

*D5 SITE WATER BALANCE SUMMARY*

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Dear Tabatha,

## **RE: Marathon Palladium Project - Site Water Balance Summary**

### **1.0 INTRODUCTION**

This letter provides a summary of the site wide water balance analysis for the Marathon Palladium Project (the Project) owned by Generation PGM Inc. (GenPGM). The Project will include open pits, a Mine Rock Storage Area (MRSA), crusher area, Process Plant, Process Solids Management Facility (PSMF), and Stormwater Management Pond (SWMP). The general site arrangement for the Project, including the PSMF layout, the location of the open pits and MRSA, watershed boundaries, and relevant infrastructure are shown on Drawing 110.

The water balance was prepared using the GoldSim (GoldSim Technology Group LLC, 2019) software package as part of the overall Project update for the Definitive Feasibility Study. The water balance model was developed to include the construction, operations, and closure phases of the Project. A stochastic analysis was completed to consider abnormally wet and dry precipitation conditions. Median (50<sup>th</sup> percentile), 5<sup>th</sup> percentile and 95<sup>th</sup> percentile precipitation conditions were evaluated.

The objectives of the water balance include:

- Confirm the required crest elevations for the PSMF storage cells and Water Management Pond (WMP)
- Confirm the operational distribution of water within the PSMF
- Provide an estimate of the volumes of water reporting to the PSMF, WMP and Hare Lake
- Confirm the required pumping capacities to transfer water from the open pits to the WMP
- Confirm the required pumping capacity to transfer water from the SWMP to the WMP
- Confirm the inflow volumes to the MRSA catch basins
- Confirm the required pumping capacity to transfer water from MRSA Stream 2 Catch Basin to the WMP
- Confirm the required pumping capacities to discharge water to Hare Lake
- Estimate reclaim water requirements during operations
- Estimate the time for filling of the open pits at closure
- Estimate water discharge volumes from the site during the post-closure phase

The water management strategy, analysis assumptions, methodology, and results of the water balance analysis are discussed below.

## 2.0 WATER MANAGEMENT STRATEGY

### 2.1 GENERAL

The water management strategy for the Project and the design and operating strategy for the PSMF has been developed by Knight Piésold (KP) in consultation with GenPGM. Contact water from the site will be primarily managed within the WMP of the PSMF. The PSMF will consist of three storage cells (Cell 1, Cell 2A, and Cell 2B) and the separate WMP. The storage cells will provide permanent and secure storage for process solids from the Process Plant. The PSMF embankments will be constructed in stages using non-Potentially Acid Generating (non-PAG) mine rock in order to provide the required process solids storage capacity for the ongoing mine development. Cell 1 and Cell 2A of the PSMF will be established and constructed to the Stage 1 elevations during the pre-operating period (Year -1). Cell 2B will be established during Year 3 of operations.

The WMP will be established on the east side of the PSMF and will be operated as the primary contact water management pond and reclaim water source for the Process Plant. The pond will be constructed during the pre-operating period (Year -2) and will initially be used as a storage pond for construction dewatering. Contact water from the Project site, including water from the open pits, MRSA, Process Plant, and PSMF will be transferred to the WMP. Water will be reclaimed to the Process Plant on an ongoing basis. Overflow from the WMP will be managed within Cell 1 of the PSMF. Excess water will be transferred from the WMP to a water treatment plant (located at the PSMF), treated as required, and discharged to Hare Lake via an HDPE pipeline and diffuser.

The MRSA is located along the east side of the open pits. Contact water from the MRSA will be collected in catch basins established in Sub-watershed 102 (Stream 2 Catch Basin) and Sub-watershed 103 (Stream 3 Catch Basin). The catch basins will be constructed prior to overburden stripping from the open pit areas (Year -2). Water collected in the catch basins will be pumped to the WMP via HDPE pipelines, the collection system will be sized to manage the 1 in 25 rainfall event (Environmental Design Storm; EDS). Periodically, the EDS may be exceeded and water will be routed from the MRSA catch basins via the overflow spillways to the Pic River. The overflow spillways have been sized to convey the 1 in 100-year rainfall event.

Surface water runoff and groundwater inflow reporting to the open pit will be transferred to Collection Pond 1 (CP1) located adjacent to the Run of Mine (ROM) stockpile. Water collected in CP1 will be conveyed to the WMP via HDPE pipelines. Water levels in waterbody L8 located to the northeast of the open pits will also be managed by pumping to CP1.

The required pipework and water management strategy for each project component are summarized in the following sections.

### 2.2 PIPEWORK

Pipelines required for site water management include the process solids pipelines, water reclaim pipeline, open pit dewatering pipelines, water transfer pipelines, WMP Pipeline, Hare Lake pipeline and MRSA pipelines. The pipelines are briefly described below and summarized on Table 1:

- **Process Solids Pipelines** - The Process Plant will produce Type 1 (non-PAG) and Type 2 (PAG) process solids. The process solids slurries will be conveyed to the PSMF via separate pipelines along the PSMF haul road. The Type 1 process solids will be deposited sub-aerially around the perimeter of

the storage cells (Cell 1, Cell 2A, and Cell 2B) Type 2 process solids will be deposited sub-aqueously within Cell 2A, and to the Central Pit during the last four years of operations.

- **PSMF Water Transfer Pipelines** - The water transfer pipelines will transfer water from Cell 2A and Cell 2B to Cell 1 and from Cell 1 to the WMP. The pipelines will be located on the access roads on the embankments between the PSMF storage cells. During later operations much of the water transfer between the PSMF cells will be by gravity via rockfill lined swales.
- **Reclaim Water Pipeline** - The reclaim water pipeline will recycle water from the WMP back to and for use in the Process Plant. The reclaim water pipeline will be installed along the PSMF haul road.
- **Open Pit Dewatering Pipelines** - The open pit dewatering pipelines will convey runoff water and groundwater collected within the open pits to CP1 adjacent to the ROM Stockpile. The open pit dewatering pipelines will be installed along the mine haul roads.
- **CP1 Transfer Pipeline** - The CP1 transfer pipeline will convey water transferred from the open pits and waterbody L8 to the WMP for use in the process circuit. The pipeline will be installed from CP1 to the WMP along the haul road.
- **SWMP Transfer Pipeline** - The SWMP transfer pipeline will transfer water from the SWMP to the WMP, or alternately to the Water Treatment Plant (WTP). The pipeline will be installed along the PSMF haul road.
- **WMP Transfer Pipeline** - The WMP transfer pipeline will transfer excess water from the WMP to the WTP. The pipeline will be located along the north abutment of the WMP west embankment.
- **Hare Lake Pipeline** - The Hare Lake pipeline will transfer water from the WTP to Hare Lake. The pipeline will be installed along a purpose-built pipeline access road to Hare Lake.
- **MRSA Water Transfer Pipelines** - Water collected in the Stream 3 Catch Basin (Sub-watershed 103) will be transferred to the Stream 2 Catch Basin (Sub-watershed 102). Water collected in the Stream 2 Catch Basin will be pumped to the WMP during normal operations.

### 2.3 PSMF WATER MANAGEMENT

The PSMF will be located approximately 1 km west of the Process Plant, as shown on Drawing 110. The PSMF will consist of three storage cells (Cell 1, Cell 2A, and Cell 2B) and the separate WMP.

The WMP and initial Cell 1 and Cell 2A embankments will be constructed during the pre-production period (Year -2 and -1) to manage contact water during construction and accumulate water needed for Process Plant commissioning and initial operations. Once in operations, the PSMF will provide storage for process solids as well as manage process and contact water from the site. The Cell 1 and Cell 2A embankments will be raised during Year 1 and Year 2 to provide additional process solids storage during Year 2 and Year 3 of operations. The Cell 2B starter embankment will be constructed in Year 3 and the Cell 2A and Cell 2B embankments will be raised in several stages between Year 4 and Year 12. The PSMF is primarily located in Sub-watersheds 105 and 106 with the east half of the WMP located in Sub-watershed 101.

The PSMF will include capacity to manage storm water and runoff water inflows under normal operating conditions. The EDS consisting of the 1 in 100-year 24-hour precipitation event and 30-day spring snowmelt (408 mm) will be contained within the PSMF without uncontrolled discharge to the environment. Excess water from the EDS will be discharged to Hare Lake via the WTP and Hare Lake pipeline.

Emergency overflow spillways have been included in the PSMF arrangement to manage storm events greater than the EDS. The PSMF spillways will be sized to convey the peak flow resulting from a 24-hour

Probable Maximum Precipitation (PMP; 328 mm) event, which has been selected as the Inflow Design Flood (IDF) for the PSMF.

Ten Seepage Collection Basins (SCBs) will be located around the perimeter of the PSMF. Near surface seepage and runoff collected in the SCBs will be pumped back to the PSMF storage cells and the WMP. Deep seepage within the bedrock foundations will report to the adjacent sub-watersheds.

Monitoring wells will be installed to monitor groundwater quality adjacent to the PSMF.

Key water management strategy criteria for the WMP and each of the PSMF storage cells are provided below:

- **Water Management Pond (WMP)**
  - Contact water will be transferred to the WMP from areas disturbed during the construction phase of the Project (Years -2 and -1).
  - Approximately 1.4 M m<sup>3</sup> of water will be accumulated in the WMP for commissioning the Process Plant and initial operations.
  - Process and runoff water collected in Cell 1, Cell 2A and Cell 2B will be transferred to the WMP during operations.
  - Runoff and groundwater collected in the open pits will be transferred to the WMP or Cell 1 during the pre-production period and throughout operations.
  - Runoff and contact water from around the Process Plant and mine services areas collected in the SWMP will be transferred to the WMP during operations.
  - Process water will be reclaimed from the WMP to the Process Plant throughout operations.
  - Excess water in the WMP will be treated and discharged to Hare Lake.
  - In the event that the WMP capacity is exceeded, water will flow into Cell 1 via an overflow swale on the crest of the divider embankment between the WMP and Cell 1.
  - The WMP will be decommissioned at closure, a portion of the WMP may remain in place post-closure to provide aquatic habitat.
- **Cell 1**
  - Cell 1 will be commissioned in Year -1 to accumulate approximately 1.5 million m<sup>3</sup> of water for commissioning the Process Plant and initial operations.
  - Type 1 process solids will be deposited in Cell 1 during the first three years of operations.
  - Process and runoff water will be transferred from Cell 1 to the WMP as required to supply the process circuit and remove excess water from the PSMF.
  - The operating pond volume in Cell 1 will fluctuate seasonally; however, the target operating pond for winter operations will be approximately 1.5 million m<sup>3</sup>.
  - Runoff from Cell 2A and Cell 2B resulting from the IDF will be conveyed to Cell 1 via overflow swales.
  - A spillway will be installed on the Cell 1 west embankment to convey the IDF to Stream 6.
  - At closure, runoff from Cell 1 will be conveyed to Stream 6 via a Closure Swale.
- **Cell 2A**
  - Cell 2A will be commissioned in Year -1.
  - The normal operating pond volume in Cell 2A will be approximately 300,000 m<sup>3</sup>. The operating pond will increase to approximately 500,000 m<sup>3</sup> during winter to facilitate the recycle of water to the WMP.
  - Type 2 process solids slurry will be deposited to Cell 2A until the end of year 10.

- Type 1 process solids slurry will be deposited to Cell 2A starting in Year 4 and will continue until the end of operations.
  - Process and runoff water will be transferred to Cell 1 until the end of Year 3.
  - Process and runoff water will be transferred from Cell 2A to Cell 2B starting in Year 4 until the end of Year 10.
  - Process and runoff water will be transferred from Cell 2B to Cell 2A starting in Year 10 until the end of operations.
  - An Overflow Swale will be installed on the divider berm between Cell 2A and Cell 1. Runoff resulting from the IDF will be conveyed to Cell 1.
  - At closure, runoff from Cell 2A will be conveyed to Cell 1 via the closure swale.
- **Cell 2B**
    - Cell 2B will be commissioned in Year 3.
    - The normal operating pond volume in Cell 2B will range from approximately 300,000 m<sup>3</sup> during summer to 800,000 m<sup>3</sup> immediately following the spring melt. The target operating pond volume will be approximately 500,000 m<sup>3</sup> prior to the start of winter.
    - Type 1 process solids slurry will be deposited to Cell 2B starting in Year 4 until the end of operations.
    - Process and runoff water will be transferred from Cell 2A to Cell 2B until Year 10.
    - Process and runoff water will be transferred from Cell 2B to Cell 1 starting in Year 4 until the end of Year 10.
    - Process and runoff water will be conveyed from Cell 2B to Cell 2A via a swale starting in Year 10 until the end of operations.
    - An overflow swale will be installed on the divider berm between Cell 2B and Cell 1. Runoff resulting from the IDF will be conveyed to Cell 1.
    - At closure, runoff from Cell 2B will be conveyed to Cell 2A via a closure swale.

## 2.4 OPEN PIT WATER MANAGEMENT

Contact water from the open pit and primary crusher areas will be managed in Sub-watershed 102 with CP1 being established in the ROM stockpile area. Contact water collected in CP1 will include meteoric water runoff from the open pits, ROM Stockpile, primary crusher, haul roads and groundwater inflows to the open pits. The water level in waterbody L8, located to the north of the ROM Stockpile, will be controlled by pumping water to CP1. A pumping rate has been selected to maintain an average monthly water level in L8, consistent with pre-production conditions.

Sumps will be located in the bottom of each of the open pits. Water will be pumped from the open pit sumps to CP1. Water collected in CP1 will be pumped to the WMP via the CP1 transfer pipeline.

A diversion berm will be constructed at the height of land between Sub-watersheds 102 and 105 to the west of the South Pit. The L4/L5 waterbody located within Sub-watershed 105 has the potential to flow towards Sub-watershed 102 depending on beaver activity in the area. A diversion berm will maintain flow from the L4/L5 water body in Sub-watershed 105.

Type 2 mine rock will be placed in the South Pit starting in Year 7. Water transfer from the South Pit to the WMP will be reduced between Year 7 and Year 14 to maintain the water level below the mine rock placement elevation. The water level in the South Pit will be close to the target level (El. 271 m) for closure by the end of operations.

Type 2 process solids will be deposited into the Central Pit starting in Year 11 and continuing to the end of operations. The pumping capacity from the Central Pit and CP1 will be increased in Year 11 to meet the Process Plant reclaim water requirements. Water transfer from the Central Pit to the WMP will be reduced to maintain the Type 2 mine rock in saturated conditions.

## 2.5 MRSA CATCH BASIN WATER MANAGEMENT

The MRSA catch basins will collect contact water from the MRSA. Water collected in Stream 3 Catch Basin will be transferred to the Stream 2 Catch Basin. Water in the Stream 2 Catch Basin will be pumped to the WMP.

The catch basins have been sized to contain an EDS consisting of a 1 in 25-year 24-hr duration (rainfall event) without pumping and will provide a combined total storage capacity of approximately 159,000 m<sup>3</sup>. Pumping will be required to reduce discharge via the overflow spillways during larger precipitation events. The overflow spillways have been sized to convey the 1 in 100-year rainfall event.

The catch basins will be operated to maintain a near empty state in order to maintain surge capacity within the collection system. It has been assumed that all of the water collected in the basins in a given month will be pumped to the WMP, and that there will be no net accumulation of water within the catch basins.

## 2.6 PLANT SITE WATER MANAGEMENT

Runoff from the Process Plant, truck shop / warehouse and aggregate plant areas will be collected in the SWMP. The SWMP will also provide tertiary containment for the Process Plant area and associated pipelines, ensuring that Sub-watershed 101 and the Pic River will be protected in the case of an unplanned event. The SWMP will be located in the upper portion of Sub-watershed 101 directly east of the WMP. Water collected in the SWMP will be transferred to the WMP or directly to the WTP for discharge to Hare Lake. The SWMP will provide temporary storage capacity for up to 600,000 m<sup>3</sup> of contact water.

## 2.7 CLOSURE

The overall water management strategy will be adapted during the final year of operations to prepare the site for closure (as shown on Figure 1). The water management strategy for the site during each phase of closure is briefly outlined below.

- **Pre-Closure and Late Operations:**
  - The South Pit will be filled with mine rock during mid to late operations.
  - Type 2 process solids will be deposited to the Central Pit during the last 3 years of operations.
  - Water transfer from the South Pit and Central Pit will be reduced such that the water level rises with the backfilling of the pits with mine rock and process solids. The water level within the mine rock voids in the South Pit will be at or near the final post closure water level prior to the end of operations.
- **Active Closure (Initial 5 years):**
  - Surface water runoff and seepage from the PSMF, MRSA and other mine infrastructure will be collected and transferred by pump and pipeline to the Central Pit. Once the Central Pit is filled, water will overflow into the North Pit.
  - Surface water management infrastructure (such as the SCBs, water management ponds, and MRSA catch basins) will remain in place during active closure.

- Water quality will be monitored during the active closure period to confirm that surface water runoff and seepage from the PSMF, MRSA, and other mine infrastructure satisfies discharge water quality criteria prior to the end of the active closure period.
- **Passive Closure:**
  - Water management infrastructure will be decommissioned and removed once water quality objectives have been confirmed. This will include the removal of SCBs surrounding the PSMF, decommissioning the WWP and SWMP, and breaching and regrading of the Stream 2 and Stream 3 Catch Basins embankments and basins.
  - Surface water runoff from the PSMF revegetated surface will be directed to Cell 1 and conveyed to the Stream 6 (Sub-watershed 106) via a closure swale.
  - Runoff from the MRSA will be allowed to drain towards the Pic River via Stream 2 and Stream 3 (Sub-watersheds 102 and 103)
  - The North Pit will flood to the pit rim elevation within Sub-watershed 103. Once flooded outflow from the North Pit will be conveyed via the Stream 3 drainage through the base of the MRSA to the Pic River.

### 3.0 ANALYSIS ASSUMPTIONS

The design criteria are summarized in Table 2. Key design assumptions used in the water balance are as follows:

- The Type 1 process solids slurry will have an average solids content of approximately 55% (by weight) and the Type 2 process solids slurry will have an average solids content of approximately 22% (by weight).
- Construction of the WWP will be completed in October of Year -2. This will aid in construction water management and accumulation of water for commissioning the Process Plant.
- Initial lining of the PSMF Cell 1 embankments with HDPE geomembrane will be completed in Year -1 up to El. 320 m to accumulate water in Cell 1 for commissioning of the Process Plant.
- Commissioning of the Process Plant will occur in October of Year -1 and process solids will be deposited to Cell 1 starting in November of Year -1.
- Type 1 process solids will be deposited to Cell 1 for the first three years of operations. Type 1 process solids will be deposited to Cell 2A and Cell 2B starting in Year 4 until the end of operations.
- Type 2 process solids will be deposited to Cell 2A for the first 10 years of operations. Type 2 process solids will be discharged to the Central Pit starting in Year 11 until the end of operations.
- Storage capacity to contain the EDS (1 in 100 year 24 hour precipitation event and 30-day spring snowmelt; 408 mm) has been included in the PSMF water balance.
- A freeboard allowance has been included in the PSMF water balance to allow conveyance the IDF over the emergency overflow spillway without overtopping (wet freeboard).
- The embankment staging (i.e., crest elevation) has been calculated based on maintaining sufficient capacity to contain the EDS below the spillway invert.
- Excess water within the PSMF will be transferred to the WWP and subsequently discharged to Hare Lake.
- Sufficient pumping capacity will be in place to pump excess water from the WWP to Hare Lake. A pumping rate of 330 m<sup>3</sup>/hr has been assumed, which is greater than the excess water discharge requirements under average precipitation conditions.



## 4.0 METHODOLOGY

### 4.1 WATER BALANCE

The water balance was developed using GoldSim (GoldSim Technology Group LLC, 2019) using daily time steps for a 23 year period (two years to develop baseline conditions, two years of preproduction, 14 years of operation and five years of closure). A stochastic analysis was completed using the long-term precipitation dataset developed for the Project to estimate the expected water reporting to each facility. The methodology is summarized as follows:

- A set of climate inputs were generated for the model using the long-term historical monthly precipitation values developed for the site. The model was run by incrementally stepping through the climate datasets by year for a 23-year duration for the entire record (i.e., from 1985 to 2019). Each run is identified as a realization. This method preserves the inherent cyclical nature of the climate record while simulating possible future conditions. For instance, the first realization was run using the 23-year precipitation dataset starting in 1985 (and ending in 2002); the second realization starting in 1986; the third realization starting in 1987; and so on. Starting in 1998 (realization 14), the 1985 values are added to the end of the data string (after year 2019); in year 2006 (realization 15), the 1985 and 1986 values are added to the end of the data string; and so on to generate the last few realizations. There are 35 realizations in total. This method generates a wide range of climate inputs and a corresponding range of predicted results for each month of the simulation.
- Runoff volumes (inputs) were calculated based on the catchment areas (some of which vary with time as the mine is developed), runoff coefficients, precipitation inputs, design criteria and assumptions previously listed.
- Groundwater inflow volumes (inputs) were estimated based on information provided by Stantec (2020a and 2020b).
- Evaporation volumes (outputs) were provided by Stantec (2020c) and based on the monthly Canadian climate normals for lake evaporation from the Rawson, Kempville and Ottawa weather stations. These volumes were applied to the pond surface areas for each day.
- Seepage rates (outputs) through the geomembrane-lined cells of the PSMF were estimated based on current guidelines related to the potential for defects and holes to develop in the liner.
- The model utilizes the process solids properties identified above, including the rate of deposition from the Process Plant, the density, the specific gravity, and the solids content to estimate the monthly volumes of water with the process solids slurry (input) and water retained in the voids (output).
- The model assumes that water collected in the SCBs is transferred to the PSMF cells and subsequently to the WMP for use as reclaim water.

A stochastic analysis was completed to consider abnormally wet and dry precipitation conditions. Median (50<sup>th</sup> percentile), 5<sup>th</sup> percentile and 95<sup>th</sup> percentile results were calculated and are discussed below. The 5<sup>th</sup> and 95<sup>th</sup> percentiles represent the estimate values that respectively have a 95% probability (dry conditions) and a 5% probability (wet conditions) of being exceeded in any year. The evaluated wet and dry conditions are similar to the 1 in 20-year dry and the 1 in 20-year wet precipitation conditions.

### 4.2 MRSA CATCH BASIN ASSESSMENT

The monthly timesteps evaluated in the site wide water balance were used to develop the site water management strategy and size the water transfer systems for the larger collection basins (i.e., open pits,

CP1, etc.). In order to confirm the storm water management requirements for the smaller MRSA Catch Basins with limited surge capacity, a more detailed assessment of storm water inflows was carried out.

An additional daily time stepped water balance model was developed in Excel® to evaluate shorter duration events for the MRSA catch basins including return period rainfall events and the spring freshet. The daily time step water balance was evaluated for the following:

- Management of the EDS which includes temporary storage and active pumping to transfer the 1 in 25-year 24-hour precipitation event and longer duration events to the PSMF. The rainfall values were derived from the climatic record using a Gumble distribution.
- A 1 in 5-year spring freshet with snowmelt.

The actual runoff rate from the MRSA during a spring freshet will depend on the staged development of the MRSA and characteristics of the placed mine rock. An approximate runoff hydrograph was derived from the available climate temperature records and a simplified degree day method for estimating snowmelt. (NRCS, 2004)

The inflow estimates to the MRSA catch basins were used to confirm the storm water management strategy and sizing of the water transfer systems.

## 5.0 RESULTS

### 5.1 GENERAL

The site-wide water balance flowsheets illustrating median (50<sup>th</sup> percentile) precipitation conditions for Year 6 are illustrated on Figures 1 and 2 and summarized in Table 3 through Table 6. The wet conditions (95<sup>th</sup> percentile) are summarized in Table 7 through Table 11. The dry conditions (5<sup>th</sup> percentile) summarized in Table 12 through Table 14. The key results by area are briefly discussed below.

### 5.2 MEDIAN CONDITIONS

The results from the water balance model for the site during 50<sup>th</sup> percentile precipitation conditions are summarized in Table 3 through Table 6, and illustrated on Figure 2 through Figure 9.

- **PSMF (Table 3)**
  - Buildup of an operating pond volume within the WMP and Cell 1 will be required towards the end of Year -1 to provide sufficient water for commissioning the Process Plant and initial operations.
  - Annual excess water discharge to Hare Lake via the WTP is predicted to range from approximately 0.6 million m<sup>3</sup> in Year 3 (during commissioning of Cell 2B) to 1.9 million m<sup>3</sup> in Year 10 (start of Type 2 process solids deposition to the Central Pit).
- **Open Pits (Table 4)**
  - The total surface runoff, direct precipitation and groundwater inflow reporting to the open pit area is estimated to be approximately 1.3 million m<sup>3</sup> per year prior to development and to about 2.4 million m<sup>3</sup> per year by end of mine life.
  - The annual water transfer volume from waterbody L8 would be approximately 200,000 m<sup>3</sup>.
  - During years 11 through 13, the Central Pit would receive approximately 4.9 million m<sup>3</sup> per year of addition process water with the addition of the Type 2 process solids slurry.
  - Approximately 800,000 m<sup>3</sup> per year of the process water would be entrained in the void space of the settled process solids in the Central Pit.

- **MRSA (Table 5)**
  - The MRSA catch basins would collect approximately 800,000 m<sup>3</sup> of runoff water per year under median conditions.
- **Plant Site (Table 6)**
  - The SWMP volume will increase during freshet and be reduced during the summer months.
  - Water transfer from the SWMP to the WMP will average 450,000 m<sup>3</sup>/year.

### 5.3 DRY CONDITIONS

The results from the water balance model for the site during 5<sup>th</sup> percentile dry conditions are summarized in Table 7 through Table 10.

- **PSMF Dry Conditions 5<sup>th</sup> Percentile (Table 7)**
  - Minimum operating pond volumes would occur during the summer months in Cell 1, the WMP and the SWMP.
  - A surplus of approximately 450,000 m<sup>3</sup> is projected in year 6 during dry conditions.
  - No excess water would be discharged to Hare Lake during 5<sup>th</sup> percentile dry conditions during most other dry years.
  - A maximum deficit of approximately 900,000 m<sup>3</sup> is projected if dry conditions occur during year 2 of operations. This deficit would be made up by reducing the active water pond volume within Cell 1 (which would normally range between 1.0 to 1.5 million m<sup>3</sup>).
- **Open Pit Dry Conditions 5<sup>th</sup> Percentile (Table 8)**
  - The total surface runoff, direct precipitation, and ground water inflow into the Open Pit area would range from approximately 700,000 to 1.8 million m<sup>3</sup> per year.
  - The annual water transfer rate from waterbody L8 would be approximately 150,000 m<sup>3</sup>.
- **MRSA Dry Conditions 5<sup>th</sup> Percentile (Table 9)**
  - The MRSA Catch Basins would collect approximately 550,000 m<sup>3</sup> of runoff per year during 5<sup>th</sup> percentile dry conditions.
- **Plant Site 5<sup>th</sup> Percentile (Table 10)**
  - The SWMP volume would be operated with a minimum pond volume during 5<sup>th</sup> percentile dry conditions.
  - Water transfer from the SWMP to the WMP would average 300,000 m<sup>3</sup>/year during 5<sup>th</sup> percentile dry conditions.

### 5.4 WET CONDITIONS

The results from the water balance model for the site during 95<sup>th</sup> percentile wet conditions are summarized in Table 11 through Table 14

- **PSMF 95<sup>th</sup> Percentile (Table 11)**
  - Additional water would be temporarily managed within the PSMF during 95<sup>th</sup> percentile wet conditions (without discharge over the spillways) prior to being discharged to Hare Lake via the Hare Lake discharge pipeline.
  - It is estimated that up to 2.9 million m<sup>3</sup> of excess water would be discharged to Hare Lake.

- **Open Pit 95<sup>th</sup> Percentile (Table 12)**
  - The total surface runoff, direct precipitation, and groundwater inflow into the open pit area would be approximately 2.7 million m<sup>3</sup> per year by end of mine life during a 95<sup>th</sup> percentile wet year.
  - A peak monthly pumping rate of 130,000 m<sup>3</sup>/month (180 m<sup>3</sup>/hr) would be required to maintain the water level in waterbody L8 during a wet year freshet. The annual water transfer rate from water body L8 would be approximately 280,000 m<sup>3</sup>.
- **MRSA 95<sup>th</sup> Percentile (Table 13)**
  - The MRSA catch basins would collect approximately 1.0 million m<sup>3</sup> of runoff water per year during 95<sup>th</sup> percentile wet conditions which would be pumped to the PSMF and managed without discharge to the Pic River.
  - Discharge to the Pic River is not expected during 95<sup>th</sup> percentile climate conditions, with exception of a potential discharge to the Pic River during freshet events in excess of a 1 in 5-year event. Potential discharge to the Pic River will be dependent on the rate of snowmelt and resulting hydrograph (refer to Section 5.5).
- **Plant Site Wet Conditions 95<sup>th</sup> Percentile (Table 14)**
  - The SWMP would approach a volume of about 650,000 m<sup>3</sup> during the 95<sup>th</sup> percentile wet conditions.
  - Water transfer from the SWMP to the WMP would range approximately 430,000 to 730,000 m<sup>3</sup>/year during 95<sup>th</sup> percentile wet conditions.

## 5.5 MRSA FRESHET MANAGEMENT

The MRSA catch basins are sized to contain a combined volume of about 150,000 m<sup>3</sup>, which is equivalent to a 1 in 25-year 24-day rainfall event. The spring runoff into the Stream 2 and Stream 3 Catch Basins during freshet is estimated to be approximately 440,000 m<sup>3</sup>. As such pumping will be required to manage high volume events (such as a large freshet) to minimize discharge to the Pic River.

Based on the results of the daily time stepped water balance the MRSA (Figure 10 and Figure 11) it was determined that a 750 m<sup>3</sup>/hr pumping rate from the Stream 2 Catch Basin to the PSMF would be sufficient to contain a 1 in 5-year spring freshet without discharge to the Pic River. This pumping rate is sufficient to manage runoff from a 30-day 1 in 25-year (96<sup>th</sup> percentile) rainfall event (Figure 12 and Figure 13).

During a 1 in 100 year 30-day rainfall event is estimated that approximately 10% of the runoff would be conveyed by the overflow spillways to the Pic River. During these conditions, the Pic River would be at the 1 in 100-year flood level.

## 5.6 CLOSURE

Closure of the mine site will include for the redirection of all collected site water to the open pits for a period of five years to allow for accelerated filling and monitoring of water quality (Figures 14 through 17). Water balance estimates for the closure period and comments on filling of the open pits are as follows:

- Filling of the North Pit would take approximately 40 years without additional water transfer to the open pits.
- Filling of the North Pit would be reduced to 30 years with water transfer during the proposed 5 year active closure period.
- The North Pit could fill in approximately 17 years with continued water transfer from the site.
- Annual runoff from the PSMF area to Sub-watershed 106 is estimated to be approximately 1.5 M m<sup>3</sup>.
- Annual runoff from the MWP area to Sub-watershed 101 is estimated to be approximately 200,000 m<sup>3</sup>.

- Annual runoff from the MRSA to Sub-watershed 102 and 103 (Stream 2 and Stream 3) is estimated to be approximately 800,000 m<sup>3</sup> and 300,000 m<sup>3</sup>, respectively.

## 6.0 SUMMARY AND CONCLUSIONS

The conceptual site wide water balance was developed for median, wet (95<sup>th</sup> percentile) and dry (5<sup>th</sup> percentile) precipitation conditions. The following summary and conclusions are provided:

- Construction of the PSMF Cell 1 Stage 1 embankments would be required by October of Year -1 to allow sufficient water accumulation for commissioning of the Process Plant and initial operations.
- Under average operating conditions, the site will operate at a predicted surplus of up to 1.9 M m<sup>3</sup> which will require excess water to be discharged to Hare Lake. A water discharge rate of 330 m<sup>3</sup>/hr over an eight-month discharge window (April to November) has been included in the model to provide for sufficient operational flexibility.
- A maximum deficit of approximately 900,000 m<sup>3</sup> is projected if dry conditions occur during year 2 of operations. This deficit would be made up by reducing the active water pond volume within Cell 1.
- It is estimated that up to 2.9 M m<sup>3</sup> of excess water would be discharged to Hare Lake via the Hare Lake discharge pipeline during wet conditions.
- Discharge to the Pic River is not anticipated during normal operating conditions including the 1 in 5-year freshet and/or a 1 in 25 year rainfall event. During a 1 in 100 year 30-day rainfall event it is estimated that approximately 10% of the runoff would be conveyed by the overflow spillways to the Pic River.

The input parameters, assumptions and design criteria utilized in this analysis may be further optimized during detailed design.


## 7.0 CLOSING

We trust that the information provided herein satisfies your current requirements. Please do not hesitate to contact the undersigned if you have any questions with regards to the site wide water balance.


Yours truly,  
**Knight Piésold Ltd.**



Prepared:

  
Ryan Weir, P.Eng.  
Project Engineer

Reviewed:

  
Alex McIntyre, P.Eng.  
Senior Engineer

Approval that this document adheres to the Knight Piésold Quality System:



**References:**

- GoldSim Technology Group LLC, 2019. *GoldSim*. Version 12.1.2 #166. February 7. Seattle, Washington.
- Stantec. 2020a. Email from Jonathan Keizer, *RE: GenPGM: Groundwater inflow rates to pits*. November 3.
- Stantec. 2020b. Email from Jonathan Keizer, *RE: Marathon PGM Water*. December 17.
- Stantec. 2020c. *Marathon Palladium Project - Environmental - Hydrology Updated Baseline Report - Draft*. October 14.
- Natural Resources Conservation Service (NRCS). 2004, Part 630 Hydrology - National Engineering Handbook - Chapter 11 Snowmelt. Ref. No. 210-VI-NEH, July.

**Attachments:**

- |                   |   |
|-------------------|---|
| Table 1 Rev 0     | Pump and Pipeline Summary   |
| Table 2 Rev 0     | Criteria  |
| Table 3 Rev 0     | Annual Balance - Process Solids Management Facility - 50 <sup>th</sup> Percentile Results                   |
| Table 4 Rev 0     | Annual Balance - Open Pits - 50 <sup>th</sup> Percentile Results  |
| Table 5 Rev 0     | Annual Balance - Mine Rock Storage Area - 50 <sup>th</sup> Percentile Results                               |
| Table 6 Rev 0     | Annual Balance - Stormwater Management Pond and Process Plant - 50 <sup>th</sup> Percentile Results         |
| Table 7 Rev 0     | Annual Balance - Process Solids Management Facility - 5 <sup>th</sup> Percentile Results                    |
| Table 8 Rev 0     | Annual Balance - Open Pits - 5 <sup>th</sup> Percentile Results   |
| Table 9 Rev 0     | Annual Balance - Mine Rock Storage Area - 5 <sup>th</sup> Percentile Results                                |
| Table 10 Rev 0    | Annual Balance - Stormwater Management Pond and Process Plant - 5 <sup>th</sup> Percentile Results          |
| Table 11 Rev 0    | Annual Balance - Process Solids Management Facility - 95 <sup>th</sup> Percentile Results                   |
| Table 12 Rev 0    | Annual Balance - Open Pits - 95 <sup>th</sup> Percentile Results  |
| Table 13 Rev 0    | Annual Balance - Mine Rock Storage Area - 95 <sup>th</sup> Percentile Results                               |
| Table 14 Rev 0    | Annual Balance - Stormwater Management Pond and Process Plant - 95 <sup>th</sup> Percentile Results         |
| Drawing 110 Rev 0 | Site Water Management Layout - Plan   |
| Figure 1 Rev 0    | Conceptual Closure Watersheds   |
| Figure 2 Rev 0    | Water Balance Flowsheet - PSMF Operations (Year 6) - 50 <sup>th</sup> Percentile Precipitation              |
| Figure 3 Rev 0    | Water Balance Flowsheet - Open Pit and MRSA Operations (Year 6) - 50 <sup>th</sup> Percentile Precipitation |
| Figure 4 Rev 0    | Process Solids Management Facility - Cell 1 Summary Plots - 50 <sup>th</sup> Percentile Precipitation       |
| Figure 5 Rev 0    | Process Solids Management Facility - Cell 2A Summary Plots - 50 <sup>th</sup> Percentile Precipitation      |
| Figure 6 Rev 0    | Process Solids Management Facility - Cell 2B Summary Plots - 50 <sup>th</sup> Percentile Precipitation      |
| Figure 7 Rev 0    | Process Solids Management Facility - WMP Summary Plots - 50 <sup>th</sup> Percentile Precipitation          |
| Figure 8 Rev 0    | Mine Rock Storage Area Catch Basins - Summary Plots - 50 <sup>th</sup> Percentile Precipitation             |
| Figure 9 Rev 0    | Stormwater Management Pond - Summary Plots - 50 <sup>th</sup> Percentile Precipitation                      |

Figure 10 Rev 0 Stream 2 Catch Basin 1 in 5 year Freshet Balance  
Figure 11 Rev 0 Stream 3 Catch Basin 1 in 5 year Freshet Balance  
Figure 12 Rev 0 Stream 2 Catch Basin 1 in 25 Year Rain Balance  
Figure 13 Rev 0 Stream 3 Catch Basin 1 in 25 Year Rain Balance  
Figure 14 Rev 0 Water Balance Flowsheet - PSMF - Active Closure (Year 17) - 50<sup>th</sup> Percentile  
Precipitation  
Figure 15 Rev 0 Water Balance Flowsheet - Open Pits and MRSA - Active Closure (Year 17) - 50<sup>th</sup>  
Percentile Precipitation  
Figure 16 Rev 0 Water Balance Flowsheet - PSMF Passive Closure (Year 21) - 50<sup>th</sup> Percentile  
Precipitation  
Figure 17 Rev 0 Water Balance Flowsheet - Open Pit and MRSA Passive Closure (Year 21) - 50<sup>th</sup>  
Percentile Precipitation

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**TABLE 1**  
**GENERATION MINING**  
**MARATHON PALLADIUM PROJECT**  
**SITE WATER BALANCE SUMMARY**  
**PUMP AND PIPELINE SUMMARY**

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Item No.	From	To	System	Available Containment / Retention
<b>1.0</b>	<b>Process Plant - Process Solids Delivery and Water Reclaim</b>			
1.1	Mill	Cell 1	Type I Process Solids Slurry - Pump and Pipeline	Pump tank capacity in Mill
1.2	Mill	Cell 2A	Type I Process Solids Slurry - Pump and Pipeline	Pump tank capacity in Mill
1.3	Mill	Cell 2A	Type II Process Solids Slurry - Pump and Pipeline	Pump tank capacity in Mill
1.4	Mill	Cell 2B	Type I Process Solids Slurry - Pump and Pipeline	Pump tank capacity in Mill
1.5	Stormwater Management Pond	Water Management Pond	Pump Vault and Water Transfer Pipeline	Total Storage Capacity: 600,000 m <sup>3</sup> Maximum Operating Pond Volume: 500,000 m <sup>3</sup>
1.6	Stormwater Management Pond	Water Treatment Plant / Hare Lake	Pump Vault and Water Transfer Pipeline	Total Storage Capacity: 600,000 m <sup>3</sup> Maximum Operating Pond Volume: 500,000 m <sup>3</sup>
1.7	Hare Lake Treatment Plant	Hare Lake Discharge	TBD	N/A
<b>2.0</b>	<b>PSMF - Water Management</b>			
2.1	Water Management Pond	Water Treatment Plant / Hare Lake	Pump Vault and Water Transfer Pipeline	Maximum Operating Volume: 1.5 M m <sup>3</sup> EDS: 1 in 100 year 7 day Rain on Snow Event.
2.2	Water Management Pond	Mill	Pump Vault and Water Transfer Pipeline	Maximum Operating Volume: 1.5 M m <sup>3</sup> EDS: 1 in 100 year 7 day Rain on Snow Event.
2.3	Seepage Collection Basin 1	Water Management Pond	Pump Vault and Water Transfer Pipeline	One week of Seepage plus 1 in 2 year 24 hr Rain on Snow.
2.4	Seepage Collection Basin 2	Cell 1	Pump Vault and Water Transfer Pipeline	One week of Seepage plus 1 in 2 year 24 hr Rain on Snow.
2.5	Seepage Collection Basin 3	Cell 1	Pump Vault and Water Transfer Pipeline	One week of Seepage plus 1 in 2 year 24 hr Rain on Snow.
2.6	Seepage Collection Basin 4	Cell 1	Pump Vault and Water Transfer Pipeline	Sized to Contain 1 in 25 year Rainfall with pumping; Volume 25,000 m <sup>3</sup>
2.7	Seepage Collection Basin 5	Cell 2B	Pump Vault and Water Transfer Pipeline	One week of Seepage plus 1 in 2 year 24 hr Rain on Snow.
2.8	Seepage Collection Basin 6	Cell 2B	Pump Vault and Water Transfer Pipeline	Sized to Contain 1 in 25 year Rainfall with pumping; Volume 11,000 m <sup>3</sup>
2.9	Seepage Collection Basin 7	Cell 2B	Pump Vault and Water Transfer Pipeline	One week of Seepage plus 1 in 2 year 24 hr Rain on Snow.
2.10	Seepage Collection Basin 8	Cell 2A	Pump Vault and Water Transfer Pipeline	One week of Seepage plus 1 in 2 year 24 hr Rain on Snow.
2.11	Seepage Collection Basin 9	Cell 2A	Pump Vault and Water Transfer Pipeline	One week of Seepage plus 1 in 2 year 24 hr Rain on Snow.
2.12	Seepage Collection Basin 10	Cell 2A	Pump Vault and Water Transfer Pipeline	One week of Seepage plus 1 in 2 year 24 hr Rain on Snow.
2.13	Cell 1	Water Management Pond	Floating Pump Barge during Early Operations/ Gravity Flow during Later Operations	1 in 100 year 7 day Rain on Snow.
2.14	Cell 2A	Cell 1	Floating Pump Barge during Early Operations/ Gravity Flow during Later Operations	1 in 100 year 7 day Rain on Snow.
2.15	Cell 2B	Cell 1	Floating Pump Barge during Early Operations/ Gravity Flow during Later Operations	1 in 100 year 7 day Rain on Snow.
<b>3.0</b>	<b>Mine Site - Water Management</b>			
3.1	North Pit	Collection Pond 1	Pump and Water Transfer Pipeline	Sump Sizing to be Confirmed by G Mining
3.2	Central Pit	Collection Pond 1	Pump and Water Transfer Pipeline	Sump Sizing to be Confirmed by G Mining
3.3	Central Pit	WMP	Pump and Water Transfer Pipeline	Post Year 10 - In Pit Tailings Disposal
3.4	South Pit	Collection Pond 1	Pump and Water Transfer Pipeline	Sump Sizing to be Confirmed by G Mining
3.5	L-8 Water Body	Collection Pond 1	Pump Vault and Water Transfer Pipeline	TBD - based on acceptable level fluctuation for fish.
3.6	Collection Pond 1	Water Management Pond	Pump Vault and Water Transfer Pipeline	48 hour Capacity from Open Pits
3.7	Stream 3 Catch Basin	Stream 2 Catch Basin	Pump Vault and Water Transfer Pipeline	1 in 25 year 24 hr rain. Evaluating increased storage capacity.
3.8	Stream 2 Catch Basin	Water Management Pond	Pump Vault and Water Transfer Pipeline	1 in 25 year 24 hr rain. Evaluating increased storage capacity.

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**NOTES:**  
1. THE WATER BALANCE MODEL CURRENTLY ROUTES ALL WATER THROUGH THE WMP, HOWEVER DURING OPERATIONS THE ABILITY TO ROUTE WATER DIRECTLY TO HARE LAKE FROM THE SWMP VIA THE WATER TREATMENT PLANT WILL BE MAINTAINED.

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**TABLE 2**  
**GENERATION MINING**  
**MARATHON PALLADIUM PROJECT**  
**SITE WATER BALANCE SUMMARY**  
**CRITERIA**

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Criteria	Units	Value	Basis
<b>General</b>			
Annual Rainfall	mm	818	Stantec 2020 Draft Hydromet Report
Annual Evaporation	mm	518	Stantec 2020 Draft Hydromet Report
Runoff Coefficients			
Undisturbed	%	20 to 100	Varies Seasonally
Pond	%	100	Typical Value
Open Pit	%	100	Groundwater inflow expected
PS Beach	%	75 to 100	Varies Seasonally
Road, Rockfill, and ROM stockpile	%	50 to 100	Varies Seasonally
Maximum Ice Thickness	mm	1000	Varies Seasonally
<b>Process Solids Management Facility</b>			
Catchment Area			
Cell 1	ha	87.6	KP AutoCAD takeoff
Cell 2A	ha	134.8	KP AutoCAD takeoff
Cell 2B	ha	117.7	KP AutoCAD takeoff
WMP	ha	47.7	KP AutoCAD takeoff
Seepage Collection Basins	ha	29.4	KP AutoCAD takeoff - Includes Basins 1 to 10
Storage			
Cell 1	Million m <sup>3</sup>	16.1	KP
Cell 2A	Million m <sup>3</sup>	28.7	KP, Excludes Type II Waste Rock
Cell 2B	Million m <sup>3</sup>	35.9	KP, Excludes Type II Waste Rock
WMP	Million m <sup>3</sup>	1.4	KP
Total Process Solids Produced	Mtonnes	117.7	Gmining 03DEC2020
Average Throughput			
dtpa		9,200,000	Gmining 03DEC2020
dtpd		25,205	Gmining 03DEC2020
Type 1 Process Solids			
Throughput	dtpd	21,425	85% of Process Solids
Slurry % Solids by mass	%	55%	Ausenco 21 OCT 2020 PFDs
Water With Slurry	m <sup>3</sup> /day	17,529	Calculated
Settled Density	dt/m <sup>3</sup>	1.6	KP Estimate based on 2013 Lab Testing
Specific Gravity	n/a	3.06	2013 SGS Testing (NB12-00238)
Type 2 Process Solids			
Throughput	dtpd	3,781	15% of Process Solids
Slurry % Solids by mass	%mass	22%	Ausenco 21 OCT 2020 PFDs
Water With Slurry	m <sup>3</sup> /day	13,405	Calculated
Settled Density	dt/m <sup>3</sup>	1.1	KP Estimate based on 2013 Lab Testing
Specific Gravity	n/a	3.20	2013 SGS Testing (NB12-00409)
Freeboard			
Cell 1	m	2	KP Estimate, allows for flow over Spillway/Swale and Wave Run-up
Cell 2A	m	2	KP Estimate, allows for flow over Spillway/Swale and Wave Run-up
Cell 2B	m	2	KP Estimate, allows for flow over Spillway/Swale and Wave Run-up
WMP	m	2	KP Estimate, allows for flow over Spillway/Swale and Wave Run-up
Initial Construction Dates			
WMP	Year	-2	KP
Cell 1	Year	-1	KP
Cell 2A	Year	-1	KP
Cell 2B	Year	3	KP
Bedrock Seepage			
From WMP to 101	m <sup>3</sup> /day	122	Stantec Email - 10DEC2020
From Cell 1 to 106	m <sup>3</sup> /day	335	Stantec Email - 03NOV2020
From Cell 2B to 105	m <sup>3</sup> /day	156	Stantec Email - 03NOV2020
<b>Process Plant</b>			
Total Water Requirement	m <sup>3</sup> /day	30,935	Based on Process Solids Throughput
Reclaim Water	m <sup>3</sup> /day	25,367	82% of total, based on Ausenco 21 OCT 2020 PFDs
Fresh Water	m <sup>3</sup> /day	4,640	15% of total, based on Ausenco 21 OCT 2020 PFDs
Water With Ore	m <sup>3</sup> /day	928	3% of total, based on Ausenco 21 OCT 2020 PFDs
<b>Storm Water Management Pond (SWMP)</b>			
Catchment Area	ha	129	KP AutoCAD takeoff
Total Water Storage	m <sup>3</sup>	650,000	KP Estimate based on Gmining Road Alignment
Target Normal Operating Level	m <sup>3</sup>	0	Target empty operating conditions
<b>Mine Rock Storage Area</b>			
Catchment Area			
Stream 2 Catch Basin	ha	111	KP AutoCAD Takeoff - Includes east and west side of MRSA
Stream 3 Catch Basin	ha	71	KP AutoCAD Takeoff - Includes east and west side of MRSA
Storage			
Stream 2 Catch Basin	m <sup>3</sup>	97,500	Temporary containment of 1 in 25 year 24 rainfall event
Stream 3 Catch Basin	m <sup>3</sup>	62,000	Temporary containment of 1 in 25 year 24 rainfall event
<b>Open Pit</b>			
Catchment Areas			
L-8	ha	56.7	KP AutoCAD Takeoff
Collection Pond 1	ha	0.0	Negligible, accounted for in other areas
South Pit	ha	201.3	KP AutoCAD Takeoff
Central Pit	ha	26.1	KP AutoCAD Takeoff
North Pit	ha	114.5	KP AutoCAD Takeoff
Groundwater Inflow			
South Pit	m <sup>3</sup> /day	326 to 457	Stantec 2020 draft estimate
Central Pit	m <sup>3</sup> /day	161	Stantec 2020 draft estimate
North Pit	m <sup>3</sup> /day	294 to 509	Stantec 2020 draft estimate

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TABLE 4  
 GENERATION MINING  
 MARATHON PALLADIUM PROJECT  
 SITE WATER BALANCE SUMMARY  
 ANNUAL BALANCE - OPEN PITS - 50TH PERCENTILE RESULTS

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MINE YEAR	MODEL YEAR	CALENDAR YEAR	NORTH PIT					CENTRAL PIT										SOUTH PIT					BALANCE	L-8 POND			COLLECTION POND 1		
			INPUTS			OUTPUTS		RUNOFF & PRECIPITATION	WATER WITH PROCESS SOLIDS SLURRY	TRANSFER FROM STREAM 2 CATCHMENT BASIN	TRANSFER FROM WMP	OVERFLOW FROM SOUTH PIT	INFLOW FROM L-8	GROUNDWATER INFLOW	TRANSFER TO COLLECTION POND 1	OVERFLOW TO NORTH PIT	WATER ENTRAINED IN VOIDS	RUNOFF & PRECIPITATION	ROM STOCKPILE RUNOFF	GROUNDWATER INFLOW	OVERFLOW TO CENTRAL PIT	TRANSFER TO COLLECTION POND 1		INPUTS	OUTPUTS		INPUTS	OUTPUTS	
			RUNOFF & PRECIPITATION	OVERFLOW FROM CENTRAL PIT	GROUNDWATER INFLOW	TRANSFER TO COLLECTION POND 1	OVERFLOW TO SUB-WATERSHED 103																		RUNOFF & PRECIPITATION	OUTFLOW TO CENTER PIT			TRANSFER TO COLLECTION POND 1
(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)	(m <sup>3</sup> /year)		
PRE PRODUCTION	-4	1	2020	445,583	0	0	445,583	101,427	0	0	0	0	0	0	0	0	562,592	0	0	0	562,592	220,701	0	0	0	0	0	0	0
	-3	2	2021	433,934	0	0	433,934	98,775	0	0	0	0	0	0	0	0	547,884	0	0	0	547,884	214,931	0	0	0	0	0	0	0
	-2	3	2022	449,285	0	0	22,464	426,821	99,789	0	0	0	0	0	24,564	0	0	603,289	20,248	0	0	171,070	452,467	214,923	0	0	0	218,099	218,099
	-1	4	2023	475,659	0	0	95,132	380,527	112,925	0	0	0	0	0	88,655	0	0	710,585	63,656	0	0	774,241	0	214,685	0	0	0	958,028	958,028
OPERATIONS	1	5	2024	545,862	0	6,341	552,203	0	122,603	0	0	0	0	1,544	124,147	0	0	793,414	87,810	19,083	0	900,307	0	217,262	0	217,262	1,793,939	1,793,939	
	2	6	2025	584,750	0	28,253	613,003	0	133,222	0	0	0	0	4,639	137,861	0	0	836,439	88,010	85,029	0	1,009,478	0	215,786	0	215,786	1,976,128	1,976,128	
	3	7	2026	584,764	0	50,880	635,644	0	157,566	0	0	0	0	7,735	165,301	0	0	837,542	88,012	127,134	0	1,052,688	0	215,791	0	215,791	2,069,424	2,069,424	
	4	8	2027	606,702	0	73,507	680,209	0	168,773	0	0	0	0	10,830	179,603	0	0	843,782	89,460	143,103	0	1,076,345	0	215,792	0	215,792	2,151,949	2,151,949	
	5	9	2028	652,705	0	96,134	748,839	0	169,899	0	0	0	0	13,926	183,825	0	0	859,759	93,169	159,073	0	1,112,001	0	217,282	0	217,282	2,261,947	2,261,947	
	6	10	2029	694,025	0	112,049	806,074	0	169,048	0	0	0	0	17,021	186,069	0	0	866,667	95,923	165,745	0	1,128,335	0	215,786	0	215,786	2,336,264	2,336,264	
	7	11	2030	738,192	0	121,214	859,406	0	168,798	0	0	0	0	20,117	188,915	0	0	878,129	99,154	163,067	0	1,140,350	0	215,791	0	215,791	2,452,712	2,452,712	
	8	12	2031	755,371	0	130,379	885,750	0	168,949	0	0	0	0	23,212	192,161	0	0	885,192	100,936	160,390	0	0	1,146,518	215,792	0	215,792	2,593,703	2,593,703	
	9	13	2032	759,530	0	137,519	897,049	0	170,326	0	0	0	0	26,308	196,634	0	0	885,543	100,704	157,712	0	630,827	513,132	216,060	0	216,060	1,940,570	1,940,570	
	10	14	2033	755,880	0	142,821	898,501	0	169,529	0	0	0	0	29,403	198,932	0	0	884,997	100,317	155,034	0	1,140,348	0	214,931	0	214,931	2,452,712	2,452,712	
	11	15	2034	756,200	0	147,724	903,924	0	169,332	4,892,727	0	0	1,146,007	0	32,498	0	0	892,715	100,935	152,357	1,146,007	0	214,923	0	214,923	1,118,847	1,118,847		
	12	16	2035	755,127	0	152,827	907,954	0	169,412	4,892,727	0	0	1,141,260	0	35,594	0	0	823,295	100,281	146,679	1,141,260	0	214,912	0	214,912	1,122,866	1,122,866		
	13	17	2036	760,269	0	157,929	918,198	0	169,342	4,892,727	0	0	1,144,663	0	38,689	0	0	896,957	100,704	147,002	1,144,663	0	216,270	0	216,270	1,134,468	1,134,468		
	14	18	2037	756,559	0	163,032	919,591	0	169,384	724,256	0	0	1,140,238	0	41,785	0	0	895,597	100,317	144,324	1,140,238	0	214,931	0	214,931	1,134,522	1,134,522		
CLOSURE	15	19	2038	755,441	4,844,921	168,134	0	170,403	0	815,270	2,629,800	995,910	214,923	18,615	0	4,844,921	0	895,594	100,316	0	995,910	0	214,923	214,923	0	0	0	0	
	16	20	2039	755,432	4,844,178	173,237	0	170,401	0	813,969	2,629,800	996,481	214,912	18,615	0	4,844,178	0	896,200	100,281	0	996,481	0	214,912	214,912	0	0	0	0	
	17	21	2040	760,394	4,856,097	175,795	0	171,529	0	820,175	2,629,800	999,708	216,270	18,615	0	4,856,097	0	899,004	100,704	0	999,708	0	216,270	216,270	0	0	0	0	
	18	22	2041	756,559	4,856,971	175,795	0	170,669	0	821,658	2,629,800	1,000,443	215,796	18,615	0	4,856,971	0	899,510	100,933	0	1,000,443	0	215,786	215,786	0	0	0	0	
	19	23	2042	756,943	2,022,981	175,795	0	170,952	0	178,855	438,300	1,000,468	215,791	18,615	0	2,022,981	0	899,533	100,935	0	1,000,468	0	215,791	215,791	0	0	0	0	
	20	24	2043	756,558	1,400,677	175,795	0	170,669	0	0	0	996,481	214,912	18,615	0	1,400,677	0	896,200	100,281	0	996,481	0	214,912	214,912	0	0	0	0	
	21	25	2044	760,459	1,413,223	175,795	0	171,738	0	0	0	1,005,588	217,282	18,615	0	1,413,223	0	904,134	101,454	0	1,005,588	0	217,282	217,282	0	0	0	0	
	22	26	2045	756,559	1,400,129	175,795	0	170,669	0	0	0	995,914	214,931	18,615	0	1,400,129	0	895,597	100,317	0	995,914	0	214,931	214,931	0	0	0	0	
23	27	2046	756,553	1,400,116	175,795	0	170,668	0	0	0	995,910	214,923	18,615	0	1,400,116	0	895,594	100,316	0	995,910	0	214,923	214,923	0	0	0	0		
24	28	2047	756,945	1,405,831	175,795	0	170,952	0	0	0	1,000,472	215,792	18,615	0	1,405,831	0	899,536	100,936	0	1,000,472	0	215,792	215,792	0	0	0	0		

NOTES:  
 1. VALUES PROVIDED REPRESENT THE 50<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.  
 2. CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

**TABLE 5**  
**GENERATION MINING**  
**MARATHON PALLADIUM PROJECT**  
**SITE WATER BALANCE SUMMARY**  
**ANNUAL BALANCE - MINE ROCK STORAGE AREA - 50TH PERCENTILE RESULTS**

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	MINE YEAR	MODEL YEAR	CALENDAR YEAR	STREAM 3 CATCH BASIN				STREAM 2 CATCH BASIN					
				INPUTS		OUTPUTS		INPUTS		OUTPUTS			
				RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	WATER TRANSFER TO STREAM 2 CATCH BASIN (m <sup>3</sup> /year)	TO PIC RIVER VIA SUB-WATERSHED 103 (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	WATER TRANSFER FROM STREAM 3 CATCH BASIN (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	STREAM 2 CATCH BASIN TO PSMF (m <sup>3</sup> /year)	STREAM 2 CATCH BASIN TO CENTRAL PIT (m <sup>3</sup> /year)	TO PIC RIVER VIA SUB-WATERSHED 102 (m <sup>3</sup> /year)
PRE PRODUCTION	-4	1	2020	275,769	0	0	275,769	431,517	0	0	0	0	431,517
	-3	2	2021	268,559	0	0	268,559	420,236	0	0	0	0	420,236
	-2	3	2022	269,064	18	0	269,046	430,727	0	29	107,682	0	323,045
	-1	4	2023	269,649	18	0	269,631	446,321	0	31	446,321	0	0
OPERATIONS	1	5	2024	274,502	25	274,477	0	482,763	274,477	46	757,216	0	0
	2	6	2025	279,249	22	279,234	0	488,762	279,234	45	781,941	0	0
	3	7	2026	288,193	22	288,178	0	493,949	288,178	48	791,617	0	0
	4	8	2027	296,651	24	296,635	0	499,014	296,635	50	796,560	0	0
	5	9	2028	307,138	33	307,116	0	504,088	307,116	58	808,304	0	0
	6	10	2029	309,394	27	309,358	0	503,496	309,358	49	808,254	0	0
	7	11	2030	313,167	29	313,130	0	505,754	313,130	49	817,180	0	0
	8	12	2031	314,427	32	314,395	0	506,766	314,395	52	821,109	0	0
	9	13	2032	316,239	36	316,201	0	503,890	316,201	57	820,457	0	0
	10	14	2033	314,418	33	314,384	0	500,813	314,384	53	815,407	0	0
	11	15	2034	314,693	30	314,655	0	506,926	314,655	49	821,267	0	0
	12	16	2035	314,074	30	314,036	0	499,930	314,036	49	813,908	0	0
	13	17	2036	316,239	36	316,201	0	504,012	316,201	57	820,579	0	0
	14	18	2037	314,418	31	314,384	0	500,924	314,384	50	4,434	0	0
CLOSURE	15	19	2038	314,425	30	314,393	0	500,926	314,393	49	0	815,270	0
	16	20	2039	314,074	30	314,036	0	499,981	314,036	49	0	813,969	0
	17	21	2040	316,239	36	316,201	0	504,031	316,201	57	0	820,175	0
	18	22	2041	314,692	33	314,653	0	507,058	314,653	53	0	821,658	0
	19	23	2042	314,693	33	314,655	0	514,030	314,655	53	0	178,855	649,777
	20	24	2043	314,074			314,074	505,009					505,009
	21	25	2044	316,239			316,239	516,863					516,863
	22	26	2045	314,456			314,456	505,965					505,965
23	27	2046	314,459			314,459	505,967					505,967	
24	28	2047	314,427			314,427	514,036					514,036	

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**NOTES:**

- VALUES PROVIDED REPRESENT THE 50<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.
- CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

0	02/MAR/21	ISSUED WITH LETTER NB20-00916	MGP	JAM
REV	DATE	DESCRIPTION	PREP'D	RW'D

TABLE 6

GENERATION MINING  
MARATHON PALLADIUM PROJECT

SITE WATER BALANCE SUMMARY  
ANNUAL BALANCE - STORMWATER MANAGEMENT POND AND PROCESS PLANT - 50TH PERCENTILE RESULTS

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	MINE YEAR	MODEL YEAR	CALENDAR YEAR	STORMWATER MANAGEMENT POND					PROCESS PLANT					
				INPUTS	OUTPUTS				INPUTS		OUTPUTS			
				RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	EMBANKMENT SEEPAGE (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	WATER TRANSFER TO WMP (m <sup>3</sup> /year)	TO SUB-WATERSHED 101 (m <sup>3</sup> /year)	RECLAIM FROM WMP (m <sup>3</sup> /year)	WATER WITH ORE (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 1 (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 2A (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 2B (m <sup>3</sup> /year)	WATER IN SLURRY TO CENTRAL PIT (m <sup>3</sup> /year)
PRE PRODUCTION	-4	1	2020											
	-3	2	2021											
	-2	3	2022	172,340	886	0	171,456							
	-1	4	2023	480,716	1,608	0	480,716	0	239,629	7,411	139,989	107,051	0	0
OPERATIONS	1	5	2024	481,823	1,608	658	341,088	0	5,873,119	181,643	3,431,032	2,623,730	0	0
	2	6	2025	479,767	1,608	6,312	475,176	0	10,843,060	335,352	6,334,431	4,843,977	0	0
	3	7	2026	478,604	1,608	3,780	475,728	0	10,952,180	338,727	5,894,561	4,892,727	503,622	0
	4	8	2027	479,933	1,608	4,848	449,436	0	10,952,180	338,727	0	4,892,727	6,398,182	0
	5	9	2028	485,463	1,692	7,008	456,792	0	10,952,180	338,727	0	4,892,727	6,398,182	0
	6	10	2029	485,671	1,728	13,452	441,276	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	7	11	2030	480,819	1,620	4,692	508,980	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	8	12	2031	479,252	1,608	4,944	474,528	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	9	13	2032	482,426	1,620	5,760	451,068	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	10	14	2033	482,777	1,692	15,888	441,168	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	11	15	2034	478,967	1,608	6,036	511,596	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	12	16	2035	478,187	1,608	743	476,040	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	13	17	2036	481,174	1,608	588	479,268	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	14	18	2037	478,174	1,608	550	448,668	0	1,618,251	26,361	0	330,880	614,491	701,241
CLOSURE	15	19	2038	478,185	1,608	748	447,288	0						
	16	20	2039	478,188	1,608	743	446,400	0						
	17	21	2040	481,175	1,608	803	444,888	0						
	18	22	2041	478,241	1,608	749	452,316	0						
	19	23	2042	478,223	1,608	748	476,028	0						
	20	24	2043	478,188				478,188						
	21	25	2044	481,454				481,454						
	22	26	2045	478,241				478,241						
	23	27	2046	478,223				478,223						
	24	28	2047	478,199				478,199						

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NOTES:

- VALUES PROVIDED REPRESENT THE 50<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.
- CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

0	02MAR21	ISSUED WITH LETTER NB20-00916	MGP	JAM
REV	DATE	DESCRIPTION	PREP'D	RW'D

TABLE 7  
 GENERATION MINING  
 MARATHON PALLADIUM PROJECT  
 SITE WATER BALANCE SUMMARY  
 ANNUAL BALANCE - PROCESS SOLIDS MANAGEMENT FACILITY - 5TH PERCENTILE RESULTS

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	MINE YEAR	MODEL YEAR	CALENDAR YEAR	PROCESS SOLIDS MANAGEMENT FACILITY (CELL 1, 2A, AND 2B)											WATER MANAGEMENT POND (WMP)											
				INPUTS					OUTPUTS						INPUTS				OUTPUTS							
				RUNOFF & PRECIPITATION (m³/year)	WATER WITH SLURRY (m³/year)	TRANSFER FROM COLLECTION POND 1 (m³/year)	TRANSFER FROM CATCH BASIN 2 (m³/year)	SEEPAGE PUMPBACK SYSTEM (m³/year)	WATER ENTRAINED IN VOIDS (m³/year)	BEDROCK SEEPAGE TO SUB-WATERSHED 105 (m³/year)	BEDROCK SEEPAGE TO SUB-WATERSHED 106 (m³/year)	EMBANKMENT SEEPAGE (m³/year)	EVAPORATION (m³/year)	TRANSFER TO WMP (m³/year)	TO SUB-WATERSHED 106 (m³/year)	RUNOFF & PRECIPITATION (m³/year)	SEEPAGE PUMPBACK SYSTEM (m³/year)	WATER TRANSFER FROM CELL 1 (m³/year)	WATER TRANSFER FROM SWMP (m³/year)	EVAPORATION (m³/year)	BEDROCK SEEPAGE TO SUB-WATERSHED 101 (m³/year)	EMBANKMENT SEEPAGE (m³/year)	TRANSFER TO CENTRAL PIT (m³/year)	RECLAIM TO MILL (m³/year)	EXCESS WATER DISCHARGE TO HARE LAKE (m³/year)	TO SUB-WATERSHED 101 (m³/year)
OPERATIONS	1	5	2024	490,227	6,054,762	1,022,879	518,136	177,118	2,066,419	0	122,289	39,480	40,971	5,968,295	0	155,226	13,217	5,968,295	262,058	56,737	44,561	2,129	0	5,873,119	422,250	0
	2	6	2025	507,573	11,178,408	1,109,490	530,801	180,239	3,815,059	1,556	122,289	44,046	64,962	10,436,782	0	149,698	13,133	10,436,782	331,094	40,957	44,561	2,129	0	10,843,060	0	0
	3	7	2026	840,022	11,290,910	1,166,415	542,558	387,551	3,798,496	50,476	122,289	184,663	86,513	10,544,997	0	140,523	13,133	10,544,997	327,893	27,676	44,561	2,129	0	10,952,180	0	0
	4	8	2027	936,666	11,290,909	1,199,730	552,019	403,026	3,155,240	56,826	122,289	206,246	131,980	10,541,602	0	140,153	13,144	10,541,602	328,285	24,294	44,561	2,129	0	10,952,180	0	0
	5	9	2028	1,000,002	11,290,909	1,245,300	561,722	404,234	3,155,240	56,826	122,289	206,246	155,218	10,544,548	0	149,397	13,217	10,544,548	330,166	38,458	44,561	2,129	0	10,952,180	0	0
	6	10	2029	1,051,874	11,290,909	1,258,882	564,638	402,785	3,155,240	56,826	122,289	206,246	178,225	11,022,598	0	168,617	13,133	11,022,598	314,713	73,191	44,561	2,129	0	10,952,180	447,000	0
	7	11	2030	1,105,563	11,290,909	492,405	571,233	402,785	3,155,240	56,826	122,289	206,246	198,332	10,545,343	0	149,331	13,133	10,545,343	334,329	43,266	44,561	2,129	0	10,952,180	0	0
	8	12	2031	1,158,166	11,290,909	500,350	574,713	403,026	3,155,240	56,826	122,289	206,246	218,554	10,542,424	0	149,538	13,144	10,542,424	328,946	35,182	44,561	2,129	0	10,952,180	0	0
	9	13	2032	1,222,429	11,290,909	517,358	577,722	404,234	3,155,240	56,826	122,289	206,246	239,826	10,577,555	0	144,632	13,217	10,577,555	298,026	34,560	44,561	2,129	0	10,952,180	0	0
	10	14	2033	1,269,136	11,290,909	835,997	574,099	402,785	3,155,240	56,826	122,289	206,246	259,964	10,586,204	0	146,741	13,133	10,586,204	291,921	39,129	44,561	2,129	0	10,952,180	0	0
	11	15	2034	1,323,298	6,398,182	3,078,970	574,149	402,785	2,331,945	56,826	122,289	206,246	279,090	10,544,463	0	150,535	13,133	10,544,463	328,120	37,381	44,561	2,129	0	10,952,180	0	0
	12	16	2035	1,459,932	6,398,182	3,082,068	574,874	403,026	2,331,945	56,826	122,289	206,246	332,492	10,540,132	0	137,634	13,144	10,540,132	328,266	20,306	44,561	2,129	0	10,952,180	0	0
	13	17	2036	1,178,903	6,398,182	3,043,380	467,519	377,697	2,331,945	56,826	122,289	206,246	339,595	10,600,157	0	117,760	11,933	10,600,157	289,163	20,143	44,561	2,129	0	10,952,180	0	0
	14	18	2037	1,490,585	945,371	439,281	3,144	400,711	344,559	56,826	112,083	203,760	304,065	3,344,810	0	141,913	11,933	3,344,810	272,468	35,110	44,256	2,115	2,071,392	1,618,251	0	0
CLOSURE	15	19	2038	1,479,034	0	0	0	396,856	0	41,018	100,758	198,430	284,301	1,697,862	0	139,570	11,933	1,697,862	304,751	27,066	37,087	1,783	2,088,180	0	0	
	16	20	2039	1,490,001	0	0	0	395,895	0	40,913	99,722	196,789	287,437	1,324,642	0	139,359	11,933	1,324,642	300,181	19,812	34,722	1,669	1,719,912	0	0	
	17	21	2040	1,498,534	0	0	0	397,211	0	40,800	99,779	196,333	290,979	1,512,189	0	140,402	11,933	1,512,189	288,291	24,480	36,363	1,720	1,890,252	0	0	
	18	22	2041	1,490,012	0	0	0	395,552	0	41,018	100,738	197,804	289,740	1,468,288	0	139,128	11,933	1,468,288	255,293	27,100	36,347	1,715	1,809,480	0	0	
	19	23	2042	1,490,075	0	0	0	31,047	0	41,018	99,082	196,380	284,085	0	134,908	11,933	0	310,083	21,670	33,721	1,621	1,620	0	0	0	
	20	24	2043	1,501,192	0	0	0	0	37,649	0	37,649	97,507	180,503	275,122	0	910,411	131,440									131,440
	21	25	2044	1,498,570	0	0	0	0	0	37,312	0	88,626	176,975	273,973	0	921,684	134,884									134,884
	22	26	2045	1,490,129	0	0	0	0	0	37,312	0	98,376	179,322	277,248	0	897,871	133,641									133,641
23	27	2046	1,490,004	0	0	0	0	0	35,964	0	93,453	172,752	276,333	0	911,502	134,760									134,760	
24	28	2047	1,489,942	0	0	0	0	0	37,536	0	88,626	177,911	276,036	0	909,831	133,408									133,408	

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NOTES:  
 1. VALUES PROVIDED REPRESENT 5<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.  
 2. CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

REV.	DATE	ISSUED WITH LETTER NUMBER	DESCRIPTION	PREP.	CHK.

TABLE 8  
 GENERATION MINING  
 MARATHON PALLADIUM PROJECT  
 SITE WATER BALANCE SUMMARY  
 ANNUAL BALANCE - OPEN PITS - 5TH PERCENTILE RESULTS

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MINE YEAR	MODEL YEAR	CALENDAR YEAR	NORTH PIT					CENTRAL PIT									SOUTH PIT					L-8 POND			COLLECTION POND 1		
			INPUTS		OUTPUTS			INPUTS			OUTPUTS						INPUTS			OUTPUTS			INPUTS	OUTPUTS		INPUTS	OUTPUTS
			RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	OVERFLOW FROM CENTRAL PIT (m <sup>3</sup> /year)	GROUNDWATER INFLOW (m <sup>3</sup> /year)	TRANSFER TO COLLECTION POND 1 (m <sup>3</sup> /year)	OVERFLOW TO STREAM 3 CATCH BASIN (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	WATER WITH PROCESS SOLIDS SLURRY (m <sup>3</sup> /year)	TRANSFER FROM STREAM 2 CATCHMENT BASIN (m <sup>3</sup> /year)	TRANSFER FROM WMP (m <sup>3</sup> /year)	OVERFLOW FROM SOUTH PIT (m <sup>3</sup> /year)	INFLOW FROM L-8 (m <sup>3</sup> /year)	GROUNDWATER INFLOW (m <sup>3</sup> /year)	TRANSFER TO COLLECTION POND 1 (m <sup>3</sup> /year)	OVERFLOW TO NORTH PIT (m <sup>3</sup> /year)	WATER ENTRAINED IN VOIDS (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	ROM STOCKPILE RUNOFF (m <sup>3</sup> /year)	GROUNDWATER INFLOW (m <sup>3</sup> /year)	OVERFLOW TO CENTRAL PIT (m <sup>3</sup> /year)	TRANSFER TO COLLECTION POND 1 (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	OUTFLOW TO CENTER PIT (m <sup>3</sup> /year)	TRANSFER TO COLLECTION POND 1 (m <sup>3</sup> /year)	INFLOW FROM OPEN PITS AND L-8 (m <sup>3</sup> /year)	TRANSFER TO PSMF (m <sup>3</sup> /year)
1	5	2024	375,173	0	6,341	381,514	0	84,246	0	0	0	1,544	85,790	0	0	560,551	62,142	19,083	0	641,776	149,895	0	149,895	1,258,975	1,258,975		
2	6	2025	404,121	0	28,253	432,374	0	92,362	0	0	0	4,639	97,001	0	0	580,604	61,779	85,029	0	727,412	148,750	0	148,750	1,405,537	1,405,537		
3	7	2026	404,128	0	50,880	455,008	0	108,732	0	0	0	7,735	116,467	0	0	581,360	61,780	127,134	0	770,274	148,749	0	148,749	1,490,498	1,490,498		
4	8	2027	419,482	0	73,507	492,989	0	116,459	0	0	0	10,830	127,289	0	0	585,972	62,937	143,103	0	792,012	148,904	0	148,904	1,561,194	1,561,194		
5	9	2028	451,589	0	96,134	547,723	0	117,127	0	0	0	13,926	131,053	0	0	597,331	65,489	159,073	0	821,893	149,895	0	149,895	1,650,564	1,650,564		
6	10	2029	478,291	0	112,049	590,340	0	116,507	0	0	0	17,021	133,528	0	0	601,715	67,375	165,745	0	834,835	148,750	0	148,750	1,707,453	1,707,453		
7	11	2030	507,632	0	121,214	628,846	0	116,513	0	0	0	20,117	136,630	0	0	609,684	69,643	136,067	0	0	148,749	0	148,749	914,225	914,225		
8	12	2031	521,432	0	130,379	651,811	0	116,643	0	0	0	23,212	139,855	0	0	614,705	70,964	160,390	0	0	148,904	0	148,904	940,570	940,570		
9	13	2032	524,642	0	137,519	662,161	0	117,586	0	0	0	26,308	143,894	0	0	619,927	71,267	157,712	0	0	149,895	0	149,895	955,950	955,950		
10	14	2033	522,049	0	142,621	664,670	0	117,242	0	581,297	0	29,403	727,942	0	0	618,053	70,851	155,034	581,297	0	148,750	1,541,362	1,541,362				
11	15	2034	522,285	0	147,724	669,989	0	116,868	4,892,727	0	0	32,498	0	0	619,833	70,852	152,357	843,042	0	148,749	0	148,749	818,738	818,738			
12	16	2035	522,254	0	152,827	675,081	0	116,927	4,892,727	0	0	35,594	0	0	621,789	70,964	149,679	842,432	0	148,904	0	148,904	823,985	823,985			
13	17	2036	411,842	0	157,929	569,771	0	116,898	4,892,727	0	0	38,689	0	0	499,597	55,661	147,002	702,260	0	132,536	0	132,536	702,307	702,307			
14	18	2037	522,798	0	163,032	685,830	0	116,954	724,256	0	0	41,785	0	0	624,605	70,851	144,324	839,780	0	148,750	0	148,750	834,580	834,580			
15	19	2038	520,118	4,417,782	168,134	0	0	117,750	0	815,270	2,629,800	690,226	146,121	18,615	0	619,807	70,419	0	690,226	0	146,121	146,121	0	0	0		
16	20	2039	522,786	4,424,979	173,237	0	0	118,282	0	813,969	2,629,800	695,441	118,282	18,615	0	624,592	70,849	0	695,441	0	148,872	148,872	0	0	0		
17	21	2040	525,798	4,436,632	175,795	0	0	118,935	0	820,175	2,629,800	699,235	149,872	18,615	0	628,076	71,159	0	699,235	0	149,872	149,872	0	0	0		
18	22	2041	522,798	4,432,564	175,795	0	0	118,285	0	821,658	2,629,800	695,456	148,750	18,615	0	624,605	70,851	0	695,456	0	148,750	148,750	0	0	0		
19	23	2042	522,810	1,598,275	175,795	0	0	118,287	0	178,855	438,300	695,469	148,749	18,615	0	624,617	70,852	0	695,469	0	148,749	148,749	0	0	0		
20	24	2043	525,484	986,997	175,795	0	0	118,821	0	0	0	700,689	148,872	18,615	0	629,406	71,283	0	700,689	0	148,872	148,872	0	0	0		
21	25	2044	525,807	986,507	175,795	0	0	118,930	0	0	0	699,090	149,872	18,615	0	627,967	71,123	0	699,090	0	149,872	149,872	0	0	0		
22	26	2045	522,814	980,968	175,795	0	0	118,282	0	0	0	695,321	148,750	18,615	0	624,506	70,815	0	695,321	0	148,750	148,750	0	0	0		
23	27	2046	522,810	983,749	175,795	0	0	118,287	0	0	0	695,469	151,378	18,615	0	624,617	70,852	0	695,469	0	151,378	151,378	0	0	0		
24	28	2047	522,786	981,086	175,795	0	0	118,282	0	0	0	695,441	148,748	18,615	0	624,592	70,849	0	695,441	0	148,748	148,748	0	0	0		

1:110100446/09/A/Correspondence/NE20-00916 - Water Balance Summary/Final/Summary Tables and Figures Rev 0.xlsx|Table 8 OpenPits Dry

- NOTES:  
 1. VALUES PROVIDED REPRESENT THE 5<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.  
 2. CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

REV	DATE	DESCRIPTION	APP	CHK

**TABLE 9**  
**GENERATION MINING**  
**MARATHON PALLADIUM PROJECT**  
**SITE WATER BALANCE SUMMARY**  
**ANNUAL BALANCE - MINE ROCK STORAGE AREA - 5TH PERCENTILE RESULTS**

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	MINE YEAR	MODEL YEAR	CALENDAR YEAR	STREAM 3 CATCH BASIN				STREAM 2 CATCH BASIN					
				INPUTS		OUTPUTS		INPUTS		OUTPUTS			
				RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	WATER TRANSFER TO STREAM 2 CATCH BASIN (m <sup>3</sup> /year)	TO PIC RIVER VIA SUB-WATERSHED 103 (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	WATER TRANSFER FROM STREAM 3 CATCH BASIN (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	STREAM 2 CATCH BASIN TO PSMF (m <sup>3</sup> /year)	STREAM 2 CATCH BASIN TO CENTRAL PIT	TO PIC RIVER VIA SUB-WATERSHED 102 (m <sup>3</sup> /year)
<b>OPERATIONS</b>	1	5	2024	189,601	9	189,589	0	328,570	189,589	16	518,136	0	0
	2	6	2025	192,108	7	192,098	0	338,702	192,098	14	530,801	0	0
	3	7	2026	197,299	6	197,290	0	345,126	197,290	13	542,558	0	0
	4	8	2027	202,698	5	202,688	0	349,200	202,688	13	552,019	0	0
	5	9	2028	208,885	11	208,869	0	352,685	208,869	20	561,722	0	0
	6	10	2029	212,500	9	212,487	0	352,101	212,487	16	564,638	0	0
	7	11	2030	217,504	8	217,493	0	353,763	217,493	15	571,233	0	0
	8	12	2031	219,821	8	219,809	0	354,927	219,809	15	574,713	0	0
	9	13	2032	221,010	13	220,993	0	356,758	220,993	22	577,722	0	0
	10	14	2033	219,578	10	219,564	0	354,558	219,564	17	574,099	0	0
	11	15	2034	219,581	8	219,568	0	354,603	219,568	15	574,149	0	0
	12	16	2035	219,821	8	219,809	0	355,087	219,809	15	574,874	0	0
	13	17	2036	180,366	12	180,355	0	287,185	180,355	21	467,519	0	0
	14	18	2037	219,578	10	219,564	0	354,705	219,564	17	3,144	0	0
<b>CLOSURE</b>	15	19	2038	217,074	8	217,062	0	351,278	217,062	16	0	568,324	0
	16	20	2039	219,573	6	219,561	0	354,696	219,561	10	0	574,247	0
	17	21	2040	220,783	14	220,765	0	356,520	220,765	24	0	577,261	0
	18	22	2041	219,578	10	219,564	0	354,704	219,564	17	0	574,251	0
	19	23	2042	219,581	8	219,568	0	359,500	219,568	17	0	177,491	401,560
	20	24	2043	222,080			222,080	362,855					362,855
	21	25	2044	220,698			220,698	361,187					361,187
	22	26	2045	219,497			219,497	359,362					359,362
	23	27	2046	219,581			219,581	359,513					359,513
	24	28	2047	219,573			219,573	359,499					359,499

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**NOTES:**

- VALUES PROVIDED REPRESENT THE 5<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.
- CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

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REV	DATE	DESCRIPTION	PREP'D	RVWD



**TABLE 10**  
**GENERATION MINING**  
**MARATHON PALLADIUM PROJECT**  
**SITE WATER BALANCE SUMMARY**  
**ANNUAL BALANCE - STORMWATER MANAGEMENT POND AND PROCESS PLANT - 5TH PERCENTILE RESULTS**

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	MINE YEAR	MODEL YEAR	CALENDAR YEAR	STORMWATER MANAGEMENT POND					PROCESS PLANT					
				INPUTS		OUTPUTS			INPUTS		OUTPUTS			
				RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	EMBANKMENT SEEPAGE (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	WATER TRANSFER TO WMP (m <sup>3</sup> /year)	TO SUB-WATERSHED 101 (m <sup>3</sup> /year)	RECLAIM FROM WMP (m <sup>3</sup> /year)	WATER WITH ORE (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 1 (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 2A (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 2B (m <sup>3</sup> /year)	WATER IN SLURRY TO CENTRAL PIT (m <sup>3</sup> /year)
<b>OPERATIONS</b>	1	5	2024	332,102	1,428	22	262,056	0	5,873,119	181,643	3,431,032	2,623,730	0	0
	2	6	2025	329,667	1,440	113	331,092	0	10,843,060	335,352	6,334,431	4,843,977	0	0
	3	7	2026	329,626	1,428	100	327,888	0	10,952,180	338,727	5,894,561	4,892,727	503,622	0
	4	8	2027	329,998	1,428	100	328,260	0	10,952,180	338,727	0	4,892,727	6,398,182	0
	5	9	2028	332,200	1,548	113	330,168	0	10,952,180	338,727	0	4,892,727	6,398,182	0
	6	10	2029	330,499	1,560	1,099	314,712	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	7	11	2030	329,627	1,536	102	334,332	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	8	12	2031	329,999	1,500	100	328,944	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	9	13	2032	332,120	1,428	113	298,032	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	10	14	2033	329,731	1,584	101	291,924	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	11	15	2034	329,722	1,452	101	328,116	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	12	16	2035	329,999	1,428	98	328,260	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	13	17	2036	290,691	1,428	106	289,164	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	14	18	2037	329,628	1,428	99	272,472	0	1,618,251	28,361	0	330,880	614,491	701,241
<b>CLOSURE</b>	15	19	2038	324,052	1,428	99	304,752	0						
	16	20	2039	329,888	1,428	72	300,180	0						
	17	21	2040	332,027	1,428	111	288,288	0						
	18	22	2041	329,628	1,428	99	255,288	0						
	19	23	2042	329,627	1,428	99	310,080	0						
	20	24	2043	329,888				329,888						
	21	25	2044	332,027				332,027						
	22	26	2045	329,628				329,628						
23	27	2046	335,203				335,203							
24	28	2047	329,622				329,622							

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**NOTES:**

- VALUES PROVIDED REPRESENT THE 50<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.
- CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

0	02MAR21	ISSUED WITH LETTER NB20-00916	MGP	JAM
REV	DATE	DESCRIPTION	PREP'D	RVW'D

TABLE 11  
 GENERATION MINING  
 MARATHON PALLADIUM PROJECT  
 SITE WATER BALANCE SUMMARY  
 ANNUAL BALANCE - PROCESS SOLIDS MANAGEMENT FACILITY - 95TH PERCENTILE RESULTS

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	MINE YEAR	MODEL YEAR	CALENDAR YEAR	PROCESS SOLIDS MANAGEMENT FACILITY (CELL 1, 2A, AND 2B)											WATER MANAGEMENT POND (WMP)													
				INPUTS					OUTPUTS						INPUTS				OUTPUTS									
				RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	WATER WITH SLURRY (m <sup>3</sup> /year)	TRANSFER FROM COLLECTION POND 1 (m <sup>3</sup> /year)	TRANSFER FROM CATCH BASIN 2 (m <sup>3</sup> /year)	SEEPAGE PUMPBACK SYSTEM (m <sup>3</sup> /year)	WATER ENTRAINED IN VOIDS (m <sup>3</sup> /year)	BEDROCK SEEPAGE TO SUB-WATERSHED 105 (m <sup>3</sup> /year)	BEDROCK SEEPAGE TO SUB-WATERSHED 106 (m <sup>3</sup> /year)	EMBANKMENT SEEPAGE (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	TRANSFER TO WMP (m <sup>3</sup> /year)	TO SUB-WATERSHED 106 (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	SEEPAGE PUMPBACK SYSTEM (m <sup>3</sup> /year)	WATER TRANSFER FROM CELL 1 (m <sup>3</sup> /year)	WATER TRANSFER FROM SWMP (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	BEDROCK SEEPAGE TO SUB-WATERSHED 101 (m <sup>3</sup> /year)	EMBANKMENT SEEPAGE (m <sup>3</sup> /year)	TRANSFER TO CENTRAL PIT (m <sup>3</sup> /year)	RECLAIM TO MILL (m <sup>3</sup> /year)	EXCESS WATER DISCHARGE TO HARE LAKE (m <sup>3</sup> /year)	TO SUB-WATERSHED 101 (m <sup>3</sup> /year)		
OPERATIONS	1	5	2024	892,513	6,054,762	1,975,560	952,859	293,449	2,066,419	0	122,289	39,480	42,336	8,234,933	0	563,197	22,886	8,234,933	430,243	337,262	44,561	2,129	0	5,873,119	2,994,188	0		
	2	6	2025	923,803	11,178,408	2,090,209	976,153	303,744	3,815,059	4,689	122,289	52,454	65,831	11,638,215	0	442,726	22,781	11,638,215	595,477	288,449	44,561	2,129	0	10,843,060	1,521,000	0		
	3	7	2026	1,557,642	11,290,910	2,165,099	1,002,179	562,060	3,798,496	54,560	122,289	198,707	87,898	12,026,472	0	472,280	23,019	12,026,472	602,444	337,345	44,561	2,129	0	10,952,180	1,788,000	0		
	4	8	2027	1,767,833	11,290,909	2,251,353	1,029,076	569,347	3,155,240	56,826	122,289	206,246	133,744	12,888,858	0	625,677	22,544	12,888,858	545,387	407,596	44,561	2,129	0	10,952,180	2,676,000	0		
	5	9	2028	1,788,368	11,290,909	2,266,848	1,019,309	573,244	3,155,240	56,826	122,289	206,246	157,069	12,711,531	0	549,528	22,890	12,711,531	608,922	409,439	44,561	2,129	0	10,952,180	2,484,562	0		
	6	10	2029	1,905,414	11,290,909	2,288,601	1,021,586	570,014	3,155,240	56,826	122,289	206,246	180,755	12,936,730	0	580,089	22,786	12,936,730	579,099	418,334	44,561	2,129	0	10,952,180	2,701,500	0		
	7	11	2030	1,997,078	11,290,909	1,057,063	1,030,450	569,945	3,155,240	56,826	122,289	206,246	199,859	12,065,700	0	497,845	22,781	12,065,700	722,826	319,032	44,561	2,129	0	10,952,180	1,991,250	0		
	8	12	2031	2,092,798	11,290,909	1,068,356	1,035,523	571,231	3,155,240	56,826	122,289	206,246	220,376	12,113,033	0	479,361	22,782	12,113,033	609,881	308,437	44,561	2,129	0	10,952,180	1,917,750	0		
	9	13	2032	2,202,397	11,290,909	1,733,583	1,040,692	573,244	3,155,240	56,826	122,289	206,246	241,691	12,780,781	0	575,943	22,890	12,780,781	564,471	410,965	44,561	2,129	0	10,952,180	2,534,250	0		
	10	14	2033	2,287,964	11,290,909	2,179,461	1,034,721	570,014	3,155,240	56,826	122,289	206,246	262,548	13,155,705	0	636,723	22,786	13,155,705	535,914	419,008	44,561	2,129	0	10,952,180	2,933,250	0		
	11	15	2034	2,391,812	6,398,182	3,572,277	1,034,796	569,945	2,331,945	56,826	122,289	206,246	281,553	12,069,597	0	545,846	22,781	12,069,597	728,400	362,254	44,561	2,129	0	10,952,180	2,005,500	0		
	12	16	2035	2,623,754	6,398,182	3,575,558	1,035,738	571,231	2,331,945	56,826	122,289	206,246	333,769	11,409,722	0	401,199	22,782	11,409,722	671,104	197,937	44,561	2,129	0	10,952,180	1,308,000	0		
	13	17	2036	2,669,514	6,398,182	3,592,542	1,040,907	573,244	2,331,945	56,826	122,289	206,246	341,866	11,056,411	0	339,185	22,890	11,056,411	617,302	124,918	44,561	2,129	0	10,952,180	912,000	0		
	14	18	2037	2,676,311	945,371	442,080	6,738	570,014	344,559	56,826	122,289	206,246	344,853	3,046,807	0	511,451	22,890	3,046,807	605,001	336,008	44,561	2,129	2,185,200	1,618,251	0	0		
CLOSURE	15	19	2038	2,676,006	0	0	0	569,945	0	41,018	133,791	206,246	344,861	1,846,356	0	620,330	22,890	1,846,356	605,731	419,073	44,305	2,129	2,629,800	0	0	0		
	16	20	2039	2,677,808	0	0	0	569,543	0	41,018	133,791	206,246	345,400	1,849,620	0	614,436	22,890	1,849,620	608,361	419,073	44,305	2,129	2,629,800	0	0	0		
	17	21	2040	2,687,675	0	0	0	571,403	0	41,018	133,791	206,246	345,471	1,841,024	0	614,512	22,890	1,841,024	616,881	419,073	44,305	2,129	2,629,800	0	0	0		
	18	22	2041	2,675,968	0	0	0	568,910	0	41,018	133,791	206,246	345,308	1,850,098	0	609,120	22,890	1,850,098	613,199	419,073	44,305	2,129	2,629,800	0	0	0		
	19	23	2042	2,675,736	0	0	0	38,472	0	41,018	133,791	205,428	344,960	0	590,078	22,890	0	620,208	419,073	44,305	2,129	438,300	0	0	0			
	20	24	2043	2,677,638	0	0	0	0	0	41,018	133,791	203,846	344,577	0	1,954,406	480,118											480,118	
	21	25	2044	2,688,010	0	0	0	0	0	41,018	133,791	203,846	344,439	0	1,964,916	356,013												356,013
	22	26	2045	2,676,529	0	0	0	0	0	41,018	133,791	203,846	344,363	0	1,953,511	260,122												260,122
	23	27	2046	2,676,583	0	0	0	0	0	41,018	133,791	203,846	344,290	0	1,953,638	260,000												260,000
	24	28	2047	2,678,108	0	0	0	0	0	41,018	133,791	203,846	343,799	0	1,955,654	260,025												260,025

I:\110100446\09A\Correspondence\NB20-00916 - Water Balance Summary\Final\Summary Tables and Figures Rev 0.xlsx\Table 11 PSMF Wat

NOTES:  
 1. VALUES PROVIDED REPRESENT 5<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.  
 2. CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

REV.	NO.	DATE	ISSUED WITH LETTER NO.	DESCRIPTION	BY	APP.
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TABLE 12  
 GENERATION MINING  
 MARATHON PALLADIUM PROJECT  
 SITE WATER BALANCE SUMMARY  
 ANNUAL BALANCE - OPEN PITS - 95TH PERCENTILE RESULTS

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MINE YEAR	MODEL YEAR	CALENDAR YEAR	NORTH PIT					CENTRAL PIT									SOUTH PIT					L-8 POND			COLLECTION POND 1	
			INPUTS		OUTPUTS			INPUTS				OUTPUTS					INPUTS		OUTPUTS			INPUTS	OUTPUTS			
			RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	OVERFLOW FROM CENTRAL PIT (m <sup>3</sup> /year)	GROUNDWATER INFLOW (m <sup>3</sup> /year)	TRANSFER TO COLLECTION POND 1 (m <sup>3</sup> /year)	OVERFLOW TO STREAM 3 CATCH BASIN (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	WATER WITH PROCESS SOLIDS SLURRY (m <sup>3</sup> /year)	TRANSFER FROM STREAM 2 CATCHMENT BASIN (m <sup>3</sup> /year)	TRANSFER FROM WMP (m <sup>3</sup> /year)	OVERFLOW FROM SOUTH PIT (m <sup>3</sup> /year)	INFLOW FROM L-8 (m <sup>3</sup> /year)	GROUNDWATER INFLOW (m <sup>3</sup> /year)	TRANSFER TO COLLECTION POND 1 (m <sup>3</sup> /year)	OVERFLOW TO NORTH PIT (m <sup>3</sup> /year)	WATER ENTRAINED IN VOIDS (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	ROM STOCKPILE RUNOFF (m <sup>3</sup> /year)	GROUNDWATER INFLOW (m <sup>3</sup> /year)	OVERFLOW TO CENTRAL PIT (m <sup>3</sup> /year)	TRANSFER TO COLLECTION POND 1 (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	OUTFLOW TO CENTER PIT (m <sup>3</sup> /year)	TRANSFER TO COLLECTION POND 1 (m <sup>3</sup> /year)	INFLOW FROM OPEN PITS AND L-8 (m <sup>3</sup> /year)
1	5	2024	684,740	0	6,341	691,081	0	153,594	0	0	0	1,544	155,138	0	0	1,011,489	110,619	19,083	0	1,141,191	280,608	0	280,608	2,268,018	2,268,018	
2	6	2025	733,001	0	28,253	761,254	0	167,531	0	0	0	4,639	172,170	0	0	1,046,872	110,223	85,029	0	1,242,124	279,185	0	279,185	2,454,733	2,454,733	
3	7	2026	741,773	0	50,880	792,653	0	196,956	0	0	0	7,735	204,691	0	0	1,059,438	111,312	127,134	0	1,297,884	282,403	0	282,403	2,577,631	2,577,631	
4	8	2027	791,874	0	73,507	865,381	0	224,086	0	0	0	10,830	234,916	0	0	1,108,872	120,185	143,103	0	1,372,160	275,974	0	275,974	2,748,431	2,748,431	
5	9	2028	805,053	0	96,134	901,187	0	207,800	0	0	0	13,926	221,726	0	0	1,062,386	115,458	159,073	0	1,336,917	280,655	0	280,655	2,740,485	2,740,485	
6	10	2029	859,286	0	112,049	971,335	0	208,223	0	0	0	17,021	225,244	0	0	1,082,628	120,167	165,745	0	1,368,540	279,249	0	279,249	2,844,368	2,844,368	
7	11	2030	909,176	0	121,214	1,030,390	0	208,230	0	0	0	20,117	228,347	0	0	1,096,282	124,210	163,067	0	0	279,189	0	279,189	1,537,926	1,537,926	
8	12	2031	932,966	0	130,379	1,063,345	0	208,598	0	0	0	23,212	231,810	0	0	1,105,000	126,408	160,390	0	0	279,193	0	279,193	1,574,348	1,574,348	
9	13	2032	936,845	0	137,519	1,074,364	0	209,846	0	0	0	26,308	236,154	0	0	1,112,507	126,966	157,712	0	1,372,542	280,655	0	280,655	2,963,715	2,963,715	
10	14	2033	933,122	0	142,621	1,075,743	0	209,376	0	0	0	29,403	238,779	0	0	1,110,278	126,346	155,034	0	1,391,658	279,249	0	279,249	2,985,429	2,985,429	
11	15	2034	933,445	0	147,724	1,081,169	0	210,880	4,892,727	0	0	32,498	0	0	823,295	1,113,205	126,347	1,391,909	0	279,189	0	279,189	1,360,358	1,360,358		
12	16	2035	934,238	0	152,827	1,087,065	0	208,993	4,892,727	0	0	35,594	0	0	823,295	1,116,683	126,408	149,679	1,392,770	0	279,193	0	279,193	1,366,258	1,366,258	
13	17	2036	938,123	0	157,929	1,096,052	0	209,164	4,892,727	0	0	38,689	0	0	823,295	1,124,225	126,966	147,002	1,398,193	0	280,655	0	280,655	1,376,707	1,376,707	
14	18	2037	934,283	0	163,032	1,097,315	0	209,298	724,256	0	0	41,785	0	0	1,121,059	126,346	144,324	1,391,729	0	279,249	0	279,249	1,376,564	1,376,564		
15	19	2038	934,289	5,201,284	168,134	0	0	210,994	0	815,270	2,629,800	1,247,416	279,189	18,615	0	5,201,284	0	0	1,247,416	0	279,189	0	279,189	0	0	
16	20	2039	934,765	5,200,718	173,237	0	0	211,101	0	813,969	2,629,800	1,248,040	279,193	18,615	0	5,200,718	0	0	1,248,040	0	279,193	0	279,193	0	0	
17	21	2040	938,331	5,214,376	175,795	0	0	211,913	0	820,175	2,629,800	1,253,218	280,655	18,615	0	5,214,376	0	0	1,253,218	0	280,655	0	280,655	0	0	
18	22	2041	934,283	5,207,720	175,795	0	0	210,993	0	821,658	2,629,800	1,247,405	279,249	18,615	0	5,207,720	0	0	1,247,405	0	279,249	0	279,249	0	0	
19	23	2042	934,289	2,377,141	175,795	0	0	210,994	0	178,855	438,300	1,247,416	282,961	18,615	0	2,377,141	0	0	1,247,416	0	282,961	0	282,961	0	0	
20	24	2043	934,765	1,756,949	175,795	0	0	211,101	0	0	0	1,248,040	279,193	18,615	0	1,756,949	0	0	1,248,040	0	279,193	0	279,193	0	0	
21	25	2044	938,331	1,764,401	175,795	0	0	211,913	0	0	0	1,253,218	280,655	18,615	0	1,764,401	0	0	1,253,218	0	280,655	0	280,655	0	0	
22	26	2045	934,283	1,756,262	175,795	0	0	210,993	0	0	0	1,247,405	279,249	18,615	0	1,756,262	0	0	1,247,405	0	279,249	0	279,249	0	0	
23	27	2046	934,289	1,756,214	175,795	0	0	210,994	0	0	0	1,247,416	279,189	18,615	0	1,756,214	0	0	1,247,416	0	279,189	0	279,189	0	0	
24	28	2047	934,765	1,756,949	175,795	0	0	211,101	0	0	0	1,248,040	279,193	18,615	0	1,756,949	0	0	1,248,040	0	279,193	0	279,193	0	0	

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- NOTES:  
 1. VALUES PROVIDED REPRESENT THE 5<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.  
 2. CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

REV	DATE	DESCRIPTION	APP	CHK

**TABLE 13**  
**GENERATION MINING**  
**MARATHON PALLADIUM PROJECT**

**SITE WATER BALANCE SUMMARY**  
**ANNUAL BALANCE - MINE ROCK STORAGE AREA - 95TH PERCENTILE RESULTS**

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	MINE YEAR	MODEL YEAR	CALENDAR YEAR	STREAM 3 CATCH BASIN				STREAM 2 CATCH BASIN					
				INPUTS		OUTPUTS		INPUTS		OUTPUTS			
				RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	WATER TRANSFER TO STREAM 2 CATCH BASIN (m <sup>3</sup> /year)	TO PIC RIVER VIA SUB-WATERSHED 103 (m <sup>3</sup> /year)	RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	WATER TRANSFER FROM STREAM 3 CATCH BASIN (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	STREAM 2 CATCH BASIN TO PSMF (m <sup>3</sup> /year)	STREAM 2 CATCH BASIN TO CENTRAL PIT (m <sup>3</sup> /year)	TO PIC RIVER VIA SUB-WATERSHED 102 (m <sup>3</sup> /year)
<b>OPERATIONS</b>	1	5	2024	354,525	40	354,489	0	603,500	354,489	69	952,859	0	0
	2	6	2025	357,008	36	356,958	0	615,629	356,958	70	976,153	0	0
	3	7	2026	369,846	38	369,810	0	632,440	369,810	75	1,002,179	0	0
	4	8	2027	373,536	40	373,504	0	655,630	373,504	77	1,029,076	0	0
	5	9	2028	384,120	51	384,065	0	635,340	384,065	88	1,019,309	0	0
	6	10	2029	388,239	48	388,187	0	634,242	388,187	80	1,021,586	0	0
	7	11	2030	394,873	51	394,818	0	636,830	394,818	80	1,030,450	0	0
	8	12	2031	398,099	53	398,042	0	638,223	398,042	81	1,035,523	0	0
	9	13	2032	400,070	59	400,005	0	641,141	400,005	90	1,040,692	0	0
	10	14	2033	397,490	53	397,432	0	638,028	397,432	81	1,034,721	0	0
	11	15	2034	397,493	53	397,435	0	638,097	397,435	81	1,034,796	0	0
	12	16	2035	398,099	53	398,042	0	638,472	398,042	81	1,035,738	0	0
	13	17	2036	400,070	59	400,005	0	641,391	400,005	90	1,040,907	0	0
	14	18	2037	397,490	53	397,432	0	638,255	397,432	81	6,738	0	0
<b>CLOSURE</b>	15	19	2038	397,493	53	397,435	0	638,262	397,435	81	0	1,035,616	0
	16	20	2039	398,099	53	398,042	0	638,574	398,042	81	0	1,036,535	0
	17	21	2040	400,070	59	400,005	0	641,431	400,005	90	0	1,041,346	0
	18	22	2041	397,490	53	397,432	0	638,254	397,432	81	0	1,035,605	0
	19	23	2042	392,418	79	392,353	0	646,389	392,353	81	0	174,410	864,251
	20	24	2043	397,503			397,503	646,707					646,707
	21	25	2044	399,506			399,506	649,580					649,580
	22	26	2045	397,490			397,490	646,383					646,383
	23	27	2046	397,493			397,493	646,390					646,390
	24	28	2047	397,503			397,503	646,707					646,707

I:\110100446\09\A\Correspondence\NB20-00916 - Water Balance Summary\Final\Summary Tables and Figures Rev 0.xlsx\Table 13 MRSA Dry Wet

**NOTES:**

- VALUES PROVIDED REPRESENT THE 5<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.
- CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

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REV	DATE	DESCRIPTION	PREP'D	RV'WD

**TABLE 14**  
**GENERATION MINING**  
**MARATHON PALLADIUM PROJECT**  
**SITE WATER BALANCE SUMMARY**  
**ANNUAL BALANCE - STORMWATER MANAGEMENT POND AND PROCESS PLANT - 95TH PERCENTILE RESULTS**

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	MINE YEAR	MODEL YEAR	CALENDAR YEAR	STORMWATER MANAGEMENT POND					PROCESS PLANT					
				INPUTS		OUTPUTS			INPUTS		OUTPUTS			
				RUNOFF & PRECIPITATION (m <sup>3</sup> /year)	EMBANKMENT SEEPAGE (m <sup>3</sup> /year)	EVAPORATION (m <sup>3</sup> /year)	WATER TRANSFER TO WMP (m <sup>3</sup> /year)	TO SUB-WATERSHED 101 (m <sup>3</sup> /year)	RECLAIM FROM WMP (m <sup>3</sup> /year)	WATER WITH ORE (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 1 (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 2A (m <sup>3</sup> /year)	WATER IN SLURRY TO CELL 2B (m <sup>3</sup> /year)	WATER IN SLURRY TO CENTRAL PIT (m <sup>3</sup> /year)
<b>OPERATIONS</b>	1	5	2024	622,691	1,668	4,116	430,248	0	5,873,119	181,643	3,431,032	2,623,730	0	0
	2	6	2025	628,299	1,656	21,156	595,476	0	10,843,060	335,352	6,334,431	4,843,977	0	0
	3	7	2026	634,943	1,788	20,004	602,448	0	10,952,180	338,727	5,894,561	4,892,727	503,622	0
	4	8	2027	627,880	1,788	21,156	545,388	0	10,952,180	338,727	0	4,892,727	6,398,182	0
	5	9	2028	635,319	2,040	23,220	608,928	0	10,952,180	338,727	0	4,892,727	6,398,182	0
	6	10	2029	629,499	2,004	23,808	579,096	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	7	11	2030	629,618	2,124	24,420	722,820	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	8	12	2031	626,760	1,908	23,808	609,876	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	9	13	2032	635,210	1,788	23,232	564,468	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	10	14	2033	629,855	1,980	25,536	535,908	0	10,952,180	338,727	0	7,132,091	4,158,818	0
	11	15	2034	628,923	2,124	25,200	728,400	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	12	16	2035	622,015	1,800	11,508	671,100	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	13	17	2036	624,611	1,608	8,496	617,304	0	10,952,180	338,727	0	2,239,364	4,158,818	4,892,725
	14	18	2037	621,816	1,776	15,108	605,004	0	1,618,251	28,361	0	330,880	614,491	701,241
<b>CLOSURE</b>	15	19	2038	622,316	2,112	21,516	605,736	0						
	16	20	2039	620,213	2,124	24,924	608,364	0						
	17	21	2040	623,223	2,124	29,592	616,884	0						
	18	22	2041	618,264	2,124	33,624	613,200	0						
	19	23	2042	623,491	2,124	33,912	620,208	0						
	20	24	2043	618,014				618,014						
	21	25	2044	621,855				621,855						
	22	26	2045	618,139				618,139						
	23	27	2046	618,001				618,001						
	24	28	2047	618,014				618,014						

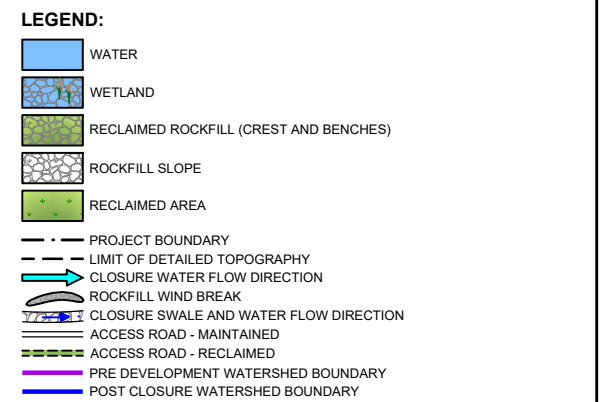
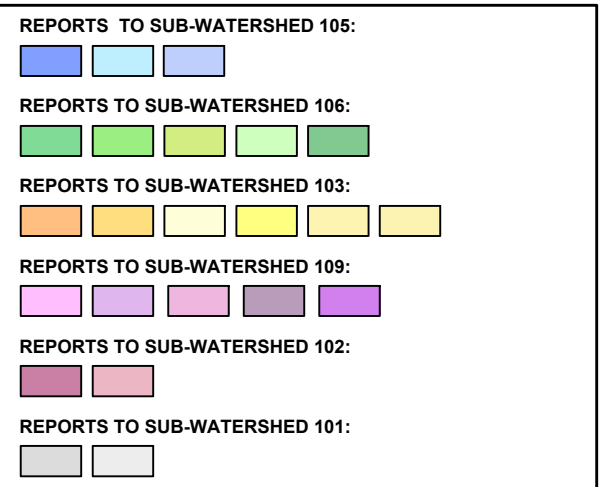
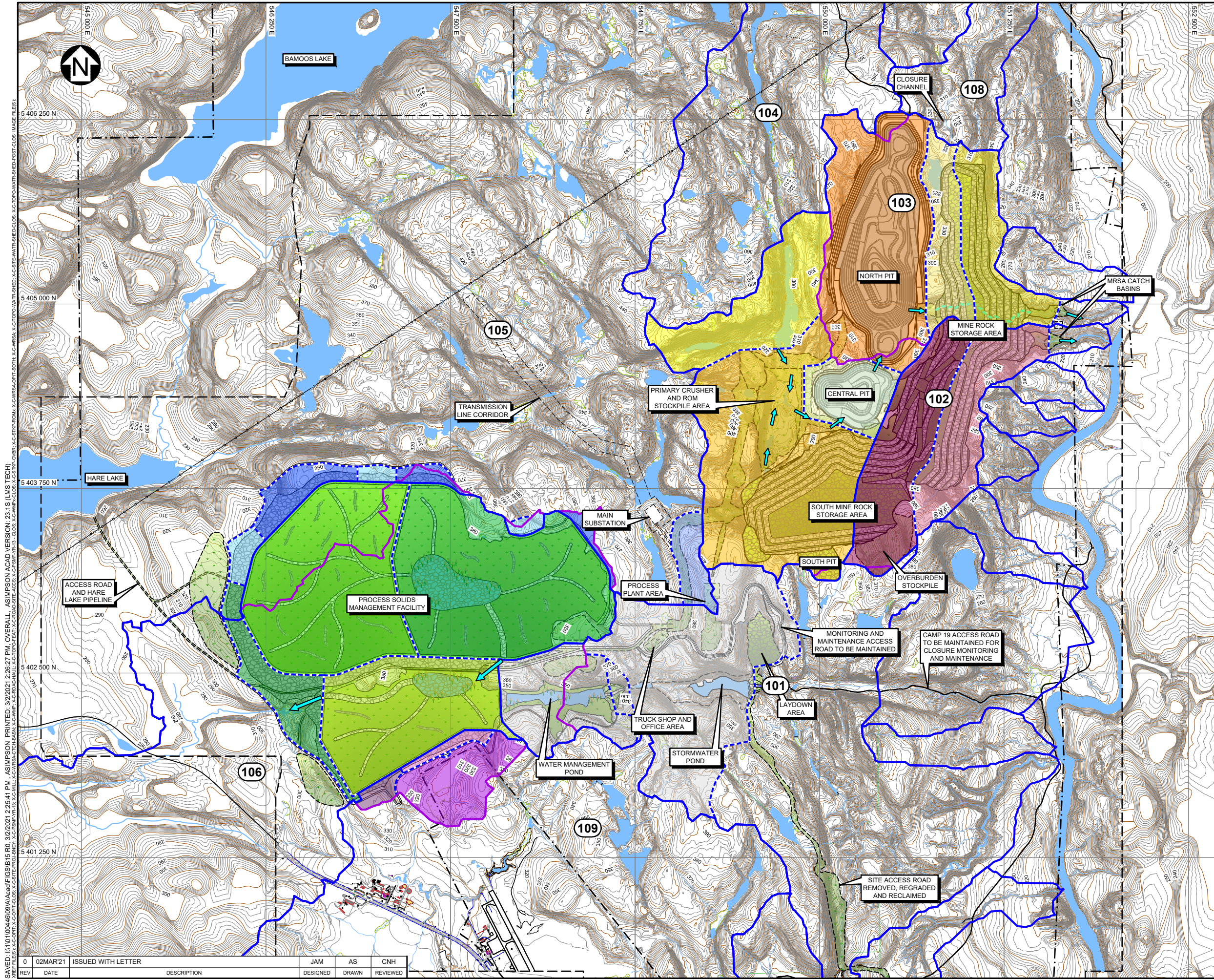
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**NOTES:**

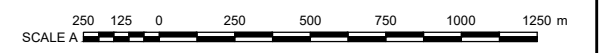
- VALUES PROVIDED REPRESENT THE 50<sup>TH</sup> PERCENTILE PRECIPITATION CONDITIONS.
- CELLS HIGHLIGHTED IN GREY REPRESENT WATER THAT IS NOT COLLECTED AS PART OF THE SITE WATER MANAGEMENT STRATEGY.

REV	DATE	ISSUED WITH LETTER	NBSJ-00916	MCP	JAM
		DESCRIPTION		PREP'D	REV'D
0	02MAR21	ISSUED WITH LETTER	NBSJ-00916		





- NOTES:**
- COORDINATE GRID IS UTM (NAD27) ZONE 16 N AND IS IN METRES.
  - CONTOUR INTERVAL IS 2 METRES. DETAILED TOPOGRAPHY BASED ON NORDMIN PROJECT BASEMAP (JULY 4, 2011). REGIONAL CONTOURS ARE BASED ON LAND INFORMATION ONTARIO (OCTOBER, 2011).
  - ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
  - PRE DEVELOPMENT WATERSHED PROVIDED BY STANTEC (NOV 2, 2020).



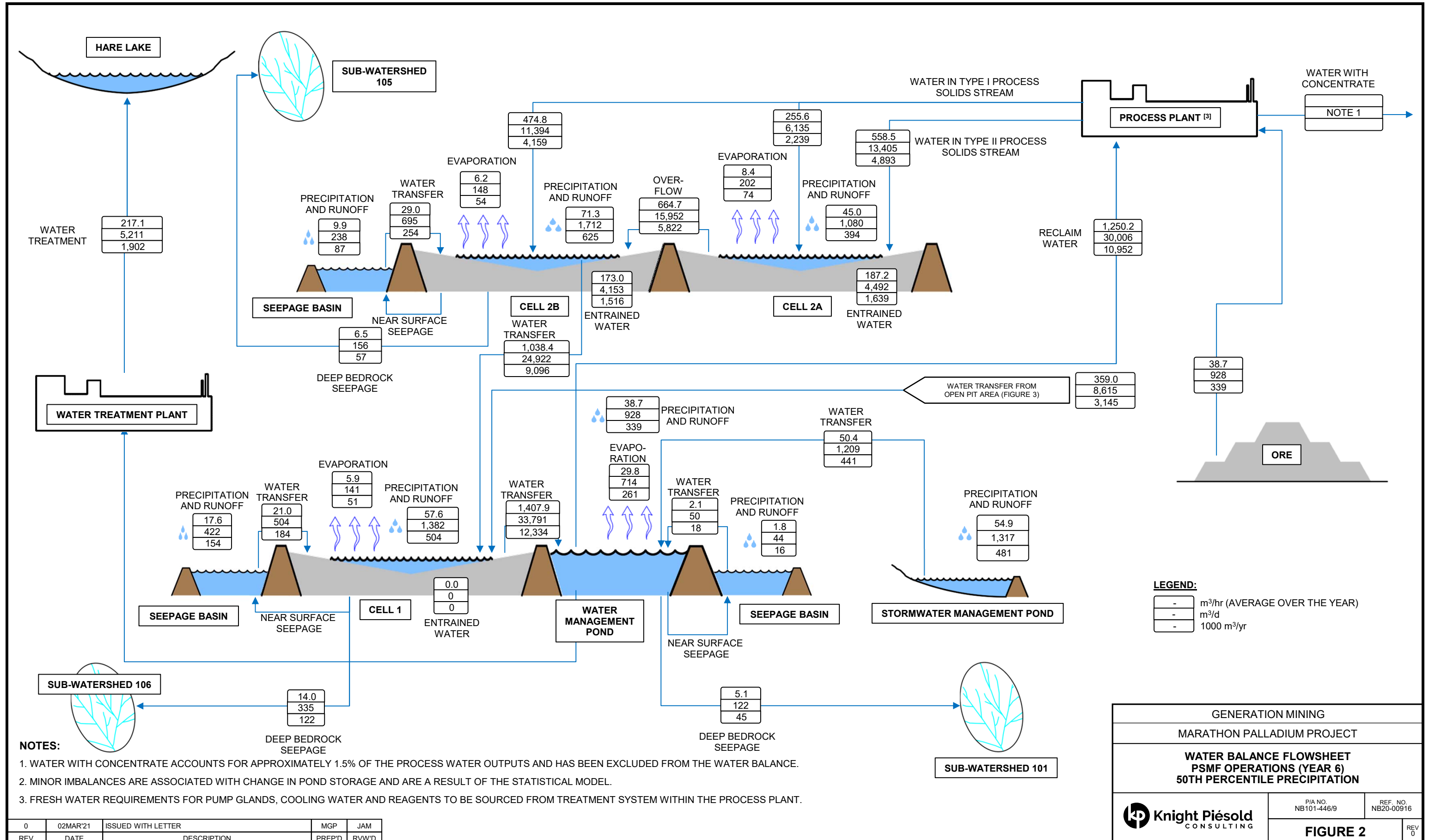
**GENERATION MINING**  
**MARATHON PALLADIUM PROJECT**  
**CONCEPTUAL CLOSURE WATERSHED**

REV	DATE	DESCRIPTION	JAM	AS	CNH
			DESIGNED	DRAWN	REVIEWED
0	02MAR'21	ISSUED WITH LETTER			

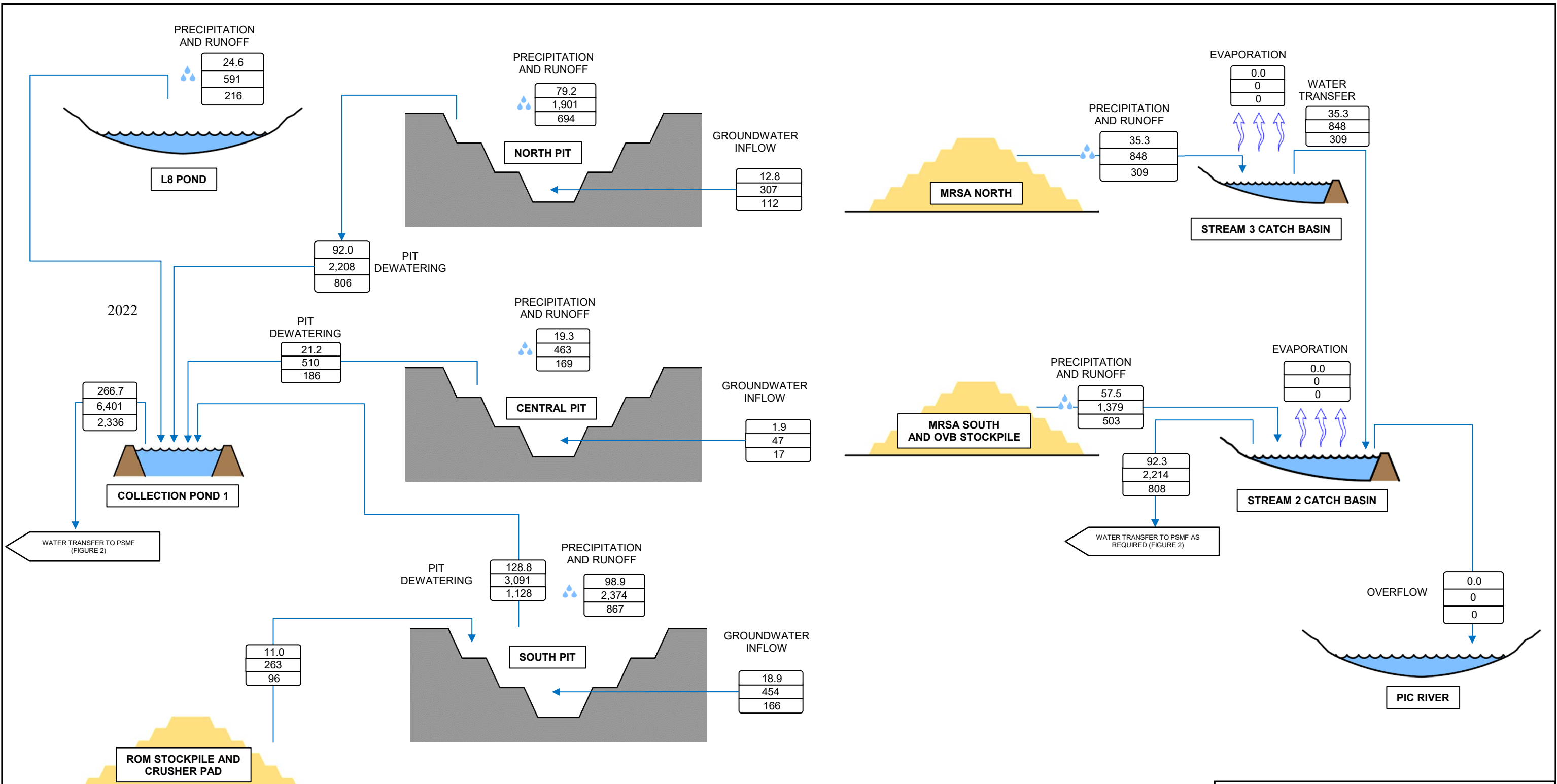
**Knight Piésold CONSULTING**

P/A NO. NB101-446/9	REF NO. NB20-00916
<b>FIGURE 1</b>	
	REV 0

SAVED: I:\11004609\A\ad\FIGS\B15 RD\_312\2021 2:25:41 PM\_ASIMPSON PRINTED: 3/2/2021 2:26:27 PM\_OVERALL\_ASIMPSON ACAD VERSION: 23.1S (LMS TECH)  
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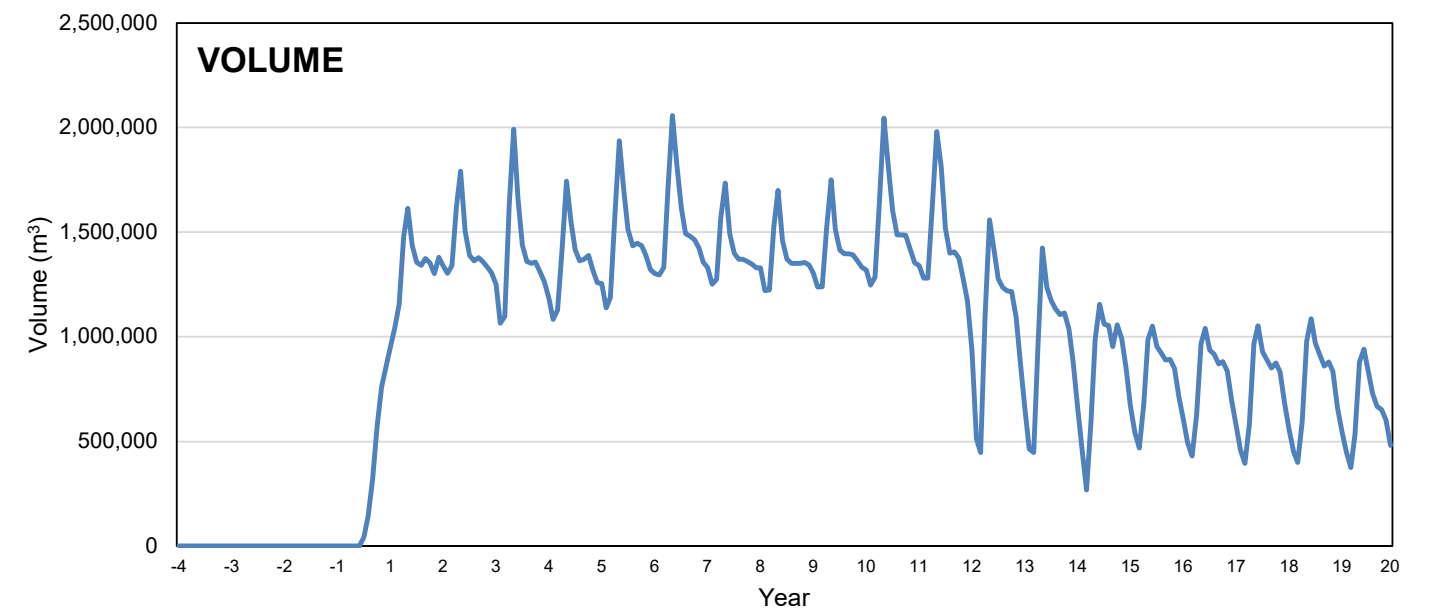
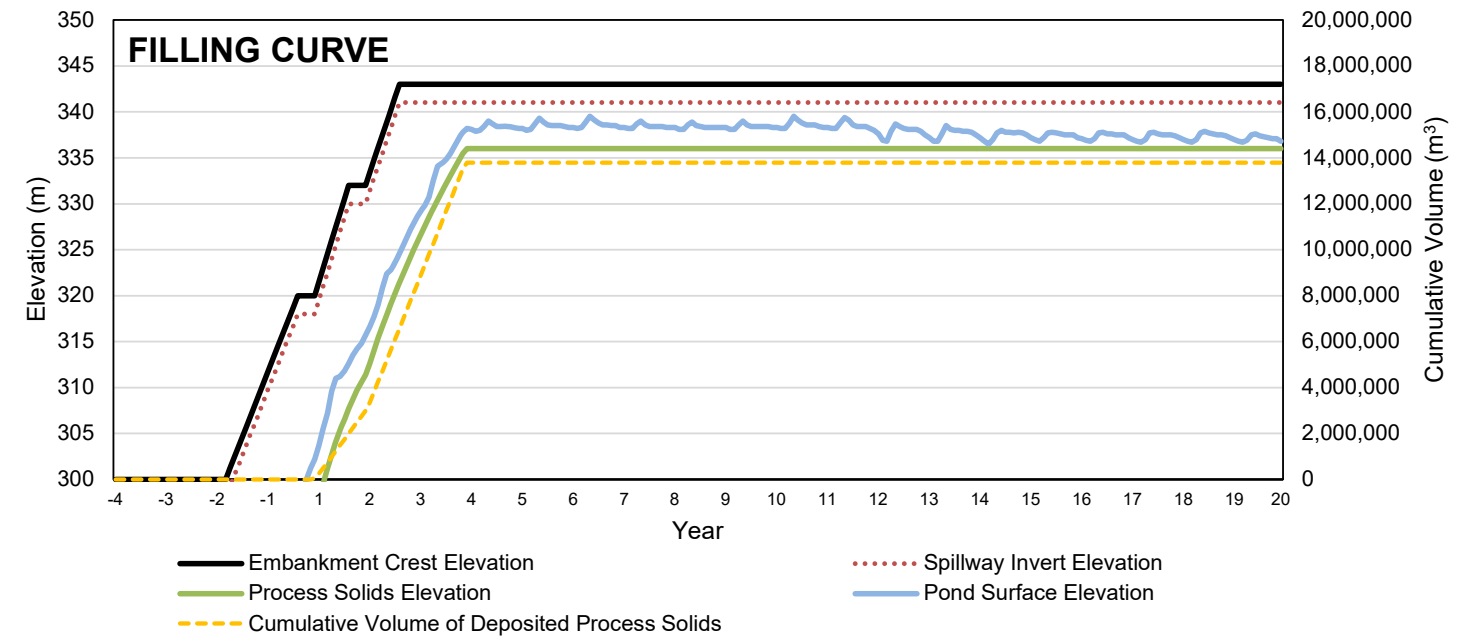
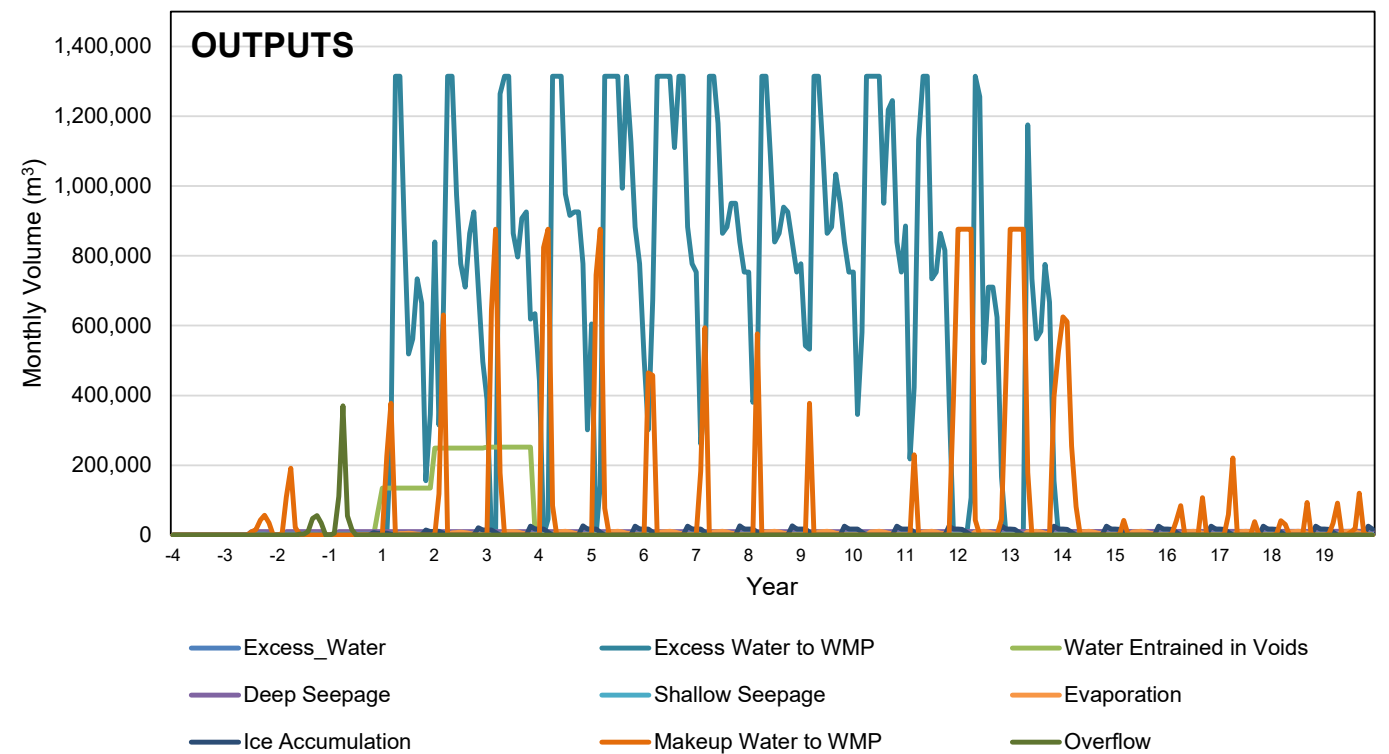
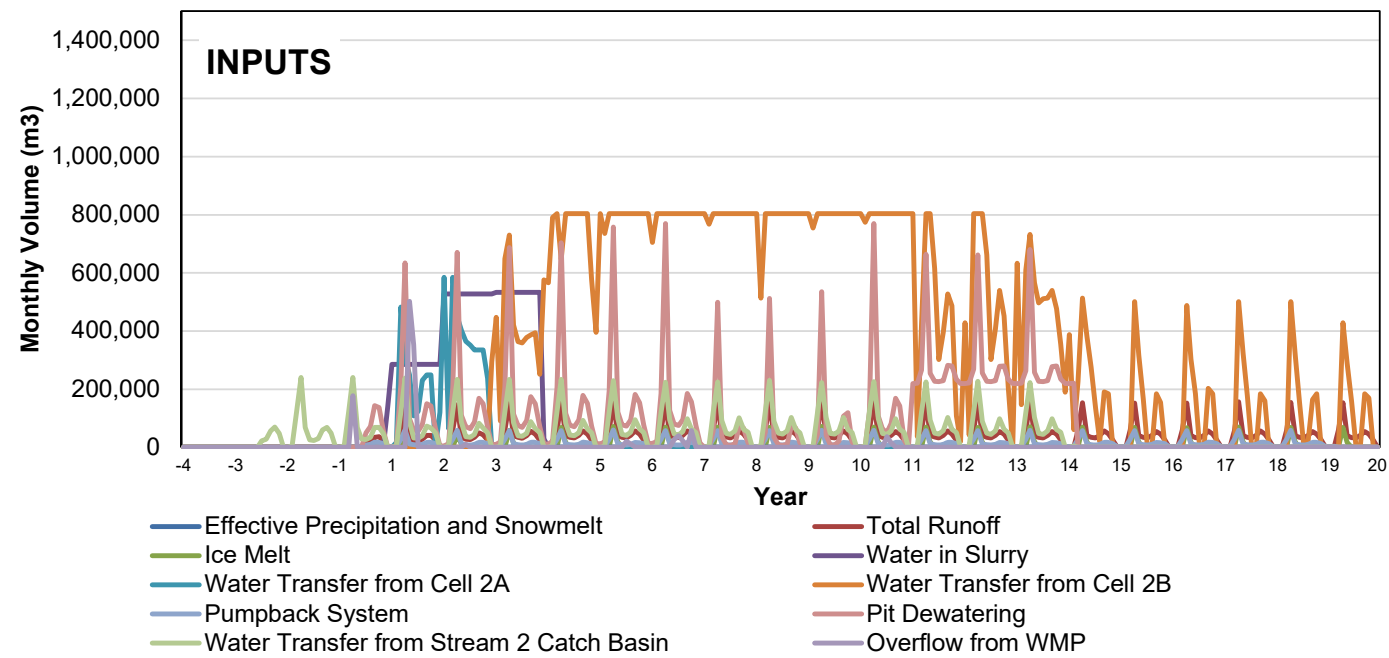


**NOTES:**  
 1. MINOR IMBALANCES ARE ASSOCIATED WITH CHANGE IN POND STORAGE AND ARE A RESULT OF THE STATISTICAL MODEL.

**LEGEND:**  
 - m³/hr (AVERAGE OVER THE YEAR)  
 - m³/d  
 - 1,000 m³/yr

GENERATION MINING	
MARATHON PALLADIUM PROJECT	
<b>WATER BALANCE FLOWSHEET OPEN PIT AND MRSA OPERATIONS (YEAR 6) 50TH PERCENTILE PRECIPITATION</b>	
	P/A NO. NB101-446/9
	REF. NO. NB20-00916
<b>FIGURE 3</b>	
	REV 0

0	02MAR'21	ISSUED WITH LETTER	MGP	JAM
REV	DATE	DESCRIPTION	PREP'D	RVW'D

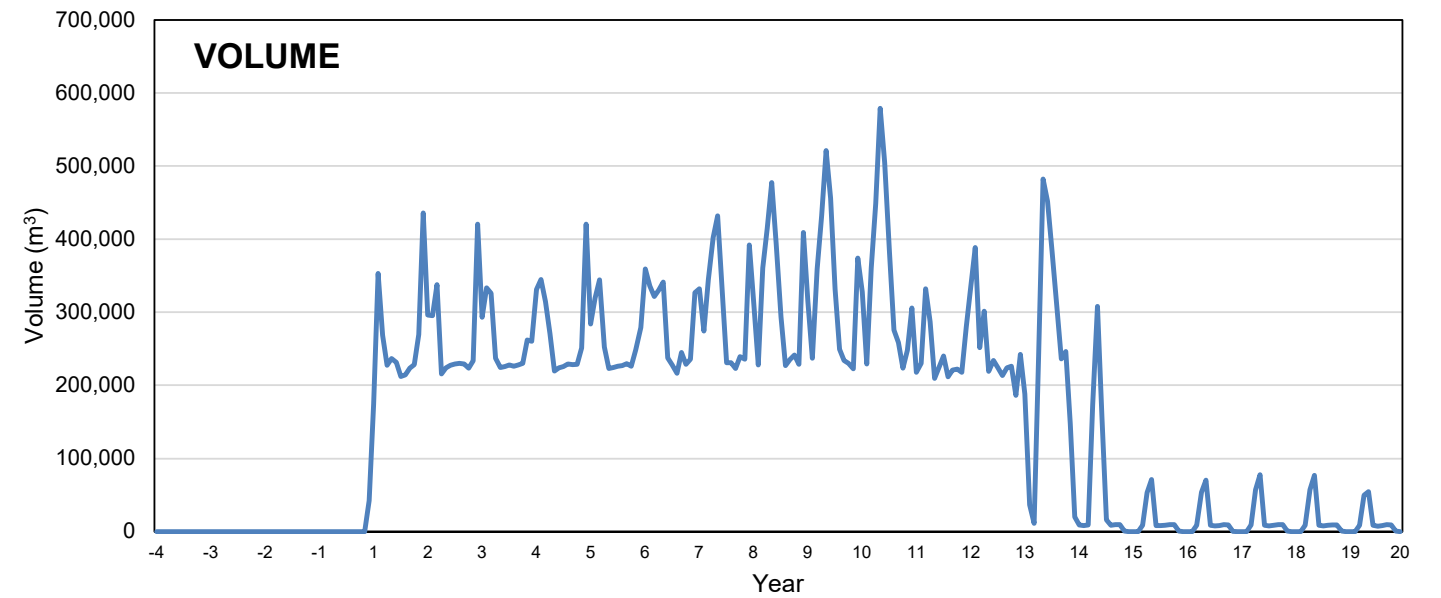
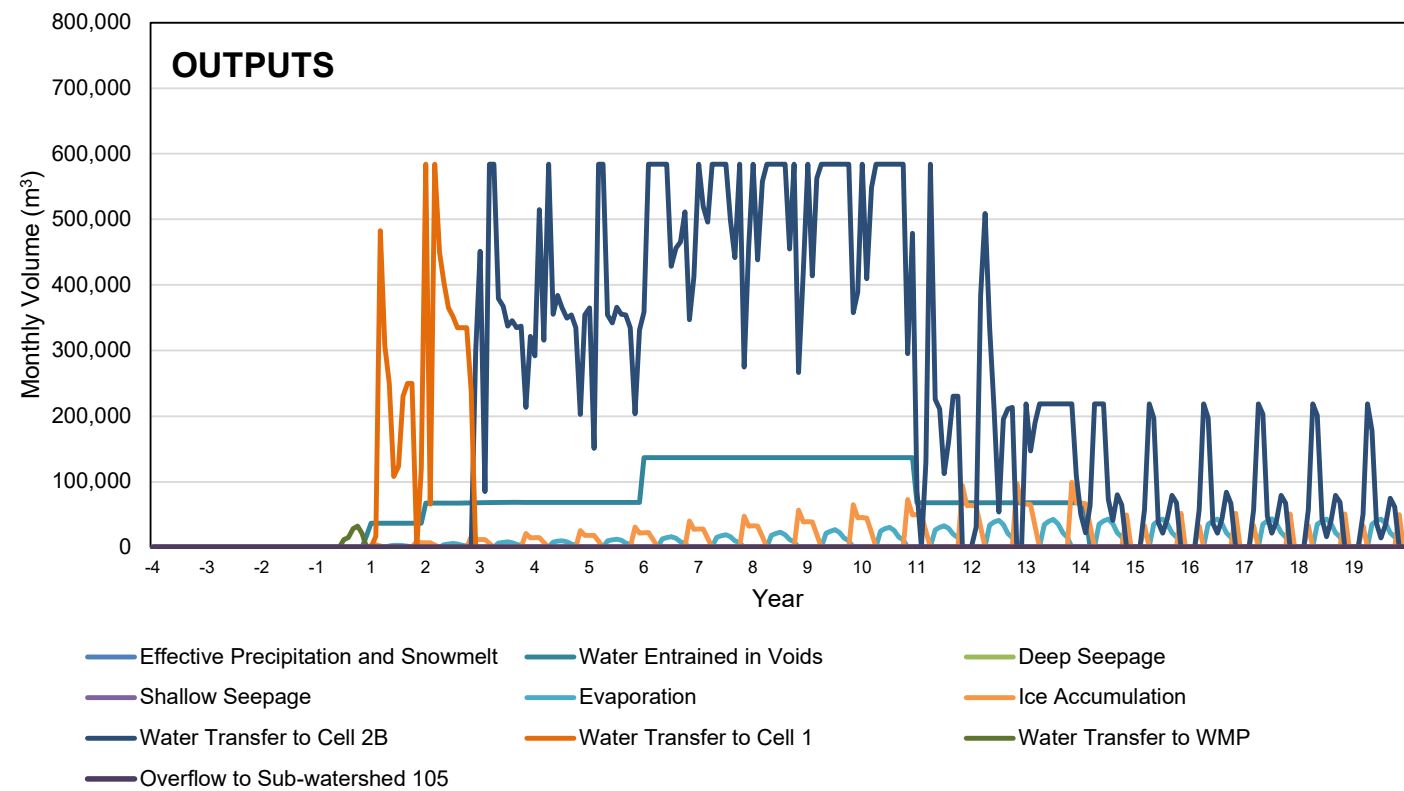
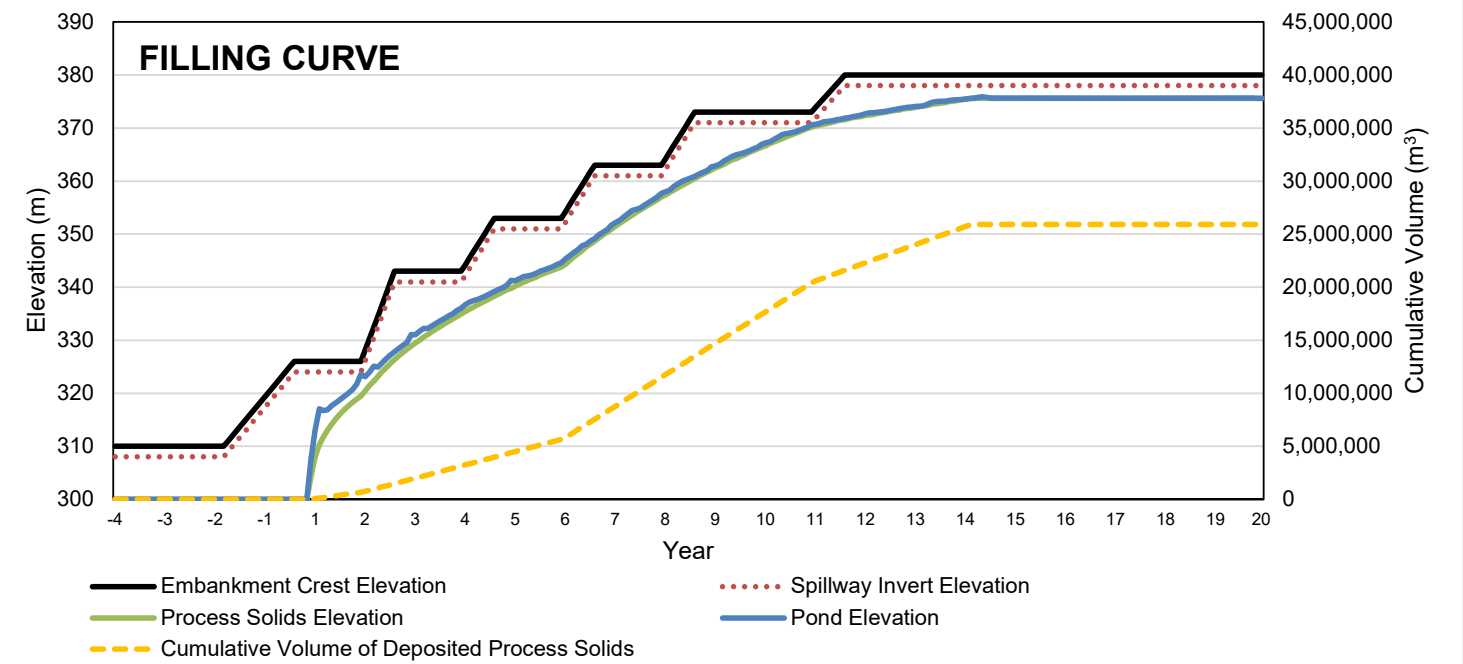
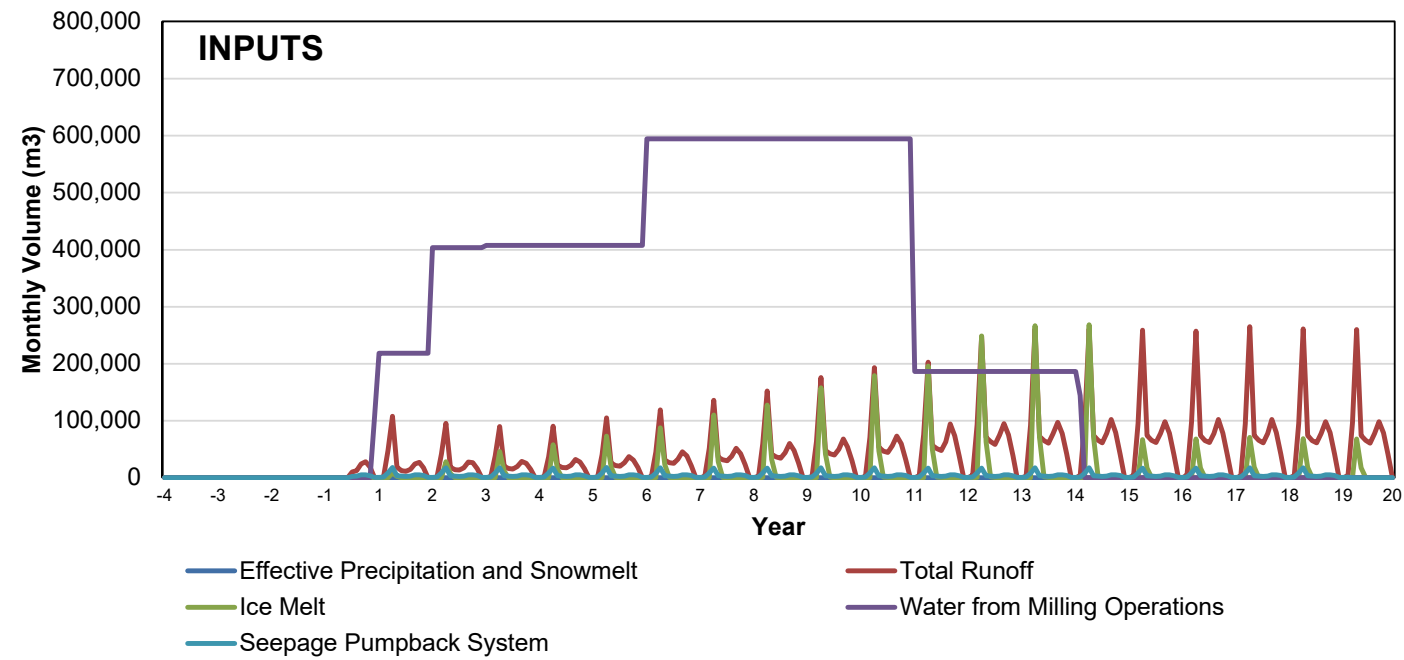


**NOTES:**

1. VALUES PROVIDED REPRESENT 50TH PERCENTILE PRECIPITATION CONDITIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	02MAR'21	ISSUED WITH LETTER	MGP	JAM

GENERATION MINING		
MARATHON PALLADIUM PROJECT		
PROCESS SOLIDS MANAGEMENT FACILITY CELL 1 SUMMARY PLOTS 50TH PERCENTILE PRECIPITATION		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 4</b>	
		REV 0

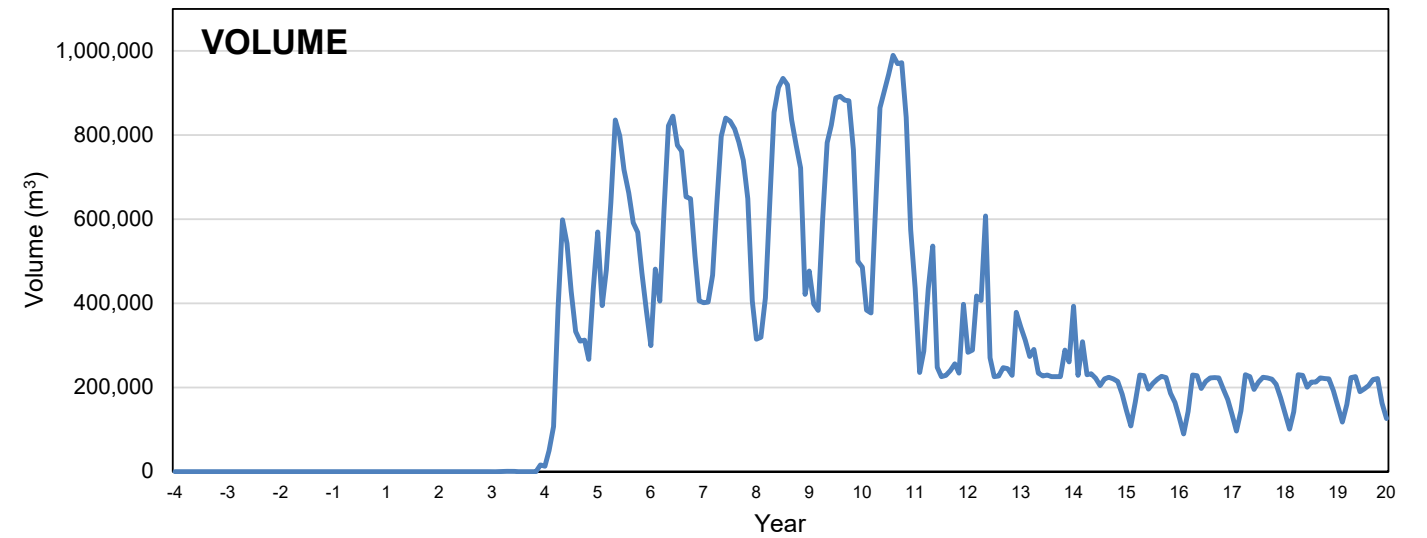
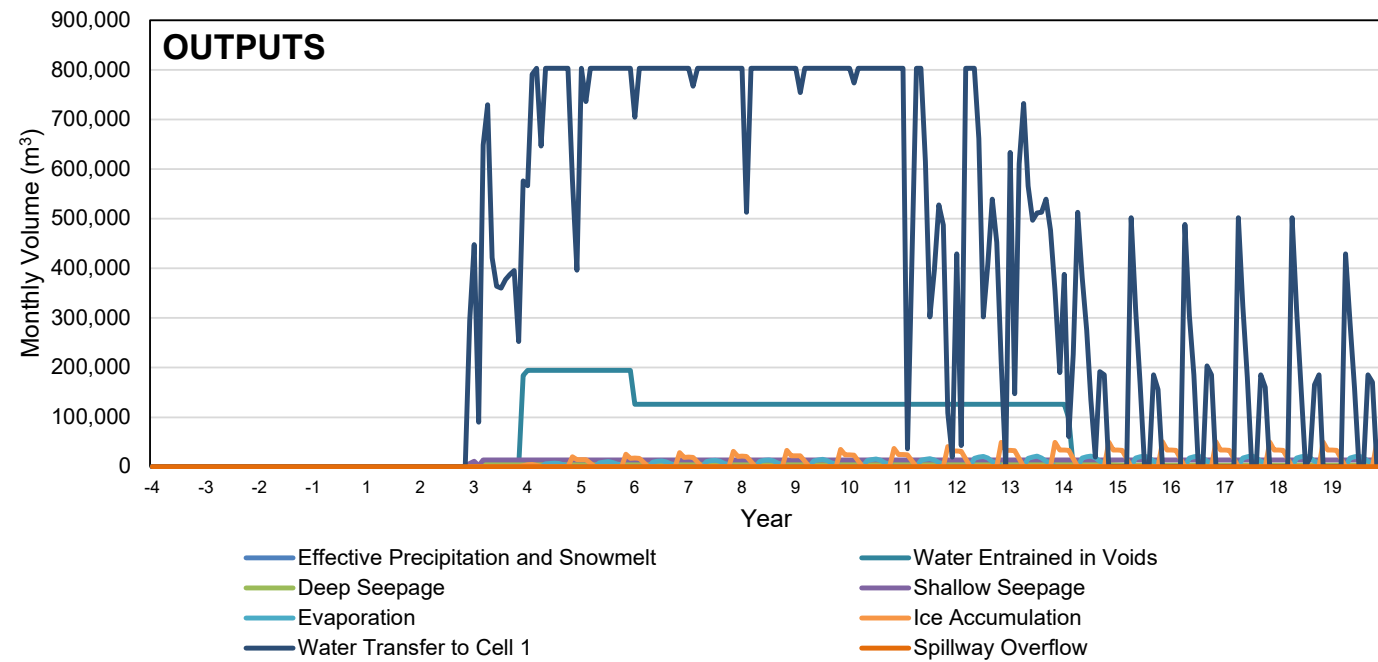
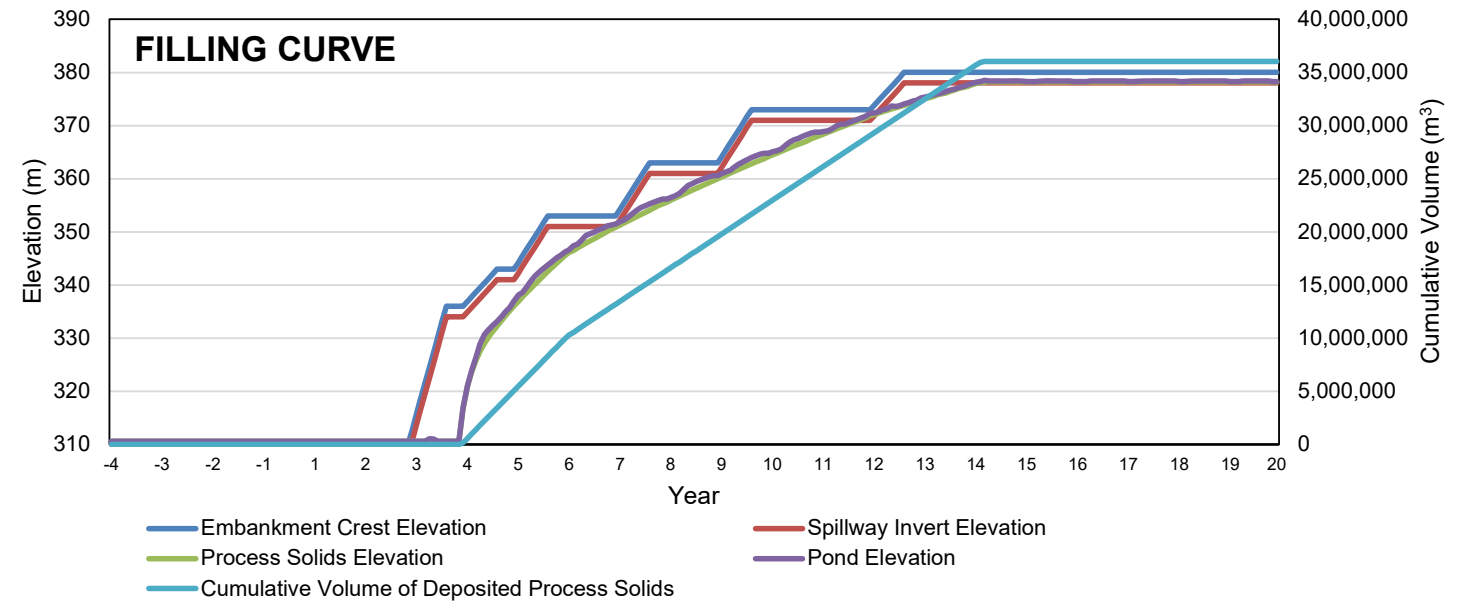
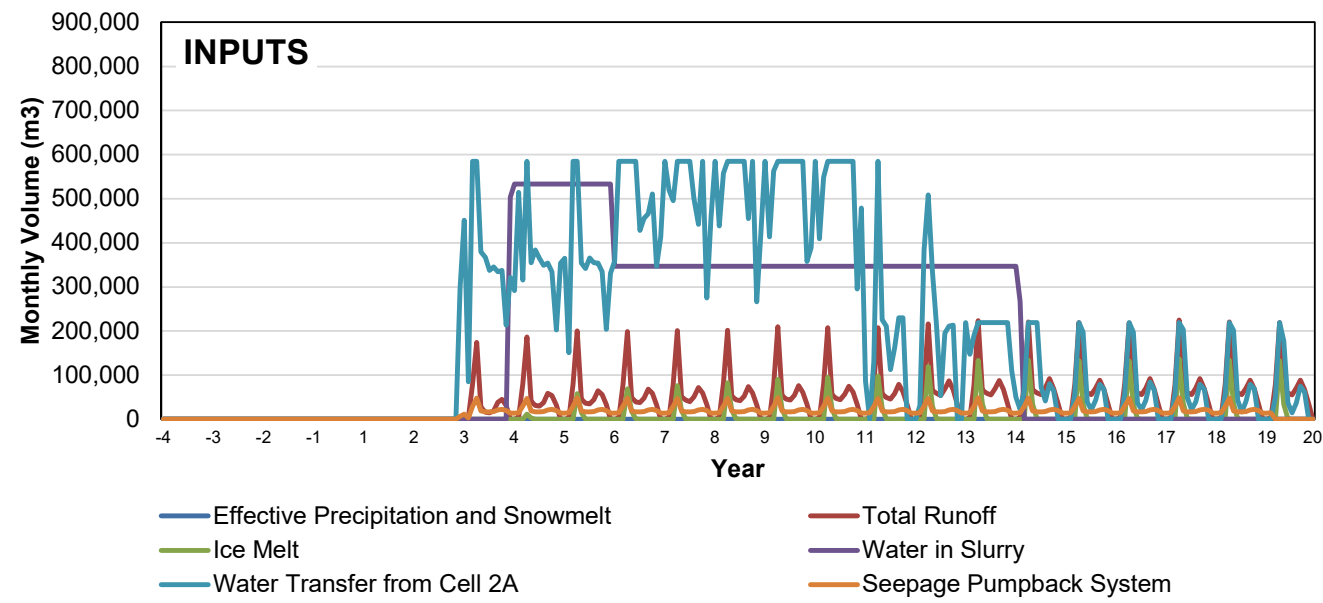


**NOTES:**

1. VALUES PROVIDED REPRESENT 50TH PERCENTILE PRECIPITATION CONDITIONS.

REV	DATE	DESCRIPTION	PREP'D	RW'D
0	02MAR'21	ISSUED WITH LETTER	MGP	JAM

GENERATION MINING		
MARATHON PALLADIUM PROJECT		
PROCESS SOLIDS MANAGEMENT FACILITY CELL 2A SUMMARY PLOTS 50TH PERCENTILE PRECIPITATION		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 5</b>	
		REV 0

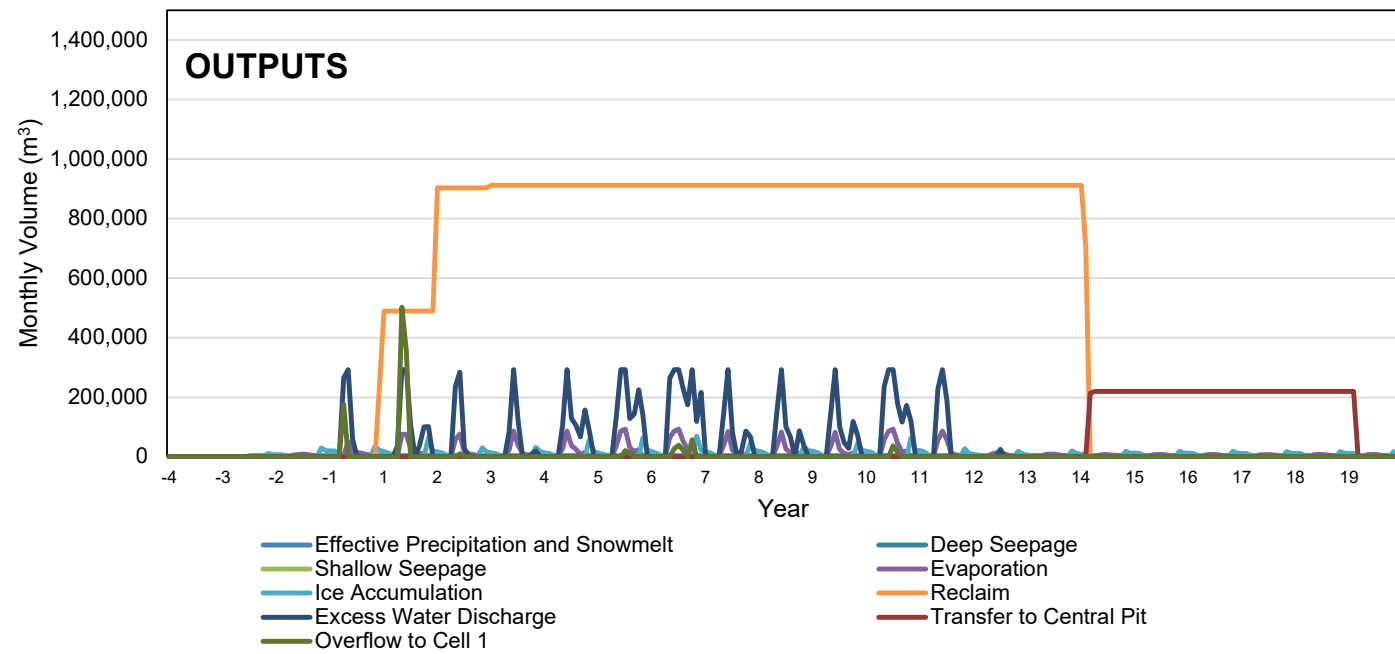
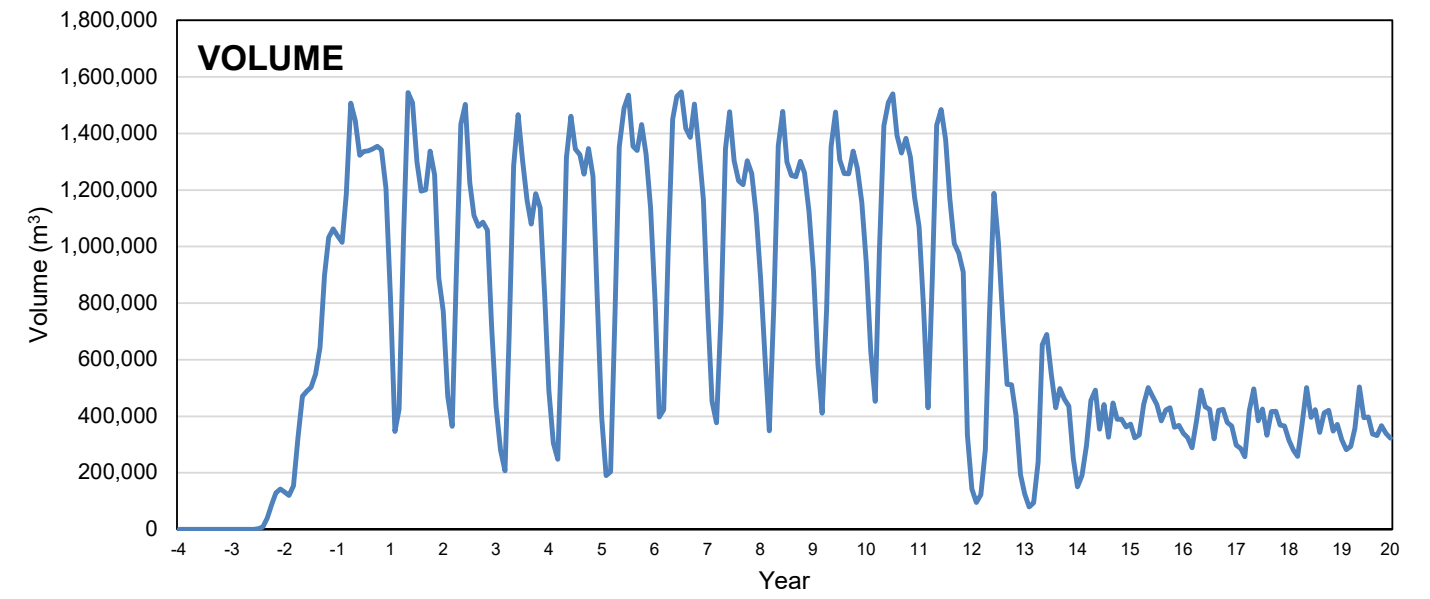
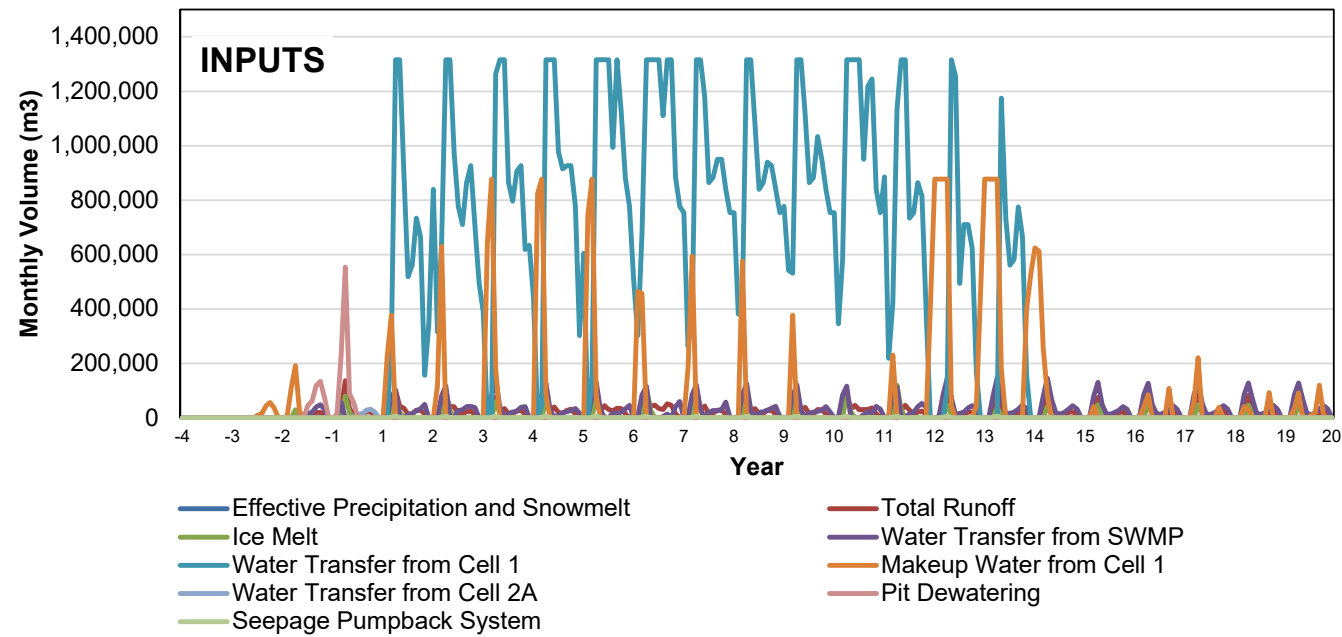


**NOTES:**

1. VALUES PROVIDED REPRESENT 50TH PERCENTILE PRECIPITATION CONDITIONS.

REV	DATE	DESCRIPTION	PREP'D	RW'D
0	02MAR'21	ISSUED WITH LETTER	MGP	JAM

GENERATION MINING		
MARATHON PALLADIUM PROJECT		
PROCESS SOLIDS MANAGEMENT FACILITY CELL 2B SUMMARY PLOTS 50TH PERCENTILE PRECIPITATION		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 6</b>	
		REV 0

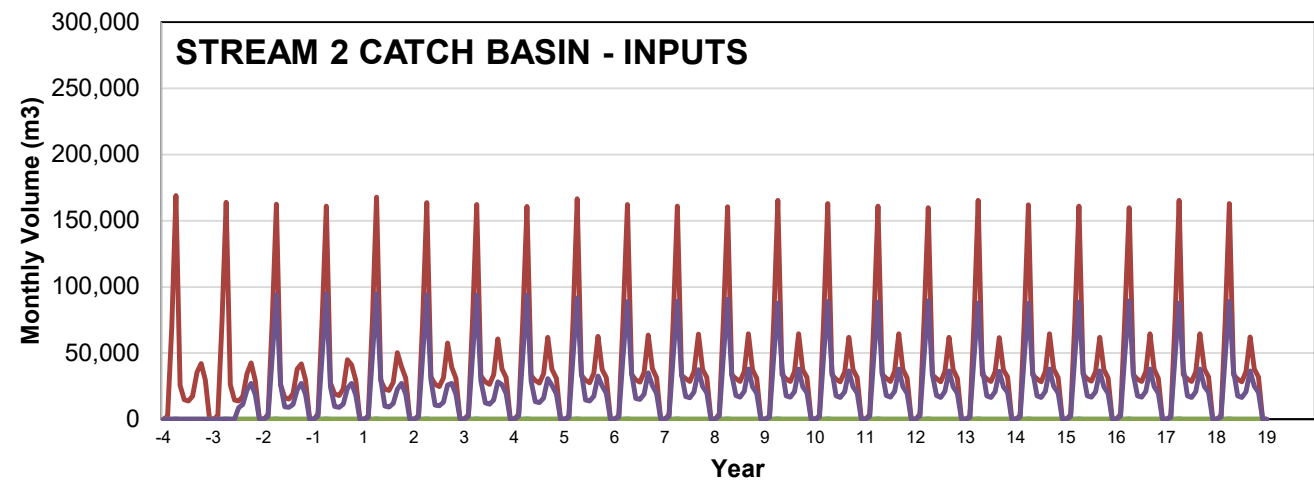


**NOTES:**

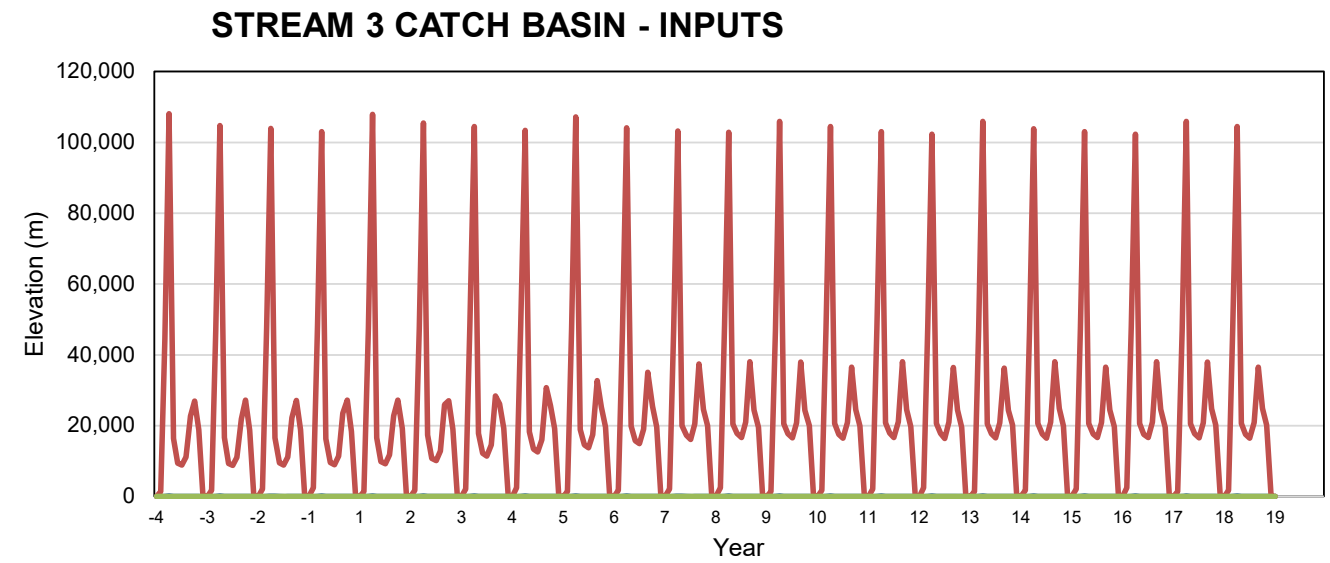
1. VALUES PROVIDED REPRESENT 50TH PERCENTILE PRECIPITATION CONDITIONS.

0	02MAR'21	ISSUED WITH LETTER	MGP	JAM
REV	DATE	DESCRIPTION	PREP'D	RW'D

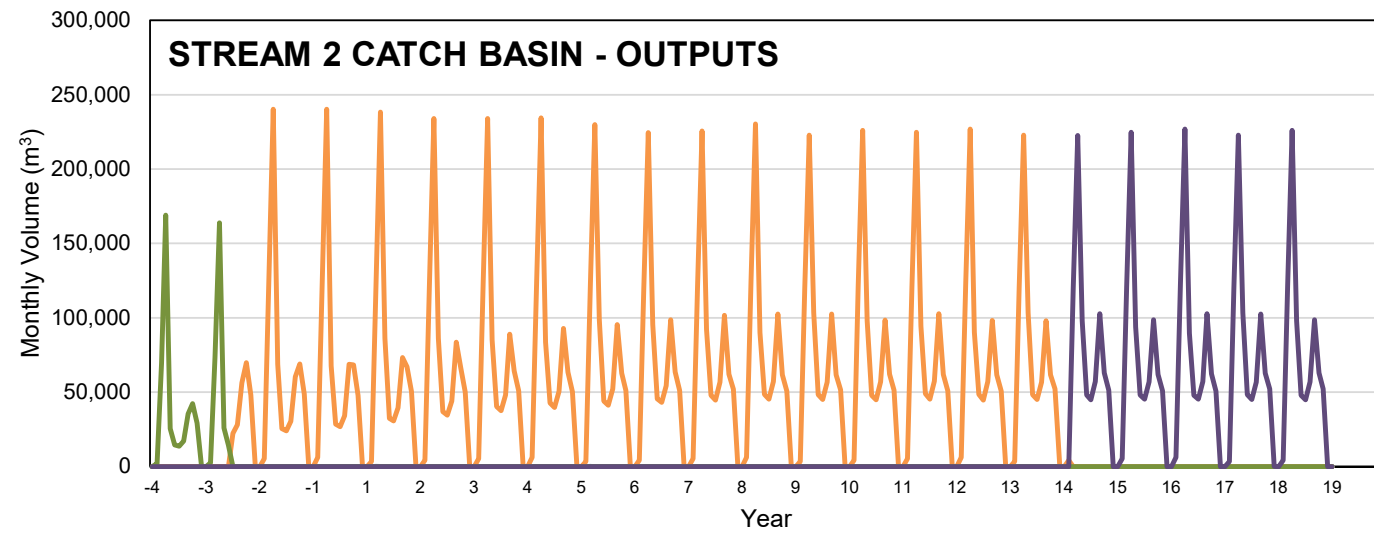
GENERATION MINING		
MARATHON PALLADIUM PROJECT		
PROCESS SOLIDS MANAGEMENT FACILITY WATER MANAGEMENT POND SUMMARY PLOTS 50TH PERCENTILE PRECIPITATION		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 7</b>	
		REV 0



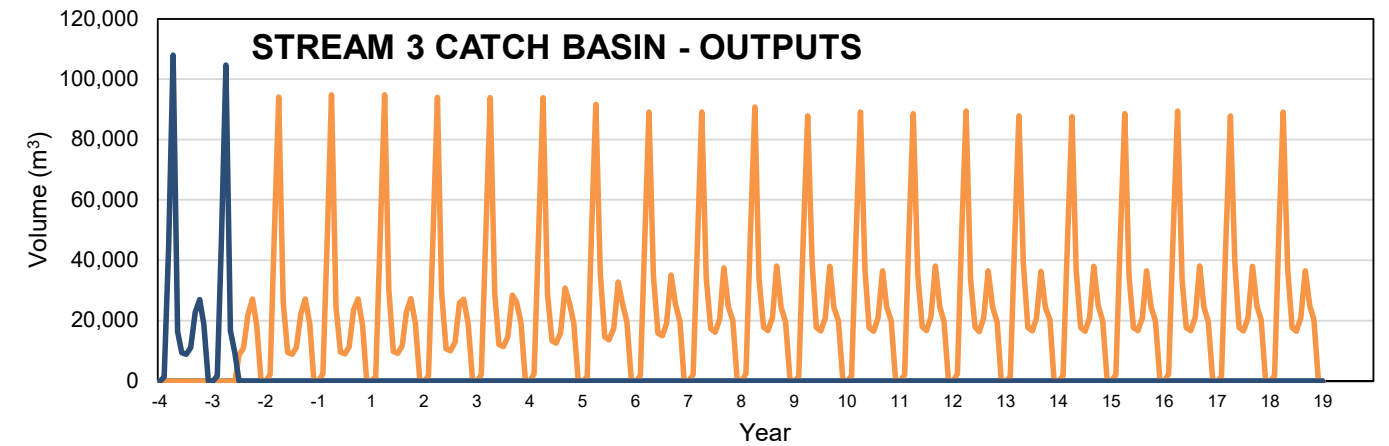
— Effective Precipitation and Snowmelt — Total Runoff  
 — Ice Melt — Water Transfer from Stream 3 Catch Basin



— Effective Precipitation and Snowmelt — Total Runoff — Ice Melt



— Effective Precipitation and Snowmelt — Deep Seepage  
 — Shallow Seepage — Evaporation  
 — Ice Accumulation — Water Transfer to Cell 1  
 — Spillway Overflow — Water Transfer to Central Pit



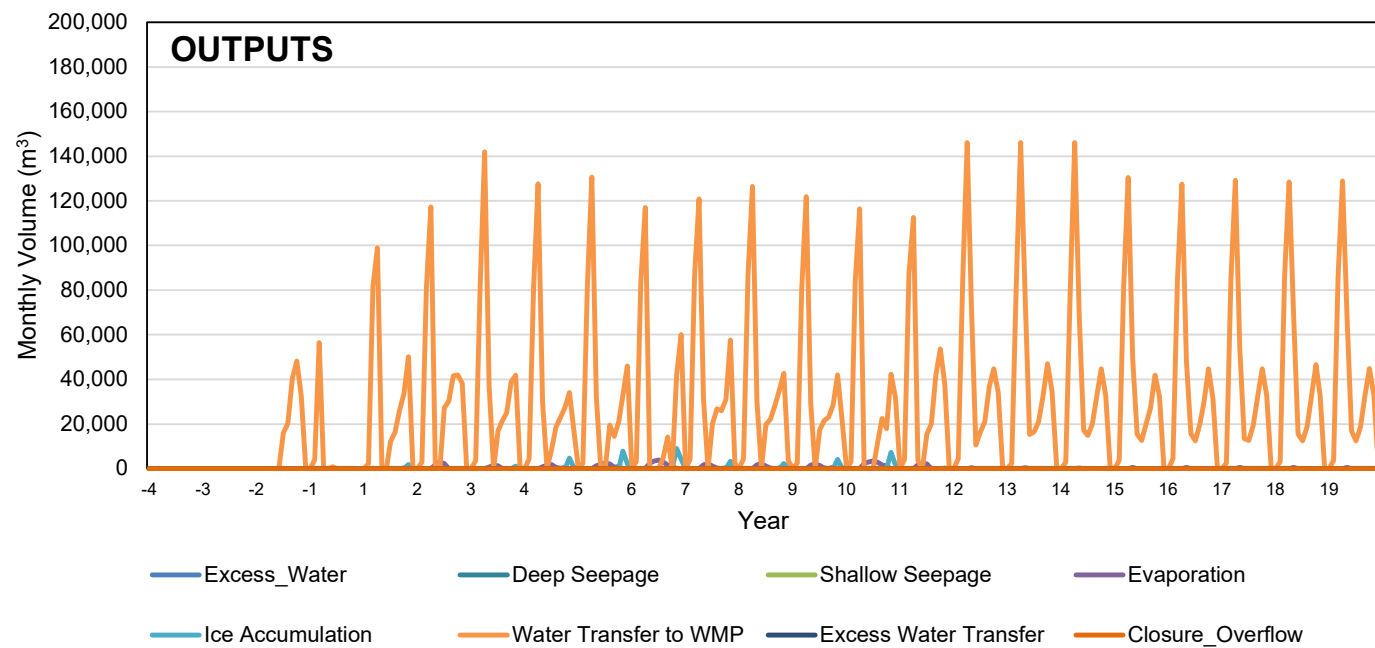
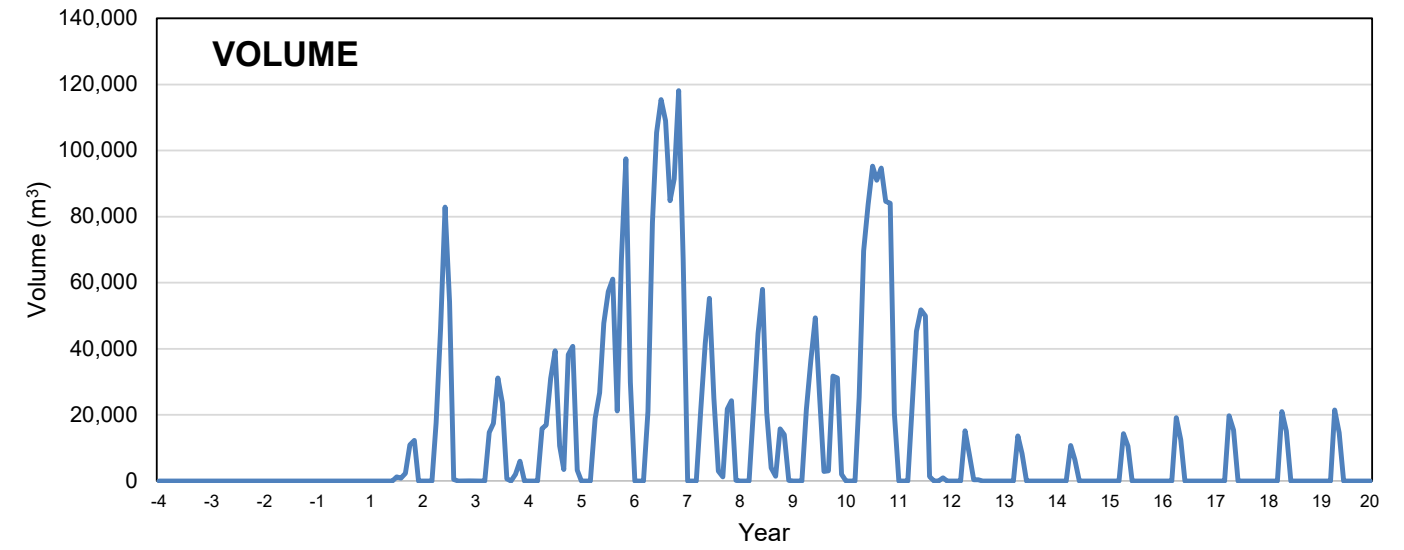
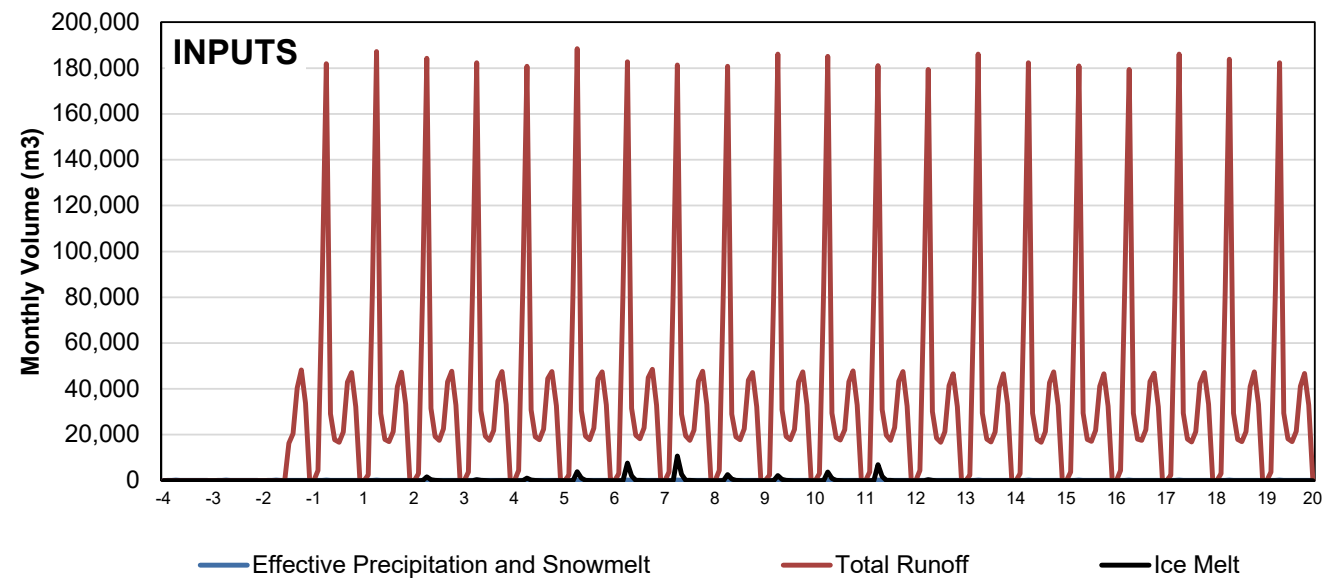
— Effective Precipitation and Snowmelt — Deep Seepage  
 — Shallow Seepage — Evaporation  
 — Ice Accumulation — Water Transfer to Stream 2 Catch Basin  
 — Spillway Overflow

**NOTES:**

1. VALUES PROVIDED REPRESENT 50TH PERCENTILE PRECIPITATION CONDITIONS.

0	02MAR'21	ISSUED WITH LETTER	MGP	JAM
REV	DATE	DESCRIPTION	PREP'D	RW'D

GENERATION MINING		
MARATHON PALLADIUM PROJECT		
MINE ROCK STORAGE AREA CATCH BASINS SUMMARY PLOTS 50TH PERCENTILE PRECIPITATION		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 8</b>	
		REV 0

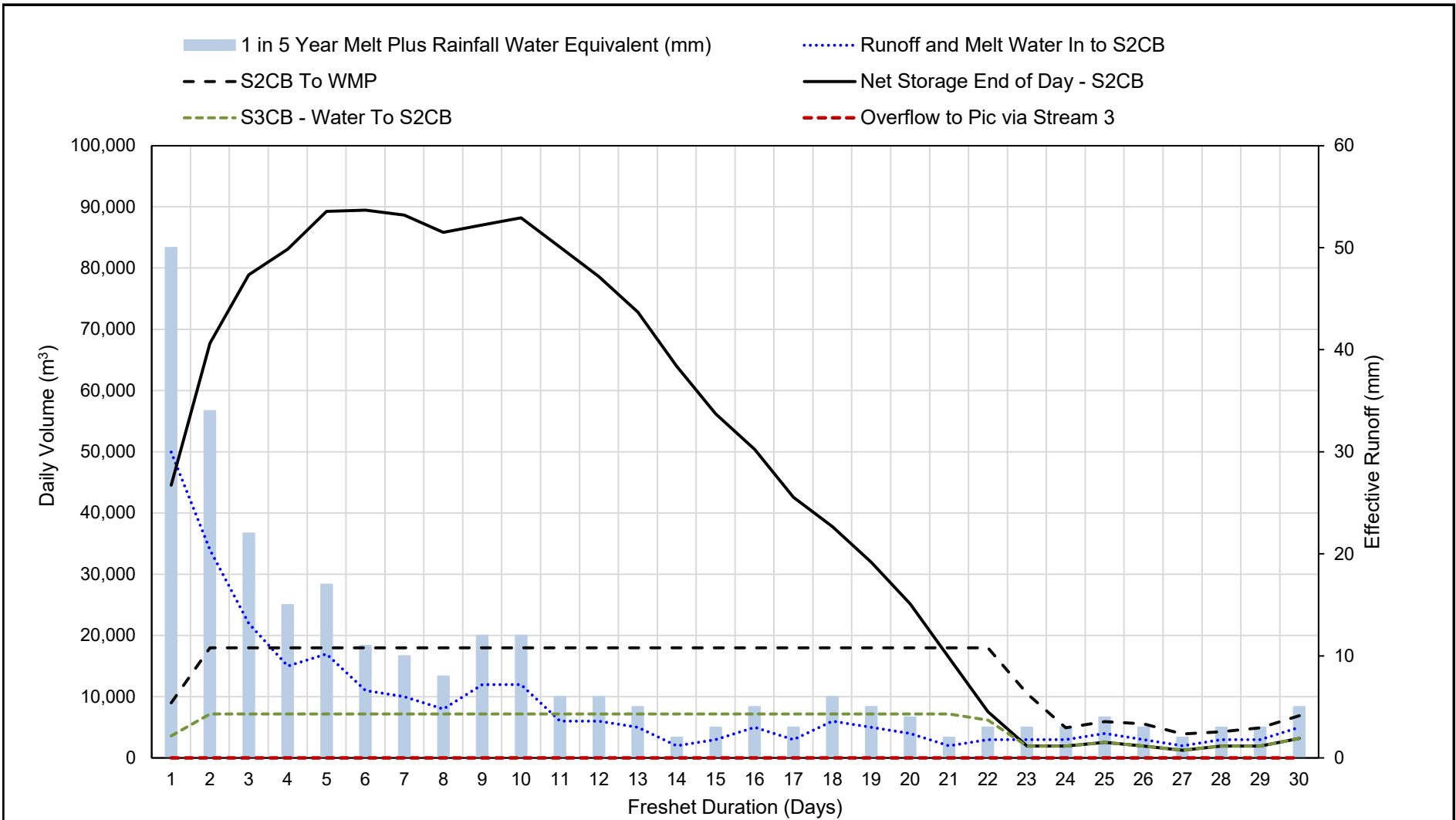


**NOTES:**

1. VALUES PROVIDED REPRESENT 50TH PERCENTILE PRECIPITATION CONDITIONS.


REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	02MAR'21	ISSUED WITH LETTER	MGP	JAM

GENERATION MINING		
MARATHON PALLADIUM PROJECT		
STORMWATER MANAGEMENT POND SUMMARY PLOTS 50TH PERCENTILE PRECIPITATION		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 9</b>	



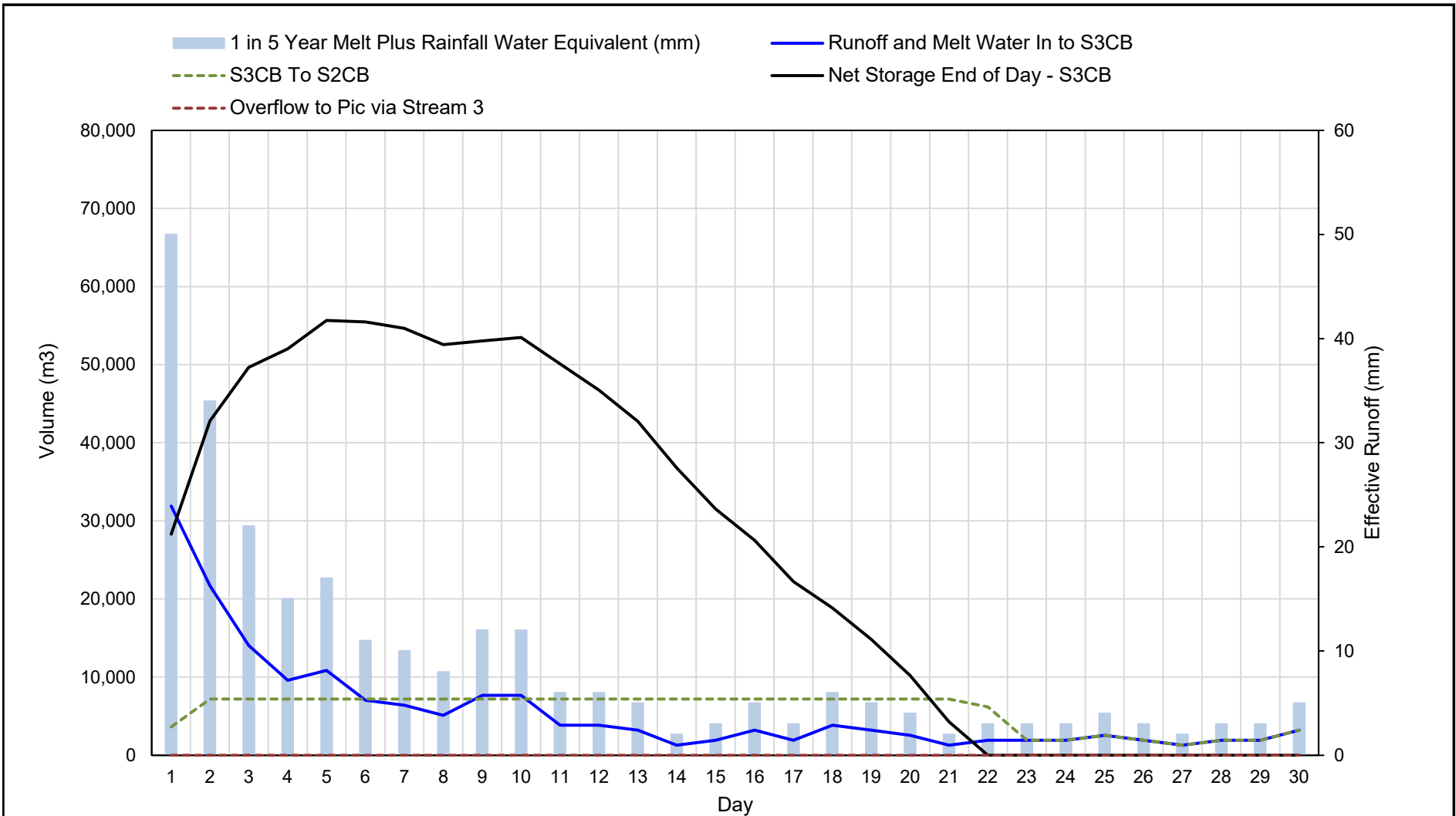
**NOTES:**

1. SNOWMELT HAS BEEN ESTIMATED BASED ON DEGREE DAY METHOD AND HISTORICAL CLIMATE RECORDS.
2. PUMPS ASSUMED TO START 12 HOURS AFTER ONSET OF FRESHET.
3. PUMPING RATE SELECTED AS 750 m<sup>3</sup>/hr IN ORDER TO MAINTAIN A MAXIMUM POND VOLUME UNDER 97,500 m<sup>3</sup>

GENERATION MINING	
MARATHON PALLADIUM PROJECT	
<b>STREAM 2 CATCH BASIN 1 IN 5 YEAR FRESHET BALANCE</b>	
	P/A NO. NB101-446/9
<b>FIGURE 10</b>	
REV 0	REF. NO. NB21-00916


0	02MAR'21	ISSUED WITH LETTER	BA	JAM
REV	DATE	DESCRIPTION	PREP'D	RVWD



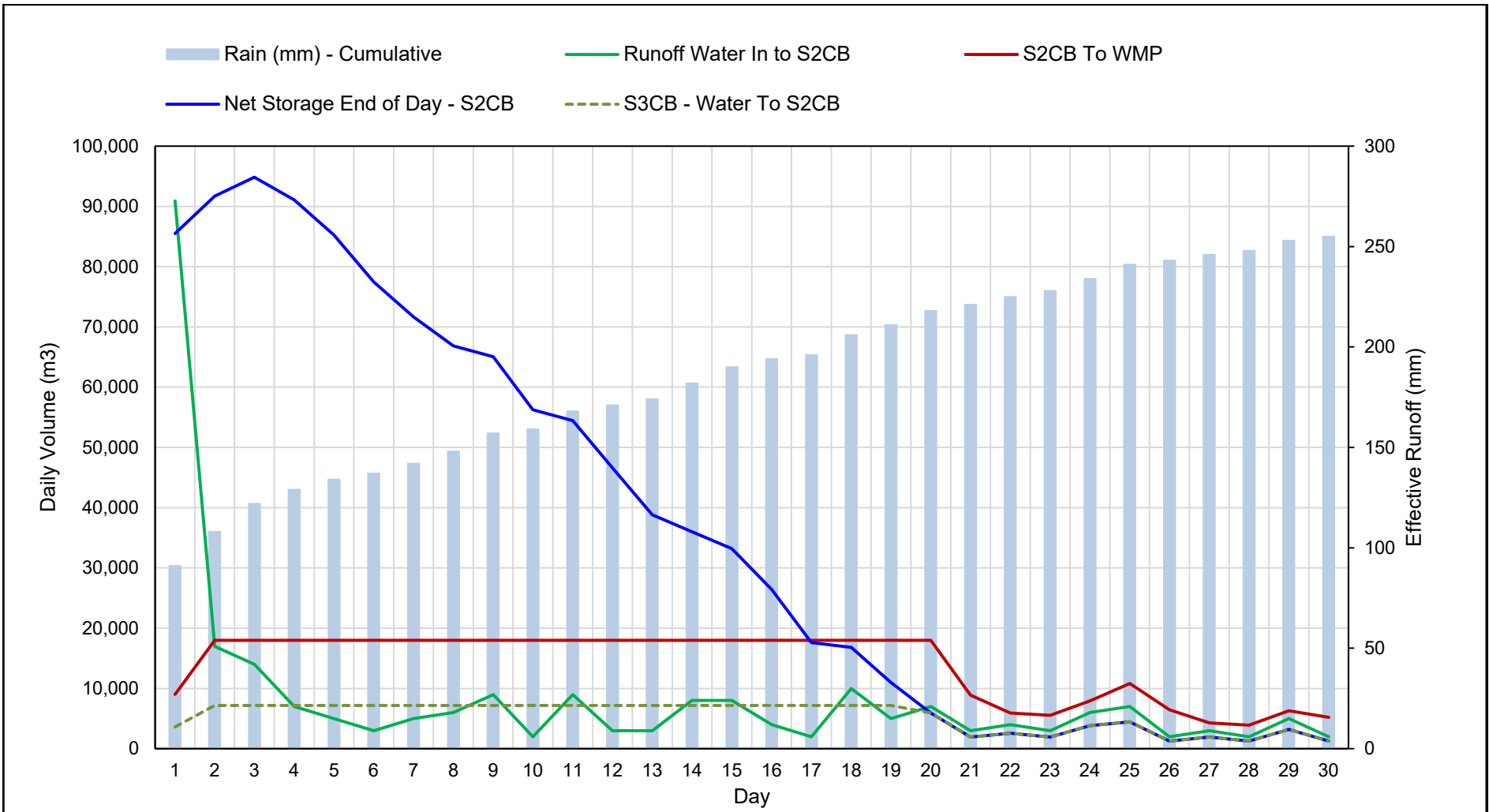


**NOTES:**

1. SNOWMELT HAS BEEN ESTIMATED BASED ON DEGREE DAY METHOD AND HISTORICAL CLIMATE RECORDS.
2. PUMPS ASSUMED TO START 12 HOURS AFTER ONSET OF FRESHET.
3. PUMPING RATE SELECTED AS 300 m<sup>3</sup>/hr IN ORDER TO MAINTAIN A MAXIMUM POND VOLUME UNDER 62,000 m<sup>3</sup>


GENERATION MINING	
MARATHON PALLADIUM PROJECT	
<b>STREAM 3 CATCH BASIN 1 IN 5 YEAR FRESHET BALANCE</b>	
	P/A NO. NB101-446/9
<b>FIGURE 11</b>	
REF. NO. NB21-00916	REV 0

REV	DATE	DESCRIPTION	PREP'D	RVWD
0	02MAR'21	ISSUED WITH LETTER	BA	JAM

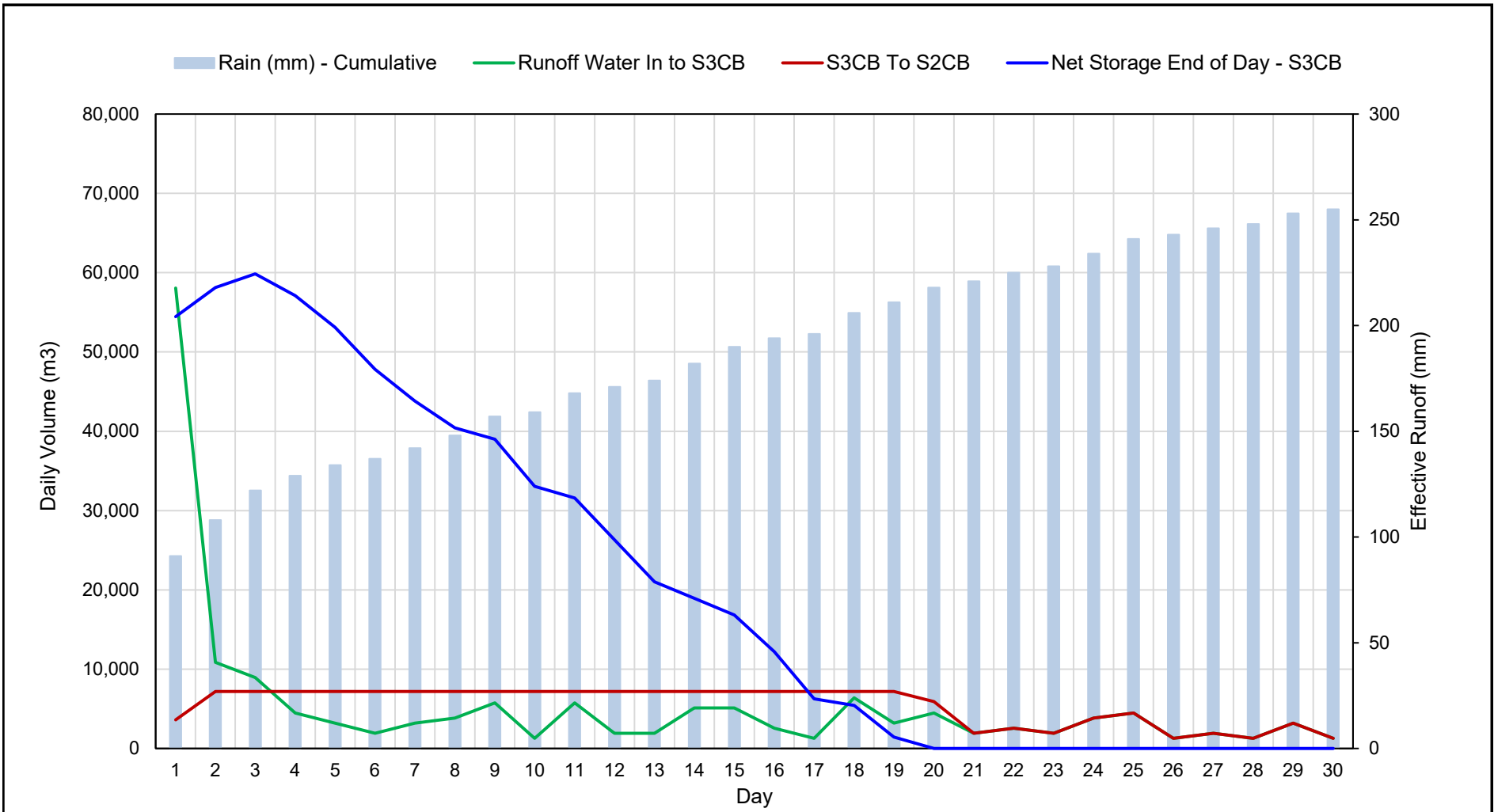


**NOTES:**

1. PEAK RAINFALL HAS BEEN ESTIMATED BASED HISTORICAL CLIMATE RECORDS.
2. DAILY RAINFALL HYDROGRAPH HAS BEEN DEVELOPED ASSUMING A PEAK 1 DAY STORM, DEVELOPING INTO AN A PEAK 2 DAY EVENT, INTO 3 DAY EVENT AND ONWARDS.
3. PUMPS ASSUMED TO START 12 HOURS AFTER ONSET OF STORM.
4. PUMPING RATE SELECTED AS 750 m3/hr IN ORDER TO MAINTAIN A MAXIMUM POND VOLUME UNDER 97,500 m3


GENERATION MINING							
MARATHON PALLADIUM PROJECT							
<b>STREAM 2 CATCH BASIN 1 IN 25 YEAR RAIN BALANCE</b>							
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">P/A NO. NB101-446/9</td> <td style="font-size: small;">REF. NO. NB21-00916</td> </tr> <tr> <td colspan="2" style="text-align: center;"><b>FIGURE 12</b></td> </tr> <tr> <td colspan="2" style="text-align: right;">REV 0</td> </tr> </table>	P/A NO. NB101-446/9	REF. NO. NB21-00916	<b>FIGURE 12</b>		REV 0	
P/A NO. NB101-446/9	REF. NO. NB21-00916						
<b>FIGURE 12</b>							
REV 0							

0	02MAR'21	ISSUED WITH LETTER	BA	JAM
REV	DATE	DESCRIPTION	PREP'D	RVW'D

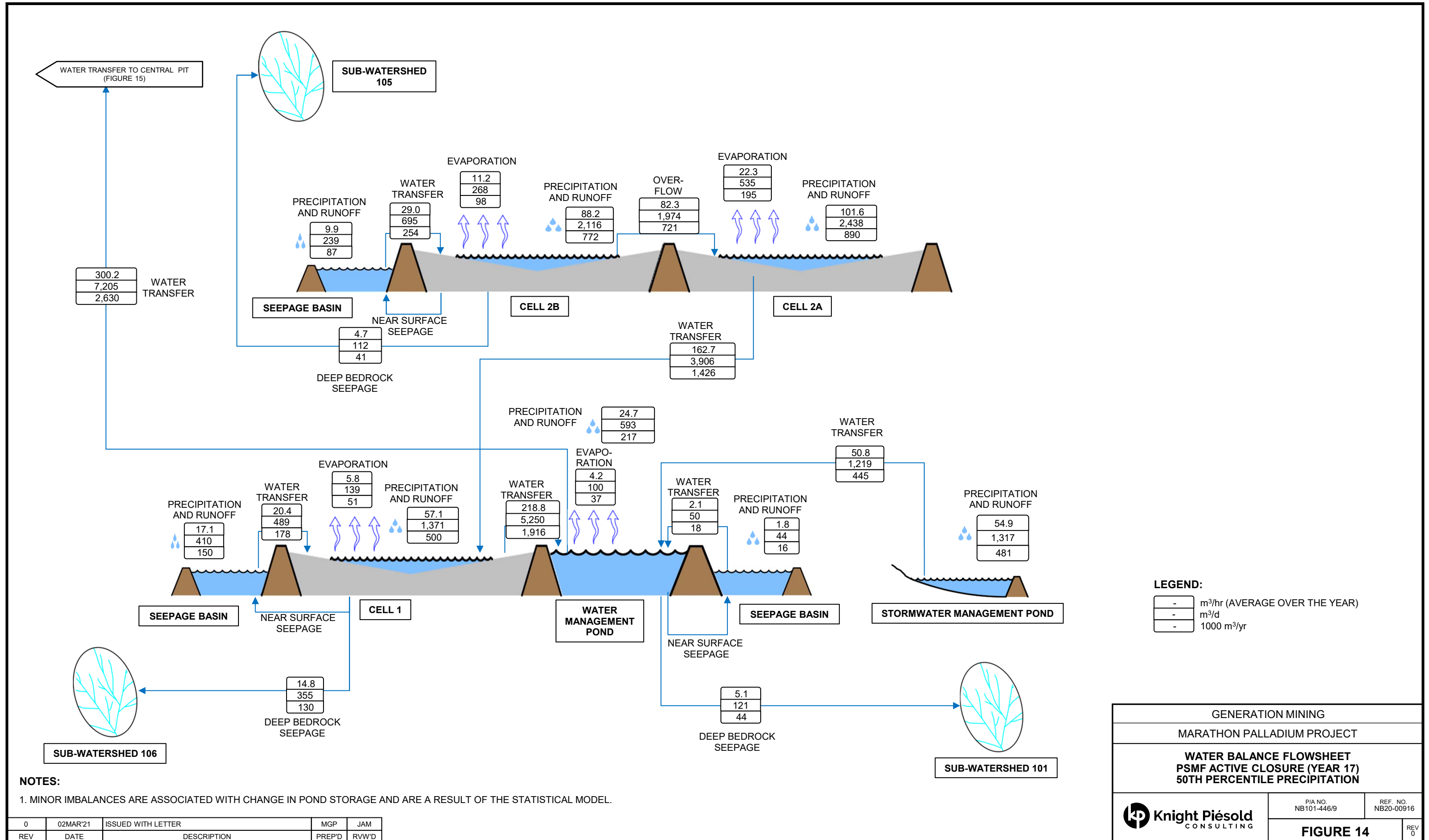


**NOTES:**

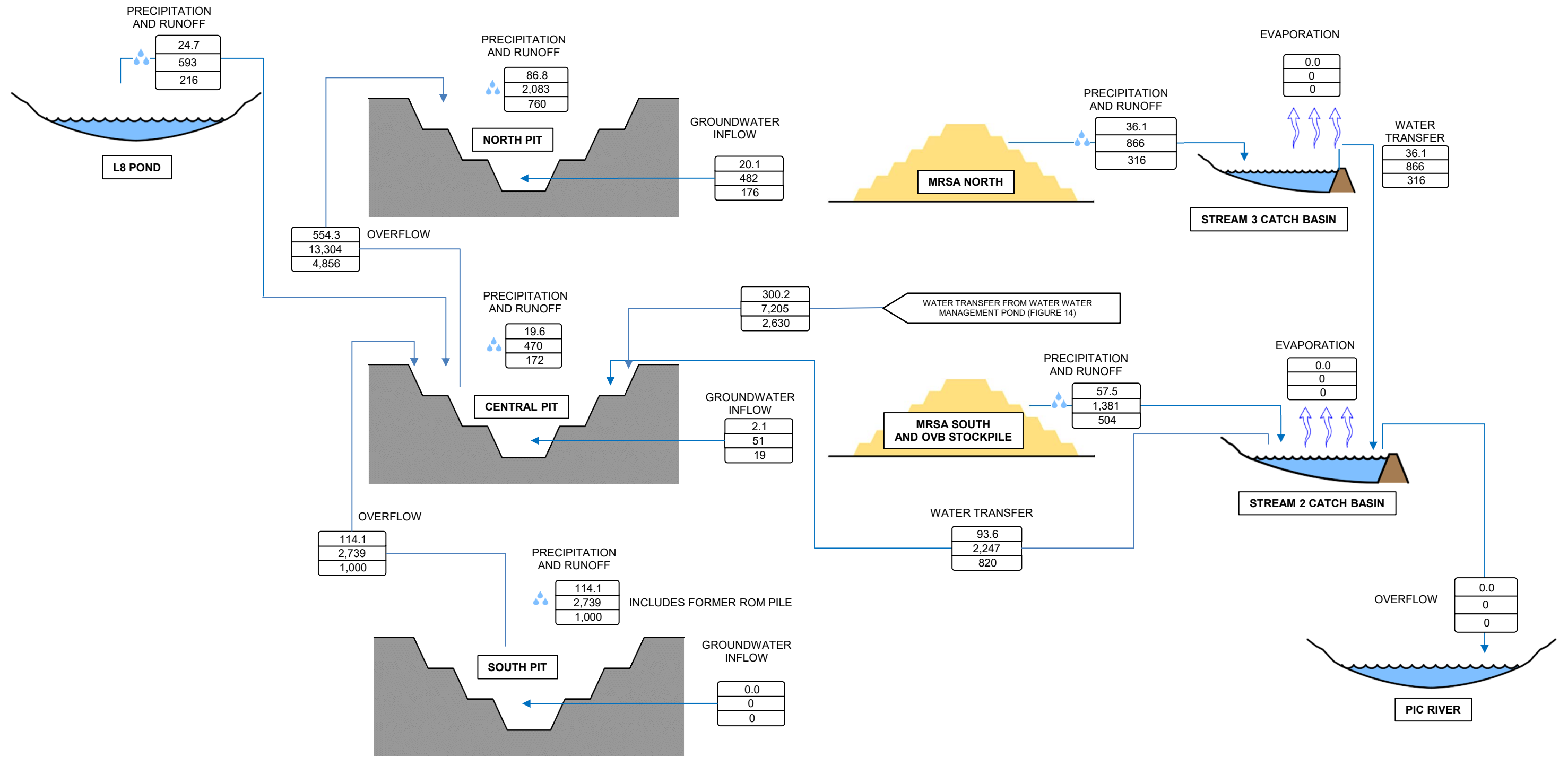
1. PEAK RAINFALL HAS BEEN ESTIMATED BASED HISTORICAL CLIMATE RECORDS.
2. DAILY RAINFALL HYDROGRAPH HAS BEEN DEVELOPED ASSUMING A PEAK 1 DAY STORM, DEVELOPING INTO AN A PEAK 2 DAY EVENT, INTO 3 DAY EVENT AND ONWARDS.
3. PUMPS ASSUMED TO START 12 HOURS AFTER ONSET OF STORM.
4. PUMPING RATE SELECTED AS 300 m3/hr IN ORDER TO MAINTAIN A MAXIMUM POND VOLUME UNDER 62,000 m3

GENERATION MINING	
MARATHON PALLADIUM PROJECT	
<b>STREAM 3 CATCH BASIN 1 IN 25 YEAR RAIN BALANCE</b>	
	P/A NO. NB101-446/9 REF. NO. NB21-00916
<b>FIGURE 13</b>	
REV 0	

0	02MAR'21	ISSUED WITH LETTER	BA	JAM
REV	DATE	DESCRIPTION	PREP'D	RVWD



GENERATION MINING		
MARATHON PALLADIUM PROJECT		
<b>WATER BALANCE FLOWSHEET</b> <b>PSMF ACTIVE CLOSURE (YEAR 17)</b> <b>50TH PERCENTILE PRECIPITATION</b>		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 14</b>	
		REV 0



**NOTES:**

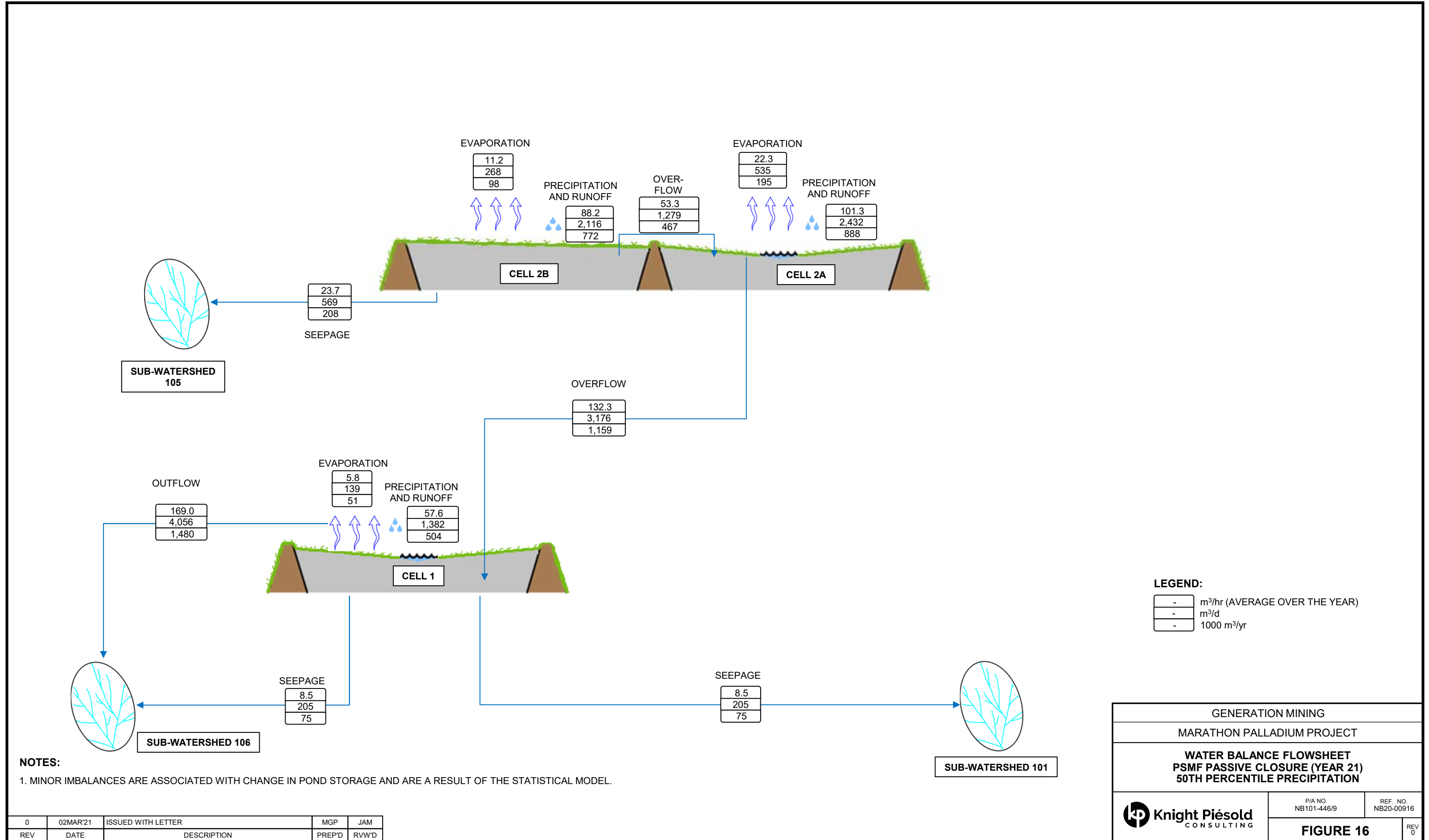
1. MINOR IMBALANCES ARE ASSOCIATED WITH CHANGE IN POND STORAGE AND ARE A RESULT OF THE STATISTICAL MODEL.

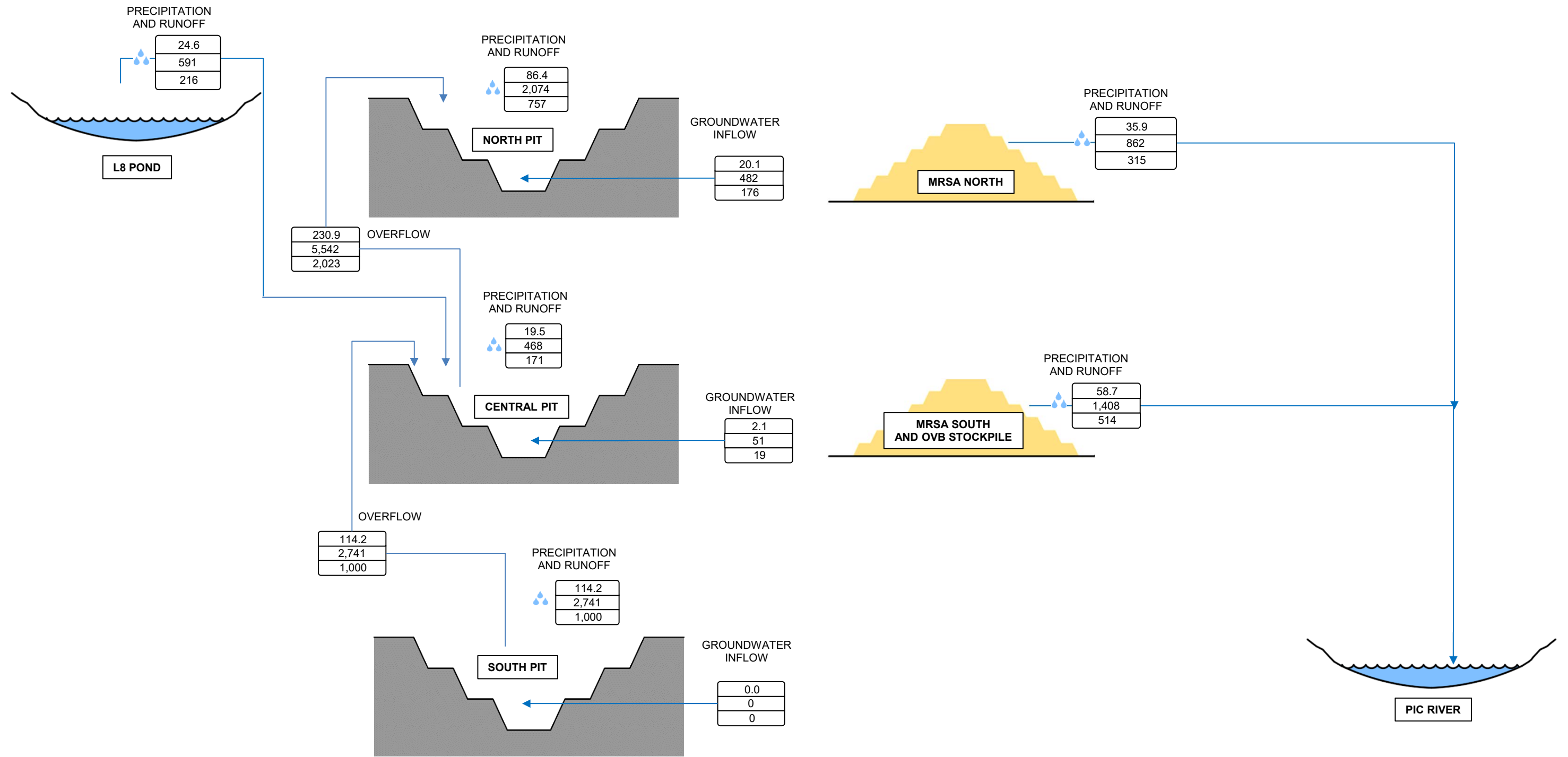
**LEGEND:**

-	m³/hr (AVERAGE OVER THE YEAR)
-	m³/d
-	1,000 m³/yr

GENERATION MINING		
MARATHON PALLADIUM PROJECT		
<b>WATER BALANCE FLOWSHEET</b>		
<b>OPEN PIT AND MRSA ACTIVE CLOSURE (YEAR 17)</b>		
<b>50TH PERCENTILE PRECIPITATION</b>		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 15</b>	
		REV 0

0	02MAR21	ISSUED WITH LETTER	MGP	JAM
REV	DATE	DESCRIPTION	PREP'D	RVW'D





**NOTES:**

1. MINOR IMBALANCES ARE ASSOCIATED WITH CHANGE IN POND STORAGE AND ARE A RESULT OF THE STATISTICAL MODEL.

**LEGEND:**

-	m³/hr (AVERAGE OVER THE YEAR)
-	m³/d
-	1,000 m³/yr

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	02MAR'21	ISSUED WITH LETTER	MGP	JAM

GENERATION MINING		
MARATHON PALLADIUM PROJECT		
<b>WATER BALANCE FLOWSHEET</b>		
<b>OPEN PIT AND MRSA PASSIVE CLOSURE (YEAR 21)</b>		
<b>50TH PERCENTILE PRECIPITATION</b>		
	P/A NO. NB101-446/9	REF. NO. NB20-00916
	<b>FIGURE 17</b>	
		REV 0