	530	0.059									
05/12/2011	7.6	0.18	198	553	0.015									
12/12/2011	6.0	0.19	278	623	<0.001									
09/01/2012	0.82	0.02	517	897	0.008									
14/02/2012	8.2	0.21	268	708	0.014									
06/03/2012	10.6	0.32	224	637	0.04									
03/04/2012	8.4	0.36	281	712	0.007		817	6.1	21.4	0.08	11.9	9.3	52.3	10
10/04/2012	6.5	0.29	219	566	0.014	55.2	319	8	33.7	0.02	10	13	46.4	14
16/04/2012	9.6	0.44	337	728	0.012	70.8	375	13	37.3	0.04	7.0	11	103	15
23/04/2012	4.4	0.24	372	796	0.013	66.8	530	13	31.5	0.02	11.0	9.5	84.9	16
30/04/2012	3.6	0.18	337	742	0.021	79.3	800.0	9.1	26.7	0.15	6.4	8.9	83.3	13
08/05/2012	2.9	0.18	230	614	0.008	59.9	789	5.8	28.1	0.07	8.2	5.5	80.5	7
15/05/2012	2.9	0.11	165	434	0.027	55.6	622	7	23.2	<0.01	7.9	6	55.7	10
05/06/2012	2.1	0.11	217	637	<0.001	57.9		6.7	22.3	<0.01	7.5	5.9	54.3	9
05/06/2012	2.1	0.12	204	584	<0.001	55.3	702							
03/07/2012								6.3	5.1	0.02	1.7	6.4	1	8.0
10/07/2012	1.4	0.1	253	516	<0.001	8.7	725	8.7	22	<0.01	7.7	6.9	36.5	10.0
07/08/2012	5	0.2	325	682	0.012	57.9	107	4.4	22.4	<0.01	22.6	6	48.6	17
03/09/2012	29.2	0.64	148	538	0.001	49.1								
24/09/2012	8.1						690							
02/10/2012				469	0.006									
15/10/2012	18													
18/10/2012	20.9													
22/10/2012	16.1													
29/10/2012	13.6						895							
05/11/2012	14.4			1202	<0.001		809							
09/11/2012														

ATTENUATION POND, SOUTH CELL (ST-18)

Date	TOC	Total Alkalinity	Total Cyanide	C_{10}-C_{50}	Total Phosphorus	TSS	Aluminium mg/L	Silver mg/L	Boron mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L	Chromium mg/L	Iron mg/L
Units	mg/L	mg $CaCO_3$/L	mg/L		mg/L	mg/L								
20/11/2011														
05/12/2011														
12/12/2011														
09/01/2012		160												
14/02/2012		162												
06/03/2012		194												
03/04/2012		170					0.445	0.0002	0.06	0.1086	<0.0005	0.00003	0.0006	0.91
10/04/2012	7.9	139	0.167	<0.1	0.01	15	0.036	<0.0002	0.04	0.1757	<0.0005	0.0001	0.0107	0.17
16/04/2012	11	206	0.368	<0.1	<0.01	6	0.448	0.001	0.03	0.122	<0.0005	<0.00002	0.0029	0.66
23/04/2012	14	161	0.268	<0.1	<0.01	16	0.2	<0.0002	0.08	0.0904	<0.0005	0.00013	<0.0006	0.74
30/04/2012	11	142	0.207	<0.1	0.1	9	0.996	<0.0002	0.05	0.0634	<0.0005	<0.00002	0.0036	2.3
08/05/2012	9	118	0.202	<0.1	0.18	52	2.4	<0.005	0.02	0.041	<0.0005	<0.00002	0.0032	2.7
15/05/2012		85	0.077	<0.01	<0.01	68	1.31	<0.0002	0.03	0.0659	<0.0005	<0.00002	0.0019	1.7
05/06/2012	6.3	77	0.125	<0.1	0.06	64	1.28	<0.0002	0.04	0.0631	<0.0005	<0.00002	0.001	1.5
05/06/2012	8.2	77	0.09	<0.1	0.07	63								
03/07/2012							0.938	<0.0002	<0.01	0.108	<0.0005	<0.00002	0.0316	2.2
10/07/2012	7.1	86.0	0.0188	<0.1	0.02	15	0.179	<0.0002	0.04	0.1347	<0.0005	<0.00002	0.0069	0.58
07/08/2012	8.7	107.0	0.07	<0.1	7.9	9	0.108	<0.0002	0.1	0.0841	<0.0005	<0.00002	0.0029	0.35
03/09/2012	4.6	129	0.295	0.1	<0.01	7								
24/09/2012														
02/10/2012			0.033											
15/10/2012														
18/10/2012														
22/10/2012														
29/10/2012														
05/11/2012			0.211											
09/11/2012														

ATTENUATION POND, SOUTH CELL (ST-18)

Date Units	Lithium mg/L	Manganese mg/L	Mercury mg/L	Molybdenum mg/L	Selenium mg/L	Antimony mg/L	Tin mg/L	Strontium mg/L	Titanium mg/L	Thallium mg/L	Uranium mg/L	Vanadium mg/L	Dissolved Boron mg/L	Dissolved Beryllium mg/L
20/11/2011														
05/12/2011														
12/12/2011														
09/01/2012														
14/02/2012														
06/03/2012														
03/04/2012							<0.001	0.324	0.06	<0.005	0.014	<0.0005	0.06	<0.005
10/04/2012	<0.005	1.829	0.00002	0.0237	<0.001	0.0003	<0.001	0.636	0.06	<0.005	0.02	<0.0005	<0.05	<0.005
16/04/2012	0.007	2.778	<0.00001	0.0351	0.003	<0.0001	0.035	0.267	0.07	<0.005	0.012	<0.0005	0.05	<0.005
23/04/2012	<0.005	2.81	<0.00001	0.0175	<0.001	<0.00001	0.002	0.488	0.06	<0.005	0.02	<0.0005	0.06	<0.005
30/04/2012	<0.005	1.757	<0.00001	0.0231	0.001	0.0003	<0.001	0.393	0.1	<0.005	0.017	<0.0005	<0.05	<0.005
08/05/2012	0.006	1.351	<0.00001	0.0228	0.001	0.0003	0.005	0.247	0.13	<0.005	0.007	<0.0005	<0.05	<0.005
15/05/2012	0.006	1.103	<0.00001	0.0157	<0.001	<0.005	<0.001	0.322	0.11	<0.005	0.015	0.0042	<0.05	<0.005
05/06/2012	0.008	1.377	<0.00001	0.0139	<0.001	<0.0001	<0.001	0.325	0.08	<0.005	0.013	0.0038	<0.05	<0.005
05/06/2012	0.007	1.307	<0.00001	0.0121	<0.001	<0.0001								
03/07/2012							<0.001	0.51	0.05	<0.005	0.001	<0.0005	0.05	<0.005
10/07/2012	<0.005	2.24	0.00172	0.0005	<0.001	0.0003	<0.001	0.534	0.08	<0.005	0.009	<0.0005	0.04	<0.005
07/08/2012	<0.005	1.198	0.0001	<0.00001	<0.001	<0.0001	<0.001	0.311	0.04	<0.005	0.021	<0.0005	<0.05	<0.005
03/09/2012	<0.005	1.008	0.0001	0.0529	<0.001	<0.0001								
24/09/2012														
02/10/2012														
15/10/2012														
18/10/2012														
22/10/2012														
29/10/2012														
05/11/2012														
09/11/2012														

ATTENUATION POND, SOUTH CELL (ST-18)

Date Units	Dissolved Chromium mg/L	Dissolved Lithium mg/L	Dissolved Antimony mg/L	Dissolved Tin mg/L	Dissolved Strontium mg/L	Dissolved Titanium	Dissolved Uranium	Dissolved Vanadium	CN-WAD
20/11/2011									
05/12/2011									
12/12/2011									
09/01/2012									
14/02/2012									
06/03/2012									
03/04/2012							0.015	<0.005	
10/04/2012	<0.005	<0.01	<0.005	<0.005	0.38	0.04	0.019	<0.005	
16/04/2012	<0.005	<0.01	<0.005	<0.005	0.61	0.06	0.026	<0.005	
23/04/2012	<0.005	<0.01	<0.005	<0.005	0.62	0.06	0.019	<0.005	0.114
30/04/2012	<0.005	<0.01	<0.005	<0.005	0.52	0.05	0.013	<0.005	
08/05/2012	<0.005	<0.01	<0.005	<0.005	0.39	<0.01	0.006	<0.005	
15/05/2012	<0.005	<0.01	<0.005	<0.005	0.25	0.04	0.01	<0.005	
05/06/2012	<0.005	0.008	<0.005	<0.005	0.29	0.04	0.009	<0.005	
05/06/2012	<0.005	0.007	<0.005	<0.005	0.325	0.04			
03/07/2012							0.008	<0.005	
10/07/2012	0.007	<0.01	<0.005	<0.005	0.38	0.05	0.009	<0.005	
07/08/2012	0.005	<0.01	<0.005	<0.005	0.52	0.07	0.022	<0.005	
03/09/2012	<0.005	<0.01	<0.005	<0.005	0.33	0.04			
24/09/2012									
02/10/2012									
15/10/2012									
18/10/2012									
22/10/2012									
29/10/2012									
05/11/2012									
09/11/2012									

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
01/04/2012	NS	0.150	0.01	39.7	68.4	149
01/04/2012	DS	0.133	0.02	28.91	41.99	47.7
02/04/2012	NS	0.110	0.04	30.01	46.29	54.4
02/04/2012	DS	0.137	0.025	28.1	51.17	55
03/04/2012	NS	0.110	0.01	24.21	42.85	38.9
03/04/2012	DS	0.100	< 0.01	20.9	45.22	51.5
04/04/2012	NS	0.100	< 0.01	19.96	40.23	41.6
04/04/2012	DS	0.107	0.01	16.09	36.54	44.8
05/04/2012	NS	0.077	0.02	15.17	38.37	43.6
05/04/2012	DS	0.123	< 0.01	17.49	41.67	45
06/04/2012	NS	0.213	0.02	17.25	40.87	53
06/04/2012	DS	0.187	< 0.01	10.89	30.97	25.1
07/04/2012	NS	0.183	0.01	15.1	53.74	42.1
07/04/2012	DS	0.157	< 0.01	15.65	37.4	48.9
08/04/2012	NS	0.177	0.01	13.48	35	39.9
08/04/2012	DS	0.143	< 0.01	31.07	39.2	60.8
09/04/2012	NS	0.200	0.025	16.98	44.79	53.3
09/04/2012	DS	0.147	< 0.01	18.21	47.22	62.9
10/04/2012	NS	0.143	0.03	21.97	68.14	118
10/04/2012	DS	0.100	0.01	18.27	57.1	95.1
11/04/2012	NS	0.117	< 0.01	16.4	46.94	73.8
11/04/2012	DS	0.120	< 0.01	14.16	45.89	69.7
12/04/2012	NS	0.157	< 0.01	15.42	51	66.1
12/04/2012	DS	0.117	0.01	15.24	45.75	62.4
13/04/2012	NS	0.160	0.01	15.64	49.04	64.1
13/04/2012	DS	0.117	0.015	20.54	62.38	99.8
14/04/2012	NS	0.150	< 0.01	20.06	55.74	61.7
14/04/2012	DS	0.140	0.02	21.24	43.15	50
15/04/2012	NS	0.153	0.02	23.64	49.49	56.5
15/04/2012	DS	0.187	0.02	24.63	39.67	42.4
16/04/2012	NS	0.153	0.015	25.41	36.75	40.9
16/04/2012	DS	0.187	0.02	18.68	23.32	57.6
17/04/2012	NS	0.203	< 0.01	30.61	37.41	44.5
17/04/2012	DS	0.287	0.03	34.39	41.91	83.9
18/04/2012	NS	0.183	0.015	34.87	44.89	59.7
18/04/2012	DS	0.190	0.04	32.67	44.37	62.1
19/04/2012	NS	0.153	0.0233	35.04	59.5	107
19/04/2012	DS	0.143	0.035	37.19	65.25	136
20/04/2012	NS	0.133	0.01	25.85	44.43	98.6
20/04/2012	DS			0	0	0
21/04/2012	NS			0	0	0
21/04/2012	DS			0	0	0
22/04/2012	NS			0	0	0
22/04/2012	DS			0	0	0
23/04/2012	NS	0.143	0.06	24.27	40.42	54.2
23/04/2012	DS	0.137	0.01	26.62	53.02	103
24/04/2012	NS	0.140	0.015	22.31	44.33	88.9

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)					
		Solid	Solution				
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
24/04/2012	**DS**	0.147	0.02	24.67	55.41	158
25/04/2012	**NS**	0.157	0.02	27.61	64.24	186
25/04/2012	**DS**	0.163	0.02	30.94	76.86	167
26/04/2012	**NS**	0.170	0.025	21.49	57.46	149
26/04/2012	**DS**	0.220	0.03	20.92	56.73	117
27/04/2012	**NS**	0.183	< 0.01	18.51	49.98	100
27/04/2012	**DS**	0.137	0.015	19.9	54.51	90.4
28/04/2012	**NS**	0.163	0.01	20.39	53.58	85.2
28/04/2012	**DS**	0.143	0.015	25.3	53.61	86.6
29/04/2012	**NS**	0.160	< 0.01	27.09	50.97	74.9
29/04/2012	**DS**	0.147	0.015	26.67	45.36	67.7
30/04/2012	**NS**	0.170	< 0.01	29.66	51.87	76.3
30/04/2012	**DS**	0.167	0.02	25.75	47.33	74.4
01/05/2012	**NS**	0.157	< 0.01	30.22	57.93	138
01/05/2012	**DS**	0.180	0.02	25.38	54.19	123
02/05/2012	**NS**	0.193	< 0.01	27.35	54.95	106
02/05/2012	**DS**	0.203	0.01	20.71	42.44	47.8
03/05/2012	**NS**	0.217	0.015	26.04	43.62	52.1
03/05/2012	**DS**	0.300	0.015	16.31	29.39	41.5
04/05/2012	**NS**	0.177	< 0.01	30.44	29.64	21.6
04/05/2012	**DS**	0.210	< 0.01	19.67	26.29	16.3
05/05/2012	**NS**	0.173	< 0.01	10.3	20.77	21.1
05/05/2012	**DS**	0.213	0.02	22.82	23.14	16.3
06/05/2012	**NS**	0.150	< 0.01	34.95	47.87	15.6
06/05/2012	**DS**	0.133	0.015	24.44	30.92	22.6
07/05/2012	**NS**	0.183	0.01	18.78	27.55	30.5
07/05/2012	**DS**	0.117	< 0.01	26	32.58	51.3
08/05/2012	**NS**	0.130	< 0.01	19.93	26.18	31.8
08/05/2012	**DS**	0.157	0.01	19.5	26.44	31.6
09/05/2012	**NS**	0.150	< 0.01	23.99	29.03	34.5
09/05/2012	**DS**	0.113	0.02	27.34	27.27	27.3
10/05/2012	**NS**	0.147	< 0.01	28.32	24.25	26.9
10/05/2012	**DS**	0.180	0.06	34.56	27.39	10.1
11/05/2012	**NS**	0.173	< 0.01	30.58	24.08	23.8
11/05/2012	**DS**	0.167	< 0.01	34.54	28.78	29.1
12/05/2012	**NS**	0.228	< 0.01	36.84	30.43	30.9
12/05/2012	**DS**	0.168	< 0.01	42.41	35.86	36.6
13/05/2012	**NS**	0.123	< 0.01	37.19	44.3	54.8
13/05/2012	**DS**	0.157	0.025	49.18	57.35	52.3
14/05/2012	**NS**	0.130	0.01	38.4	60.28	101
14/05/2012	**DS**	0.127	0.01	43.41	57.5	102
15/05/2012	**NS**	0.140	0.01	39.13	48.46	69.1
15/05/2012	**DS**	0.137	< 0.01	40.66	51.22	61.1
16/05/2012	**NS**	0.120	0.015	37.77	49.24	59.4
16/05/2012	**DS**	0.113	0.01	38.27	50.7	89.9
17/05/2012	**NS**	0.097	0.02	37.01	52.29	127
17/05/2012	**DS**	0.113	< 0.01	36.3	53.29	115

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
18/05/2012	NS	0.143	0.015	28	45.01	100
18/05/2012	DS	0.117	0.01	28.38	48.92	101
19/05/2012	NS	0.100	0.02	22.59	42.71	87.7
19/05/2012	DS	0.130	0.02	25.5	48.06	58.9
20/05/2012	NS	0.117	0.015	21.99	39.66	45.4
20/05/2012	DS	0.133	< 0.01	23.31	30.89	18.8
21/05/2012	NS	0.153	< 0.01	16.49	13.19	7.29
21/05/2012	DS	0.237	0.03	17.79	10.7	4.33
22/05/2012	NS	0.367	0.01	21.48	14.2	6.66
22/05/2012	DS	0.337	0.01	24.42	21.49	14.4
23/05/2012	NS	0.267	< 0.01	30.96	36.35	42.7
23/05/2012	DS	0.263	0.01	29.11	34.08	41.6
24/05/2012	NS	0.147	< 0.01	24.82	30.91	26.4
24/05/2012	DS	0.157	0.01	34.09	42.89	50.4
25/05/2012	NS	0.160	0.015	33.8	47.87	71.1
25/05/2012	DS	0.147	0.015	38.31	52.85	93.7
26/05/2012	NS	0.220	0.02	37.43	50.42	105
26/05/2012	DS	0.147	0.03	33.65	47.69	98.3
27/05/2012	NS	0.147	0.01	36.6	54.04	114
27/05/2012	DS	0.167	0.015	29.41	46.1	65.2
28/05/2012	NS	0.147	0.01	32.56	49.44	66.4
28/05/2012	DS	0.203	< 0.01	27.02	31.62	25
29/05/2012	NS	0.283	0.015	29.8	31.35	23
29/05/2012	DS	0.243	0.02	27.68	29.39	17
30/05/2012	NS	0.187	0.02	26.55	29.32	24.9
30/05/2012	DS			0	0	0
31/05/2012	NS	0.167	0.015	25.26	28	25.9
31/05/2012	DS	0.157	< 0.01	28.71	34.05	38.9
01/06/2012	NS	0.137	0.03	30.37	34.32	42.4
01/06/2012	DS	0.220	0.025	29.9	34.43	32.7
02/06/2012	NS	0.243	0.02	32.56	29.07	24.3
02/06/2012	DS	0.360		30.93	24.15	21.2
03/06/2012	NS	0.287	0.015	33.46	27.25	16.4
03/06/2012	DS	0.407	0.015	35.68	29.14	24.4
04/06/2012	NS	0.307	0.02	38.69	38.66	48
04/06/2012	DS	0.227	0.025	37.14	42.2	40.9
05/06/2012	NS	0.153		40.04	45.67	64
05/06/2012	DS	0.157	0.01	32.19	41.42	44.4
06/06/2012	NS	0.133	0.02	30.63	36.25	53.5
06/06/2012	DS	0.137	0.01	28.48	35.03	36.3
07/06/2012	NS	0.140	0.03	25.81	36.09	42.1
07/06/2012	DS	0.133	0.02	23.7	32.05	32.6
08/06/2012	NS	0.120		21.5	33.25	38.7
08/06/2012	DS	0.398	0.01	18.63	30.42	30
09/06/2012	NS	0.133		18.22	29.47	25.1
09/06/2012	DS	0.157	0.02	18.12	31.45	33.4
10/06/2012	NS	0.157		17.03	29.84	24.5

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
10/06/2012	DS	0.183	0.03	19.36	28.62	41.1
11/06/2012	NS	0.190	0.02	19.82	30.06	21.2
11/06/2012	DS	0.213	0.01	20.84	30.91	35.7
12/06/2012	NS	0.210		21.11	29.24	25.2
12/06/2012	DS	0.277	0.015	22.7	27.36	20.8
13/06/2012	NS	0.323	0.01	21.42	26.53	42.4
13/06/2012	DS	0.517	0.02	21.14	27.96	21
14/06/2012	NS	0.428	0.01	19.94	27.1	20.2
14/06/2012	DS	0.403	0.025	20.7	28.98	22.1
15/06/2012	NS	0.367	0.015	19.12	27.47	20
15/06/2012	DS			0	0	0
16/06/2012	NS			0	0	0
16/06/2012	DS			0	0	0
17/06/2012	NS			0	0	0
17/06/2012	DS			0	0	0
18/06/2012	NS	0.232	0.02	20.77	47.34	46.6
18/06/2012	DS	0.213	0.02	23.31	25.6	15.5
19/06/2012	NS	0.228	0.01	25.2	35.47	42.1
19/06/2012	DS	0.217	0.015	22.54	41.06	46.2
20/06/2012	NS	0.260	0.015	21.64	39.58	56
20/06/2012	DS	0.227	0.03	22.68	47.46	86.7
21/06/2012	NS	0.426	0.03	21.08	45.12	71.5
21/06/2012	DS	0.227	0.02	18.52	39.38	86.4
22/06/2012	NS	0.227	0.02	21	46.96	86.4
22/06/2012	DS	0.230	0.01	19.48	45.05	92.8
23/06/2012	NS	0.227	0.02	19.02	46.29	80.8
23/06/2012	DS	0.213	0.01	18.94	42.52	60.9
24/06/2012	NS	0.207	0.02	15.07	34.55	51.9
24/06/2012	DS	0.227	0.04	18.29	42.81	56.8
25/06/2012	NS	0.210	0.06	16.4	41.05	58.6
25/06/2012	DS	0.203	0.03	18.16	40.49	55.6
26/06/2012	NS	0.167	0.015	17.17	40.73	52.9
26/06/2012	DS	0.213	0.02	16.79	45.24	80.4
27/06/2012	NS	0.213		15.38	47.49	71.4
27/06/2012	DS	0.230	0.02	15.15	41.95	88.1
28/06/2012	NS	0.270	0.015	13.8	44.08	94.3
28/06/2012	DS	0.177	0.035	12.25	40	64.7
29/06/2012	NS	0.243	0.02	13.2	50	68.5
29/06/2012	DS	0.227	0.02	14.49	45.29	57.1
30/06/2012	NS	0.257	0.01	11.72	35.92	43.9
30/06/2012	DS	0.243	0.01	11.19	31.47	21.8
01/07/2012	NS	0.240	0.01	10.35	34.56	10.8
01/07/2012	DS	0.173	0.015	10.91	36.8	42.8
02/07/2012	NS	0.203	0.02	10.53	40.96	47.2
02/07/2012	DS	0.317	0.055	11.09	41.2	51.5
03/07/2012	NS	0.147	0.015	9.95	39.62	46.8
03/07/2012	DS	0.290	0.02	10.2	38.8	45.4

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
04/07/2012	NS	0.177	0.01	8.91	39.61	21.5
04/07/2012	DS	0.350	0.015	10.36	41.17	50.9
05/07/2012	NS	0.213	0.02	8.74	36.78	31.3
05/07/2012	DS	0.383	0.02	8.95	39	48.1
06/07/2012	NS	0.183		9.6	39.2	50.1
06/07/2012	DS	0.187	0.025	10.91	46.36	60.9
07/07/2012	NS	0.180	0.015	10.26	44.57	51.7
07/07/2012	DS	0.170	0.01	10.06	41.85	48.6
08/07/2012	NS	0.187		9.59	39.7	42.9
08/07/2012	DS	0.187	0.03	9.12	37.78	42.8
09/07/2012	NS	0.140	0.02	10.03	38.1	35.6
09/07/2012	DS	0.117		10.36	44.56	50.7
10/07/2012	NS	0.113		10.01	41.87	46
10/07/2012	DS	0.183	0.01	10.49	42.59	43.1
11/07/2012	NS	0.145		13.63	52.4	69.9
11/07/2012	DS	0.183	0.01	10.61	41.53	42.1
12/07/2012	NS	0.294	0.015	9.88	29.52	18.4
12/07/2012	DS	0.203	0.015	8.84	25.68	18.5
13/07/2012	NS	0.246	0.02	11.64	41	41.8
13/07/2012	DS	0.210	0.04	11.1	45.89	50.1
14/07/2012	NS	0.253	0.035	10.57	41.71	42.5
14/07/2012	DS	0.267	0.02	9.38	29.73	20.1
15/07/2012	NS	0.227	0.02	13.1	28.27	17
15/07/2012	DS	0.237	0.03	10.78	24.94	22.1
16/07/2012	NS	0.355	0.07	15.39	26.92	16.8
16/07/2012	DS	0.270	0.02	15.24	21.65	14.8
17/07/2012	NS	0.252	0.015	17.17	27.3	20.8
17/07/2012	DS	0.193	0.01	18.4	31.34	21.8
18/07/2012	NS	0.216		18.81	29.31	19.2
18/07/2012	DS	0.263	0.02	19.33	27.18	16.9
19/07/2012	NS	0.315	0.01	18.62	25.47	16.7
19/07/2012	DS	0.250		19.87	34.64	23.3
20/07/2012	NS	0.193	0.015	20.87	47.05	59.5
20/07/2012	DS	0.177	0.03	25.43	65.89	107
21/07/2012	NS	0.173	0.02	22.3	64.22	94.5
21/07/2012	DS	0.180	0.02	16.72	39.63	43.6
22/07/2012	NS	0.163	0.015	17.06	45.23	46.2
22/07/2012	DS	0.160	0.02	17.18	48.81	60
23/07/2012	NS	0.157	0.02	15.63	47.29	65
23/07/2012	DS	0.170	0.015	15.26	47.13	58.6
24/07/2012	NS	0.170	0.015	10.07	35.78	38.9
24/07/2012	DS	0.143	0.01	8.25	21.69	12.3
25/07/2012	NS	0.293	0.01	7.54	21.3	16.3
25/07/2012	DS	0.267	0.07	5.87	23.12	16.2
26/07/2012	NS	0.223	0.035	4.89	19.34	21.5
26/07/2012	DS	0.287	0.03	4.47	16.41	12.7
27/07/2012	NS	0.440	0.03	5.06	13.66	9.41

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
27/07/2012	DS	0.417		4.69	17.6	12.8
28/07/2012	NS	0.323		6.53	18.72	14.3
28/07/2012	DS			0	0	0
29/07/2012	NS	0.367	0.025	5.64	8.58	6.48
29/07/2012	DS	0.307	0	5.83	18.1	16.6
30/07/2012	NS	0.263		7.61	23.38	25.8
30/07/2012	DS	0.193	0.01	6.63	23.52	22.1
31/07/2012	NS	0.280		7.42	23.7	24.6
31/07/2012	DS	0.395	0.01	6.47	21.08	20.1
01/08/2012	NS	0.247	< 0.01	9.31	24.41	28.9
01/08/2012	DS	0.230	0.015	26.31	44.69	21.3
02/08/2012	NS	0.243	0.02	2.41	4.17	16.8
02/08/2012	DS	0.283	0.02	7.61	19.06	10.1
03/08/2012	NS	0.285	< 0.01	9.94	20.82	9.19
03/08/2012	DS	0.233	0.01	8.93	19.47	17.6
04/08/2012	NS	0.317	< 0.01	8.19	26.45	25.6
04/08/2012	DS		< 0.01	7.74	31.56	24.9
05/08/2012	NS	0.313	< 0.01	15.17	33.25	20.5
05/08/2012	DS	0.283	0.02	17.84	36.41	24.8
06/08/2012	NS	0.310	0.025	16.43	37.8	27.6
06/08/2012	DS	0.257	0.02	14.95	30.4	24.1
07/08/2012	NS	0.277	0.015	15.26	29.58	18.5
07/08/2012	DS	0.340	0.025	16.2	29.45	20.8
08/08/2012	NS	0.307	0.02	14.31	26.7	9.63
08/08/2012	DS	0.263	0.02	15.41	30.59	49.1
09/08/2012	NS	0.257	0.025	16.63	31.13	20.6
09/08/2012	DS	0.230	0.025	13.38	25.65	14.7
10/08/2012	NS	0.230	0.02	12.4	25.23	13.3
10/08/2012	DS	0.538	0.02	10.77	27.55	21.5
11/08/2012	NS	0.300	0.03	12.25	35.4	24.5
11/08/2012	DS	0.205	0.01	10.58	36.67	25.4
12/08/2012	NS	0.233	0.025	10.03	34.42	21.5
12/08/2012	DS	0.258	0.015	9.86	33.47	24.7
13/08/2012	NS	0.240	0.02	20.59	34.65	45
13/08/2012	DS	0.183	0.02	11.73	39.09	47.5
14/08/2012	NS	0.237	0.02	22.28	46.23	59.1
14/08/2012	DS	0.160	0.01	10.32	38.35	50.4
15/08/2012	NS	0.260	0.03	10.71	37.96	39.8
15/08/2012	DS	0.183	0.045	8.19	30.68	50.3
16/08/2012	NS	0.200	0.025	8.09	39.21	46.6
16/08/2012	DS	0.173	0.025	8.92	38.55	49.7
17/08/2012	NS	0.160	0.045	9.59	18.34	42.2
17/08/2012	DS	0.150	0.02	8.08	38.45	56.7
18/08/2012	NS	0.156	0.025	6.57	36.9	38.6
18/08/2012	DS	0.143	0.03	6.58	34.65	38.6
19/08/2012	NS	0.200	0.02	1.11	20.05	13.8
19/08/2012	DS	0.230	0.025	1.65	19.4	13.4

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
20/08/2012	NS	0.193	0.015	2.34	22.97	15.9
20/08/2012	DS	0.250	0.02	2.73	25.39	20.6
21/08/2012	NS	0.280	0.025	2.6	27.98	19.9
21/08/2012	DS	0.313	0.025	2.51	22.76	19.5
22/08/2012	NS	0.250	0.03	0.51	18.72	14.6
22/08/2012	DS	0.250	0.065	1.56	19.62	11.2
23/08/2012	NS	0.310	0.02	1.56	13.41	13.9
23/08/2012	DS	0.303	0.035	1.51	15.33	9.48
24/08/2012	NS	0.257	0.035	0.47	18.45	11.9
24/08/2012	DS	0.292	0.015	2.49	23.26	21.1
25/08/2012	NS	0.337	0.015	3.07	17.28	16.7
25/08/2012	DS	0.310	0.045	2.3	19.04	11.8
26/08/2012	NS	0.270	0.02	2.67	53.1	15.3
26/08/2012	DS	0.227	0.035	1.84	16.44	10.2
27/08/2012	NS	0.190	0.045	3.91	17.91	18.2
27/08/2012	DS	0.150	0.025	3.17	22.89	17.6
28/08/2012	NS	0.263	0.01	3.52	20.47	11.7
28/08/2012	DS	0.250	< 0.01	3.39	21.28	17.9
29/08/2012	NS	0.313	0.03	3.92	18.26	12.5
29/08/2012	DS	0.330	0.105	3.7	16.85	9.79
30/08/2012	NS	0.457	0.03	5.62	20.87	19.4
30/08/2012	DS	0.468	0.025	6.61	28.08	26.8
31/08/2012	NS	0.262	0.025	6.93	28.16	22.4
31/08/2012	DS	0.233	0.025	5.61	27.32	28.6
01/09/2012	NS	0.193	0.02	6.75	33.5	24.9
01/09/2012	DS	0.167	0.055	4.84	35.94	36.8
02/09/2012	NS	0.163	0.02	4.42	31.15	38.6
02/09/2012	DS	0.207	0.02	1.96	28.57	31.7
03/09/2012	NS	0.172	0.02	2.57	28.3	32.4
03/09/2012	DS	0.180	0.025	1.46	27.74	26.4
04/09/2012	NS	0.187	0.025	0.84	23.85	27.7
04/09/2012	DS	0.237	0.025	0.5	24.48	28.2
05/09/2012	NS	0.222	0.02	0.86	24.44	32.1
05/09/2012	DS	0.190	0.045	0.6	33.4	43.4
06/09/2012	NS	0.160	0.035	0.57	27.36	39.3
06/09/2012	DS	0.177	0.025	0.29	28.19	21.1
07/09/2012	NS	0.188	0.03	0.27	6.99	3
07/09/2012	DS	0.157	0.02	0.36	7.08	2.9
08/09/2012	NS	0.147	0.02	0.29	9.43	3.64
08/09/2012	DS	0.117	0.02	0.24	16.07	9.66
09/09/2012	NS	0.140	0.04	0.26	14.42	6.86
09/09/2012	DS	0.143	0.03	0.36	19.1	13.2
10/09/2012	NS	0.143	0.03	0.89	14.51	8.34
10/09/2012	DS	0.177	0.035	1.75	19.48	15.7
11/09/2012	NS	0.277	0.02	2.2	19.76	17.6
11/09/2012	DS	0.223	0.02	3.21	27.52	23.9
12/09/2012	NS	0.193	0.02	2.55	19.03	18.8

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
12/09/2012	DS	0.356	0.065	1	11.67	6.9
13/09/2012	NS	0.143	0.02	1.46	18.01	9.79
13/09/2012	DS	0.137	0.02	2.9	25.62	23.2
14/09/2012	NS	0.133	0.02	2.02	24.85	16.6
14/09/2012	DS			0	0	0
15/09/2012	NS			0	0	0
15/09/2012	DS			0	0	0
16/09/2012	NS			0	0	0
16/09/2012	DS			0	0	0
17/09/2012	NS	0.127	0.03	2.95	18.87	6.65
17/09/2012	DS	0.093	0.035	2.91	33.65	25.9
18/09/2012	NS	0.103	0.02	15.89	32.38	12.3
18/09/2012	DS	0.123	0.02	3.16	28.74	15.9
19/09/2012	NS	0.143	0.03	3.42	25.17	13
19/09/2012	DS	0.190	0.015	3.58	24.01	11.3
20/09/2012	NS	0.217	0.025	4.88	23.39	12.9
20/09/2012	DS	0.253	0.02	4.88	24.34	15.2
21/09/2012	NS	0.257	0.02	5.6	23.83	19.1
21/09/2012	DS	0.272	0.02	7.41	28.95	21.9
22/09/2012	NS	0.370	0.02	7.51	29.46	20.6
22/09/2012	DS	0.365	0.025	6.87	33.83	25.6
23/09/2012	NS	0.428	0.01	6.27	30.5	21.4
23/09/2012	DS	0.373	0.02	3.36	18.93	9.87
24/09/2012	NS	0.368	0.03	3.95	25.47	19
24/09/2012	DS	0.252	< 0.01	3.27	30.32	23.5
25/09/2012	NS	0.177	0.01	2.59	27.95	21.2
25/09/2012	DS	0.163	0.01	2.42	26.05	18.7
26/09/2012	NS	0.193	0.02	2.36	26.71	20
26/09/2012	DS	0.157	0.015	2.41	30.71	23.3
27/09/2012	NS	0.143	0.025	1.55	30.3	22.8
27/09/2012	DS	0.107	< 0.01	1.98	23.85	19.5
28/09/2012	NS	0.113	0.015	1	22.08	19.9
28/09/2012	DS	0.123	0.02	1.09	23.43	22
29/09/2012	NS	0.123	0.02	1.33	30.46	28.4
29/09/2012	DS	0.140	0.015	1.68	24.83	20.9
30/09/2012	NS	0.132	0.025	1.14	25.56	24.3
30/09/2012	DS	0.167	0.01	1.04	25.92	25.4
01/10/2012	NS			0.84	24.96	22.3
01/10/2012	DS			0.73	17.2	7.84
02/10/2012	NS			1.1	3.93	1.16
02/10/2012	DS			3.97	11.14	7.08
03/10/2012	NS			5.2	15.31	7.28
03/10/2012	DS			3.81	12.38	5.07
04/10/2012	NS			3.8	17.59	17.4
04/10/2012	DS			3.18	16.25	13.4
05/10/2012	NS			4.84	29.83	26.3
05/10/2012	DS			3.88	24.97	14.8

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
06/10/2012	NS			2.52	13.8	8.32
06/10/2012	DS			1.35	7.72	10.3
07/10/2012	NS			1.6	6.79	3.94
07/10/2012	DS			2.53	6.13	7.62
08/10/2012	NS			1.2	8.95	3.37
08/10/2012	DS			4.62	25.49	23.3
09/10/2012	NS			2.78	15.11	11.3
09/10/2012	DS			1.83	11.64	7.67
10/10/2012	NS			1.52	15.11	9.57
10/10/2012	DS			1.3	10.24	8.72
11/10/2012	NS			1.75	10.54	8.44
11/10/2012	DS			3.03	11.59	8.51
12/10/2012	NS			3.12	14.81	11.7
12/10/2012	DS			3.2	15.02	8.98
13/10/2012	NS			3.27	15.06	13.4
13/10/2012	DS			5.89	18.26	17.1
14/10/2012	NS			13.76	36.45	35.2
14/10/2012	DS			12.65	29.67	36.6
15/10/2012	NS			9.39	21.89	15.9
15/10/2012	DS			5.63	13.77	7.88
16/10/2012	NS			3.67	7.89	4.61
16/10/2012	DS			0	0	0
17/10/2012	NS			4.84	7.58	2.41
17/10/2012	DS			4.86	3.7	1.86
18/10/2012	NS			4.55	4.01	1.56
18/10/2012	DS			5.67	5.16	1.82
19/10/2012	NS			7.52	10.14	5.08
19/10/2012	DS			14.39	17.76	9.36
20/10/2012	NS			16.37	23.53	16.4
20/10/2012	DS			15.94	20.59	9.4
21/10/2012	NS			14.95	19.62	12.4
21/10/2012	DS			16.12	24.83	10.3
22/10/2012	NS			16.97	29.77	22.5
22/10/2012	DS			13.94	25.64	17.7
23/10/2012	NS			14.67	2.77	19
23/10/2012	DS			13.88	24.32	18.5
24/10/2012	NS			15.75	23.6	17.2
24/10/2012	DS			16.71	22.44	19.6
25/10/2012	NS			15.97	20.64	13.1
25/10/2012	DS			13.86	19.81	6.14
26/10/2012	NS			9.42	20.43	14.7
26/10/2012	DS			9.87	26.91	23.6
27/10/2012	NS			8.18	21.16	15.4
27/10/2012	DS			4.3	13.01	4.87
28/10/2012	NS			3.99	11.53	4.6
28/10/2012	DS			9.88	33.95	34.5
29/10/2012	NS			11.69	38.29	32.8

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	**Shift**	**Au (g/t)**	**Au (mg/L)**	**Iron (mg/L)**	**Copper (mg/L)**	**CN-WAD (ppm)**
29/10/2012	**DS**			4.31	14.65	7.03
30/10/2012	**NS**			2.58	9.91	4.19
30/10/2012	**DS**			2.34	7.5	3.09
31/10/2012	**NS**			3.67	14.6	11.5
31/10/2012	**DS**			8.16	36.31	30.2
01/11/2012	**NS**			2.23	14.45	4.15
01/11/2012	**DS**			2.83	14.2	8.17
02/11/2012	**NS**			3.41	10.12	7.62
02/11/2012	**DS**			3.92	13.9	7.62
03/11/2012	**NS**			1.82	10.03	4.53
03/11/2012	**DS**			2.3	12.55	5.5
04/11/2012	**NS**			4.26	16.72	8.68
04/11/2012	**DS**			3.44	20.35	16.7
05/11/2012	**NS**			4.11	22.57	19
05/11/2012	**DS**			3.81	23.8	17.3
06/11/2012	**NS**			2.64	16.68	8.6
06/11/2012	**DS**			4.5	27.23	20.7
07/11/2012	**NS**			3.59	15.75	9.02
07/11/2012	**DS**			4.65	31.04	23.6
08/11/2012	**NS**			7.06	48.99	57.5
08/11/2012	**DS**			0	0	0
09/11/2012	**NS**			6.62	45.56	45.7
09/11/2012	**DS**			7.28	37.03	39.6
10/11/2012	**NS**			7.61	34.46	25.1
10/11/2012	**DS**			10.58	42.36	55.3
11/11/2012	**NS**			7.33	34.86	35.7
11/11/2012	**DS**			9.98	43.54	62.1
12/11/2012	**NS**			4.19	31.35	25.2
12/11/2012	**DS**			4.65	32.01	38.9
13/11/2012	**NS**			6.12	35.44	3.38
13/11/2012	**DS**			8.07	43.62	52.3
14/11/2012	**NS**			16.2	31.61	149
14/11/2012	**DS**			8.52	44.44	48.6
15/11/2012	**NS**			4.84	41	46.5
15/11/2012	**DS**			8.16	43.79	46.7
16/11/2012	**NS**			5.33	43.12	51.2
16/11/2012	**DS**			2.51	33.27	30.7
17/11/2012	**NS**			1.27	10.9	6.23
17/11/2012	**DS**			1.06	6.96	3.47
18/11/2012	**NS**			2.73	10.51	5.29
18/11/2012	**DS**			3.26	10.69	3.47
19/11/2012	**NS**			2.91	9.31	3.17
19/11/2012	**DS**			2.86	10.7	3.01
20/11/2012	**NS**			3.18	11.51	4.66
20/11/2012	**DS**			4.36	16.44	4.64
21/11/2012	**NS**			5.79	18.82	6.86
21/11/2012	**DS**			7.08	23.16	17.3

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
22/11/2012	NS			6.5	21.66	16.9
22/11/2012	DS			6.12	31.16	21.1
23/11/2012	NS			5.71	25.15	9.53
23/11/2012	DS			2.43	13.1	4.91
24/11/2012	NS			2.1	11.06	5.16
24/11/2012	DS			3.72	14.3	2.45
25/11/2012	NS			3	11.9	8.99
25/11/2012	DS			0.97	4.59	1.43
26/11/2012	NS			1.49	5.92	2.37
26/11/2012	DS			3.54	10.28	4.36
27/11/2012	NS			6.13	18	12.6
27/11/2012	DS			5.21	16.99	7.28
28/11/2012	NS			4.57	16.24	7.67
28/11/2012	DS			4.32	20.13	16.7
29/11/2012	NS			8.08	37.8	30.7
29/11/2012	DS			2.73	11.21	4.95
30/11/2012	NS			3.78	22.05	16.3
30/11/2012	DS			3.62	23.1	9.95
01/12/2012	NS			1.32	13.32	5.04
01/12/2012	DS			0.72	7.26	3.89
02/12/2012	NS			0.76	4.61	2.41
02/12/2012	DS			1.44	17.16	5.42
03/12/2012	NS			2.69	23.23	8.3
03/12/2012	DS			2.59	17.31	5.46
04/12/2012	NS			4.8	20.63	8.34
04/12/2012	DS			3.62	16.73	4.66
05/12/2012	NS			3.35	15.74	5.33
05/12/2012	DS			4.3	20.85	15.5
06/12/2012	NS			4.79	33.65	24.9
06/12/2012	DS			4.17	24.02	16.7
07/12/2012	NS			3.38	25.26	19.3
07/12/2012	DS			0	0	0
08/12/2012	NS			0	0	0
08/12/2012	DS			0	0	0
09/12/2012	NS			0	0	0
09/12/2012	DS			0	0	0
10/12/2012	NS			0	0	0
10/12/2012	DS			0	0	0
11/12/2012	NS			6.13	16.78	6.94
11/12/2012	DS			7.17	26.15	16.5
12/12/2012	NS			4.6	27.86	18.7
12/12/2012	DS			3.46	27.89	17.9
13/12/2012	NS			2.06	28.33	23.4
13/12/2012	DS			3.6	34.71	28.7
14/12/2012	NS			7.55	58.28	71.5
14/12/2012	DS			5.5	44.31	45
15/12/2012	NS			4.99	45.74	56.5

MILL EFFLUENT (FINAL TAILS 360-SA-008)

Metal and Cyanide

		Final tails (360-SA-008)				
		Solid	Solution			
Date	Shift	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
15/12/2012	DS			3.44	43.15	46.4
16/12/2012	NS			0	0	0
16/12/2012	DS			0.71	6.71	4.76
17/12/2012	NS			18.37	80.49	150
17/12/2012	DS			8.11	56.62	48.5
18/12/2012	NS			0.98	2.05	2.5
18/12/2012	DS			0.75	2.36	2.29
19/12/2012	NS			1.18	1.76	1.95
19/12/2012	DS			1.19	3.44	1.92
20/12/2012	NS			1.08	5.24	1.61
20/12/2012	DS			7.03	35.75	28.5
21/12/2012	NS			6.79	42.48	56.4
21/12/2012	DS			1.17	17.7	12.2
22/12/2012	NS			0.92	3.44	1.69
22/12/2012	DS			0.63	1.22	1.84
23/12/2012	NS			0.72	4.84	2.52
23/12/2012	DS			1.25	9.9	4.99
24/12/2012	NS			1.4	16.43	13.6
24/12/2012	DS			0.84	17.35	8.64
25/12/2012	NS			1.02	7.95	3.68
25/12/2012	DS			0.81	4.3	2.83
26/12/2012	NS			0.75	3.89	2.65
26/12/2012	DS			0.86	4.33	4.76
27/12/2012	NS			0.77	2.85	2.35
27/12/2012	DS			1.43	13.49	5.33
28/12/2012	NS			0.94	3.01	1.6
28/12/2012	DS			0.84	1.67	1.27
29/12/2012	NS			0.69	1.94	0.95
29/12/2012	DS			1.09	2.04	1.23
30/12/2012	NS			2.04	9.34	4.89
30/12/2012	DS			4.38	24.33	23.9
31/12/2012	NS			6.13	31.21	29.2
31/12/2012	DS			5.87	30.26	23.2
01/01/2013	NS			5.38	28.28	20.5

MILL EFFLUENT (ADDITIONAL TESTS)

	Alkalinity	Aluminium (Al)	Dissolved Aluminium (Al)	Antimony (Sb)	Dissolved Antimony (Sb)	Silver (Ag)	Dissolved Silver (Ag)	Arsenic (As)	Dissolved Arsenic (As)	Barium (Ba)	Dissolved Barium (Ba)	Beryllium (Be)	Dissolved Beryllium (Be)	Boron (B)	Dissolved Boron (B)	Cadmium (Cd)
	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
10-Oct-12	86	0.037	0.01	0.0027	<0.005	0.0082	0.008	0.0098	0.009	0.15	0.146	<0.005	<0.005	0.43	0.42	0.0003
11-Oct-12	88	0.108	0.02	0.0023	<0.005	0.009	0.007	0.0114	0.011	0.142	0.138	<0.0005	<0.005	0.47	0.43	0.00027

	Dissolved Cadmium (Cd)	Chloride	Chrome (Cr)	Dissolved Chromium (Cr)	Copper (Cu)	Dissolved Copper (Cu)	Total Cyanide (CNt)	Hardness	Tin (Sn)	Dissolved Tin (Sn)	Iron (Fe)	Dissolved Iron (Fe)	Fluoride (F)	Lithium (Li)	Dissolved Lithium (Li)	Manganese (Mn)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
10-Oct-12	<0.005	1288	0.0031	0.005	10.08	9.53	4.7	2211	<0.001	<0.005	1.8	0.83	0.35	<0.005	<0.01	0.0378
11-Oct-12	<0.005	1375	0.0039	0.005	9.02	7.07	10.13	2223	<0.001	<0.005	2.2	0.83	0.27	<0.005	<0.01	0.0361

	Dissolved Manganese (Mn)	Mercury (Hg)	Dissolved Mercury (Hg)	Molybdenum (Mo)	Dissolved Molybdenum (Mo)	Ammonia (NH_3)	Nickel (Ni)	Dissolved Nickel (Ni)	Nitrate (NO_3)	Lead (Pb)	Dissolved Lead (Pb)	Selenium (Se)	Dissolved Selenium (Se)	Strontium (Sr)	Dissolved Strontium (Sr)	Sulfate (SO_4)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg N/L	mg/L	mg/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg SO_4/L
10-Oct-12	0.03	0.00072	0.0008	0.3551	0.355	0.12	0.5993	0.033	13.2	<0.0003	<0.005	0.023	0.023	1.77	1.7	2459
11-Oct-12	0.035	0.00136	0.0011	0.3339	0.333	0.16	0.4559	0.023	10.8	<0.0003	<0.005	0.025	0.025	1.77	1.9	2683

	Thallium (Tl)	Dissolved thallium (Tl)	Titanium (Ti)	Dissolved titanium (Ti)	Uranium (U)	Dissolved Uranium (U)	Vanadium (V)	Dissolved Vanadium	Zinc (Zn)	Dissolved Zinc	
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
10-Oct-12	<0.005	<0.01	1.1	1	0.016	0.016	<0.0005	<0.005	<0.001	<0.005	**Certificat V-22715 (Multi-Lab)**
11-Oct-12	<0.005	<0.01	1.1	1.1	0.016	0.016	<0.0005	<0.005	<0.001	<0.005	**Certificat V-22716 (Multi-Lab)**

APPENDIX C

AMMONIA MANAGEMENT PLAN

Title of document: **Ammonia Management Plan**

Client : **AGNICO-EAGLE MINES**

Project : **Meadowbank Gold Project**

Prepared by: Anh-Long Nguyen, ing., M.Sc.

Reviewed by: Stéphanie Trottier, ing., M.Eng.

Approved by: Patrick Scholz, ing., M.Eng.

REVISION INDEX

Revision				Pages Revised	Remarks
#	Prep.	App.	Date		
PA	ALN	PS	Feb. 6, '13	All	For internal review
PB	ALN	PS	Feb. 8, '13	All	For Client review
00	ALN	PS P.S.	Feb. 20,'13	All	Final document

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

The previous version of the Water Management Plan (WMP) for the Mine was presented in 2009 (Doc. 833), updating the first edition of the WMP, support document (Doc. 500) to the Type-A Water License Application for the Mine. The WMP was then updated in 2011 (Doc. 1270). This technical note was produced as an appendix to the 2012 WMP update and covers the ammonia management plan for the mine site.

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

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

1. Blasting of ammonium-nitrate (AN) explosives is typically the primary source of ammonia in areas of mining operations. AN readily absorbs water and dissolves easily, thereby mobilizing ammonia in either groundwater or surface runoff.
2. In gold mine operations using a cyanidation process to extract the gold from the ore, the cyanide in solution is oxidized to cyanate (CNO^-) using a sulfur dioxide (SO_2)-air process before discharge to the Tailings Storage Facility. The cyanate can then hydrolyze to ammonia in the Tailings Storage Facility reclaim pond.

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

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

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

2.0 EXPLOSIVE MANAGEMENT AND BLASTING PRACTICES

2.1 SITE DESCRIPTION

2.1.1 Explosive Storage

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

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

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

2.1.2 Roads

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

Spillage control protocols, procedures and handling of spilled material, and explosive management for both storage and transport have been established by Dyno Nobel Inc. (Dyno) and are provided in Appendix C2.

2.1.3 Pits

The development sequence of the mine site is provided in Table 2-1 of the Water Management Plan 2012 report (610756-0000-40ER-0001). Explosives are used for the excavation of waste rock and mining of the ore at the Portage, Goose pits and eventually the Vault open pit.

2.2 AMMONIA PATHWAYS

Ammonia not fully detonated within the in-pit blasting operations mobilizes through several pathways on the mine site. Water from drainage runoff is the primary mechanism of mobilization for ammonia residuals remaining within the pits. This water is collected at pit sumps and then pumped to the Portage Attenuation Pond, until it becomes the TSF Reclaim Pond (March 2015), after that it will be pumped to the South Cell TSF (former Attenuation

Pond). Blasting residuals are also expected to be attached to waste rock and ore materials, which are transported from the open pits to their respective storage and processing facilities. Residuals from waste rock may be washed off by precipitation and be ultimately conveyed to the Portage Attenuation Pond or the future South Cell TSF (former Attenuation Pond), or the Vault Attenuation Pond. Residuals from the ore may eventually be carried in the tailings to the Tailings Storage Facility.

2.3 EXPLOSIVES AND BLASTING

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

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

a) Optimize the use of explosives

b) Increase the completion and efficiency of explosive detonations

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

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

2.3.1 Explosive Products

Explosive products used at the mine site include bulk explosives (bulk emulsion), packaged explosives, cast boosters, detonating cords, non-electric delay detonators and non-electric lead lines. The material safety data sheets (MSDS) for these products are provided in Appendix C4. Of these products, the greatest potential for water contamination comes from the bulk explosives. Presently, Meadowbank uses emulsion as the primary bulk explosive for its blasting operations.

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

- Ammonium, sodium and/or calcium nitrate
- Fuel and/or mineral oil

- Methylamine nitrate
- Emulsifiers
- Ethylene glycol

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

2.3.2 Procedures and Practices

Quality control procedures are in place to verify AN content in bulk explosives. Quality control procedures for the emulsion occur at the plant and density tests are done at the blast site (on the trucks). Loading procedures specify that blastholes be loaded with emulsion from the bottom of the blastholes to provide a continuous explosive column. Details on the explosive quality control and loading procedures have been established by Dyno and are provided in Appendix C2.

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

- Explosives handling
- Completeness of detonation

Bulk emulsion spillage during blasthole loading could (as bulk emulsion is resistant to water) be a source of ammonia that could be carried by water collected in the pits. Spillage control protocols, procedures and handling of spilled material, and explosive management for storage and transport, as well as the emergency response plan, have been established by Dyno and are provided in Appendix C2 and C3.

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

2.4 MONITORING

Monitoring of explosive handling and blasting is as follows:

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

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

c) Loading instructions: Loading instruction forms are completed for each blast event and provide a record of the as-loaded parameters for all blastholes in the blast pattern including:

- Hole depth
- Collar height
- Priming (single or double)
- Other observations made by the blast crew (e.g., wetness of holes, use of liners, collapsing holes or difficulty loading)

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

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

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

3.0 MILL EFFLUENT

3.1 SITE DESCRIPTION

The mill effluent consists of tailings produced at the mill that is pumped as slurry and deposited in the Tailings Storage Facility (TSF) where the tailings particles are allowed to settle and consolidate. The reclaim water is pumped back to the mill for re-use.

Prior to discharge of the mill effluent to the TSF, the effluent is sent to the cyanide destruction process. The cyanide destruction process at Meadowbank uses the sulfur dioxide (SO_2) and air process to oxidize weak acid dissociable cyanide (CN-WAD) to a less toxic form: cyanate (CNO^-) based on the following reactions:

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

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

3.2 AMMONIA PATHWAY

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

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

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

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

The Water Quality Forecasting for the Portage Area 2012-2025 Report (610756-0000-40ER-0002) provides a forecast of the concentration for ammonia in the TSF reclaim pond during the life of the mine. Furthermore, the report provides a forecast of the ammonia concentration in the Portage and Goose Island Pit once flooding activities has started.

3.3 MONITORING

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

In the Water Quality Forecasting for the Portage Area 2012-2025 Report (610756-0000-40ER-0002), a maximum ammonia concentration in the TSF reclaim water is evaluated in order to meet the CCME guidelines for the Protection of Aquatic Life in the Portage and Goose Island Pits once flooding activities are completed. If this concentration is exceeded before the end of the flooding operation, measures could be undertaken to lower the ammonia concentration, as well as nitrate and nitrite if required, in the TSF reclaim pond prior to the transfer of TSF reclaim water to the pits.

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

i) Biological nitrification / denitrification during the summer months.

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

iii) Ammonia removal by snow making.

4.0 WATER MANAGEMENT

Water quantity and quality monitoring assist in the monitoring of ammonia loadings from explosive residuals, as well as ammonia concentration found in the Tailings Storage Facility reclaim pond. The Meadowbank water quality and flow monitoring plan (AEM 2009) and water license (NWB 2008) includes monitoring stations that are used for the monitoring of ammonia loadings. The stations that specifically monitor for ammonia are listed in Table 1 and are shown in the Figures in Appendix C1.

Table 1: Water Monitoring Station Included Under the Meadowbank Water License

Station	Description	Phase	Parameters [c]	Frequency
ST-9	Portage Attenuation Pond prior to discharge through Third Portage Lake outfall diffuser	Early operation	Ammonia, nitrate, nitrite	Prior to discharge and weekly during discharge
			Water volume	Daily during period of discharge
ST-10 (Location not available until 2014)	Vault Attenuation Pond prior to discharge through Wally Lake outfall diffuser	Late operation	Ammonia, nitrate, nitrite	Prior to discharge and weekly during discharge
			Water volume	Daily during period of discharge
ST-16	Portage Rock Storage Facility	Early operation	Ammonia, nitrate, nitrite	Bi-annually during open water
		Late operation	Ammonia	Monthly during open water
		Closure	Ammonia, nitrate, nitrite	Bi-annually during open water
ST-17 [a]	North Portage Pit Sump	Early operation	Ammonia	Monthly and bi-annually during open water
			Nitrate, nitrite	Bi-annually during open water
			Water volume	Daily during period of discharge
	Portage Pit Lake	Late operation	Ammonia, nitrate, nitrite	Monthly during open water
		Closure	Ammonia, nitrate, nitrite	Bi-annually during open water
ST-18	Portage Attenuation Pond	Early operation	Ammonia	Monthly and bi-annually during open water
			Nitrate, nitrite	Bi-annually during open water
ST-19 [a]	Third Portage Pit Sump	Early operation	Ammonia	Monthly and bi-annually during open water
			Nitrate, nitrite	Bi-annually during open water
			Water volume	Daily during period of discharge
	Third Portage Pit Lake	Late operation	Ammonia, nitrate, nitrite	Monthly during open water
ST-20	Goose Island Pit Sump	Early operation	Ammonia	Monthly and bi-annually during open water
			Nitrate, nitrite	Bi-annually during open water

Station	Description	Phase	Parameters [c]	Frequency
			Water volume	Daily during period of discharge
	Goose Island Pit Lake	Late operation	Ammonia, nitrate, nitrite	Monthly during open water
		Closure	Ammonia, nitrate, nitrite	Bi-annually during open water
ST-21	Tailings Reclaim Pond	Early (South Cell) and late (North Cell) operation	Ammonia, nitrate, nitrite	Monthly during open water
ST-23 (Location not available until 2014)	Vault Pit Sump	Late operation	Ammonia	Monthly and bi-annually during open water
			Nitrate, nitrite	Bi-annually during open water
			Water volume	Daily during period of discharge
ST-24 [b] (Location not available until 2014)	Vault Rock Storage Facility	Late operation	Ammonia	Monthly and bi-annually during open water
			Nitrate, nitrite	Bi-annually during open water
		Closure	Ammonia, nitrate, nitrite	Monthly during open water
ST-25 (Location not available until 2014)	Vault Attenuation Pond	Late operation	Ammonia	Monthly and bi-annually during open water
			Nitrate, nitrite	Bi-annually during open water

(a) ST-17 and ST-19 become one sampling point at closure.
(b) Two monitoring points will be assigned to the Vault Storage Facility (ST-24) during closure.
(c) Parameters listed are only those required for the AMP. The complete suite of parameters analyzed for each station is provided in AEM (2009b) and NWB (2008).

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

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

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

5.0 REPORTING

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

- Brief monthly reports of the compiled water quality monitoring results, sent to the Nunavut Water Board (NWB), the AANDC Water License Inspector and to the Kivalliq Inuit Association (KIA); and
- An annual report submitted to the NWB, KIA, Aboriginal Affairs and Northern Development Canada, Nunavut Impact Review Board, Government of Nunavut, and other interested parties. This report summarizes monitoring results for each sampling station, annual seep water chemistry results, annual groundwater monitoring results, receiving water monitoring results, spills and any accidental releases, measured flow volumes, effluent volumes and loadings, and results of QA/QC analytical data.

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

6.0 REVIEW OF AMMONIA MANAGEMENT PLAN

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

7.0 REFERENCES

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

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

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

NWB (Nunavut Water Board License) (2008). Water License No: 2AM-MEA0815. Agnico-Eagle Mines Ltd. June 2008.

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

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

SNC·LAVALIN

APPENDIX C1
ENVIRONMENT FIELD STATIONS – MINE SITE VIEW

FORMAT ANSI A – PORTRAIT

REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO-EAGLE

TITLE

Environment Field Stations

AGNICO–EAGLE – MEADOWBANK DIVISION

SCALE

DATE 2012–08–01

DRAWN BY S. Gaudreault

SHEET 1 / 1

APPROVED BY

DRAWING NO.

REVISION

C:\Users\sgaudreault\Desktop\2012–02 Environment Field Stations_2.dwg, 02 Aoû 2012

FILE NO.

APPENDIX C2

SPILL CONTROL AND LOADING PROCEDURE PLAN

Dyno Spill Control and Loading Procedure Plan

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

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

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

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

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

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

APPENDIX C3

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

DYNO
Dyno Nobel
Groundbreaking Performance

EMERGENCY RESPONSE PLAN

QAAQTUQ

Agnico Eagle Meadowbank (Baker Lake) Nunavut

For Dyno Nobel Canada Inc.

Magazine, Plant and Work Sites

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

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

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

Table of Contents

1.0 SCOPE

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

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

2.0 RELATED DOCUMENTS

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

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

3.0 ERP OUTLINE

3.1 The following materials are covered by this ERP:

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

Packaged Explosives
Detonators
Acetic acid
Diethylene glycol
Aluminum
Enviro CFE

3.2 The following situations are addressed in this ERP:

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

3.3 This ERP covers:

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

3.4 The following definitions apply to this plan:

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

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

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

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

4.0 PREPARATION AND PLANNING

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

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

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

Annual Fire Department Review Form (Appendix 9)

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

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

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

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

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

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

5.0 TRAINING

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

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

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

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

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

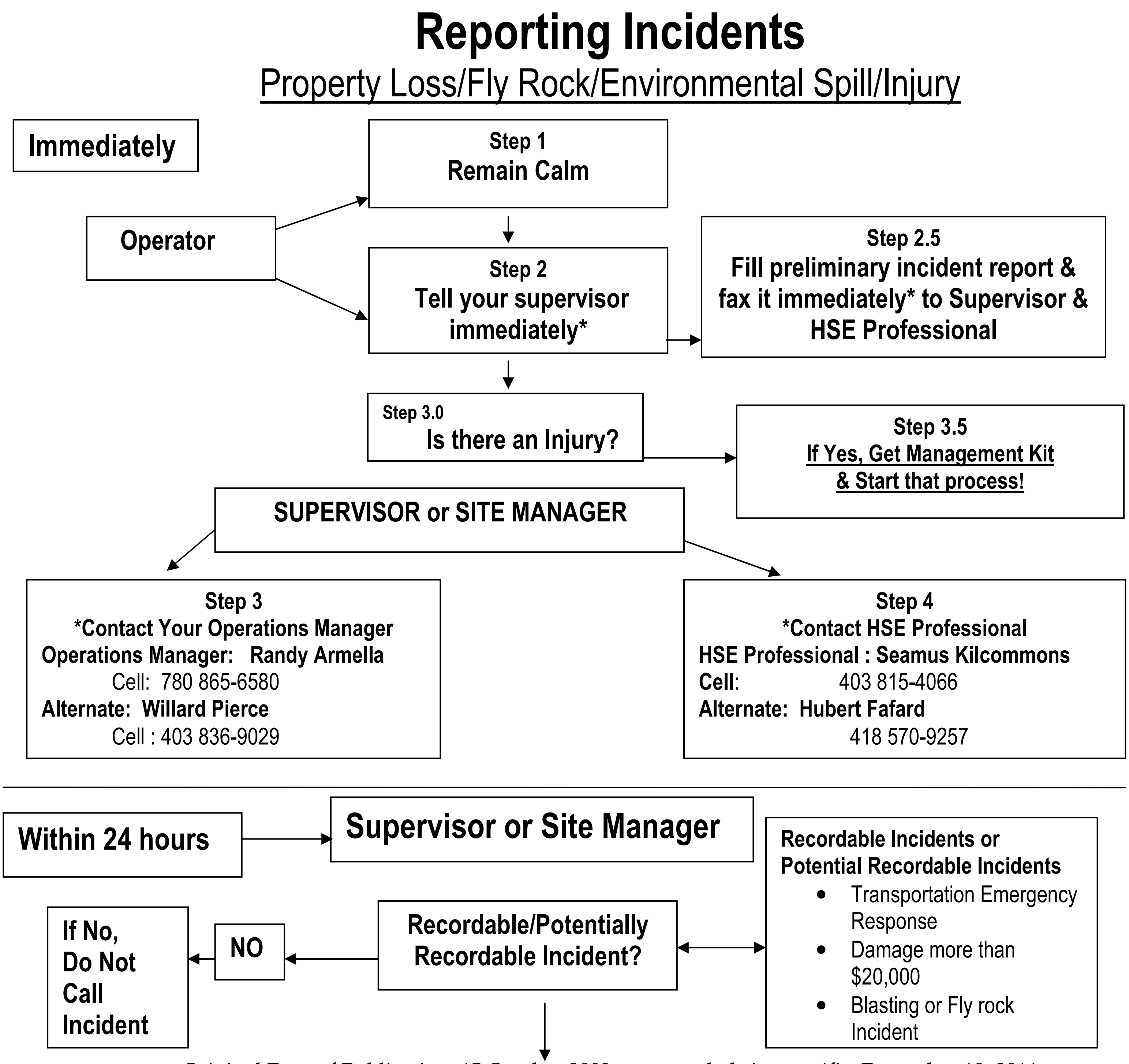
- Follow SOP's and use established work practices to minimize the potential for fires, explosions, environmental releases and other accidents.
- Worksite Managers / Supervisors will ensure that all contractors receive a worksite orientation before commencing work or being left unaccompanied in the worksite.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

6.0 EMERGENCY PROCEDURES AND LINES OF AUTHORITY

6.1 GENERAL

Reporting Incidents Flow Chart (continued on next page)

Table 6-1
Emergency Response Flow Chart



Yes, Not Sure?

↓

Contact Incident Report Line
1- 888-547-3966
(1-888-KIS-DYNO)
Press: "1 " and report: Actual or Potential MTIs, RWIs, LTIs, Transportation Emergency, Blasting or Fly Rock Incidents, Environmental Spills, Property Damage over $20,000

Within 72 hours → **Supervisor or Manager**

Complete ICARUS Report & Submit to HSE Professional & Operations Manager

Complete Investigation and RCA with Help of HSE Professional

SITE SUPERVISOR/DELAGATE
EXPERIENCING EMERGENCY / POTENTIAL EMERGENCY

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

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

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

TO RESPOND TO AN EMERGENCY CALL

DNCI Corporate contact instructions:

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

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

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

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

4. Assist the Emergency Response Advisor (ERA).

5. Liaise with Company Executive / Senior Managers.

Emergency Response Advisor (ERA) instructions:

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

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

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

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

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

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

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

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

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

ON-SCENE CO-ORDINATOR (OSC)

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

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

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

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

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

NOTE:

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

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

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

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

6.2 FIRE & EXPLOSIVES

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

I. Fires Directly Involving Class 1 Explosives and Blasting Agents

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

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

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

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

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

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

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

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

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

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

Table 6 - 2
FIRE FIGHTING INFORMATION

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

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

Table 6 - 3
CONTROL MEASURES FOR FIRE

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

EVACUATION PROCEDURES

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

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

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

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

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

6.3 ENVIRONMENTAL RELEASES

6.3.1 Procedure For Fuel Oil Storage Tank Failure

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

6.3.2 Procedure For Raw Material Truck Spills

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

6.3.3 Procedure For Process Spills

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

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

6.3.4 **Procedure For Emulsion Tank Failure**

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

6.3.5 **Procedure For Fire**

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

  Oxides of Nitrogen
  Carbon Monoxide
  Cyanide Gas

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

Table 6 – 5
ENVIRONMENTAL RELEASE PROCEDURES

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

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

6.4 SECURITY

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

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

6.5 BOMB THREAT

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

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

Table 6 - 6
CONVERSATION GUIDELINES IN THE EVENT OF RECEIVING A BOMB THREAT

See Appendix 7

6.6 LINES OF AUTHORITY

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

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

7.0 NOTIFICATION AND REPORTING

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

HSE Manager	Vice President Operations
Area Manager	

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

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

7.2 Spills and Releases – Reportable and Significant Classifications

1) Determine if the spill/release is reportable

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

2) Determine if the spill/release is significant

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

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

Reporting of Environmental Spills

Is the spill reportable?

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

Is the spill significant?

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

7.3 Internal investigation reports will include:

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

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

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

Table 7 – 1
REPORTABLE SUBSTANCE QUANTITY LIST

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

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

8.0 DECONTAMINATION

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

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

9.0 WORKSITE CLOSURE / SHUT DOWN

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

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

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

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

10. RESPONSE TO NATURAL DISASTER

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

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

10.1 PREVENTIVE MEASURES

10.2 Waste Disposal Permits

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

10.3 Liquid Containment

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

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

10.4 Inspection

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

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

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

11.0 WORK SITE START UP (Restoration of Business)

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

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

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

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

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

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

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

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

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

APPENDIX 1

Basic Investigation Report

(Factual Report not prepared Under Legal Professional Privilege)

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

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

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

Corrective Action	**Who**	Due Date

Comments

APPENDIX 2

DNCI Corporate contact

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

APPENDIX 3

DNCI Emergency Response Advisors (ERA) per area

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

APPENDIX 4

SITE: QAAQTUQ / Meadowbank Operations

MANAGEMENT AND WORK SITE CONTACT LIST

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

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

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

EXTERNAL CONTACT NUMBERS

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

APPENDIX 5

Area Office Address:	**Type of Facility:**
Agnico-Eagle Mines Ltd. - Meadowbank	Bulk Explosives Site
PO BOX 540	
Baker Lake, Nunavut	
X0C 0A0	

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

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

Emergency Shutdown switch location:

"ONLY A CERTIFIED PERSONELLE ARE TO ACTIVATE THIS SWITCH"

Magazine and Plant Site Address: **NRC License:**

Agnico-Eagle Meadowbank Mine

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

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

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

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

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

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

Delivery Vehicles:

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

APPENDIX 6
BOMB THREAT CHECKLIST

Exact time of call:	
Exact words of caller:	
QUESTIONS TO ASK	
1- When is bomb going to explode?	
2- Where is the bomb?	
3- What does it look like?	
4- What kind of bomb is it?	
5-What will cause it to explode?	
6- Did you place the bomb?	
7- Why?	
8- Where are you calling from?	
9- What is your address?	
10- What is your name?	
CALLER'S VOICE (circle)	
If voice is familiar, whom did it sound like?	
Were there any background noises?	
Remarks:	
Person receiving call:	Telephone number call received at:
Date:	Report call immediately to:

Caller's voice options:

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

APPENDIX 7

Dyno Nobel Inc.
JOB-SPECIFIC ORIENTATION CHECKLIST

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

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

1. JOB SPECIFIC ORIENTATION TO DNA WORK SITE(S)

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

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

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

3. ENVIRONMENT CANADA

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

4. TRANSPORTATION CANADA (TDG)

a. ____ Road Test
b. ____ TDG Transportation
c. ____ TDG Hours of Service Policy
d. ____ Pre and Post Inspections

5. NATURAL RESOURCES CANADA, EXPLOSIVES SAFETY AND SECURITY BRANCH

a. ____ Site Security Plans / Key Policy
b. ____ Magazine Rules
c. ____ Inventory Accuracy
d. ____ Guidelines for bulk explosive facilities

6. QUESTIONS AND SUMMARY

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

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

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

APPENDIX 8

ANNUAL FIRE DEPARTMENT REVIEW FORM

Information to be released to Emergency Services

From: Local Emergency Services

Subject: Emergency Response Plan for ______________________________.

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

Signed:____

Position:____

Date:____

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

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

Emergency Call placed with: Mine Emergency ☐ 911 ☐

Supervisor/Manager Advised: ☐

Incident Details:

Sequence of Events

Time	Activity	By

Gaps Identified:

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

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

Fax completed form to Health & Safety Advisor for your site

APPENDIX 9
Transportation of Dangerous Goods Regulation
Class Quantity Emission Limit

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

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

APPENDIX 10

Emergency Risk Assessment

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

Location Date Analysis Completed Completed by:

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

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

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

APPENDIX C4
MSDS FOR BULK EMULATION AND PRESPLIT

1. **MSDS – Dyno Gold Lite Bulk Emulsion**
2. **MSDS – Detagel Presplit**

Material Safety Data Sheet

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

MSDS # 1052
Date [redacted]

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

SECTION I - PRODUCT IDENTIFICATION

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

Product Class: Bulk Emulsion

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

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

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

SECTION II - HAZARDOUS INGREDIENTS

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

[1] Our source of Sodium Nitrate (Chilean) may contain perchlorate ion, which occurs naturally. Although Dyno Nobel does not analyze for the presence of perchlorate anion, based on published studies, the products listed above may contain between 0 and 300 ppm perchlorate.

* The hazardous ingredients marked with an asterisk are not found in the majority of listed products.

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

SECTION III - PHYSICAL DATA

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

Evaporation Rate (Butyl Acetate = 1): <1

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

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

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

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

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

Emergency and First Aid Procedures

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

SECTION VI - REACTIVITY DATA

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

SECTION VII - SPILL OR LEAK PROCEDURES

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

SECTION VIII - SPECIAL PROTECTION INFORMATION

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

SECTION IX - SPECIAL PRECAUTIONS

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

SECTION X - SPECIAL INFORMATION

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

Disclaimer

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

Detagel Presplit

Material Safety Data Sheet

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

SECTION 1 - PRODUCT INFORMATION

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

SECTION 2 - HEALTH ALERT

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

SECTION 3 - HEALTH HAZARD INFORMATION

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

SECTION 4 - EMERGENCY AND FIRST AID PROCEDURES

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

SECTION 5 - RECOMMENDED OCCUPATIONAL EXPOSURE LIMIT/ HAZARDOUS INGREDIENTS

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

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

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

SECTION 6 - REACTIVITY DATA

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

SECTION 7 - FIRE AND EXPLOSION HAZARD INFORMATION

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

Detagel Presplit

Material Safety Data Sheet

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

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

SECTION 8 - PERSONAL PROTECTION INFORMATION

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

SECTION 9 - PERSONAL HANDLING INSTRUCTIONS

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

SECTION 10 - SPILL & LEAK PROCEDURES

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

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

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

SECTION 11 - PHYSICAL DATA

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

SECTION 12 - COMMENTS

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

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

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

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

Revised 6-2001

SNC · LAVALIN

www.snclavalin.com

Sustainable Mine Development
Global Mining & Metallurgy
SNC-LAVALIN Inc.
455 René-Lévesque Blvd. West
Montreal, Quebec
H2Z 1Z3 Canada
Tel.: (514) 393-1000
Fax: (514) 390-2765