

WHALE TAIL PIT EXPANSION PROJECT

Adaptive Management Plan

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Division

Version 1.1 January 2020

DISTRIBUTION LIST

AEM – Engineering Superintendent

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DOCUMENT CONTROL

Version	Date (YMD)	Section	Revision
1	2019-12-19	All	New Plan to address commitments made during the review process of the Whale Tail Pit Expansion Project Water Licence Amendment
1.1	2020-01-30	All	Updated Plan to address comments from CIRNAC, KivIA and ECCC on January 8 meeting in Winnipeg and Final Written Submissions as part of the Whale Tail Pit Expansion Project Water Licence Amendment

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1 INTRODUCTION

Agnico Eagle Mines Limited – Meadowbank Division (Agnico Eagle) is proposing an expansion to the Whale Tail Pit and Haul Road Project (Approved Project), a Meadowbank satellite deposit located on the Amaruq property. As an expansion to the Approved Project (NIRB PC No. 008 and NWB 2AM-WTP1826) Agnico Eagle is proposing to expand and extend the Whale Tail Pit operations to include a larger Whale Tail open pit, development of the IVR open pit, and underground operations (referred to as the Expansion Project) while continuing to operate and process ore at the Meadowbank Mine.

The Amaruq property is a 408 km² site located on Inuit Owned Land approximately 150 km north of the hamlet of Baker Lake and approximately 50 km north of Meadowbank Mine in the Kivalliq Region of Nunavut.

Construction upgrades to support the Expansion Project will begin as soon as approval and permits for the amendment applications are received (anticipated for early 2020). The operational phase (Approved and Expansion Projects) will span from Year 1 (2020) to Year 7 (2026). Mining activities are expected to end in Year 7 (2026). Closure will occur from Year 8 (2027) to Year 24 (2042) after the completion of mining and will include removal of the non-essential site infrastructure and flooding of the mined-out open pits and underground mining, as well as reestablishment of the natural Whale Tail Lake water level.

This document presents an Adaptive Management Plan prepared for the following facilities and activities associated with the Project:

- Waste rock storage facility (WRSF);
- Receiver water quality;
- Surface water quantity; and
- Underground mine water quantity.

This Plan has been completed for the Expansion Project in support of the Nunavut Water Board (NWB) review process and Agnico Eagle is requesting that the NWB approve this Plan with the issuance of the amended 2AM-WTP1826.

The primary objective of the Adaptive Management Plan is to document specific mitigation measures and associated management actions to be taken when specified thresholds are exceeded. Mitigation measures may include special studies, operational changes, revised or new water and waste management systems, new or expanded conveyance systems, structures and/or facilities, or implementing mitigation activities to prevent, stabilize or reverse a change in environmental conditions or to otherwise protect the receiving environment.

All mitigation measures described in this Plan have undergone a self assessment by Agnico Eagle in accordance with the "NIRB Guidance Re Process for Seeking Approval for Modifications to Previously-Approved Projects" (April 27, 2018) (the NIRB Guidance), which references Section 90 of the Nunavut Waters and Nunavut Surface Rights Tribunal Act (NuPPAA) and the measure are not considered a "significant modification" under the Nunavut Agreement or NuPPAA. The mitigation measures described in this Plan would not be required as a result of changes to the mine life or other expansion of the mine. With respect to land use planning requirements, all mitigation measures would occur within the footprint

described in the project proposal that was the subject of the Nunavut Planning Commission's positive conformity determination on the Expansion Project of October 16, 2018.

In consideration of the section 90 factors under NuPPAA, mitigation measures described in this Plan, when assessed comparatively to the Final Environmental Impact Statement (FEIS):

- would be situated within the footprint of the Expansion Project, which has not been identified as a particularly sensitive area or historical, cultural or archeologically significant area;
- would not result in changes to impacts on human and animal populations;
- would result in a low to negligible change to the Expansion Project predicted environmental impacts, including the nature, magnitude and complexity of the impacts;
- would result in a low to negligible change to the probability of impacts occurring;
- would result in a low to negligible change to the frequency and duration of the impacts;
- would result in no change to the reversibility or irreversibility of the impacts; and
- would result in no change to the cumulative impacts.

The Adaptive Management Plan will be reviewed if deemed required to account for the dynamics of mine construction, operations and policy changes, and to adjust the adaptive management strategy as needed.

In the event of a conflict or inconsistency between this Adaptive Management Plan and any other Plan approved under the Type A Water Licence, the Adaptive Management Plan shall prevail to the extent of the conflict or inconsistency.

For greater clarity, all actions and management strategies described in the approved Adaptive Management Plan are included in the Scope of the Type A Water Licence (see Part A, Item 1) and can proceed without modification or amendment to the Type A Water Licence.

2 ADAPTIVE MANAGEMENT PLAN

This section presents the adaptive management strategy prepared for the following facilities and activities associated with the mine:

- waste rock storage facility (WRSF);
- receiver water quality;
- · surface water quantity; and
- underground mine water quantity.

2.1 WASTE ROCK MANAGEMENT

2.1.1 WRSF Permafrost Aggradation

Performance of the WRSF is in part defined by its ability to achieve geochemical stability. Maintaining permafrost conditions within potentially acid generating (PAG) and potentially metal leaching (ML) waste rock will inhibit leaching of acidic drainage or metal contaminated waters.

Permafrost aggradation into the WRSF from the surrounding bedrock (Figure 1) will be monitored to verify frozen conditions at depth are developing and being maintained over time. For more details on permafrost aggradation concept and how it applies to the Whale Tail Project WRSF's, the reader is referred to O'kane (OKC 2019a).

Permafrost aggradation is defined within this Adaptive Management Plan by the point of zero amplitude (i.e., the depth at which seasonal temperature fluctuations no longer influence ground temperature) moving upwards into the WRSF until a post-construction thermal equilibrium is reached. Should the point of zero amplitude not move upwards, Table 1 summarizes specific mitigation measures and associated management actions to be taken.

When using Table 1 to assess the adaptive management response required, some preliminary assumptions should be considered:

- The zero-amplitude points heights are determined during the Annual Report.
- The thresholds are referring to an average of thermistors or two spatially-consecutive thermistors for localized effects.

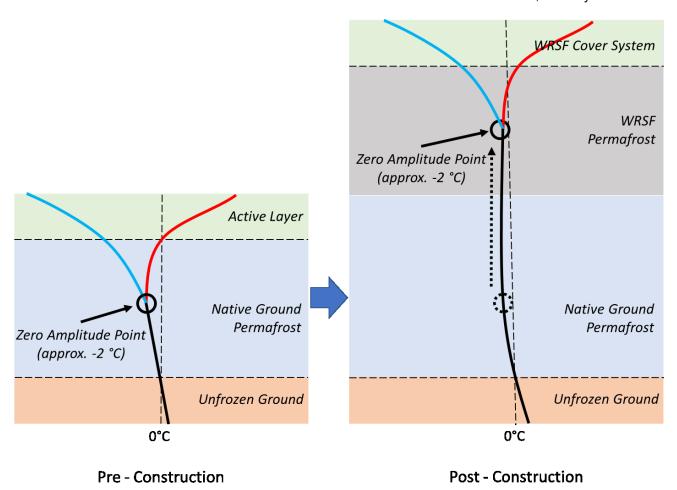


Figure 1: Sketch of typical annual thermal profile in a permafrost soil where the zero amplitude points moves upwards into overlying WRSF.

Table 1: WRSF Permafrost Aggradation Adaptive Management Strategy.

Adaptive Management Level	Threshold	Management Strategy	
Level 0 (Normal Operating Condition)	-	 Monitor temperature at depth within WRSF. Monitor temperature in base of WRSF. Report rate of permafrost aggradation from monitoring data in the Annual Report. 	
Level 1 (Situation of Concern)	Average zero amplitude point does not move upwards	 Continue Level 0 management strategy. Complete review of climate data to place WRSF permafrost aggradation rate in context of long-term climate conditions. Complete data review of site, regional ground thermal data and WRSF thermal data in context of regional permafrost conditions. Report results for data review in the Annual Report. 	
Level 2 (Situation of Concern)	Average zero amplitude point does not move upwards for two consecutive years	 Continue Level 1 management strategy. Modification of instrumentation program based on interpretation of existing data and understanding of mechanism (could include installation of thermistors and downhole monitoring instruments). Complete review of physical and geochemical properties of WRSF materials including: Geochemical testing of drill cuttings and/or grab samples obtained from additional monitoring program (noted above). Report results of additional testing / monitoring in the Annual Report. 	
Level 3 (Situation of Concern)	Average zero amplitude point does not move upwards for three consecutive years AND Geotechnical and geochemical properties of waste rock from Level 2 review are outside the bounds of those used in modelling	 Continue Level 1 management strategy, including the review of additional data collected in Level 2 management strategy. Update modelling of permafrost aggradation predictions based on calibrated material properties and in situ conditions as well as updated climate model predictions available. Update WRSF water balance and water quality model based on results of updated thermal model to understand impact on performance of the structure. Report updated performance targets for permafrost aggradation based on updated modelling in the Annual Report. 	
Level 4 (High Risk Situation)	Updated performance predicted by modelling does not fit within overall project closure objective as detailed in the ICRP (Agnico Eagle 2019a)	 Implement construction measures to mitigate risk to the receiving environment. This will be situation specific based on result of previous level but could include: Construction of passive ground freezing systems; Construction of active ground freezing systems; Relocation / reconfiguration of WRSF; Construction of new or expanded interception structures for water (ponds, sump, ditch, other conveyance systems) to redirect WRSF contact water in the flooded pits. 	

2.1.2 WRSF Surface Water Balance and Active Layer Development

Performance of the WRSF is also defined by its ability to manage interaction between surface water (runoff) or near-surface water (interflow) with waste rock. Achieving freeze-back near surface will ensure conditions are not favourable for mobilization of oxidation products to the environment to occur. Freeze-back near-surface, but outside the active layer zone, will be monitored to ensure that freeze-back near-surface is occurring. Focused monitoring outside of the active layer zone will allow for long-term trends to be observed dampening the influence of annual climate variability.

Thermal data and cover material physical properties will be measured according to the WRSF instrumentation plan (Okane, 2019b). The Thermal Modelling of the Whale Tail and IVR WRSFs report (Okane 2019a). include the predicted range of estimated freeze-back, the five cross-sections in the WRSFs used for two-dimensional freeze-back modeling. The model's range in freeze-back profiles is a function of climatic conditions around the WRSF (e.g. sun exposure, direction of dominant winds) and material properties. Frequency of the monitoring is detailed in the Thermal Monitoring Plan (Agnico Eagle, 2018b).

Should freeze-back not occur within the projected time frame, Table 2 summarizes specific mitigation measures and associated management actions to be taken.

The assessment of adaptive management level will be evaluated once per year, as part of the annual report. However, monitoring data is continually assessed through internal monitoring and data review from the operations teams.

Table 2: WRSF surface water balance and active layer development adaptive management strategy

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal Operating condition)	-	 Monitoring of near surface thermal / energy balance. Monitoring of near surface water balance. Monitoring of annual freeze-back below active layer. Report thermal condition within WRSF below active layer in the Annual Report.
Level 1 (Area of concern)	Freeze-back below active layer (7 m depth) is not following trend of annual freeze-back predicted by modelling	 Continue Level 0 management strategy. Complete review of climate data to place WRSF thermal data in context of annual climate conditions. Complete data review of site, regional ground thermal data and WRSF thermal data in context of regional permafrost conditions. Report results of data review in annual report.
Level 2 (Area of concern)	Freeze-back below active layer (7 m depth) is not following trend of annual freeze-back predicted by modelling for two consecutive years	 Continue Level 1 management strategy. Complete review of physical and geochemical properties of cover system materials including: Sampling program to confirm in situ properties and conditions; and Comparison of in situ cover system conditions and properties to conditions observed during base case monitoring program and cover system construction QA/QC. Complete review of cover system construction including: Updated survey of WRSF. Report results of cover system review in the Annual Report.
Level 3 (Area of concern)	Trajectory of freeze- back below active layer (7 m depth) is not following model trend for three consecutive years OR Physical and geochemical properties of cover system from Level 2 review are outside the bounds of those used in modelling	 Continue Level 2 management strategy. If geochemical properties of cover system are outside the bounds of those used in modelling, complete review of cover system segregation procedures. If construction review from the Level 2 management strategy does not identify the cause of non-target freeze-back, or if existing monitoring data does not support additional modelling, complete enhanced monitoring program to capture greater spatial distribution. Complete updated WRSF thermal modelling based on calibrated material properties and in situ conditions, as well as with available updated climate model predictions. Update WRSF water balance and water quality model based on results of updated thermal model. Review cover system freeze-back target based on updated model results and determine requirement to increase cover thickness to meet performance criteria.

Adaptive Management Level	Threshold	Management Strategy
		 Report updated cover system material segregation procedures (if required), additional monitoring data (if required), and updated freeze-back targets based on updated modelling (if required) in the Annual Report. Consider implementation of construction measures outlined at Level 4 below and assess cover material requirements.
Level 4 (High-risk situation)	Trajectory of freeze- back below active layer (7 m depth) is not following model trend for four consecutive years AND Updated performance predicted by modelling show that performance objective of the structure will not be met	 Continue Level 1 management strategy including additional data collected in Level 3 management strategy. Implement construction measures to mitigate risk to the receiving environment. This will be situation specific based on result of previous levels but could include: Increasing the thickness of the cover locally with contingency NPAG material as per recommendations of Level 3 modelling; Addition of finer-textured cover system material locally to the existing cover system based on recommendations of Level 3 modelling; Addition of non-granular material amendments to the cover system (eg, geosynthetic) based on recommendation of Level 3 modelling; or Construction of new or expanded interception structures for water (ponds, sump, ditch) to protect the environment. Report cover system construction measures completed and updated targets in the Annual Report.

2.2 WATER MANAGEMENT

2.2.1 Receiver Water Quality

Agnico Eagle will compare water quality monitoring data to different thresholds during the operation as presented in the Whale Tail Project Water Quality and Flow Monitoring Plan V4 (Agnico Eagle 2018a). The adaptive management thresholds presented below are based on the Water Licence 2AM-WTP1826 Part E Item 9 (NWB 2018) and on the Whale Tail Project Water Quality Forecast issued for the reconsideration of the Project Certificate 008 (Golder 2018). The Receiver Water Quality Adaptive Management Plan will limit comparison of the thresholds presented in Table 3 to the monitoring data of the parameters of concern identified for the Project, which are arsenic and phosphorus. Other parameters of concern can be added as part of the Annual Report process based on the results of the updated water quality forecast.

The thresholds are based on the projected water quality and the Site Specific Water Quality Objectives of the Project that will be potentially updated during the project life cycle based on additional monitoring data. Also, these thresholds are specific to each receiver based on the monitoring data (e.g., Mammoth Lake could be considered at Level 2 when Whale Tail South Basin would be ranked at Level 0). Figure 2 shows a schematic representation of adaptive management levels.

The time of implementation for different corrective measures depends on the lead time on the material and shipping time. Procurement and implementation timelines will be planned for as part of the adaptive management process as per the associated levels.

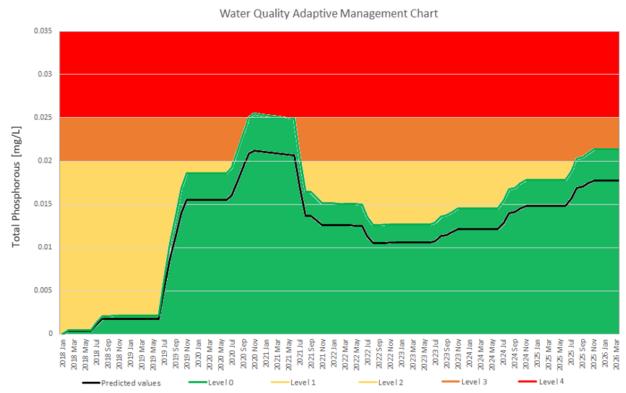


Figure 2: Receiver Water Quality Adaptive Management Chart

When using Table 3 to assess the adaptive management responses, some preliminary assumptions should be considered:

- The table is used to assess the following parameters of concern: arsenic and phosphorus.
- Sampling frequency is done 5 times per year (March and four other samples during open water season) under normal operation conditions as per Core Receiving Environment Monitoring Plan (Azimut, 2018).
- Data from Core Receiving Environment Monitoring Plan (CREMP) (Azimuth, 2018) monitoring stations will be used, including data at the end of the mixing zones.
- The table is to be used with total concentration values.
- Given a contradiction between two criteria, the higher level takes precedence.
- Two consecutive measurements in the same level are necessary to move upwards or downwards in adaptive management response level.
- For results alternating between levels, the result in the highest level will determine the adaptive management response. For example, results in level 1, level 2, then level 1 would dictate that level 2 be implemented until another level 1 is recorded.
- Water quality during the closure and post-closure phases is not considered in the Adaptive Management Plan: they will be considered as part of the Interim Closure and Reclamation Plan (ICRP) (Agnico Eagle, 2019a) adaptive management measures.
- Evaluation of level will be based on FEIS water quality predictions (Appendix 6H).
- In the thresholds, "subsequent exceedances" can refer to two sampling events (e.g. June, July) or two subsequent seasonal events (e.g. March 2020, March 2021).
- For Phosphorus, the percentages are calculated off the maximum predicted concentration in the FEIS water quality predictions (Appendix 6H).

Table 3: Receiver Water Quality Adaptive Management Strategy.

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal operating condition)	-	 Continue monitoring as per Water Quality and Flow Monitoring Plan. Update water balance and water quality forecast as part of the Annual Report.
Level 1 (Area of concern)	Difference between predicted base case values and two subsequent exceedances above level 0 in water quality measured values in the receiver are 20% or greater AND Two subsequent exceedances above Level 0 in water quality measured values in the receiver are less than 80% of the CCME Water Quality Guidelines for the Protection of Aquatic Life criteria or site-specific water quality objectives	 Continue Level 0 management strategy. Complete analysis of site wide water quantity and quality data to identify and assess cause(s) of the difference(s) and reported to the NWB. Report results of data review in annual reporting to the NWB including implications on the Water management plan and the evaluation of potential mitigation strategies such as: Enhance water treatment plant efficiency and reduce maximum effluent discharge concentration by 10%; and Review water management practices to stay within assimilative capacity of the receivers; Discharge in the two receivers simultaneously (Mammoth and Whale Tail South Basin) to reduce overall loading per receiver.
Level 2 (Area of concern)	Difference between predicted base case values and two subsequent exceedances above Level 1 in water quality measured values in the receiver are 20% or greater AND Two subsequent exceedances in Level 1 water quality measured values in the receiver are between 80% and 100% of the CCME Water Quality Guidelines for the Protection of Aquatic Life criteria or site-specific water quality objectives	 Continue Level 1 management strategy Report results of data review to the NWB in the Annual Report, including implications on the Water management plan and the evaluation of potential mitigation strategies such as: Enhance water treatment plant efficiency and reduce maximum effluent discharge concentration by 20%; Reassess monitoring frequency needs; Look at opportunity to use new treatment technologies; Implement in-line water treatment process in the areas of concerns to reduce contaminant at the source; Move discharge location to an approved receiver (Mammoth or Whale Tail South Basin). Complete assessment of potential discharge in lakes D1 or D5 in case level 3 is reached, with approval from the NWB as per NIRB Project Certificate Conditions.
Level 3 (High Risk situation)	Difference between predicted base case values and two subsequent exceedances in Level 2 water quality measured values in the receiver are 20% or greater, AND	 Continue Level 2 management strategy. Report results of data review in the Annual Report to the NWB including implications on the Water management plan and the evaluation of potential mitigation strategies such as: Review overall water management strategy to stay within assimilative capacity of the receivers; Implement new water treatment unit; and

Adaptive Management Level	Threshold	Management Strategy
	Two subsequent exceedances in Level 2 water quality measured values in the receiver are between 100% and 120% of the CCME Water Quality Guidelines for the Protection of Aquatic Life criteria or site-specific water quality objectives	 Move discharge location in an approved receiver in Lakes D1 or D5, with approval from the NWB as per NIRB Project Certificate Condition. Continue monitoring in the original receiver to evaluate if they recover and define threshold to restart using them.
Level 4 (Emergency situation)	Difference between predicted base case values and two subsequent exceedances in Level 3 water quality measured values in the receiver are 20% or greater, AND Two subsequent exceedances in Level 3 water quality measured values in the receiver are above 120% of the CCME Water Quality Guidelines for the Protection of Aquatic Life criteria or site-specific water quality objectives	 Continue Level 3 management strategy. Report results of detailed data review in the Annual Report to the NWB, including implications on the Water management plan and the evaluation of potential mitigation strategies such as: Move discharge location in an approved receiver or in Lakes D1 or D5; and Suspended effluent discharge until receiver recovery. Continue monitoring in the original receiver to evaluate if they recover and define thresholds to restart using them. Evaluate potential new discharge location to resume operation.

2.2.2 Surface Water Quantity

The thresholds developed for the surface water quality are based on the capacity of the different water management infrastructures to retain water on site. The objective is to trigger management strategy actions based on the capacity of these structures. The main management response is based on increasing the discharge rate, especially when water is meeting effluent discharge criteria. As presented by the 1:10 and 1:100 wet year scenario sensitivity analysis of the water balance (Agnico Eagle 2019b), the main driver of this risk is the high recurrence precipitation. Under such event, Agnico Eagle is assuming that the resulting water quality could potentially meet discharge criteria. In such conditions, increasing the discharge rate would de-risk the operation of the water management infrastructure. In the event effluent water quality criteria is not met, storage of the water within the project footprint would be required based on the limited treatment plant capacity. Figure 3 presents the main infrastructure within the current mine plan to store contact water on site (WRSF Pond, Whale Tail Attenuation Pond, IVR Attenuation Pond, and GSP-1 and the discharge locations in Mammoth Lake and Whale Tail Lake.

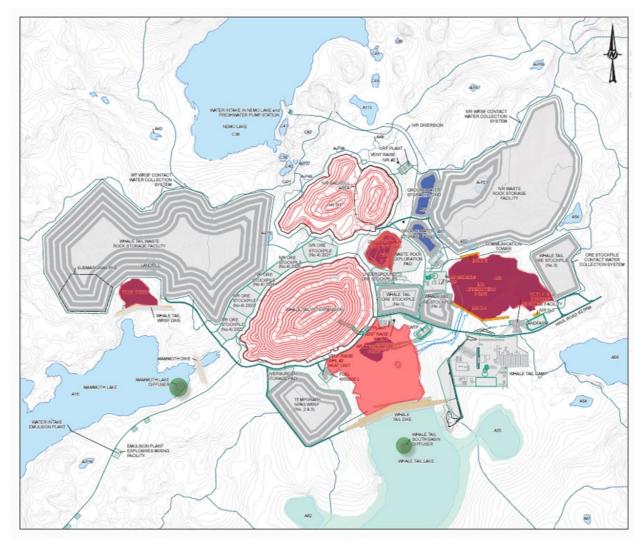


Figure 3: Surface Water Management Infrastructure and discharge locations

Table 4: Surface water quantity adaptive management strategy.

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal operating condition)	-	 Continue monitoring as per Water Quality and Flow Monitoring Plan. Continue water management as per Water Management Plan. Update water balance and water quality forecast as part of the Annual Report.
Level 1 (Area of concern)	Reach maximum operational capacity of the Attenuation Pond(s) and WRSF Pond	 Continue Level 0 management strategy. Assess water quality within the attenuation ponds and other water storage infrastructure: If water quality is below Water Licence criteria, complete water discharge in a preapproved discharge location and bypass O-WTP Discharge on splash pad toward Nemo Lake; Discharge on splash pad toward Mammoth Lake; Discharge on splash pad toward Whale Tail Lake; Discharge in Mammoth Lake diffusers; or Discharge in Whale Tail Lake South Basin diffusers. If water quality is above Water Licence criteria, evaluate additional storage location such as GSPs and open pit sump. Complete analysis of the precipitation monitoring event to define rain event scenario and monitor pit wall surface to identify any new groundwater infiltration and assess cause(s) of the difference(s) and reported to the NWB as part of the Annual Report. Once water level of the Attenuation Ponds is back to normal operating condition complete detailed data review of site wide water quality and quantity data and submit report to NWB as part of the annual report.
Level 2 (Area of concern)	Reach max capacity of the Attenuation Pond(s) and GSP1 and 2	 Continue Level 1 management strategy. Complete construction of GSP-3. Evaluate the feasibility of constructing additional storage on site. Implement construction measures to improve contact and non-contact water management. This will be situation specific based on result of previous levels but could include: Construction of new or expanded ponds, ditch, berm, sump and/or water conveyance system to avoid mixing contact water above discharge criteria with non-contact water or contact water under discharge criteria. Increase water treatment plant capacity and increase the number of diffusers in the receiver accordingly and update modelling of the impact on the receivers (water quality and quantity).

Adaptive Management Level	Threshold	Management Strategy
Level 3 (High Risk Situation)	Water volume stored in one of the open pits requires suspension of operations in that pit	 Continue Level 2 management strategy. Complete construction of an additional water storage facility. Suspend operation in one of the pits until water level allows resuming all mining activities in that pit.

2.2.3 Underground Water Quantity Adaptive Management Strategy

The thresholds developed for the Underground (UG) Mine Water Quantity Adaptive Management Plan are based on the capacity of the different water management infrastructures to retain water on site. The objective is to trigger management strategy actions based on the capacity of these structures. As the inflows from the UG mine are significantly smaller than from the Surface Mine Infrastructure, the main management response is based on increasing the storage capacity until closure of the site. At that time, the UG mine will need to be reflooded and mitigation measures is based off of the residual contact water to complete UG mine reflooding. Figure 4 presents the Groundwater Storage Ponds and the discharge locations in Mammoth Lake and Whale Tail Lake.

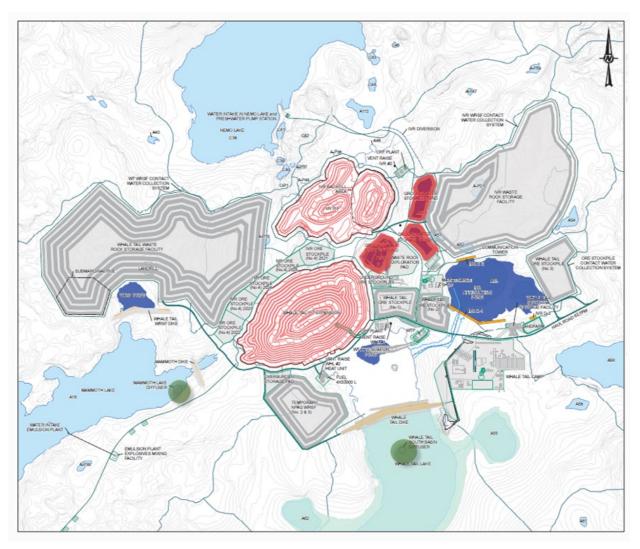


Figure 4: Underground Mine Water Management Infrastructure and discharge locations

Table 5: Underground mine water quantity adaptive management strategy

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal operating condition)	-	 Continue monitoring as per Water Quality and Flow Monitoring Plan. Continue water management as per Water Management Plan. Update water balance and water quality forecast as part of the Annual Report.
Level 1 (Area of concern)	Reach max operational capacity of the GSP1 or GSP 2 reached	 Continue Level 0 management strategy. Complete review of site wide water quantity and quality data integrating thermistor and piezometer data specific to the UG mine development to identify and assess cause(s) of the difference(s). Complete construction of GSP-3. Report results of detailed data review in Annual Report to the NWB.
Level 2 (Area of concern)	Reach max operational capacity in two of the three Groundwater Storage Ponds	 Continue Level 1 management strategy. Report results of detailed data review in annual reporting to the NWB including implications on the base case water management strategy and the evaluation of potential mitigation strategies such as: Improve underground mine pumping infrastructure; Improve grouting efficiency o Improve water treatment efficiency by increasing capacity by adding new treatment unit, installing mechanical evaporators, implementing in-line water treatment process and adding pre-treatment unit in the underground mine; Construction of an additional groundwater storage pond and/or additional UG water stopes; Evaluate feasibility of storing extra underground contact water within IVR pit until end of operation; or Evaluate deep well injection for high TDS water and/or meromictic pit lake disposal approach.
Level 3 (High Risk Situation)	Reach max operational capacity in the three of the four Groundwater Storage Ponds	 Continue Level 2 management strategy. Report results of detailed data review in annual reporting to the NWB including implications on the base case water management strategy and implement of potential mitigation strategies such as: Store extra underground contact water within IVR Pit until end of operation; or Perform deep well injection for high TDS water and/or meromictic pit lake disposal approach following approval from the NWB.

3 REFERENCES

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Version <u>1.1</u>4 <u>January</u>December 20<u>20</u>19

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- · Surface water quantity; and
- Underground mine water quantity.

This Plan has been completed for the Expansion Project in support of the Nunavut Water Board (NWB) review process and Agnico Eagle is requesting that the NWB approve this Plan with the issuance of the amended 2AM-WTP1826.

The primary objective of the Adaptive Management Plan is to document specific mitigation measures and associated management actions to be taken when specified thresholds are exceeded. Mitigation measures may include special studies, operational changes, revised or new water and waste management systems, new or expanded conveyance systems, structures and/or facilities, or implementing mitigation activities to prevent, stabilize or reverse a change in environmental conditions or to otherwise protect the receiving environments.

All mitigation measures described in this Plan have undergone a self assessment by Agnico Eagle in accordance with the "NIRB Guidance Re Process for Seeking Approval for Modifications to Previously-Approved Projects" (April 27, 2018) (the NIRB Guidance), which references Section 90 of the Nunavut Waters and Nunavut Surface Rights Tribunal Act (NuPPAA) and the measure are not considered a "significant modification" under the Nunavut Agreement or NuPPAA. The mitigation measures described in this Plan would not be required as a result of changes to the mine life or other expansion of the mine. With respect to land use planning requirements, all mitigation measures would occur within the footprint

described in the project proposal that was the subject of the Nunavut Planning Commission's positive conformity determination on the Expansion Project of October 16, 2018.

In consideration of the section 90 factors under NuPPAA, mitigation measures described in this Plan, when assessed comparatively to the Final Environmental Impact Statement (FEIS):

- would be situated within the footprint of the Expansion Project, which has not been identified as a particularly sensitive area or historical, cultural or archeologically significant area;
- would not result in changes to impacts on human and animal populations;
- would result in a low to negligible change to the Expansion Project predicted environmental impacts, including the nature, magnitude and complexity of the impacts;
- would result in a low to negligible change to the probability of impacts occurring;
- would result in a low to negligible change to the frequency and duration of the impacts;
- would result in no change to the reversibility or irreversibility of the impacts; and
- would result in no change to the cumulative impacts.

The Adaptive Management Plan will be reviewed if deemed required to account for the dynamics of mine construction, —operations and policy changes, and to adjust the adaptive management strategy as needed.

In the event of a conflict or inconsistency between this Adaptive Management Plan and any other Plan approved under the Type A Water Licence, the Adaptive Management Plan shall prevail to the extent of the conflict or inconsistency.

For greater clarity, all actions and management strategies described in the approved Adaptive Management Plan are included in the Scope of the Type A Water Licence (see Part A, Item 1) and can proceed without modification or amendment to the Type A Water Licence.

2 ADAPTIVE MANAGEMENT PLAN

This section presents the adaptive management strategy prepared for the following facilities and activities associated with the mine:

- waste rock storage facility (WRSF);
- receiver water quality;
- · surface water quantity; and
- underground mine water quantity.

2.1 WASTE ROCK MANAGEMENT

2.1.1 WRSF Permafrost Aggradation

Performance of the WRSF is in part defined by its ability to achieve geochemical stability. Maintaining permafrost conditions within potentially acid generating (PAG) and potentially metal leaching (ML) waste rock will inhibit leaching of acidic drainage or metal contaminated waters.

Permafrost aggradation into the WRSF from the surrounding bedrock (Figure 1) will be monitored to verify frozen conditions at depth are developing and being maintained over time. For more details on permafrost aggradation concept and how it applies to the Whale Tail Project WRSF's, the reader is referred to O'kane (OKC 2019a).

Permafrost aggradation is defined within this Adaptive Management Plan by the point of zero amplitude (i.e., the depth at which seasonal temperature fluctuations no longer influence ground temperature) moving upwards into the WRSF until a post-construction thermal equilibrium is reached. Should the point of zero amplitude not move upwards, Table 1 summarizes specific mitigation measures and associated management actions to be taken.

When using Table 1 to assess the adaptive management response required, some preliminary assumptions should be considered:

- The zero-amplitude points heights are determined during the Annual Report.
- The thresholds are referring to an average of thermistors or two spatially-consecutive thermistors for localized effects.

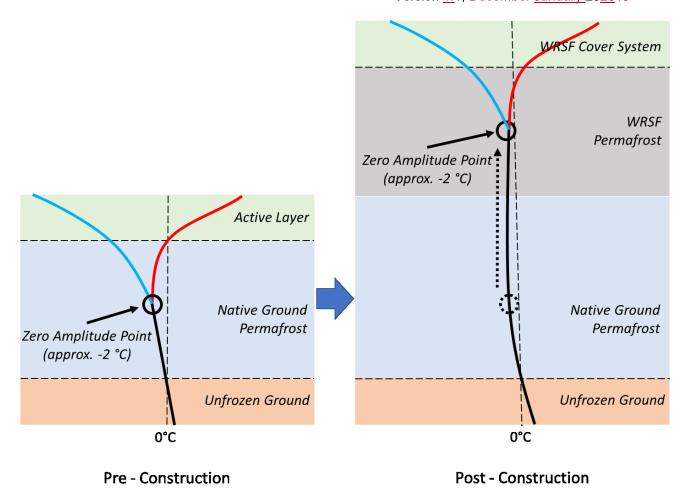


Figure 1: Sketch of typical annual thermal profile in a permafrost soil where the zero amplitude points moves upwards into overlying WRSF.

Table 1: WRSF Permafrost Aggradation Adaptive Management Strategy.

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal Operating Condition)	-	 Monitor temperature at depth within WRSF. Monitor temperature in base of WRSF. Report rate of permafrost aggradation from monitoring data in the Annual Report.
Level 1 (Situation of Concern)	Average zero amplitude point does not move upwards	 Continue Level 0 management strategy. Complete review of climate data to place WRSF permafrost aggradation rate in context of long-term climate conditions. Complete data review of site, regional ground thermal data and WRSF thermal data in context of regional permafrost conditions. Report results for data review in the Annual Report.
Level 2 (Situation of Concern)	Average zero amplitude point does not move upwards for two_consecutive years	 Continue Level 1 management strategy. Modification of instrumentation program based on interpretation of existing data and understanding of mechanism (could include installation of thermistors and downhole monitoring instruments). Complete review of physical and geochemical properties of WRSF materials including: Geochemical testing of drill cuttings and/or grab samples obtained from additional monitoring program (noted above). Report results of additional testing / monitoring in the Annual Report.
Level 3 (Situation of Concern)	Average zero amplitude point does not move upwards for three_consecutive years AND Geotechnical and geochemical properties of waste rock from Level 2 review are outside the bounds of those used in modelling	 Continue Level 1 management strategy, including the review of additional data collected in Level 2 management strategy. Update modelling of permafrost aggradation predictions based on calibrated material properties and in situ conditions as well as updated climate model predictions available. Update WRSF water balance and water quality model based on results of updated thermal model to understand impact on performance of the structure. Report updated performance targets for permafrost aggradation based on updated modelling in the Annual Report.
Level 4 (High Risk Situation)	Updated performance predicted by modelling does not fit within overall project closure objective as detailed in the ICRP (Agnico Eagle 2019a)	 Implement construction measures to mitigate risk to the receiving environment. This will be situation specific based on result of previous level but could include: Construction of passive ground freezing systems; Construction of active ground freezing systems; Relocation / reconfiguration of WRSF; Construction of new or expanded interception structures for water (ponds, sump, ditch, other conveyance systems) to redirect WRSF contact water in the flooded pits.

2.1.2 WRSF Surface Water Balance and Active Layer Development

Performance of the WRSF is also defined by its ability to manage interaction between surface water (runoff) or near-surface water (interflow) with waste rock. Achieving freeze-back near surface will ensure conditions are not favourable for mobilization of oxidation products to the environment to occur. Freeze-back near-surface, but outside the active layer zone, will be monitored to ensure that freeze-back near-surface is occurring. Focused monitoring outside of the active layer zone will allow for long-term trends to be observed dampening the influence of annual climate variability.

Thermal data and cover material physical properties will be measured according to the WRSF instrumentation plan (Okane, 2019b). –The Thermal Modelling of the Whale Tail and IVR WRSFs— report (Okane 2019a). include the predicted range of estimated freeze-back, the five cross-sections in the WRSFs used for two-dimensional freeze-back modeling. The model's range in freeze-back profiles is a function of climatic conditions around the WRSF (e.g. sun exposure, direction of dominant winds) and material properties. Frequency of the monitoring is detailed in the Thermal Monitoring Plan (Agnico Eagle, 2018b).

Should freeze-back not occur within the projected time frame, Table 2 summarizes specific mitigation measures and associated management actions to be taken.

The assessment of adaptive management level will be evaluated once per year, as part of the annual report. However, monitoring data is continually assessed through internal monitoring and data review from the operations teams.

Table 2: WRSF surface water balance and active layer development adaptive management strategy

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal Operating condition)	-	 Monitoring of near surface thermal / energy balance. Monitoring of near surface water balance. Monitoring of annual freeze-back below active layer. Report thermal condition within WRSF below active layer in the Annual Report.
Level 1 (Area of concern)	Freeze-back below active layer (7 m depth) is not following trend of annual freeze-back predicted by modelling	 Continue Level 0 management strategy. Complete review of climate data to place WRSF thermal data in context of annual climate conditions. Complete data review of site, regional ground thermal data and WRSF thermal data in context of regional permafrost conditions. Report results of data review in annual report.
Level 2 (Area of concern)	Freeze-back below active layer (7 m depth) is not following trend of annual freeze-back predicted by modelling for two consecutive years	 Continue Level 1 management strategy. Complete review of physical and geochemical properties of cover system materials including: Sampling program to confirm in situ properties and conditions; and Comparison of in situ cover system conditions and properties to conditions observed during base case monitoring program and cover system construction QA/QC. Complete review of cover system construction including: Updated survey of WRSF. Report results of cover system review in the Annual Report.
Level 3 (Area of concern)	Trajectory of freeze-back below active layer (7 m depth) is not following model trend for three consecutive years OR Physical and geochemical properties of cover system from Level 2 review are outside the bounds of those used in modelling	 Continue Level 2 management strategy. If geochemical properties of cover system are outside the bounds of those used in modelling differ significantly from those used in modelling, complete review of cover system segregation procedures. If construction review from the Level 2 management strategy does not identify the cause of non-target freeze-back, or if existing monitoring data does not support additional modelling, complete enhanced monitoring program to capture greater spatial distribution. Complete updated WRSF thermal modelling based on calibrated material properties and in situ conditions, as well as with available updated climate model predictions. Update WRSF water balance and water quality model based on results of updated thermal model. Review cover system freeze-back target based on updated model results and determine requirement to increase cover thickness to meet performance criteria.

Adaptive Management Level	Threshold	Management Strategy	
		 Report updated cover system material segregation procedures (if required), additional monitoring data (if required), and updated freeze-back targets based on updated modelling (if required) in the Annual Report. Consider implementation of construction measures outlined at Level 4 below and assess cover material requirements. 	
Level 4 (High-risk situation)	Trajectory of freeze-back below active layer (7 m depth) is not following model trend for four consecutive years AND Updated performance predicted by modelling show that performance objective of the structure will not be met	Continue Level 1 management strategy including additional data collected in Level 3 management strategy. Implement construction measures to mitigate risk to the receiving environment. This will be situation specific based on result of previous levels but could include: Increasing the thickness of the cover locally with contingency NPAG material as per recommendations of Level 3 modelling; Addition of finer-textured cover system material locally to the existing cover system based on recommendations of Level 3 modelling; Addition of non-granular material amendments to the cover system (eg, geosynthetic) based on recommendation of Level 3 modelling; or Construction of new or expanded interception structures for water (ponds, sump, ditch) to protect the environment. Report cover system construction measures completed and updated targets in the Annual Report.	

2.2 WATER MANAGEMENT

2.2.1 Receiver Water Quality

Agnico Eagle will compare water quality monitoring data to different thresholds during the operation as presented in the Whale Tail Project Water Quality and Flow Monitoring Plan V4 (Agnico Eagle 2018a). The adaptive management thresholds presented below are based on the Water Licence 2AM-WTP1826 Part E Item 9 (NWB 2018) and on the Whale Tail Project Water Quality Forecast issued for the reconsideration of the Project Certificate 008 (Golder 2018). The Receiver Water Quality Adaptive Management Plan will limit comparison of the thresholds presented in Table 3 to the monitoring data of the parameters of concern identified for the Project, which are arsenic and phosphorus. Other parameters of concern can be added as part of the Annual Report process based on the results of the updated water quality forecast.

The thresholds are based on the projected water quality and the Site Specific Water Quality Objectives of the Project that will be potentially updated during the project life cycle based on additional monitoring data. Also, these thresholds are specific to each receiver based on the monitoring data (e.g., Mammoth Lake could be considered at Level 2 when Whale Tail South Basin would be ranked at Level 0). Figure 2 shows a schematic representation of adaptive management levels.

The time of implementation for different corrective measures depends on the lead time on the material and shipping time. Procurement and implementation timelines will be planned for as part of the adaptive management process as per the associated levels.

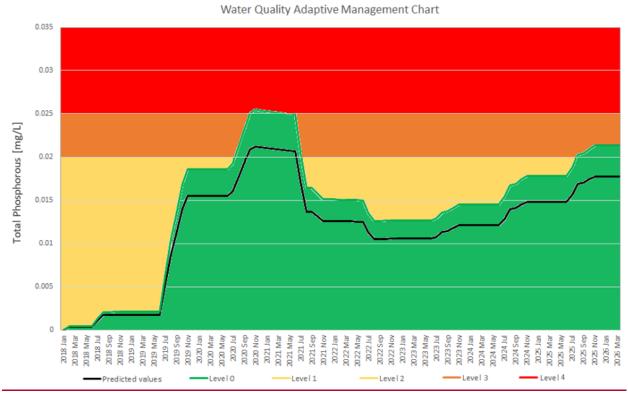


Figure 2: Receiver Water Quality Adaptive Management Chart

When using Table 3 to assess the adaptive management responses, some preliminary assumptions should be considered:

- The table is used to assess the following parameters of concern: arsenic and phosphorus.
- Sampling frequency is done 5 times per year (March and four other samples during open water season) under normal operation conditions as per Core Receiving Environment Monitoring Plan (Azimut, 2018).
- Data from Core Receiving Environment Monitoring Plan (CREMP) (Azimuth, 2018) monitoring stations will be used, including data at the end of the mixing zones.
- The table is to be used with total concentration values.
- Given a contradiction between two criteria, the higher level takes precedence.
- Two consecutive measurements in the same level are necessary to move upwards or downwards in adaptive management response level.
- For results alternating between levels, the result in the highest level will determine the adaptive management response. For example, results in level 1, level 2, then level 1 would dictate that level 2 be implemented until another level 1 is recorded.
- Water quality during the closure and post-closure phases is not considered in the Adaptive Management Plan: they will be considered as part of the Interim Closure and Reclamation Plan (ICRP) (Agnico Eagle, 2019a) adaptive management measures.
- Evaluation of level will be based on FEIS water quality predictions (Appendix 6H).
- In the thresholds, "subsequent exceedances" can refer to two sampling events (e.g. June, July) or two subsequent seasonal events (e.g. March 2020, March 2021).
- For Phosphorus, the percentages are calculated off the maximum predicted concentration in the FEIS water quality predictions (Appendix 6H).

Table 3: Receiver Water Quality Adaptive Management Strategy.

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal operating condition)	-	 Continue monitoring as per Water Quality and Flow Monitoring Plan. Update water balance and water quality forecast as part of the Annual Report.
Level 1 (Area of concern)	Difference between predicted base case values and two subsequent exceedances above level 0 in water quality measured values in the receiver are 20% or greater AND Two subsequent exceedances above Level 0 in water quality measured values in the receiver are less than 80% of the CCME Water Quality Guidelines for the Protection of Aquatic Life criteria or site-specific water quality objectives	 Continue Level 0 management strategy. Complete analysis of site wide water quantity and quality data to identify and assess cause(s) of the difference(s) and reported to the NWB. Report results of data review in annual reporting to the NWB including implications on the Water management plan and the evaluation of potential mitigation strategies such as: Enhance water treatment plant efficiency and reduce maximum effluent discharge concentration by 10%; and Review water management practices to stay within assimilative capacity of the receivers; Discharge in the two receivers simultaneously (Mammoth and Whale Tail South Basin) to reduce overall loading per receiver.
Level 2 (Area of concern)	Difference between predicted base case values and two subsequent exceedances above Level 1 in water quality measured values in the receiver are 20% or greater AND Two subsequent exceedances in Level 1 water quality measured values in the receiver are between 80% and 100% of the CCME Water Quality Guidelines for the Protection of Aquatic Life criteria or site-specific water quality objectives	 Continue Level 1 management strategy Report results of data review– to the NWB in the Annual Report, including implications on the Water management plan and the evaluation of potential mitigation strategies such as: Enhance water treatment plant efficiency and reduce maximum effluent discharge concentration by 20%; Reassess monitoring frequency needs; Look at opportunity to use new treatment technologies; Implement in-line water treatment process in the areas of concerns to reduce contaminant at the source; Move discharge location to an approved receiver (Mammoth or Whale Tail South Basin). Complete assessment of potential discharge in lakes D1 or D5 in case level 3 is reached, with approval from the NWB as per NIRB Project Certificate Conditions.
Level 3 (High Risk situation)	Difference between predicted base case values and two subsequent exceedances in Level 2 water quality measured values in the receiver are 20% or greater, AND	 Continue Level 2 management strategy. Report results of data review in the Annual Report to the NWB including implications on the Water management plan and the evaluation of potential mitigation strategies such as: Review overall water management strategy to stay within assimilative capacity of the receivers; Implement new water treatment unit; and

Adaptive Management Level	Threshold	Management Strategy
	Two subsequent exceedances in Level 2 water quality measured values in the receiver are between 100% and 120% of the CCME Water Quality Guidelines for the Protection of Aquatic Life criteria or site-specific water quality objectives	 Move discharge location in an approved receiver in Lakes D1 or D5, with approval from the NWB as per NIRB Project Certificate Condition. Continue monitoring in the original receiver to evaluate if they recover and define threshold to restart using them.
Level 4 (Emergency situation)	Difference between predicted base case values and two subsequent exceedances in Level 3 water quality measured values in the receiver are 20% or greater, AND Two subsequent exceedances in Level 3 water quality measured values in the receiver are above 120% of the CCME Water Quality Guidelines for the Protection of Aquatic Life criteria or site-specific water quality objectives	 Continue Level 3 management strategy. Report results of detailed data review in the Annual Report to the NWB, including implications on the Water management plan and the evaluation of potential mitigation strategies such as: Move discharge location in an approved receiver or in Lakes D1 or D5; and Suspended effluent discharge until receiver recovery. Continue monitoring in the original receiver to evaluate if they recover and define thresholds to restart using them. Evaluate potential new discharge location to resume operation.

2.2.2 Surface Water Quantity

The thresholds developed for the surface water quality are based on the capacity of the different water management infrastructures to retain water on site. The objective is to trigger management strategy actions based on the capacity of these structures. The main management response is based on increasing the discharge rate, especially when water is meeting effluent discharge criteria. As presented by the 1:10 and 1:100 wet year scenario sensitivity analysis of the water balance (Agnico Eagle 2019b), the main driver of this risk is the high recurrence precipitation. Under such event, Agnico Eagle is assuming that the resulting water quality could potentially meet discharge criteria. In such conditions, increasing the discharge rate would de-risk the operation of the water management infrastructure. In the event effluent water quality criteria is not met, storage of the water within the project footprint would be required based on the limited treatment plant capacity. Figure 3 presents the main infrastructure within the current mine plan to store contact water on site (WRSF Pond, Whale Tail Attenuation Pond, IVR Attenuation Pond, and GSP-1 and the discharge locations in Mammoth Lake and Whale Tail Lake.

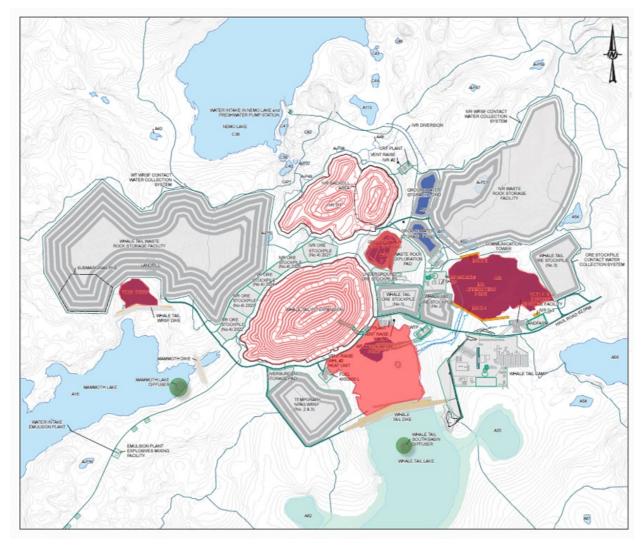


Figure 3: Surface Water Management Infrastructure and discharge locations

Table 4: Surface water quantity adaptive management strategy.

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal operating condition)	-	 Continue monitoring as per Water Quality and Flow Monitoring Plan. Continue water management as per Water Management Plan. Update water balance and water quality forecast as part of the Annual Report.
Level 1 (Area of concern)	Reach maximum operational capacity of the Attenuation Pond(s) and WRSF Pond	 Continue Level 0 management strategy. Assess water quality within the attenuation ponds and other water storage infrastructure: If water quality is below Water Licence criteria, complete water discharge in a preapproved discharge location and bypass O-WTP Discharge on splash pad toward Nemo Lake; Discharge on splash pad toward Mammoth Lake; Discharge on splash pad toward Whale Tail Lake; Discharge in Mammoth Lake diffusers; or Discharge in Whale Tail Lake South Basin diffusers. If water quality is above Water Licence criteria, evaluate additional storage location such as GSPs and open pit sump. Complete analysis of the precipitation monitoring event to define rain event scenario and monitor pit wall surface to identify any new groundwater infiltration and assess cause(s) of the difference(s) and reported to the NWB as part of the Annual Report. Once water level of the Attenuation Ponds is back to normal operating condition complete detailed data review of site wide water quality and quantity data and submit report to NWB as part of the annual report.
Level 2 (Area of concern)	Reach max capacity of the Attenuation Pond(s) and GSP1 and 2	 Continue Level 1 management strategy. Complete construction of GSP-3. Evaluate the feasibility of constructing additional storage on site. Implement construction measures to improve contact and non-contact water management. This will be situation specific based on result of previous levels but could include: Construction of new or expanded ponds, ditch, berm, sump and/or water conveyance system to avoid mixing contact water above discharge criteria with non-contact water or contact water under discharge criteria. Increase water treatment plant capacity and increase the number of diffusers in the receiver accordingly and update modelling of the impact on the receivers (water quality and quantity).

Adaptive Management Level	Threshold	Management Strategy
Level 3 (High Risk Situation)	Water volume stored in one of the open pits requires suspension of operations in that pit	 Continue Level 2 management strategy. Complete construction of an additional water storage facility. Suspend operation in one of the pits until water level allows resuming all mining activities in that pit.

2.2.3 Underground Water Quantity Adaptive Management Strategy

The thresholds developed for the Underground (UG) Mine Water Quantity Adaptive Management Plan are based on the capacity of the different water management infrastructures to retain water on site. The objective is to trigger management strategy actions based on the capacity of these structures. As the inflows from the UG mine are significantly smaller than from the Surface Mine Infrastructure, the main management response is based on increasing the storage capacity until closure of the site. At that time, the UG mine will need to be reflooded and mitigation measures is based off of the residual contact water to complete UG mine reflooding. Figure 4 presents the Groundwater Storage Ponds and the discharge locations in Mammoth Lake and Whale Tail Lake.

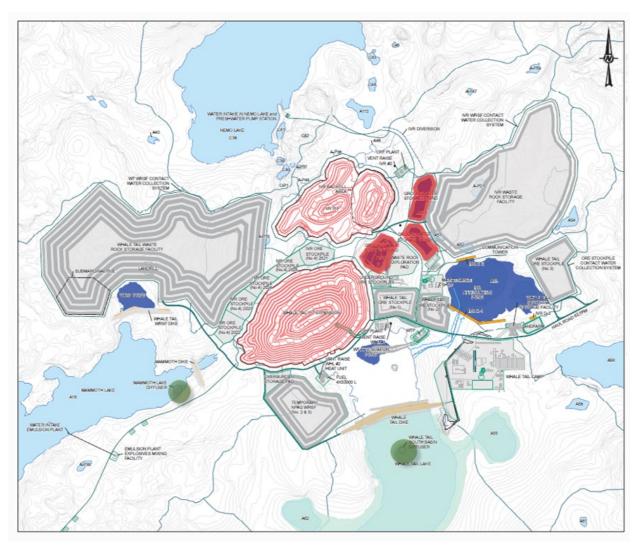


Figure 4: Underground Mine Water Management Infrastructure and discharge locations

Table 5: Underground mine water quantity adaptive management strategy

Adaptive Management Level	Threshold	Management Strategy
Level 0 (Normal operating condition)	-	 Continue monitoring as per Water Quality and Flow Monitoring Plan. Continue water management as per Water Management Plan. Update water balance and water quality forecast as part of the Annual Report.
Level 1 (Area of concern)	Reach max operational capacity of the GSP1 or GSP 2 reached	 Continue Level 0 management strategy. Complete review of site wide water quantity and quality data integrating thermistor and piezometer data specific to the UG mine development to identify and assess cause(s) of the difference(s). Complete construction of GSP-3. Report results of detailed data review in Annual Report to the NWB.
Level 2 (Area of concern)	Reach max operational capacity in two of the three Groundwater Storage Ponds	 Continue Level 1 management strategy. Report results of detailed data review in annual reporting to the NWB including implications on the base case water management strategy and the evaluation of potential mitigation strategies such as: Improve underground mine pumping infrastructure; Improve grouting efficiency o Improve water treatment efficiency by increasing capacity by adding new treatment unit, installing mechanical evaporators, implementing in-line water treatment process and adding pre-treatment unit in the underground mine; Construction of an additional groundwater storage pond and/or additional UG water stopes; Evaluate feasibility of storing extra underground contact water within IVR pit until end of operation; or Evaluate deep well injection for high TDS water and/or meromictic pit lake disposal approach.
Level 3 (High Risk Situation)	Reach max operational capacity in the three of the four Groundwater Storage Ponds	 Continue Level 2 management strategy. Report results of detailed data review in annual reporting to the NWB including implications on the base case water management strategy and implement of potential mitigation strategies such as: Store extra underground contact water within IVR Pit until end of operation; or Perform deep well injection for high TDS water and/or meromictic pit lake disposal approach following approval from the NWB.

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