Agnico Eagle Mines Limited – Meadowbank Division

Whale Tail Pit Groundwater Monitoring Plan
RESPONSES TO REGULATORS REVIEW

November 9 2018

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ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

Interested Party:	**Environment and Climate Change Canada (ECCC)**	**Rec No.:**	**ECCC#1**
Re:	**Updates of the Groundwater Monitoring Plan**		

References:
Section 2.3.3 Groundwater Monitoring Plan

Comment:
ECCC notes that the groundwater/pit water flow regime for this project is not fully understood, and that certain assumptions were made in the Groundwater Monitoring Plan. As per Section 2.3.3, the Groundwater Monitoring Plan will be further defined as the open pit is developed. However, the Plan does not indicate how frequently the Plan will be reviewed for potential updates.

Recommendation:
ECCC recommends that the Groundwater Monitoring Plan specify how frequently the Plan will be reviewed for potential updates and recommends that the Plan be reviewed and updated on an annual frequency.

Agnico Eagle's Response to Recommendation:
The Groundwater Monitoring Plan will be reviewed annually and updated if required. If changes to the plan are necessary, it will be included with annual report as per our License requirements.

The update process presented in the groundwater monitoring plan is aligned with the principles of adaptive management presented in the water licence 2AM-WTP 1826 Part D Item 25:

> *'' The Licensee shall consider the principles of adaptive management in construction and operations.''*

For clarification, Agnico Eagle will comply with Water Licence 2AM-WTP 1826 Part B Item 13 which describes the groundwater monitoring plan update process:

> *'' The Licensee shall implement the following Plans also required under the Type "A" Water Licence 2AM-MEA1526 as approved (or accepted) by the Board. Any future updates to these Plans approved (or accepted) under the Type "A" Water Licence 2AM-MEA1526 or this Licence shall be applicable to both 2AM-MEA1526 and 2AM-WTP1826 Licences. Any changes*

to the plans deemed significant shall be considered as an amendment to the Plan(s) or as a modification and must be approved by the Board.

*a. Aquatic Effects Management Program (AEMP), Version 3 (November 2015)*1;*
b. Ammonia Management Plan - Whale Tail Pit Addendum, Version WT (June 2016);*
c. Core Receiving Environment Monitoring Program (CREMP), Version WT (June 2016)^;
d. Dewatering Dikes: Operation, Maintenance and Surveillance Manual, Version 6 (February 2017);*
e. Emergency Response Plan, Version WT (June 2016)^;
f. Groundwater Monitoring Plan, Version WT (June 2016);
g. Hazardous Materials Management Plan: Meadowbank Mine Site, Whale Tail Pit Site, Baker Lake Facilities, Version WT (June 2016);*
h. Quality Assurance/Quality Control (QA/QC) Plan, Version 3 (October 2015) accepted by the Board;*
i. Operational ARD/ML Testing and Sampling Plan, Version WT (June 2016)^;
j. Spill Contingency Plan, Version WT (June 2016)^.

1 The Plans identified as "Version WT" are addendums^ to existing Meadowbank Mine Project's plans; otherwise the most up-to-date Meadowbank plan is applicable ''*

Interested Party:	Environment and Climate Change Canada (ECCC)	Rec No.:	ECCC#2
Re:	Seepage Surveys		

References:
Section 2.4.1 Water Quantity

Comment:
During construction and operations, groundwater inflow to the pit will be evaluated as part of monthly updates to the overall pit water balance. This flow monitoring will be supplemented by periodic seepage surveys to be conducted twice (i.e., early summer and late August) during the first year of mining and once a year (i.e., August) thereafter. It is not clear why the early summer seepage survey is conducted only once and no longer continues after the first year of mining.

Recommendation:
ECCC recommends that Agnico Eagle Mines Ltd. (the Proponent) provide rationale for the timing and frequency of the seepage survey.

Agnico Eagle's Response to Recommendation:
Agnico Eagle will comply with the Water Licence 2AM-WTP 1826 Schedule I Table 2 – Monitoring program. Seep (ST-S-1 to TBD) will be monitored on a Monthly or as found basis during operation and closure.

TABLE 2 – MONITORING PROGRAM

Station	Description	Phase	Monitoring Parameters	Frequency
Mine Site				
ST-S-1 to TBD	Seeps (to be determined)	Operations	Group 1	Monthly or as found
		Closure	Group 1	Monthly or as found

Agnico Eagle would like to clarify that the bi-annual periodic seepage surveys presented in the groundwater management plan are referring to the process initiated in Meadowbank with the support of SNC-Lavalin in 2017. Total inflow to the pit will be monitored throughout the year. The purpose of the seepage surveys is to identify if there are preferential pathways, such as enhanced permeability zones, for inflow of groundwater to the pit. These surveys can only be undertaken during the summer months when the ice in the walls of the pit has melted and when there is water to observe and sample. Previous experience at other mines has found that these pathways do not change over the summer months, and the biannual monitoring in the first year is to confirm this observation is applicable to the Project. The objective of the

periodic seepage surveys is to complete a thorough analysis of the groundwater infiltration within the pit (i.e. Seep (ST-S-1 to TBD)) in order to characterize the different groundwater sources and implement the principles of adaptive management.

Interested Party:	Environment and Climate Change Canada (ECCC)	Rec No.:	ECCC#3
Re:	Groundwater Monitoring During Closure/Post-Closure		

References:
Groundwater Monitoring Plan

Comment:
The Groundwater Monitoring Plan does not describe groundwater monitoring during closure or post-closure.

Recommendation:
ECCC recommends that the Proponent provide clarification on plans for groundwater monitoring past operations.

Agnico Eagle's Response to Recommendation:
Agnico Eagle will monitor groundwater if and as needed during the Closure and Post Closure phases as per Water Licence 2AM-WTP1826 monitoring requirements for this period. These will be established prior to the Closure phase in collaboration with ECCC and the Nunavut Water Board (NWB).

Interested Party:	Environment and Climate Change Canada (ECCC)	Rec No.:	ECCC#4
Re:	Groundwater Monitoring Wells		

References:
Groundwater Monitoring Plan, 2017 Groundwater Monitoring Program Report for Meadowbank

Comment:
The 2017 Groundwater Monitoring Program Report for Meadowbank includes a Factual Report by SNC Lavalin. This report acknowledged that pit monitoring was not a good indicator of groundwater quality, and recommended that groundwater wells be installed in appropriate locations to measure quality.

It is not clear whether groundwater monitoring wells will be established to monitor groundwater flow and quality in flow paths adjacent to the pit and Waste Rock Storage Facility.

Recommendation:
ECCC recommends that the Proponent describe whether and how groundwater monitoring wells will be established to monitor groundwater flow and quality in flow paths adjacent to the pit and Waste Rock Storage Facility. In addition, ECCC recommends that the Proponent clarify whether any existing or planned groundwater monitoring wells will be displaced by the pit and/or by the Waste Rock Storage Facility, and if so, how groundwater data collection will be maintained.

Agnico Eagle's Response to Recommendation:
Agnico Eagle appreciates ECCC recommendation and would like to clarify that the main objective of the Groundwater Monitoring Program Report developed for Meadowbank was to monitor potential seepage from the Tailing Storage Facility. This document has no relevance to the Groundwater Monitoring Plan.

Agnico Eagle would like also to clarify that no groundwater flow is expected at the Whale Tail Waste Rock Storage Facility because the base of the WRSF will be frozen. Potential seepage is considered a surface water management issue; contact water will be collected at the toe of the waste rock storage facility and in the Contact Water Collection System of the WRSF. There is no groundwater flow path identified as this infrastructure is built above permafrost.

Based on this reasoning, no additional groundwater wells are planned to be installed on site.

Interested Party:	Environment and Climate Change Canada (ECCC)	Rec No.:	ECCC#5
Re:	Comparison of Monitoring Results Against Model Predictions		

References:
Section 2.5 Data Compilation and Updates to Groundwater Model

Comment:
As per Section 2.5 of the Groundwater Monitoring Plan, groundwater monitoring data will be compiled into a Project-specific database and evaluated for trends in groundwater data with respect to pit inflow quantity and quality. The Plan outlines how measured groundwater quantity will be compared to model predictions, and the steps taken if significant variations from model predictions are observed. However, the Plan does not outline/address how measured groundwater quality will be compared to model predictions, nor what steps would be taken should significant variations from model predictions be observed.

Recommendation:
ECCC recommends that the Groundwater Monitoring Plan outline how measured groundwater quality will be compared against base-case (i.e., expected) model predictions, and what steps would be taken should significant variations from model predictions be observed. For consistency of comparison, ECCC also recommends that the groundwater quantity results be compared against base-case (i.e., expected) model predictions. The Groundwater Monitoring Plan should be updated to include these details.

Agnico Eagle's Response to Recommendation:
Agnico Eagle appreciates the recommendation from ECCC. The groundwater monitoring data (i.e. quality and quantity) will be compiled in the water balance/water quality forecast and reported on an annual basis as per water licence 2AM-WTP1826 Part E Items 7 and 8. Groundwater quality in the inflow to the open pit will be compared to model predictions on an annual basis. If significant variations from model predictions are observed, the assumptions behind the data will be reviewed and the analysis updated if required. Variation that would be considered significant and indicate the need for data review and analysis include the collected water samples in the pit seepage indicating the TDS is more than 25% higher than the estimated water quality, on a rolling monthly average over six consecutive months. For further clarification please refer to Agnico Eagle response to CIRNAC#4 recommendation.

Agnico Eagle also refers ECCC to Agnico Eagle responses to recommendations ECCC#1 and ECCC#4 which details the management plan and model update process.

Interested Party:	Environment and Climate Change Canada (ECCC)	Rec No.:	ECCC#6
Re:	Monitoring Summary Table		

References:
Groundwater Monitoring Plan

Comment:
The Groundwater Monitoring Plan would benefit from the inclusion of a monitoring summary table so information is easier to understand. Information such as monitoring station numbers and descriptions, applicable project phase(s), monitoring parameters and frequency, and criteria/action levels should be included in the tabular summary.

Recommendation:
ECCC recommends including a tabular summary of the groundwater monitoring program in the Groundwater Monitoring Plan, including the data specified in the comment above.

Agnico Eagle's Response to Recommendation:
Agnico Eagle would like to refer ECCC to Water Quality and Flow Monitoring Plan which will comply with Water Licence 2AM-WTP 1826 Schedule I Table 2 – Monitoring program. An excerpt of Table 2 is presented below referring to the monitoring station related to groundwater monitoring requirement.

TABLE 2 – MONITORING PROGRAM

Station	Description	Phase	Monitoring Parameters	Frequency
Mine Site				
ST-S-1 to TBD	Seeps (to be determined)	Operations	Group 1	Monthly or as found
		Closure	Group 1	Monthly or as found
ST-GW-1 to TBD	Groundwater wells (to be determined) as required under Groundwater Monitoring Plan	Operations	Group 2	Annually
		Closure	Group 2	Annually
ST-WT-4	Whale Tail Pit or pit sump	Operations	Group 1	Four times per calendar year

Agnico Eagle refers ECCC to response to CIRNAC #4 recommendation for more details regarding the criteria/action levels definition.

CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	Background, Results of Review
Re:			

A. BACKGROUND

On July 11, 2018, the Minister of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) approved Agnico Eagle Mines Limited's (AEM) Whale Tail Pit Project Type 'A' Water Licence No. 2AM-WTP1826 application. The Whale Tail Pit Project is a gold deposit located near Baker Lake, Nunavut.

The Whale Tail Pit Project was part of a joint Nunavut Impact Assessment Board (NIRB) and Nunavut Water Board (NWB) process. The Groundwater Monitoring Plan was therefore reviewed by CIRNAC for its compliance with "commitments made with respect to submissions received during the technical review of the Application, as well as final submissions and issues raised during the 2017-2018 Public Hearing" of Part B Item 15 of Water Licence 2AM-WTP1826, and with Term and Conditions #10, #14, #15 and #16 of the NIRB Project Certificate.

On 17 October 2018, CIRNAC and AEM met to discuss the field data collected to date, and the corresponding assumptions of the hydrogeology and geochemistry models – along with the data provided in the additional information received by CIRNAC Waters on 12 October 2018. The content of those discussions have been used to inform the Groundwater Monitoring Plan review.

B. RESULTS OF REVIEW

The deficiencies noted in the following Summary of Review Findings and Recommendations demonstrate that the current Groundwater Monitoring Plan does not meet the minimum requirements and is therefore incomplete at this time. CIRNAC recommends the NWB not approve the May 2018 Version 1 Groundwater Monitoring Plan for the Whale Tail Pit project until the outstanding concerns are appropriately addressed.

CIRNAC recommends the following revisions/additions be implemented, and the updated Groundwater Monitoring Plan be re-submitted for review and approved prior to the initiation of dewatering from the North Basin of Whale Tail Lake.

Additionally, CIRNAC was informed on October 17, 2018 that AEM had no plans to install new groundwater monitoring wells and that sampling from the only operational well (Westbay multiport well) at the site was delayed significantly. This information was shared approximately half a year after AEM made its decisions on these issues, without consulting with CIRNAC or others on its intended approach. To ensure more proactive reporting and follow-up on hydrogeological issues, the Groundwater Monitoring Plan should

include provisions for more frequent communication between AEM, CIRNAC and other parties to identify, discuss and address known or potential risks associated with the groundwater regime. Given the short duration of the mine life and the benefits of mitigating emerging concerns as early as possible, we recommend that more frequent communication be held during the operational phase.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC and recommend to Nunavut Water Board (NWB) to approve the Whale Tail Project Groundwater monitoring plan (Agnico Eagle, 2018a). As a component of this plan, an updated summary of additional hydraulic data collected since the FEIS was provided. The additional data collection described in the plan included:

- The installation of a Westbay Well System in March and April 2016 and the collection of site-specific water quality data from three separate depth intervals in 2016;
- Supplemental hydrogeological investigations undertaken between 2015 and 2017 to further characterize the hydraulic conductivity of the bedrock near the Project area. These investigations resulted in an additional 49 measurements of hydraulic conductivity in unfrozen rock.

Expanded documentation of the data collection was provided for the meeting held in Iqaluit on October 17 2018 in two emails from Agnico Eagle to CIRNAC on October 12 2018 related to the July 2018 meeting and existing information from the FEIS, and summarized in meeting presentation material appended to this document (Agnico Eagle, 2018b). Agnico Eagle communicated in the October 17 2018 meeting that the Westbay Well System will be resampled in November 2018 and that this sampling will include the measurement of hydraulic head and vertical gradients, and that the results of the monitoring will be submitted to regulators.

The Westbay well system is described in Golder (2016a, b). This report was provided to CIRNAC for the October 17 2018 meeting. The well was installed in a borehole that was drilled to a depth of 499 m along the borehole (465m below ground surface). The Westbay system is a multi-level sampling system, in this case consisting of 6 sampling ports, and because of this it is equivalent to installing six conventional wells at different depths and slightly offset spatially. This allows for the measurement of a vertical profile of hydraulic head and groundwater quality within the talik. Pressure measurements to be collected again in November 2018 will provide field verification of interpreted groundwater conditions below Whale Tail Lake for baseline conditions.

This groundwater instrumentation method was adopted after failed attempts to install three conventional wells in the talik near the open pit for the collection of representative groundwater samples during the FEIS baseline data collection (Appendix 6A of the FEIS). The location of the Westbay well system was chosen for its ability to intersect an open talik despite drilling restrictions (setbacks, drill angle, and talik location). Near the open pit, the required environmental set back distance for drilling (31 m from the shoreline), combined with the shallow depth of the closed talik near the

shoreline and the available borehole drilling angles, limits the practicality of installing wells close to the pit footprint.

The installation of additional wells outside of the Westbay is not considered necessary to further characterize baseline conditions and reduce uncertainties regarding potential environmental effects of the project on the groundwater flow system. Potential hydraulic gradients and flow directions for baseline and long-term post closure conditions can be derived from the relative lake elevations in the study area as described hereafter. During mining, flow will be towards the pit, and the relative elevation of the lake level behind the dike, in combination with the attenuation pond elevation and dewatered pit elevation can be used to estimate hydraulic gradient. Groundwater quality during operations can be verified during mining through the collection of samples taken from pit sumps and from seepage faces in the summer months along the pit walls.

- The planned Whale Tail Pit sits within the closed talik below the North Basin of Whale Tail Lake. The closed talik is inferred to transition to open talik below the South Basin due to the increased width and depth of the lake towards the south. The water table below both basins will be equivalent to the lake surface elevation.
- Permafrost underlies the land surrounding the lake, which restricts the lateral flow of groundwater to the talik and restricts the recharge of the sub-permafrost groundwater flow system by precipitation. Groundwater flow is controlled by surface water elevations in lakes with open taliks; water moves vertically through the open talik to the underlying sub-permafrost groundwater flow system. In effect, lakes with open taliks in continuous permafrost regions are equivalent to large monitoring wells. A conceptual image of flow to and from lakes with open taliks is shown on Figure 1.
- The maximum hydraulic gradients in the project area can be directly estimated based on the lake elevations and the shortest travel distance between Whale Tail Lake and other nearby lakes with open taliks. This includes the lateral hydraulic gradient in the deeper sub-permafrost flow system and vertical hydraulic gradient in the open talik.
- The closest nearby lakes with open talik, as identified in the baseline report, are Nemo, Mammoth and Lake A60. The relative lake elevations and shortest travel distances between these lakes and Whale Tail Lake are summarized in Table 1. In consideration of these measured lake elevations (Appendix 6C of the FEIS), the hydraulic gradient below Whale Tail Lake can be estimated to range from an upward gradient of 0.01 m/m between Lake A60 and Whale Tail Lake and a downward gradient of 0.004 m/m between the Whale Tail Lake and DS1. These gradients are consistent with model predictions, which indicates that baseline sub-permafrost groundwater flow is from Lake A60 to the south basin of Whale Tail Lake and from the north basin of Whale Tail lake to DS1. These gradients are relatively insensitive to seasonal variations in lake level because of the large travel distances between lakes and the small relative changes

between lake levels (i.e., all lake levels rise in the summer due to surface water flow and lower during the winter; therefore, the change in the relative difference in lake levels is small).

- Recharge and discharge from the base of Whale Tail Lake or a flooded pit lake will be controlled by the hydraulic gradients and the bedrock hydraulic conductivity near the base of the permafrost. The deeper bedrock near the base of the permafrost has an estimated hydraulic conductivity in the FEIS of 1 x 10^{-8} m/s to 3 x 10^{-8} m/s (Appendix 6A of the FEIS). Considering the approximate area of the pit (0.5 km^2), the bedrock hydraulic conductivity, and the conservative estimates of hydraulic gradients, groundwater flux to the flooded pit could range from an inflow of approximately 13 m^3/day to an outflow of 11 m^3/day. Post-closure modelling, which incorporates gradients calculated from the combined interaction of each the lakes in the study area, predicted a long-term discharge from the pit lake of 1.7 m^3/day. Hydraulic conductivity testing taken since the FEIS has shown that the deeper bedrock hydraulic conductivity is lower than assumed in the FEIS about 10^{-9} m/s; therefore, flow to or from the lake would likely be lower than these estimates.
- The predicted and estimated maximum flows are negligible compared to the 3,000,000+ m^3 of surface water exchanged annually post-closure when flows are re-established, based on average climate year watershed runoff. This indicates that uncertainty in the hydraulic gradient is not critical to the long-term assessment of pit lake water quality.

Table 1: Calculated Hydraulic Gradients near Whale Tail Pit

Lake	Surface Water Elevation (m)	Shortest Distance to Whale Tail Lake (km)	Hydraulic Gradient near Whale Tail Lake
Whale Tail Lake	152.5	-	-
Lake A60	170.5	1.7	0.01 upwards
Mammoth	152.3	1.1	-0.0002 downwards
Nemo	155.8	1.9	0.002 upwards
DS1	99.4	6.4	-0.008 downwards

Note: Lake elevation based on manual measurements reported in the Hydrology Baseline Report (Appendix 6C of FEIS).

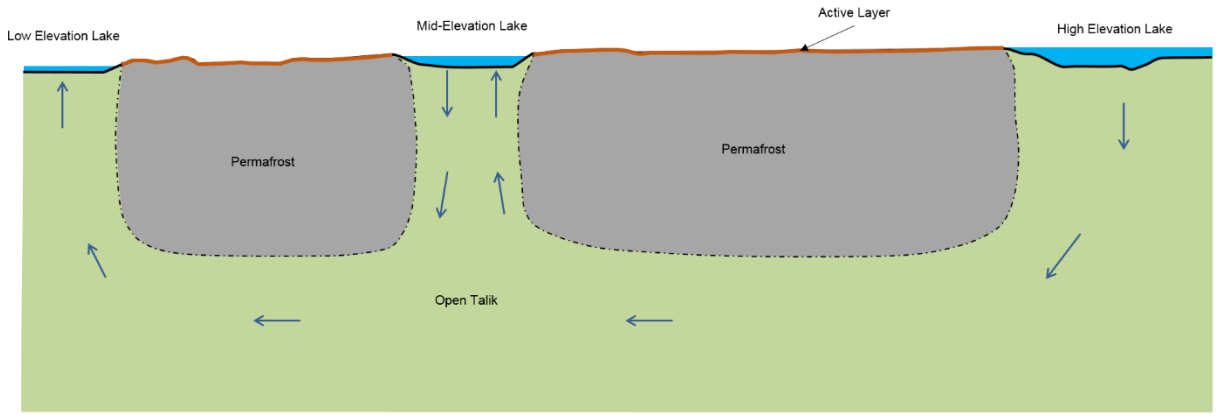


Figure 1: Conceptual Groundwater Flow between Areas of Open Talik

In summary, Agnico Eagle considers the current data set to provide adequate understanding of baseline conditions for the purposes of assessing environmental effects. Hydraulic head monitoring and groundwater sampling of the Westbay well system will be conducted in November 2018 data will be collected per the Groundwater Monitoring Plan. These data will be used, as required, as input to future updates of the groundwater flow model.

References:

Agnico Eagle Mines Ltd. 2018a. Whale Tail Pit Project – Groundwater Monitoring Plan. Version 1. Submitted as part of Project Certificate No. 008, T&C 15 and 16. May 2018

Agnico Eagle Mines Ltd. 2018b. Whale Tail Pit. CIRNAC and Agnico Eagle, Iqualuit, Nu. October 17, 2018.

Agnico Eagle Mines Ltd. 2016a. Whale Tail Pit Project – Meadowbank Mine Final Environment Impact Statement and Type A Water License Amendments, Volume 6, Appendix 6A. Hydrogeology Baseline Report. Prepared by Golder Associates for Agnico Eagle Mines Ltd. June 2016

Agnico Eagle Mines Ltd. 2016b. Whale Tail Pit Project – Meadowbank Mine Final Environment Impact Statement and Type A Water License Amendments, Volume 6, Appendix 6C. Hydrology Baseline Report. Prepared by Golder Associates for Agnico Eagle Mines Ltd. June 2016

Golder Associates Ltd. 2016a. Westbay System Installation Summary – Whale Tail Pit Project, Nunavut. 7 July 2016.

Golder Associates Ltd. 2016b. Groundwater Quality Investigation, Amaruq, Nunavut. 15 November 2016.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#1**
Re:	**New Site-Specific Hydraulic Data**		

Finding:

Throughout the NIRB and NWB regulatory processes, CIRNAC expressed concerns regarding water quality in the flooded Whale Tail Pit after closure. Those concerns are related primarily to uncertainties associated with pit wall chemistry and flows that may discharge to the pit. CIRNAC repeatedly indicated that the uncertainties should be resolved through additional characterization of the groundwater regime. This included multiple recommendations that new field data be collected from new groundwater wells prior to mine development.

As per CIRNAC's submissions to the NWB, CIRNAC expected that its recommendations for additional hydrogeological characterization would be provided in the updated management and monitoring plans. This requirement is also captured in the NIRB Project Certificate Term and Condition #15 which requires that the Groundwater Monitoring Plan include "The collection of additional site-specific hydraulic data (e.g., from new monitoring wells) in key areas during the pre-development, construction and operation phases.". The Plan is also required to provide new information that allows for the "Definition of vertical and horizontal groundwater flows in the project development areas".

On October 17, 2018 AEM confirmed to CIRNAC that it has not installed any new monitoring wells since the Westbay multiport well. As a result, a single Westbay multiport well continues to be the only functioning groundwater sampling station on the Whale Tail property. While we acknowledge that the Westbay system is capable of providing important information to characterize the groundwater regime, a single station provides little information to define horizontal flow gradients. As such, there continues to be uncertainty regarding hydraulic gradients in the vicinity of the pit and, by extension, this introduces uncertainty regarding the post-closure water quality of the flooded pit.

AEM informed CIRNAC on October 17, 2018 that a Westbay sampling event scheduled for June 2018 was delayed until November 2018. The delay was reportedly required due to the presence of operational activities that rendered the well area unsafe during the original sampling event. No explanation was provided to justify the five-month delay during the critical pre-development period.

Based on the above, AEM has not collected the new predevelopment site-specific hydraulic data as recommended by CIRNAC and required by the Project Certificate. However, the company has refined its desk-top modelling of groundwater interactions with the pit. The refined modelling predicts that post closure arsenic concentrations in the flooded pit are likely to be below the applicable water quality criterion. There continue to be uncertainties regarding post closure water quality in the flooded pit but the revised modelling has helped to confirm that the negative implications associated with those uncertainties have reduced since the review of the Project's Application.

Notwithstanding the new modelling information presented by AEM, their analyses were conducted using data collected from a single groundwater monitoring location (i.e., the Westbay system) that may not be representative of conditions throughout the site. They also rely on the assumption that groundwater will

flow northward, despite the fact that some lake levels are inconsistent with that assumption (i.e., Nemo Lake to the north is higher than Whale Tail Lake).

All factors considered, CIRNAC maintains that at least one additional deep groundwater well is desirable to characterize and validate AEM's assumptions regarding hydrogeological flows within the project area. The information collected from the new well(s) would help to validate AEM's assumptions regarding groundwater flows in the vicinity of the pit. While CIRNAC appreciates that developing such wells is challenging, the successful installation of the Westbay well demonstrates it can be done and that it will provide valuable information.

Recommendation:

Following consultation with relevant regulatory authorities (including CIRNAC), AEM should install at least one additional deep groundwater monitoring well that extends into the subpermafrost groundwater regime to the north of the Whale Tail Pit. In combination with the existing Westbay system, the new well(s) will help to characterize the local groundwater regime. Installation should occur prior to dewatering of the Whale Tail Lake – North Basin. In the absence of this information, CIRNAC would request more frequent monitoring, data analysis and reporting.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC recommendation. The installation of additional wells outside of the Westbay is not considered necessary to further characterize baseline conditions and reduce uncertainties regarding potential environmental effects of the project on the groundwater flow system. Potential hydraulic gradients and flow directions for baseline and long-term post-closure conditions can be derived from the relative lake elevations in the study area as described Agnico Eagle's response to CIRNAC's recommendation regarding Background, Results of Review. During mining, flow will be towards the pit, and the relative elevation of the lake level behind the dike, in combination with the attenuation pond elevation and dewatered pit elevation can be used to estimate hydraulic gradient. Groundwater quality during operations can be verified during mining through the collection of samples from the pit sump and seepage faces along the pit walls in the summer months. Agnico Eagle refers CIRNAC to Agnico Eagle response to CIRNAC Background, Results of Review comments for further details.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#2**
Re:	**Figure 2-2**		

Finding:

Linked to the previous point, the Groundwater Monitoring Plan makes no reference to future sampling from the Westbay system or any other groundwater wells that AEM plans to install. Instead, the Plan relies primarily on the sampling of groundwater that reports to the pit during the operational phase. While such data will be useful in efforts to detect water quality concerns that have already materialized, it will provide limited information in efforts to characterize the pre-development and post-closure hydrogeological conditions of the site.

Recommendation:

AEM should incorporate well monitoring into the Groundwater Monitoring Plan to help identify, characterize and address potential hydrogeological risks associated with the Project. The well monitoring should include detailed descriptions regarding how the existing Westbay system and any new wells will be incorporated into the Groundwater Monitoring Plan (scheduled monitoring events of groundwater quality and flow, etc.).

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC recommendation, as the installation of additional wells outside of the Westbay is not considered necessary to further characterize baseline conditions and reduce uncertainties regarding potential environmental effects of the project on the groundwater flow system.

Agnico Eagle will report groundwater quality and flow on an annual basis as per water licence Part E Item 7 and 8 and refers CIRNAC to Agnico Eagle response to recommendation ECCC#4 for more details.

Agnico Eagle provided a monitoring event schedule and refers CIRNAC to the Water Quality and Flow Monitoring Plan and water licence 2AM-WTP1826 Table 2. Agnico Eagle response to recommendation ECCC#6 is providing more details to this effect.

Agnico Eagle will continue to evaluate the groundwater monitoring during the operation of the Whale Tail Project as per water licence requirement. Agnico Eagle refers CIRNAC to Agnico Eagle response to recommendation ECCC#1 which summarize the Groundwater Monitoring Plan update process specified in the water licence 2AM-WTP1826.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#3**
Re:	**Thermal Monitoring**		

Finding:

The current Groundwater Monitoring Plan does not include any information related to additional site-specific permafrost monitoring, mapping, and thermal analysis. Based on the documentation reviewed, CIRNAC has yet to see evidence confirming there is an open talik beneath Whale Tail Lake. Further, CIRNAC notes that these additional thermal analyses are also a requirement under NIRB Project Certificate Term and Condition #10.

Recommendation:

Based on the importance of ground temperatures to the behaviour of the hydrological regime, CIRNAC recommends that additional site-specific permafrost mapping, monitoring, and thermal analysis be incorporated into the Groundwater Monitoring Plan, particularly in the vicinity of the north wall of the pit. Evidence should be provided demonstrating there is an open talik beneath Whale Tail Lake.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC recommendation. Thermal analysis was completed during the FEIS and Licence A application process to define the site-specific permafrost conditions on site. The Thermal monitoring program detailed in the Thermal Monitoring Plan (in response to Term and Condition #10) and the Waste Rock Management Plan provides the monitoring and thermal analysis described in the CIRNAC recommendation. Agnico Eagle submitted the Thermal Monitoring Plan to NIRB in May 2018 to comply with PC term and condition #10 & #14 and presented thermal analysis results which address TC #10 to CIRNAC during the meeting held in July 2018. Additionally, results of the additional thermal analysis completed on the regional permafrost for post closure conditions were presented in July 2018 and a report on this analysis titled: "Whale Tail Pit - Post Closure Hydrogeological Assessment for the Whale Tail Open Pit", dated June 27, 2018, was provided to CIRNAC by Agnico Eagle on October 12th (attachment to email from Agnico Eagle to CIRNAC).

The assumption of an open talik below south Whale Tail Lake is conservative with respect to the prediction of potential groundwater inflow to the dewatered open pit, as it allows for the potential interception of deeper saline groundwater. If an open talik is not present, inflows could be less than predicted and of better TDS quality. Long-term closure predictions with respect to arsenic loading are not expected to be affected by the assumption of an open or closed talik, as the permafrost will eventually degrade below the pit foot print and connect the shallow talik to the deeper flow system. Maximum rates of discharge from the pit lake presented in Agnico's Eagle's response to CIRNAC's recommendation regarding "Background, Results of Review" would still be applicable (maximum inflow of 13 m3/day to an outflow of 11 m3/day). The predicted and estimated maximum flows are negligible compared to the 3,000,000+ m3 of surface water exchanged annually post-closure when flows are re-established, based on average climate year watershed

runoff. This indicates long-term lake levels will not be affected by the permafrost degradation and that the uncertainty in the presence of open talik is not critical to the long-term assessment of pit lake water quality, and that the present assumption of open talik is conservative with respect to predictions of groundwater inflow quantity and quality during operations.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#4**
Re:	**Thresholds and Adaptive Management**		

Finding:

Thresholds triggering implementation of adaptive mitigations are fundamental requirements of the adaptive management process to mitigate uncertainties and address emerging conditions. However, the current version of the Plan lacks any information related to thresholds and, more generally, adaptive management strategies AEM will implement to reflect site-specific conditions encountered at the project site. This is an important deficiency and, as a result, the current version of the Plan needs to be updated to incorporate clearly the adaptive management strategies.

Additionally, CIRNAC notes the inclusion of "Thresholds that will trigger the implementation of adaptive management strategies that reflect site-specific conditions encountered at the project site" in the Groundwater Monitoring Plan is required under NIRB Project Certificate Term and Condition #15.

Recommendation:

CIRNAC recommends that AEM revise the Groundwater Monitoring Plan to include clear descriptions of the thresholds and adaptive management practices that will be used to identify, assess and respond to groundwater issues that have the potential to result in adverse environmental impacts.

Agnico Eagle's Response to Recommendation:

Groundwater monitoring data will be compiled into a Project-specific database and evaluated for trends in groundwater data with respect to pit and underground inflow quantity and quality.

Measured groundwater inflow rates will be compared to model predictions on an annual basis. If significant variations from model predictions are observed, the assumptions behind the data will be reviewed and the analysis updated if required. In addition, updates to the groundwater model will be made if operational changes occur as the open pit advances which could significantly alter groundwater inflow or quality.

Variations that would be considered significant include:

- Groundwater inflows to the mine, based on rolling monthly average of inflow over six consecutive months, is 20% higher than predicted groundwater inflow.
- Collected water samples that indicate that the TDS is more than 25% higher than the estimated water quality.

Observed inflow that is lower than expected with respect groundwater inflow and quality would not be of concern and/or effect water management plans on-Site. Model updates or analysis would therefore not be conducted if predicted inflow quantity and quality is higher than observed conditions.

If the above variations are observed, the groundwater data would be assessed to evaluate trends, the potential causes of the greater than expected groundwater inflow quantity or quality, and the potential for long-term effect associated with the groundwater flow or quality. If the greater than predicted flows were correlated to a short-term effect such as freezing in the pit walls, changes in mining rate, freshet or transient drainage of a high storage feature, then further reassessment of groundwater inflows may not be required and the adaptive management of these short-term effects would be evaluated under the Water Management Plan (WMP).

If the greater than predicted flows or quality would be considered as potentially long term, this may warrant review of the model calibration. The six-month averaging period of observation is based on observed seasonal variations in inflow quantities in mines situated in permafrost regions.

If model re-calibration is deemed necessary, future groundwater inflow quantity and quality would be predicted using this re-calibrated model and new results will be considered as part of the adaptive management of the groundwater quantity contribution to the WMP.

Modification of groundwater management strategies: the ponds, sumps and water conveyance strategies around the pit can be modified to mitigate the effect of additional groundwater volume or salinity prior to treatment and discharge. The water conveyance strategy will be evaluated and optimized during operations and closure to maintain post-closure commitments.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#5
Re:	S.3.1		

Finding:

Based on the concerns regarding water quality in the flooded Whale Tail Pit after closure expressed by CIRNAC throughout the review processes, the Groundwater Monitoring Plan should describe how AEM will accomplish the following:

a. Conduct additional analyses to determine the approximate fill time for the Whale Tail Pit at closure;

b. Undertake a hydrogeological characterization study to assess the potential for arsenic and phosphorous diffusion from submerged Whale Tail pit walls;

c. If the results of the characterization study indicate a moderate to high potential for arsenic and/or phosphorous diffusion, perform detailed hydrodynamic modelling of the flooded pit lake prior to closure to evaluate meromictic conditions and flooded pit water quality; and

d. Add these required activities to the site Groundwater Monitoring Plan.

During meetings held in July and October 2018, AEM presented additional information related to the items noted above.

However, the current version of the Groundwater Monitoring Plan does not include any descriptions of how each of the items will be achieved. Additionally, the description of AEM's plan to fulfill these requirements is requested in Project Certificate Term and Condition #16.

Recommendation:

CIRNAC recommends that the Groundwater Monitoring Plan be revised to include all information specified in Project Certificate Term and Condition #16.

Agnico Eagle's Response to Recommendation:

The Project Certificate Term and Conditions #16 has already been fulfilled whereby a multi-level Westbay well system has been put in place to obtain groundwater quality data and flow data; a detailed post-closure hydrogeological and permafrost model were completed; a detailed diffusion model was completed to more adequately define the effects of this chemical process from submerged pit walls; and, a pit lake hydrodynamic model as well as a receiving lake (Mammoth Lake) hydrodynamic model were completed to assess the potential for meromixis and assess effects of all these processes. The results of these assessments were presented to CIRNAC in July 2018 and results pertaining to these assessments were again discussed during a meeting with CIRNAC in Iqaluit on October 17 and 18 2018. The results of the compendium of these studies indicated diffusion will not affect water quality in the pit lake; mass transfer to water is very low even under the conservative assumptions of the calculations. The study further determined that the seepage into and out of the pit lake are negligible in volume, particularly compared to surface water exchanged annually post-closure when flows are re-established based on average climate

year watershed runoff. The combination of results corroborate to support that the hydrogeological regime around the pit lake is not critical to pit lake water quality.

The activities of monitoring and modeling updates have been included in the Water Management Plan. Agnico Eagle will comply with Water Licence 2AM-WTP 1826 Part E Item 8 which is describing the water quality forecast update process:

> *''The Licensee shall submit a Water Quality Model for pit re-flooding and for WRSF contact water mixing into Mammoth Lake post-Closure as part of the Water Management Plan which shall be re-calibrated as necessary and updated annually following commencement of Operations. The results and implications of the predictive model shall be reported to the Board. ''*

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#6
Re:	Sensitivity Analyses on Groundwater Flows		

Finding:

S.2.3.2 of the Plan states: "Preliminary evaluation of these values with respect to groundwater flows indicate that the inflow to the pit could be up to five times higher (up to 1,400 m3/day)." This statement indicates that AEM anticipates groundwater flows into the pit may be significantly greater than the baseline case. While the statement refers to the operational phase, we assumed it may also apply to the post-closure period after the pit has flooded.

Recommendation:

CIRNAC recommends that AEM confirm whether the uncertainty in groundwater volumetric flow rates to the pit were incorporated into modelling that was used to determine arsenic concentrations in the pit after closure.

Agnico Eagle's Response to Recommendation:

Supplemental data indicates that that the shallow bedrock hydraulic conductivity was underestimated in the FEIS, and therefore, that the predicted inflow to the open pit during mining was underestimated. This is because dewatering of the pit will induce water to flow from the South Basin of Whale Tail Lake to the open pit through the upper 40 m of weathered bedrock.

Also, the supplemental data indicated that the deeper bedrock hydraulic conductivity (greater than 100 metres below ground surface), which controls the hydraulic connection to the regional groundwater flow system, was overestimated (10^{-8} m^3/s in the FEIS, versus the 10^{-9} m/s indicated by the supplemental data collection). The overestimate of hydraulic conductivity adopted for the deep bedrock in the FEIS indicates that the groundwater flux rates predicted to and from the pit lake post closure are conservatively high and they are expected to be lower. Notwithstanding this, the demonstration has been made, as stated in the responses to CIRNAC #5, that arsenic or any constituent concentration in the flooded pit lake is insensitive to the hydrogeological regime around the pit post-closure.

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#7
Re:	Table 3-1		

Finding:

The table indicates groundwater wells will be sampled only once per year.

Recommendation:

Based on the importance of characterizing the groundwater regime during the short operational period of the mine, CIRNAC recommends that the sampling frequency be increased such that wells are sampled once per month during periods in which the wells are unfrozen. This is necessary to validate current assumptions regarding groundwater flows and quality in the vicinity of the pit.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC recommendation. Additional sampling of the groundwater well is not necessary to further characterize baseline conditions to validate current assumptions regarding groundwater flows and quality in the vicinity of the pit. Agnico Eagle will commit to the groundwater sampling requirement identified in the water licence 2AM-WTP1826 Table 2. An excerpt of the table 2 is presented below referring to the monitoring station related to groundwater monitoring requirement.

TABLE 2 – MONITORING PROGRAM

Station	Description	Phase	Monitoring Parameters	Frequency
Mine Site				
ST-S-1 to TBD	Seeps (to be determined)	Operations	Group 1	Monthly or as found
		Closure	Group 1	Monthly or as found
ST-GW-1 to TBD	Groundwater wells (to be determined) as required under Groundwater Monitoring Plan	Operations	Group 2	Annually
		Closure	Group 2	Annually
ST-WT-4	Whale Tail Pit or pit sump	Operations	Group 1	Four times per calendar year

Interested Party:	Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)	Rec No.:	CIRNAC#8
Re:	Table 3-1		

Finding:

The Plan indicates that water collected in the Whale Tail Pit or pit sump (ST-WT-4) will be analyzed four times per year. Given the importance of accurately characterizing future pit water quality, more frequent sampling is justified.

Recommendation:

CIRNAC recommends that sampling and analysis occur monthly whenever water is reporting to the pit (including flooding during closure). Further, all water volumes pumped from the pit should be measured.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC recommendation. Agnico Eagle has committed to the sampling requirement identified in the Water Licence 2AM-WTP1826 Schedule I Table 2. An excerpt of the table 2 is presented below referring to the monitoring station related to groundwater monitoring requirement.

TABLE 2 – MONITORING PROGRAM

Station	Description	Phase	Monitoring Parameters	Frequency
Mine Site				
ST-S-1 to TBD	Seeps (to be determined)	Operations	Group 1	Monthly or as found
		Closure	Group 1	Monthly or as found
ST-GW-1 to TBD	Groundwater wells (to be determined) as required under Groundwater Monitoring Plan	Operations	Group 2	Annually
		Closure	Group 2	Annually
ST-WT-4	Whale Tail Pit or pit sump	Operations	Group 1	Four times per calendar year

Agnico Eagle will report to NWB all water volumes pumped from the pit on a monthly basis as per water licence 2AM-WTP1826 Part I Item 10 point g:

> ''*10. The Licensee shall measure and record the following on a Monthly basis in cubic metres or as otherwise stated:*
>
> *a. The volume of fresh Water obtained from Nemo Lake;*
> *b. The volume of fresh Water obtained from Whale Tail Lake;*
> *c. The volume of fresh Water de-watered from Whale Tail Lake (North Basin);*

d. The volume of fresh Water obtained for the purposes of explosives mixing;

e. The volume of Effluent and fresh Water transferred to the pit lakes;

f. The volume of fresh Water obtained for dust suppressant along the Whale Tail Pit Haul Road;

g. The flow during periods of discharge from the Landfill, Waste Rock Storage Facilities, Wastewater Treatment Plant, Contact Water Collection System, and area Sumps collecting Contact Water;

h. The volume of water transferred from the Whale Tail Bulk Fuel Storage Facility;

i. The volume of sludge removed from the Sewage Treatment Plant and Wastewater Treatment Plant; and

j. Tonnes of mineralized and un-mineralized waste rock stored. ‘’

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#9**
Re:	**Table 3-1**		

Finding:

While the current plan includes sampling of water collected in the base of the pit (i.e., ST-WT-10), no stations are provided to differentiate between different sources of loadings to the pit.

Recommendation:

CIRNAC recommends that monitoring of pit seep quality be incorporated into the plan, particularly in the vicinity of lithologies with high acid rock draining and metal leaching (ARD/ML) potential.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with CIRNAC recommendation. Agnico Eagle is already committed to carrying out a seepage survey twice during the first year and once a year thereafter, wherever and out of whatever lithology seepage may be observed.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#10**
Re:	**S.3.3**		

Finding:

The Plan states that results of the annual monitoring will be compared to the FEIS water quality predictions to determine if conditions are similar to predicted. Based on the important uncertainties related to surface water quality and the short duration of the proposed operation, annual comparisons are insufficient.

Recommendation:

CIRNAC recommends that the comparisons be performed and reported on a quarterly basis. This will facilitate a more rapid identification of potential emerging concerns and, where necessary, management plans can be implemented more expediently.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with this comment. As per discussions held during the hearings, this is typically completed every two (2) years, but Agnico Eagle has agreed to complete this more frequently; every year. The updated Water Quality Forecast will be provided annually as part of the annual report. Agnico Eagle feels there are no important uncertainties related to surface water and annual updates to the Water Quality Forecast are sufficient.

Interested Party:	**Crown-Indigenous Relations and Northern Affaires Canada (CIRNAC)**	**Rec No.:**	**CIRNAC#11**
Re:	**Figure 3-1 & S.5.3**		

Finding:

The Plan indicates that the NWB, CIRNAC Inspector and KIA will be informed if water concentrations exceed applicable criteria (i.e., regulatory thresholds). However, no commitments are made to inform regulators if trigger levels have been reached.

Recommendation:

To ensure regulatory authorities are aware of emerging issues, CIRNAC recommends that the same parties are also informed when trigger levels are reached.

Agnico Eagle's Response to Recommendation:

Agnico Eagle does not agree with this comment. As per the CREMP, triggers have been defined as early warning criteria that may lead to action. Exceedance of a trigger value does not necessarily imply that an adverse effect may be expected. The triggers may be based on absolute numbers or statistical criteria.

As such, the objective of triggers is to raise yellow flags internally.

To the contrary, thresholds are legal requirements or regulatory guidelines under which Agnico Eagle is allowed to operate.

APPENDIX A
October 17 2018 Meeting – Agnico Eagle presentation

WHALE TAIL PIT

OCTOBER 17 2018
CIRNAC AND AGNICO EAGLE
IQALUIT, NU

PROPOSED AGENDA

- 9:00 – Introductions and teleconference set-up,
- 9:15 – 10:00 – Overview current activities and approved operational plan for 2018-2019
- 10:00- 11:00 – Review historical and current data collection that supports our review of hydro-geological model and water quality predictions
- 11:00- 12:00 – Approved Operational Monitoring, Mitigation and Management of Activities
- 12:00- 12:30 – Discussion
- 12:30 – 13:30 – Lunch break and deliberation
- 13:30 – 14:30 – Discussion and next steps

SUMMARY OF MEETINGS TO DATE

In person discussions/ meetings to discuss hydrogeology, water quality predictions, monitoring and management of activities:

1. April 28 – 29th, 2017 – Technical Meeting (May 1-2, 2017 – PHC)
2. June 12, 2017
3. June 29, 2017
4. August 10, 2017
5. September 19- 22nd, 2017 - Final Hearings
6. July 26th, 2018
7. October 17th, 2018
    1. Summarize the instrumentation, field and laboratory data collected to date
    2. Alignment on current understanding of data: hydraulic gradient and GW data

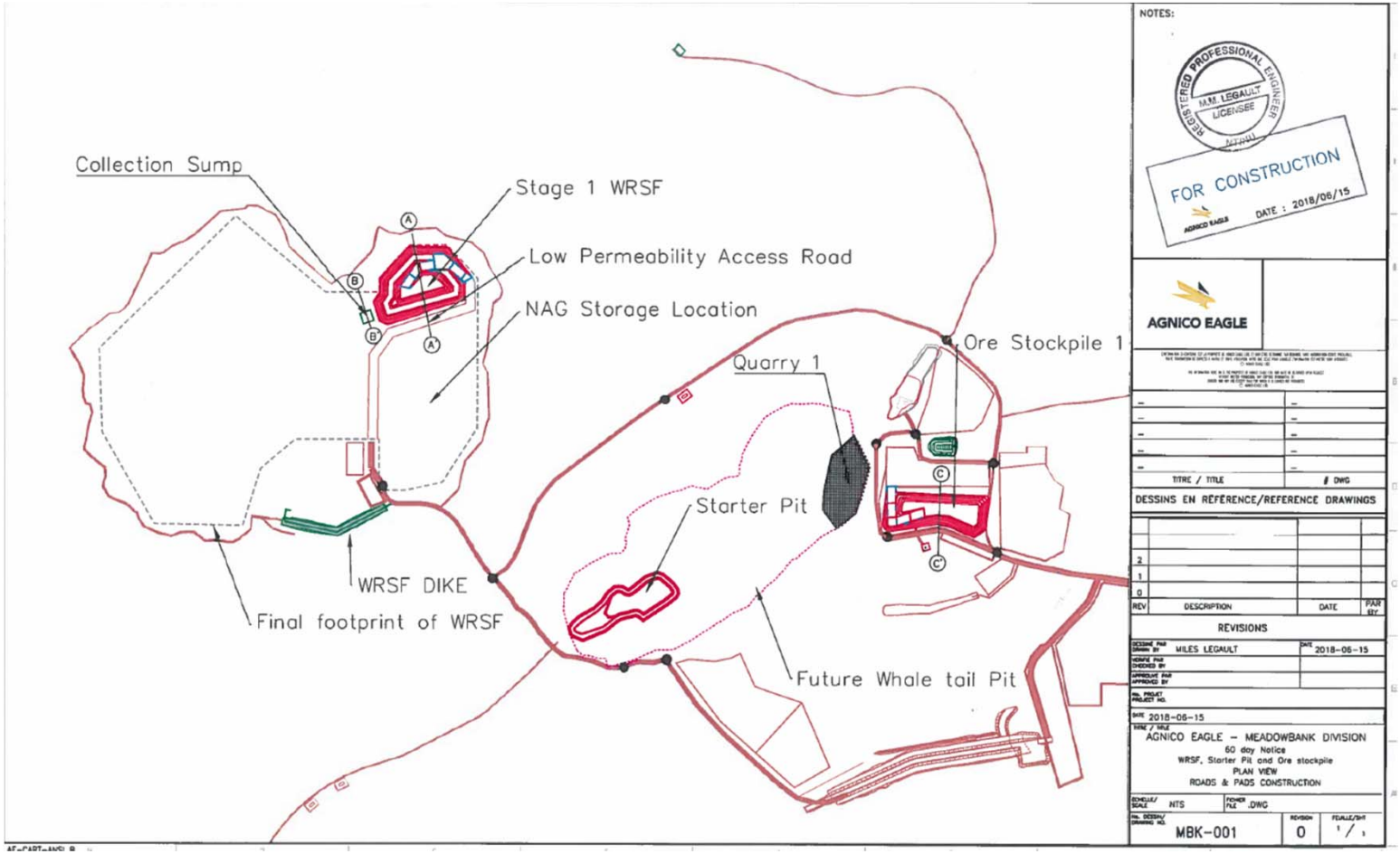
REGULATORY SUBMISSIONS, APPROVAL AND CONSTRUCTION SCHEDULE /TIMELINES

AGNICO EAGLE

- December 1, 2016 Type 2BB – MEA1318 – Amaruq Ramp, bulk sample and Quarry permit received
- May 23rd , 2018 - NWB letter to Minister
- June 1st, 2018 – 30 day notice of dike design to NWB
- June 29th, 2018 – 60 day notice for site layout to NWB (including starter pit and WRSF)
- **July 11th, 2018 - Ministers Decision and NWB Type A Received**
- July 11th , 2018 - Turbidity curtain installation and dike preparation begins on the abutments
- July 25th – DFO Authorization received
- July 25th – Whale Tail dike construction planned to start
- August, 2018 – platform construction
- August to October 2018 – Fishout of North Basin
- August 9th, 2018 – Received authorization to begin Starter pit, WRSF, Roads, WRSF dike, etc approved.

NWB APPROVAL OF 2018- 2019 WHALE TAIL PIT ACTIVITIES

60 DAY NOTICE – SENT JUNE 29TH, 2018; APPROVAL OF BELOW SITE LAYOUT ON AUGUST 9TH, 2018 – WHICH INCLUDES THE STARTER PIT AND WRSF



CURRENT OPERATIONAL TIMELINES

PRESENT TO JULY 2019

- Quarry 1 – activities are ongoing
- Starter Pit (Quarry 2)
  - Nov 5th, 2018 - overburden excavation for the next 20 days
  - Nov 5th, 2018 – February 9th, 2019 (~4 months) exhaust Starter Pit
  - December 2018 onward – begin excavation of larger pit that follows the dewatering schedule
- Construction of the WRSF is beginning based on material availability
- WRSF dike construction
  - Presently, excavating the foundation at the moment (presently, Agnico Eagle doesn't have enough material from Quarry 1; Starter Pit is
  - Plan to finish in March, 2018
- Mammoth Dike – January to March 2018
- Construction of Whale Tail Dike
  - Underway as soon as the permits were received on July 11th, 2018
  - Continue construction January/ beginning in February 2019
- Dewatering beginning of February to July - 3- 5 months to dewater depending on water quality
- West-bay data collection – October - November 2018
- July 2019 - production of larger open pit

NWB APPROVAL UNDER NWB 2AM WTP 1826

QUARRY 2/ STARTER PIT OPERATION/ & WASTE ROCK STORAGE FACILITY OPERATION

↗ Page 6 - Part B – General Conditions Item 14 - 16

14. The Licensee shall, for all Plans submitted under this Licence, implement the Plans as approved by the Board in writing. The Board has approved (or accepted) the following Plans for implementation under the relevant sections in the Licence. Any changes to the plans deemed significant shall be considered as an amendment to the plan(s) or as a modification and must be approved by the Board.

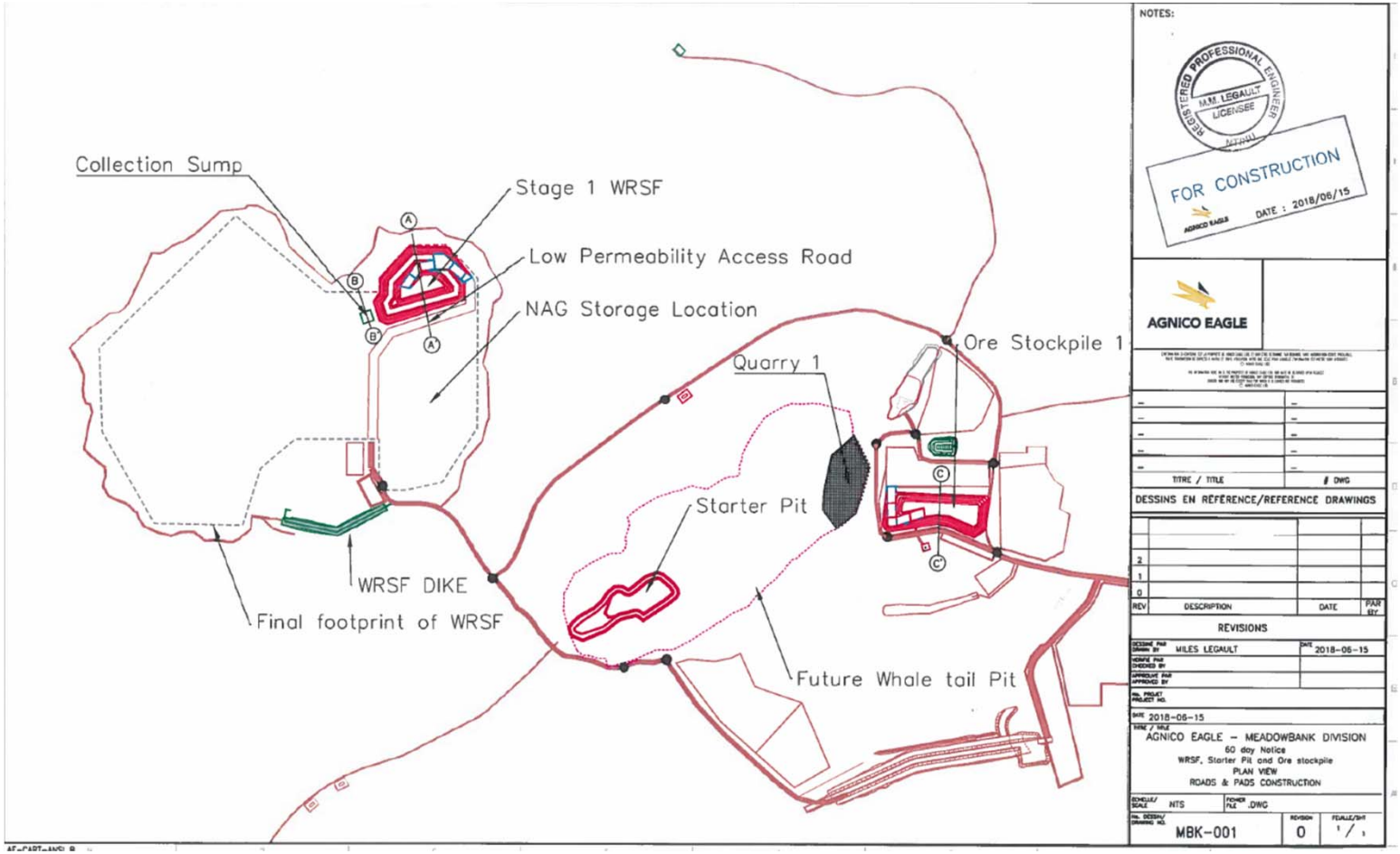
    a. Amaruq Gold Wastewater Treatment System Operation and Maintenance Plan (December 2015)*;
    b. Meadowbank and Whale Tail Bulk Fuel Storage Facilities: Environmental Performance Monitoring Plan, Version WT, (June 2016)^;
    c. Whale Tail Pit Interim Closure and Reclamation Plan, Version WT (June 2016)^;
    d. Whale Tail Pit Landfill and Waste Management Plan, Version 1 (January 2017);
    e. Whale Tail Pit Haul Road Management Plan, Version 1 (June 2016)
    f. Whale Tail Pit Waste Rock Management Plan, Version 1 (January 2017);
    g. Whale Tail Pit Water Management Plan, Version 1 (January 2017);
    h. Whale Tail Pit Water Quality and Flow Monitoring Plan, Version 2 (May 2017); and
    i. Whale Tail Pit Water Quality Monitoring and Management Plan for Dike Construction and Dewatering, Version 1 (January 2017).

AGNICO EAGLE

HYDROGEOLOGICAL AND WATER QUALITY

APPROVED OPERATIONAL MONITORING, MITIGATION AND MANAGEMENT OF ACTIVITIES

NWB 2AM WTP 1826 - OPERATION OF QUARRIES, WRSF AND IMPLEMENT PLANS



NWB 2AM WTP 1826

QUARRY 2/ STARTER PIT OPERATION/ & WASTE ROCK STORAGE FACILITY OPERATION

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NWB 2AM WTP 1826

QUARRY 2/ STARTER PIT OPERATION/ & WASTE ROCK STORAGE FACILITY OPERATION

- Page 6 - Part B – General Conditions Item 14
- Implement the Plans as approved by the board
- Page 9 - Agnico Eagle January 2017– Year 1: 2018 – Whale Tail Pit Waste Rock Management Plan

Table 3.2 Projected Mined Tonnages and Ore Stockpile Balance (2018 – 2022)

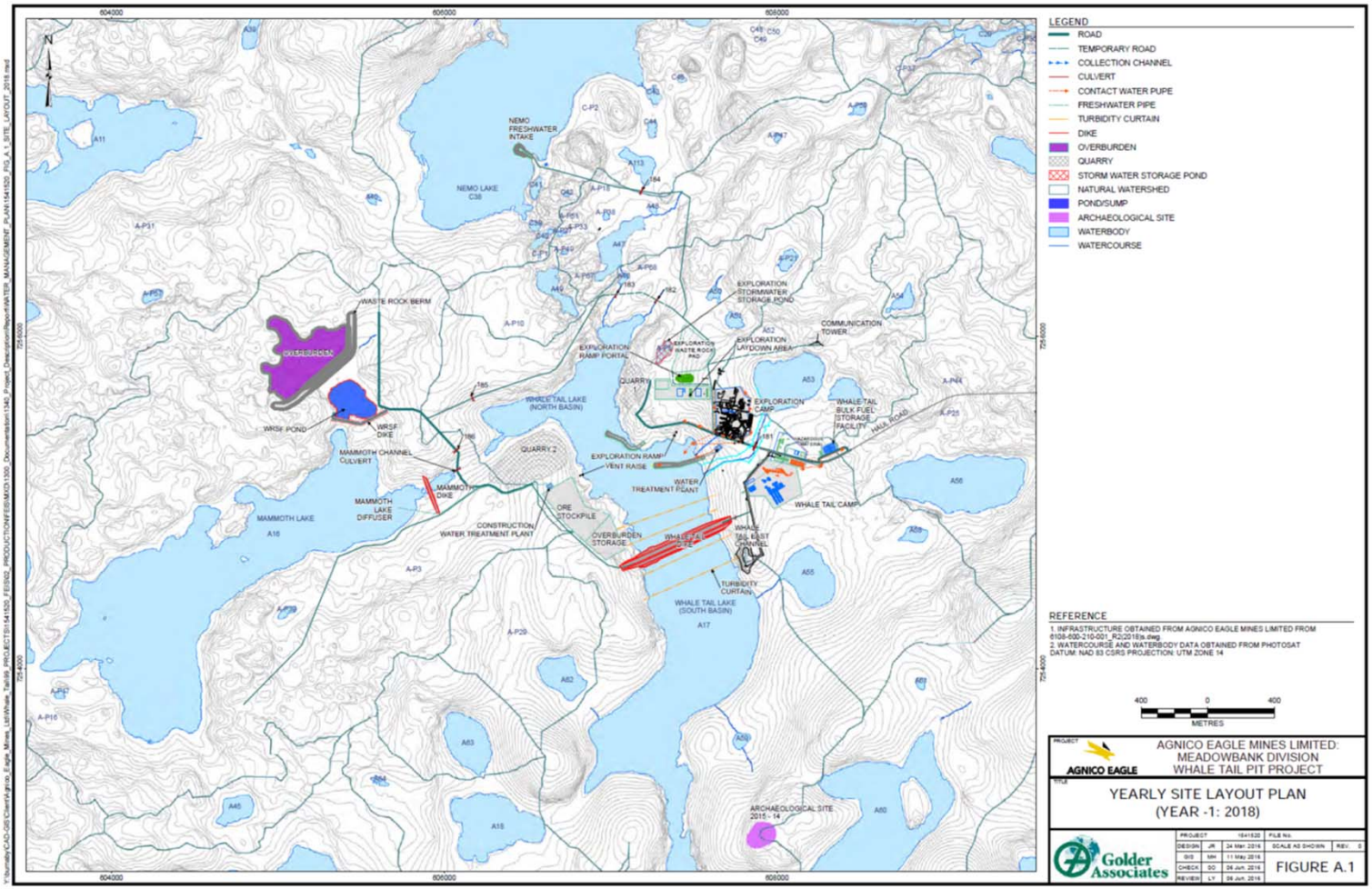
Year	Period	Ore Mined (t)	Waste Rock Excavated (t)	Overburden Excavated (t)	Total Material Excavated (t)	Total Material Excavated (t/day)	Strip ratio	Ore Stockpile Balance (t)
2018	June to Sept.	-	400,782	610,973	1,011,754	8,431	-	-
	Q4	160,020	1,080,812	807,105	2,047,937	22,260	11.80	160,020
	Sub-total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

t = tonne; t/day = tonnes per day.

END OF 2018

PRESENTED IN WHALE TAIL PIT FEIS/ NWB APPLICATION REVIEW - PERMITTED UNDER 2AM WTP 1826

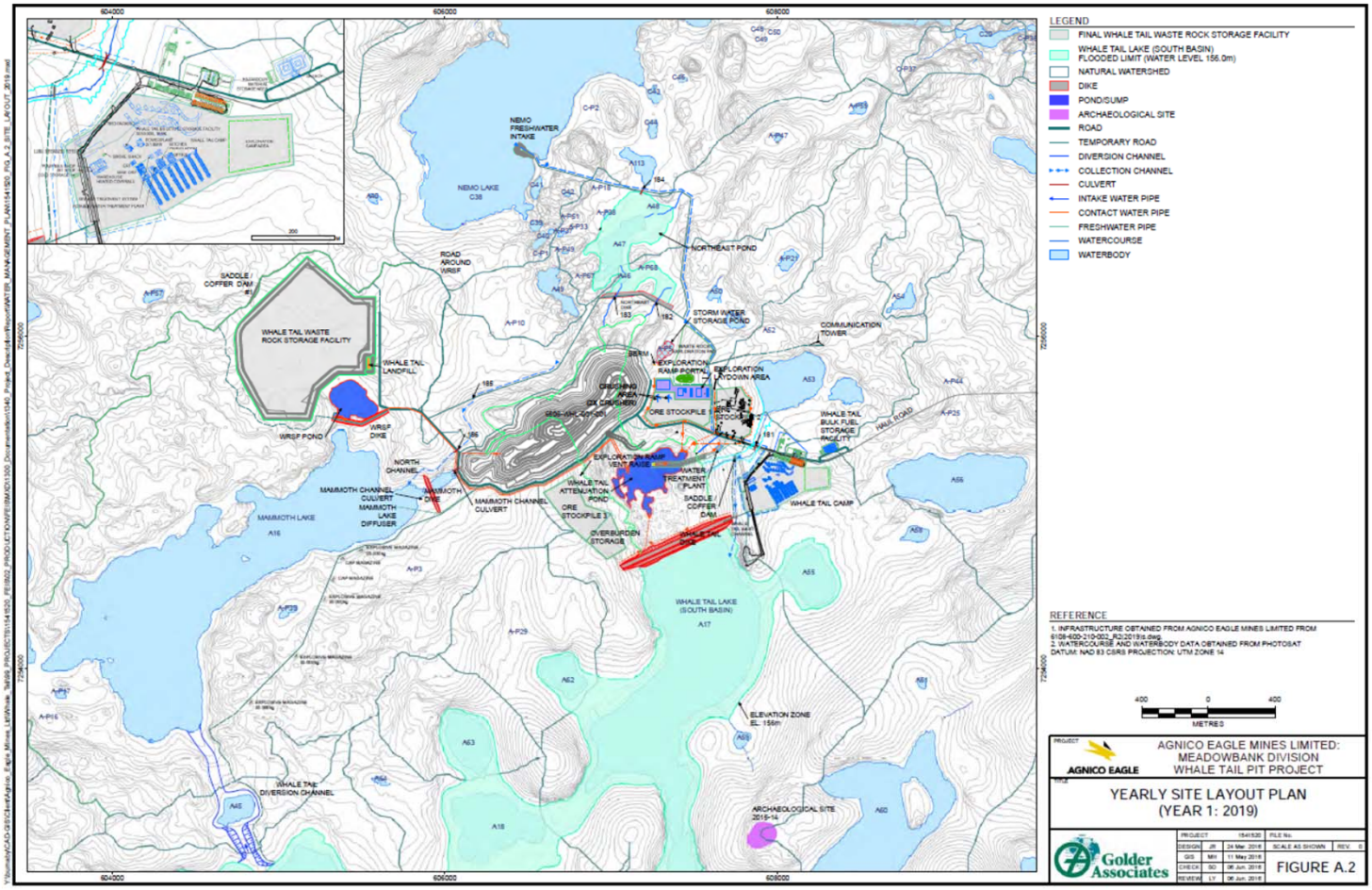
- Agnico Eagle January 2017 - Figure A.1 – Year : 2018 – Whale Tail Pit Waste Rock Management Plan



END OF 2018

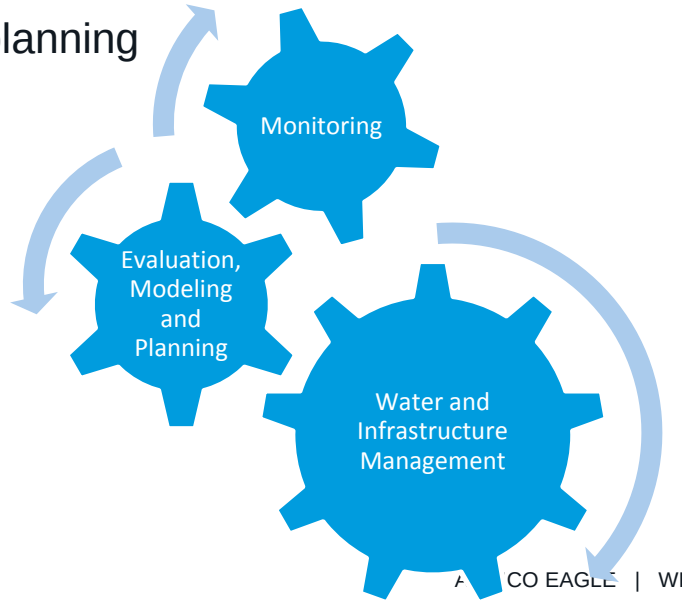
PRESENTED IN WHALE TAIL PIT FEIS/ NWB APPLICATION REVIEW - PERMITTED UNDER 2AM WTP 1826

- Agnico Eagle January 2017 - Figure A.2 – Year : 2019 – Whale Tail Pit Waste Rock Management Plan



WRSF PLAN / CLOSURE AND RECLAMATION PLANNING

- Adhere to ARD/ML Monitoring Plan, WRSF Management Plan, WQ and Flow Monitoring Plan
- Use knowledge/ data gained from Meadowbank (active closure of Vault Pit)
- Proactive Monitoring and Decision Making will ensure post closure goals are met
  - Geochemical
  - Thermistor
  - Water Quality in sumps and pit
  - Modelling
- Establish Triggers
- Continuous evaluation and planning
- Adaptive Management



AGNICO EAGLE

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AEM on TSX & NYSE

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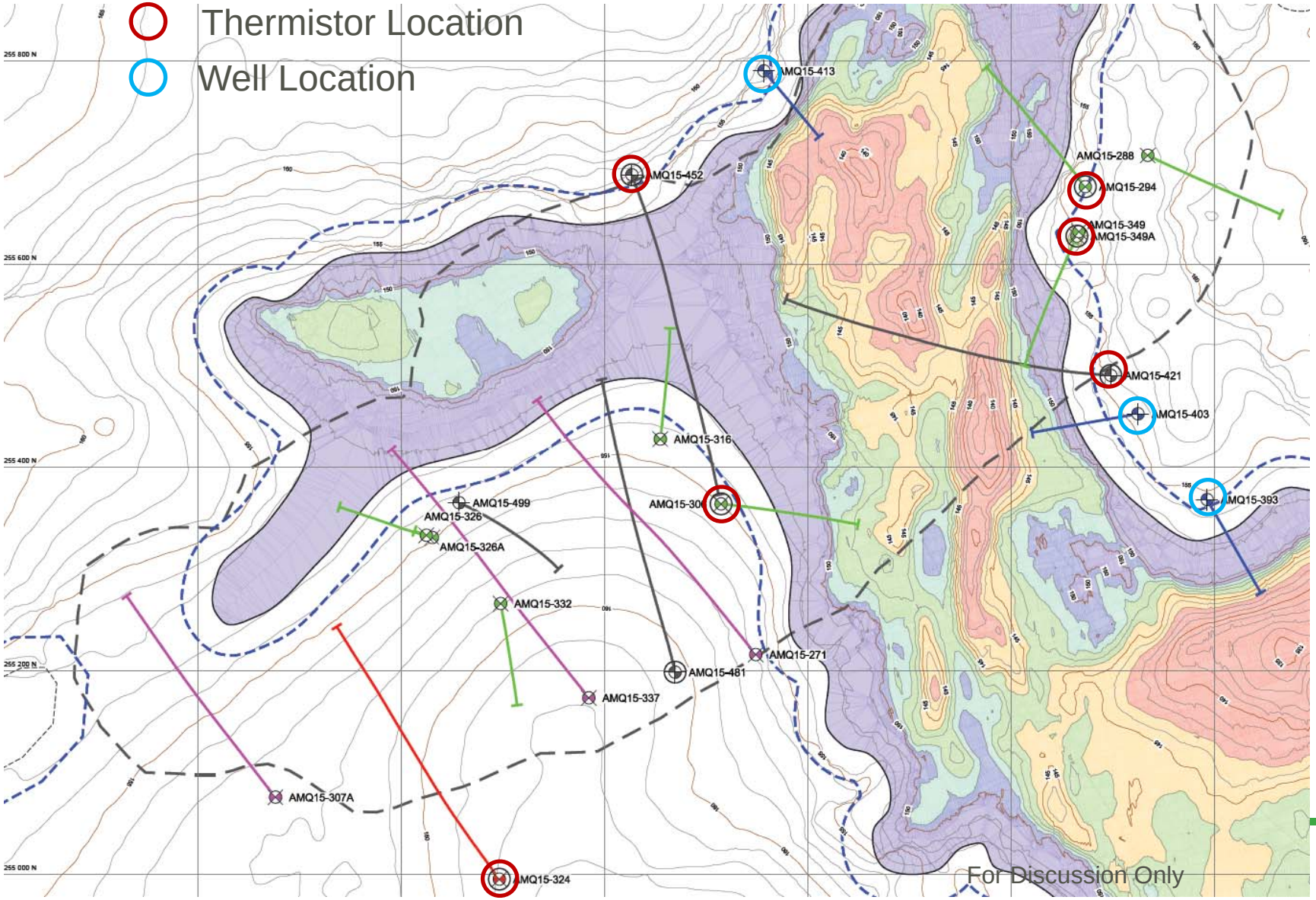
WORLD GOLD COUNCIL

Topics for Discussion / Clarification

- Data Collection / Understanding of Conditions near Quarry 1 / Starter Pit
- Data Collection –FEIS and since
- Pre-development / Post Closure Model Predictions / Hydraulic Gradients
- Whale Tail Flooded Pit Lake Water Quality - Long Term Water Quality

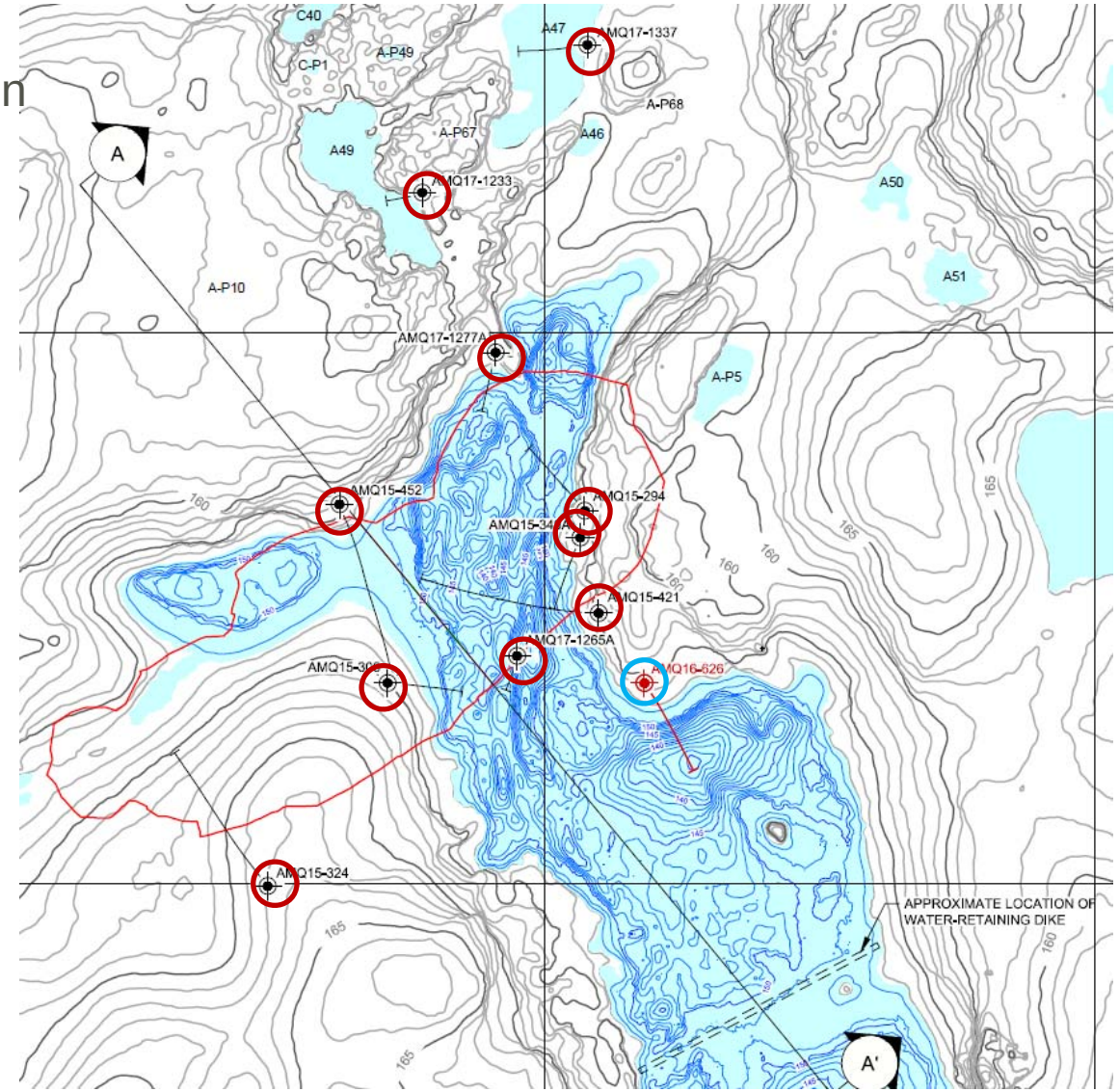
Quarry 1 Pit / Starter Pit – 2015 Data



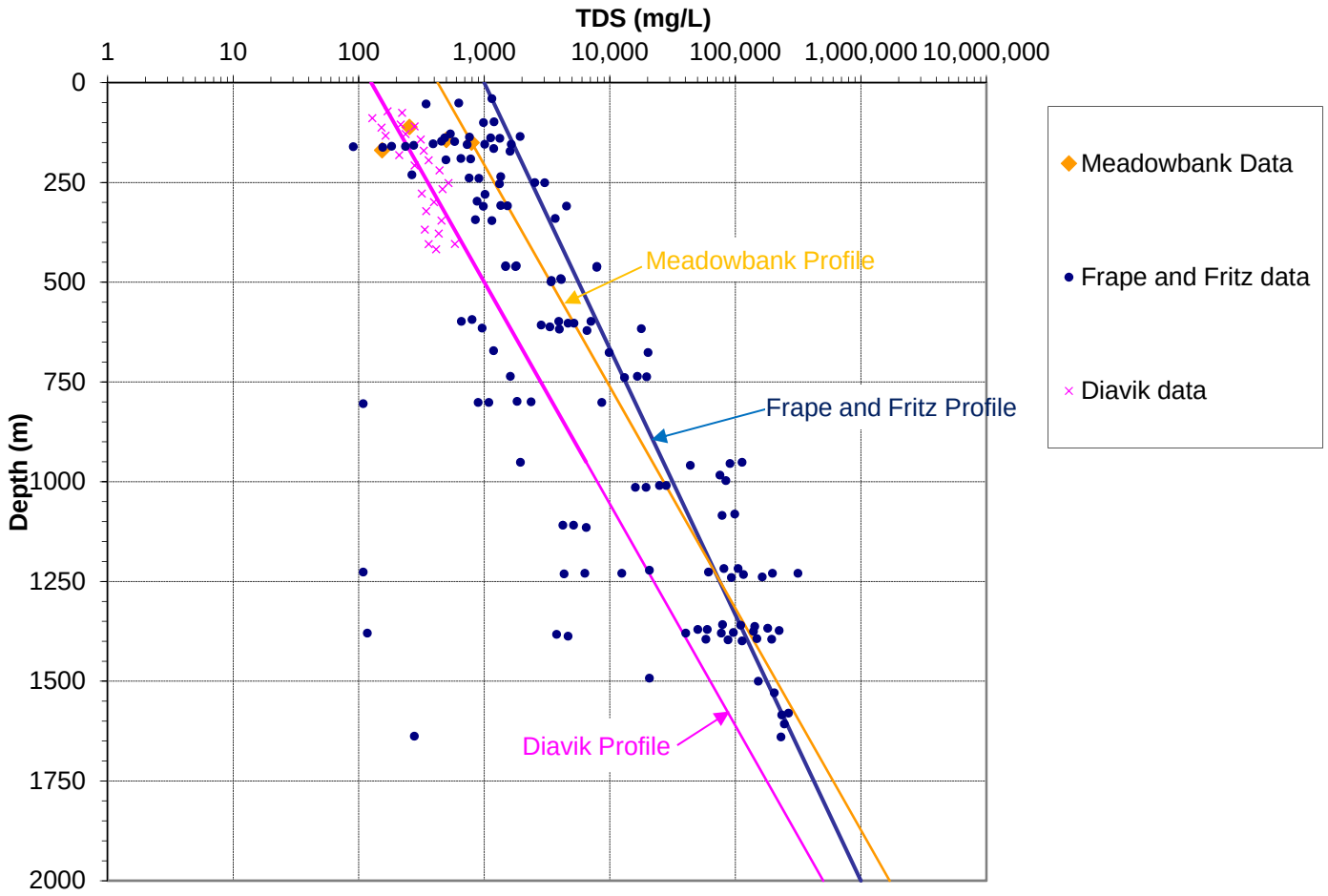
For Discussion Only

Current Network – Thermistors & Wells

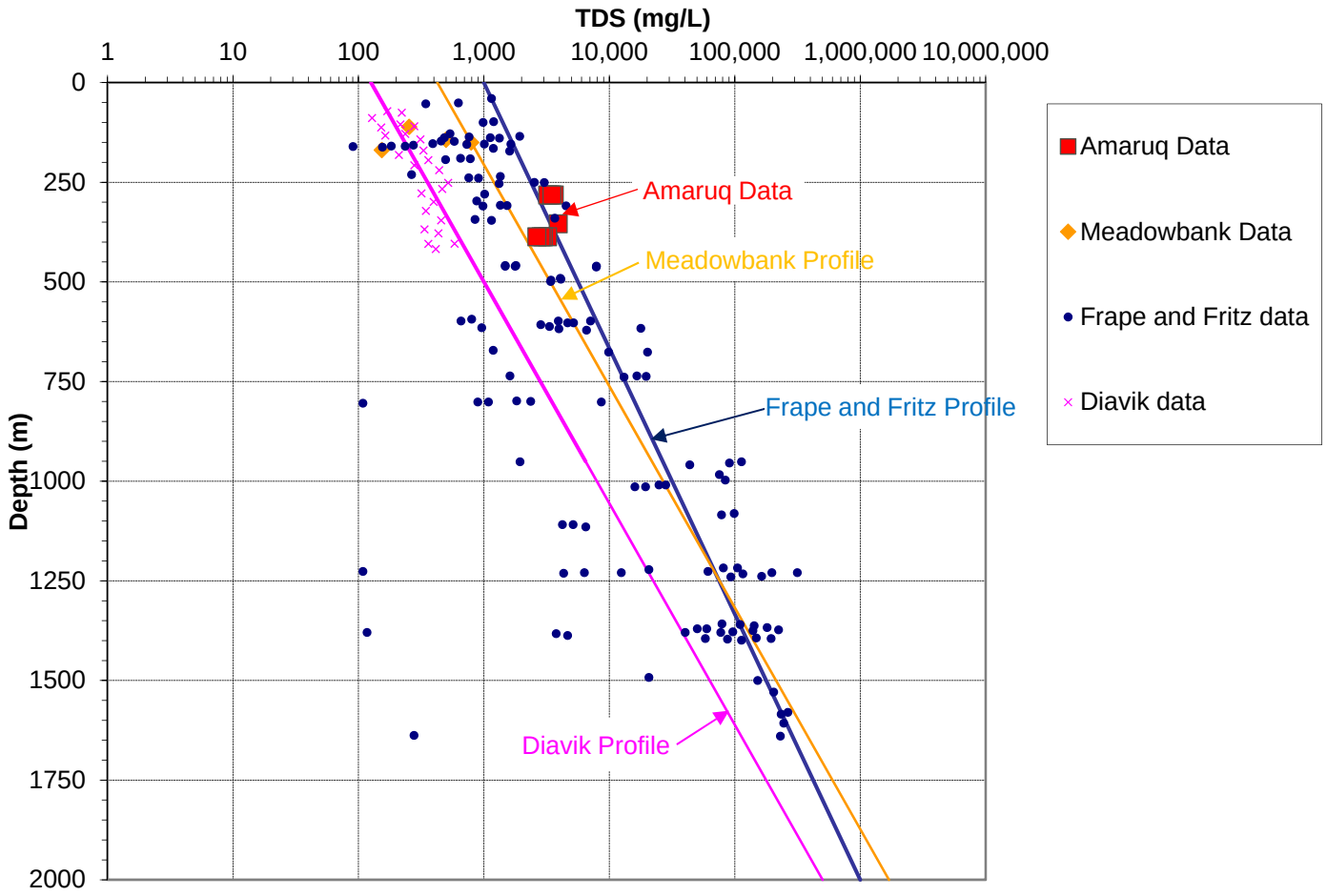
- Thermistor Location
- Well Location



Groundwater Quality - FEIS



Groundwater Quality – Since FEIS



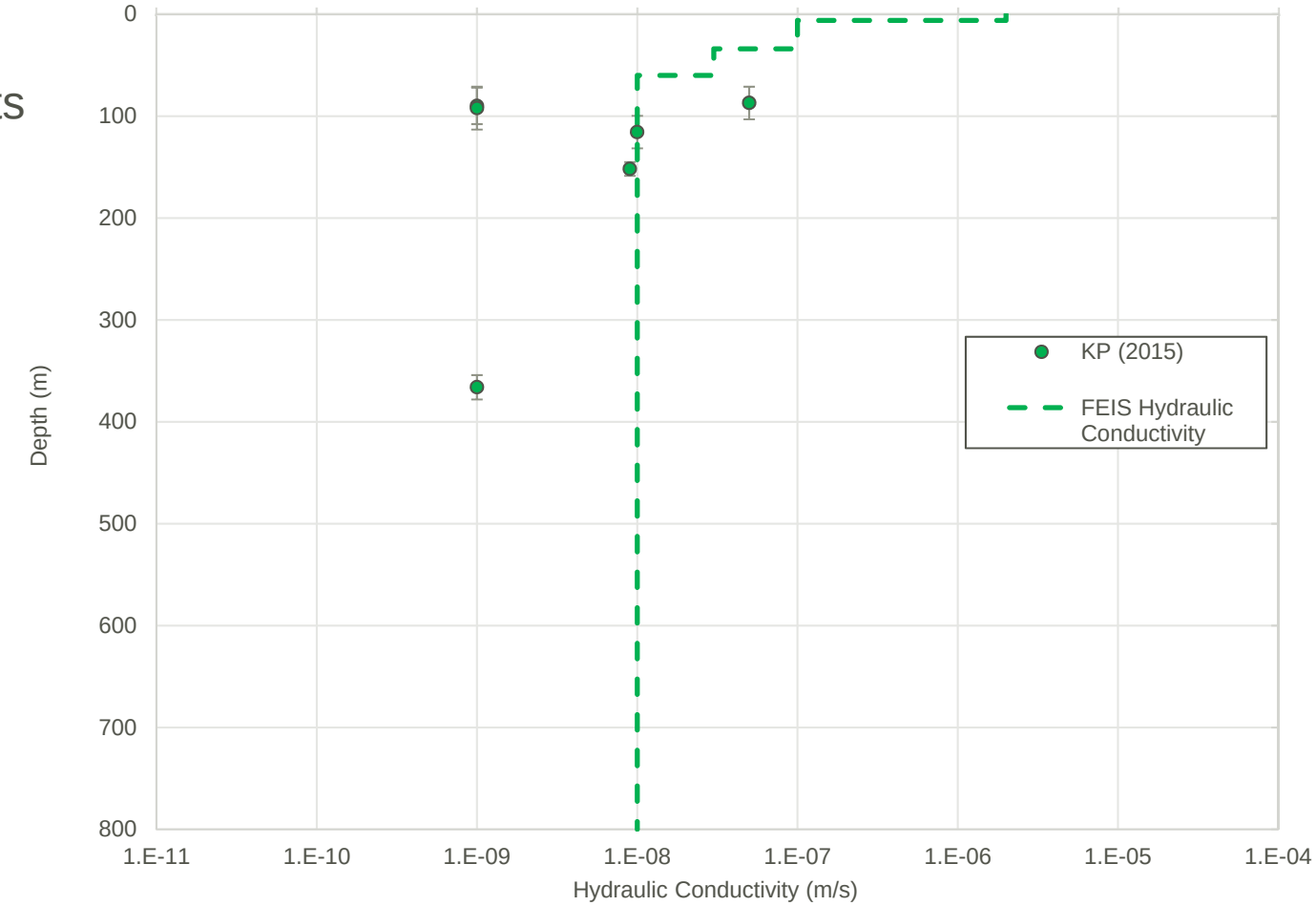
Note - Amaruq Type BB MEA1318 page 5 -

Within its responses to interveners' comments, AEM included a Water Management Plan entitled "*Water Management and Water Balance related to Amaruq Exploration Portal/Ramp Program, Quarry and Advanced Underground Exploration and Bulk Sample Amaruq Exploration Site, Nunavut*" dated November 15, 2016 and completed by Golder Associates Limited (Golder). The Board has approved this Plan under Part C, Item 2 of the Licence.

The Licensee also included in its responses a document entitled "*Groundwater Quality Investigation, Amaruq, Nunavut*" dated November 15, 2016 and completed by Golder. The Board is aware that as part of the baseline studies for the development of Whale Tail Pit Project, groundwater samples were collected from a Westbay monitoring well installed to target the talik zone below Whale Tail Lake, which is the area targeted for the development of the underground ramp to access the ore for bulk sampling. The Licensee is advised to update the Board with groundwater quality investigation's new results whenever new information becomes available.

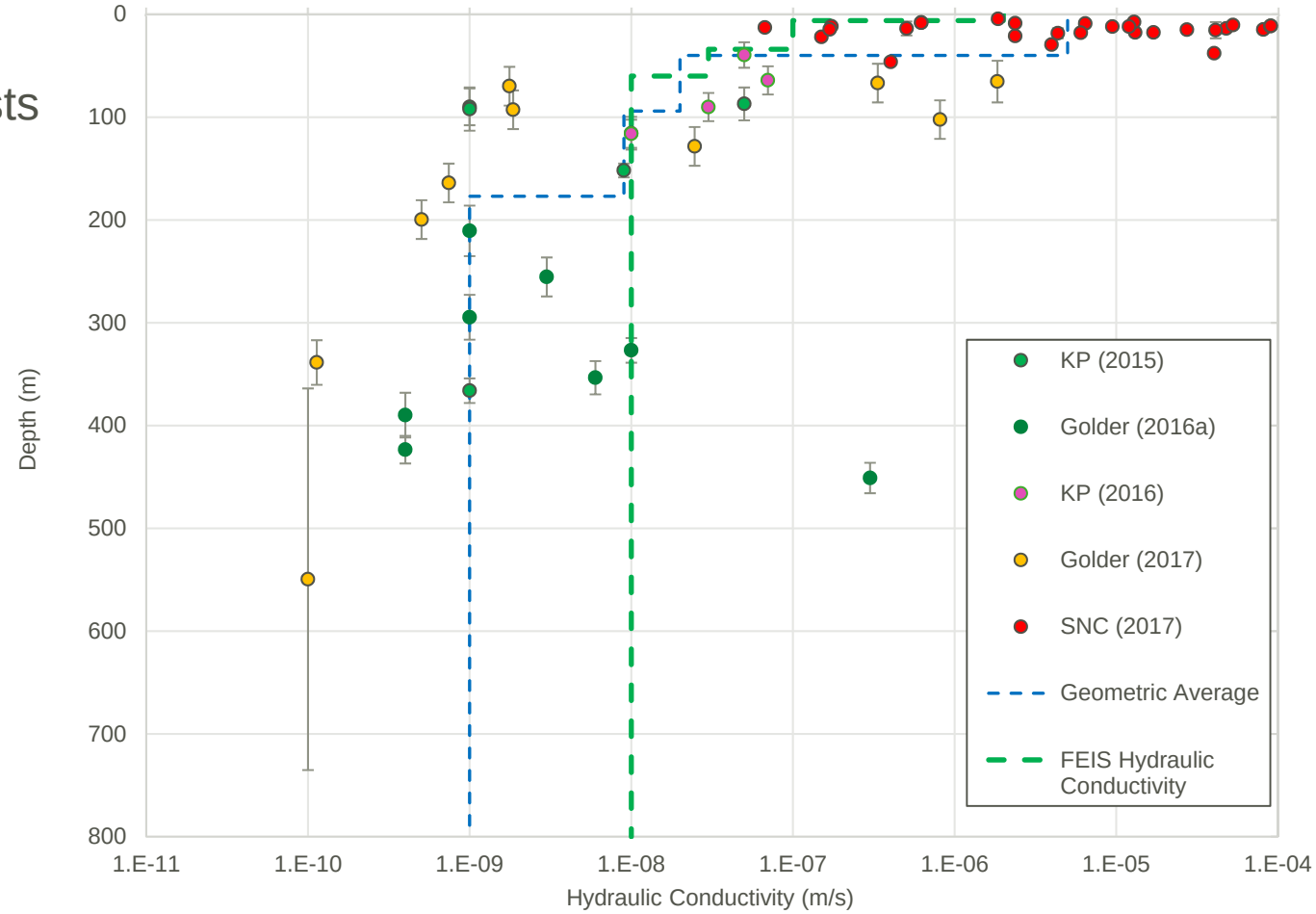
Hydraulic Conductivity - FEIS

6 Tests



Hydraulic Conductivity – Since FEIS

49 Tests



Hydrogeological and Geochemical Modelling Assessments

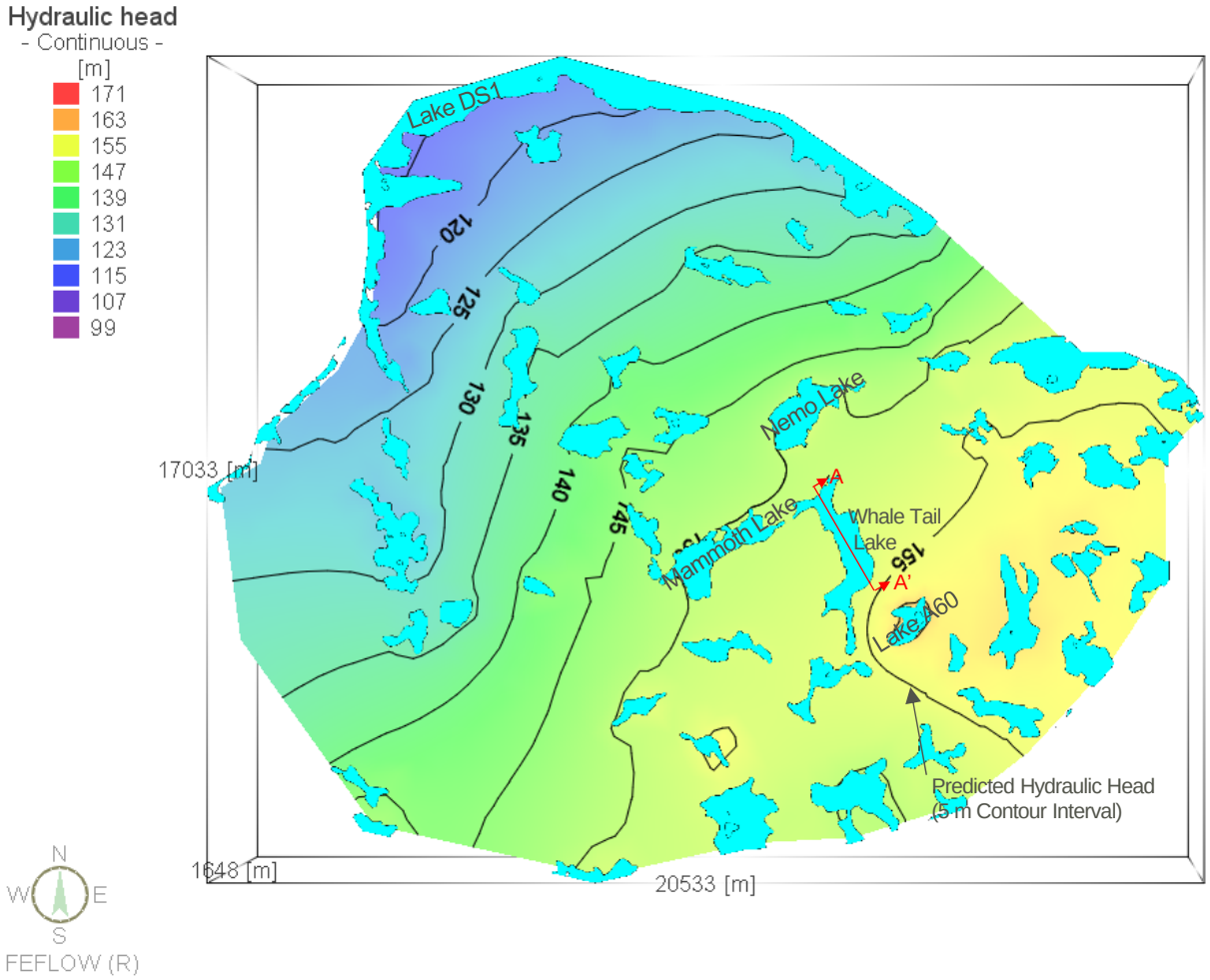
FEIS – Supporting Data

- Data collected for FEIS (Hydraulic Conductivity/Meadowbank Water Quality)
- Lake surface water levels (Hydrology Baseline)
- Contact water - leaching of pit wall from tests on site materials, including arsenic transference from submerged pit from early test

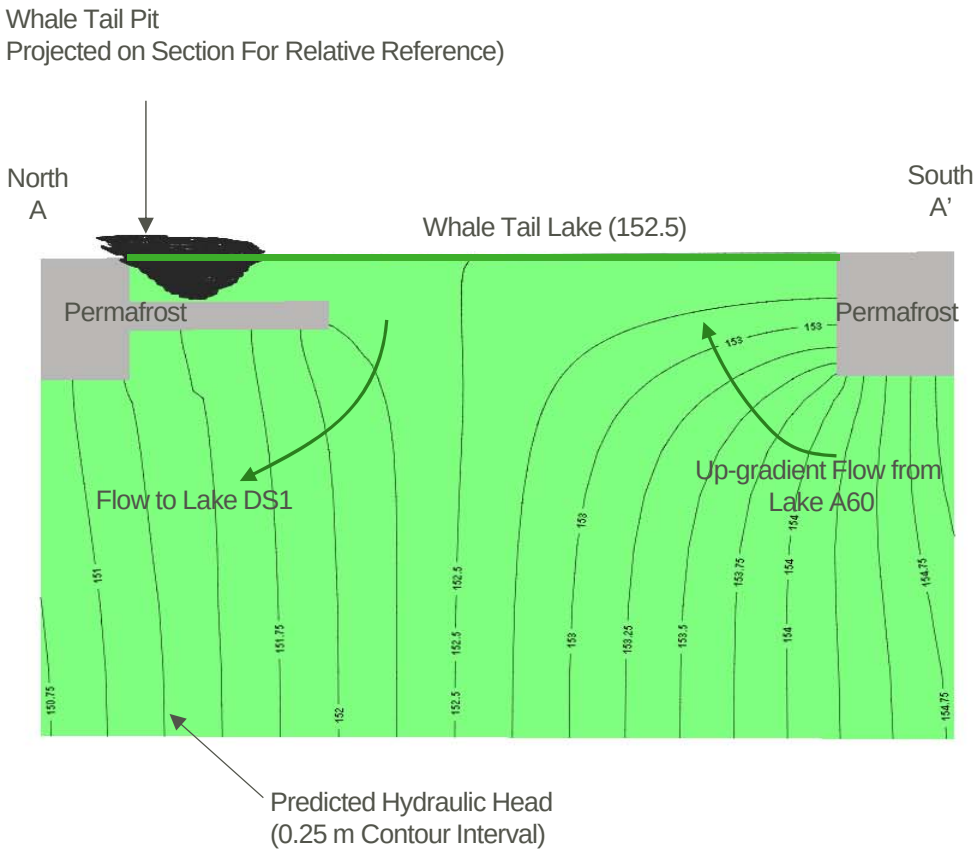
IR Modelling – Post-Closure Hydrogeological Model, Diffusion Model, Hydrodynamic Models for Pit Lake and Mammoth Lake

- Updated thermal analysis – evolution of permafrost below pit
- Used predicted conditions at end of closure as a starting condition for Post Closure.

Hydraulic Gradients – Predicted Baseline

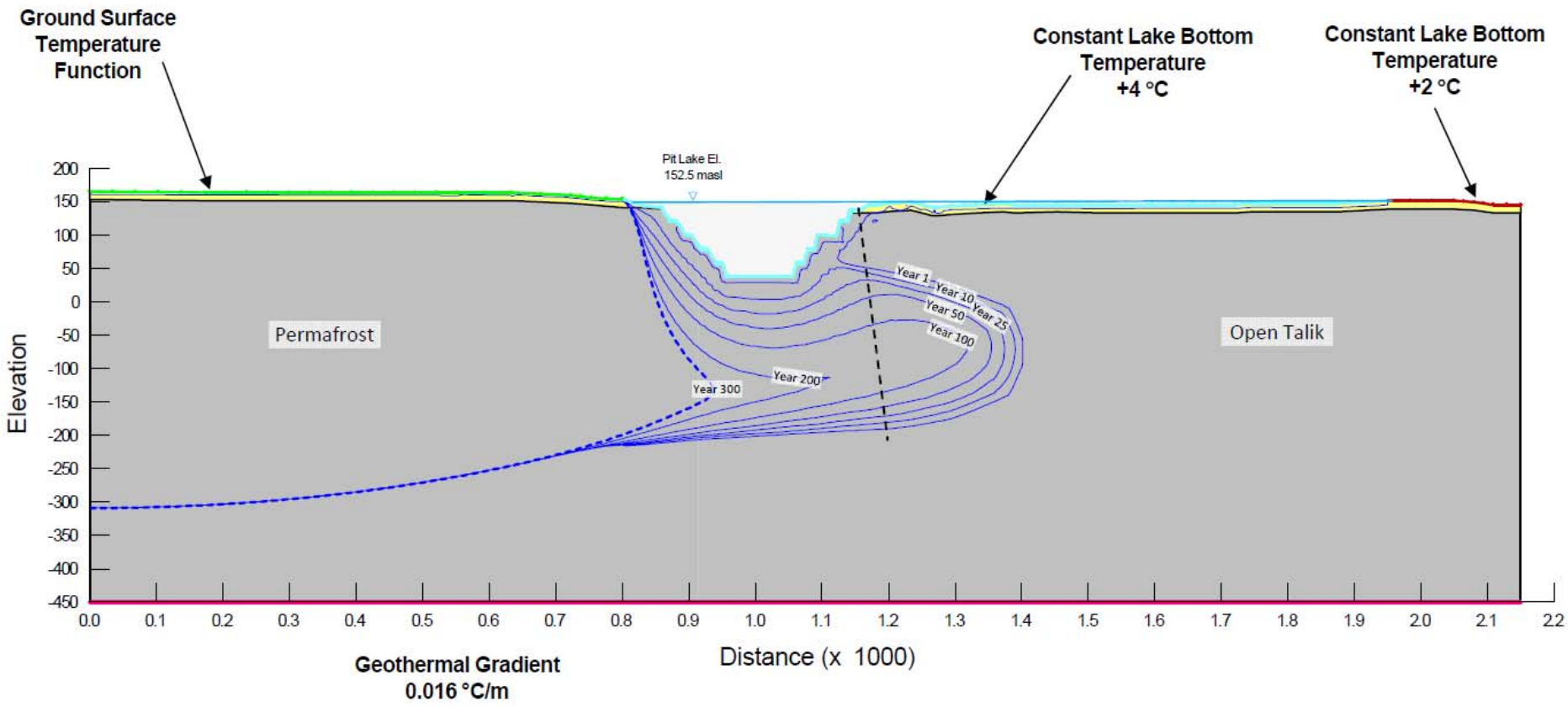


Hydraulic Gradients – Predicted - Baseline



FEFLOW (R)

Post-Closure Thermal Analysis



Post Closure

- 2D Analysis, with 3D closure predictions used as initial condition
- Incorporated thermal analysis that predicted evolution of permafrost
- Considered density dependent flow

Years Following Closure	Groundwater Inflow to Pit Lake (m^3/day)	Pit Lake Outflow to Groundwater (m^3/day)
1	2.2	1.1
10	1.1	0.8
100	0.2	0.8
500	0.1	1.7

Long-term - Predicted Groundwater Recharge Boundary

- TDS Groundwater Quality - from 650 mg/L (Year 1 post-closure) to 77 mg/L (500 years post-closure)

Hydrogeology Summary

- Larger baseline dataset
  - 49 packer tests
  - Site-Specific Water Quality Measurements
  - Ability to measure vertical gradient

- Sufficient testing in Quarry 1 / Starter Pit to confirm permafrost and absence of groundwater during development

Water Quality Discussion Points

Available Site Data

Whale Tail Flooded Pit Lake Water Quality

- Predicted Long Term Water Quality
- Assumptions on Arsenic Transfer to the Flooded Pit

Mammoth Lake Water Quality

Site Data input to the Water Quality Model

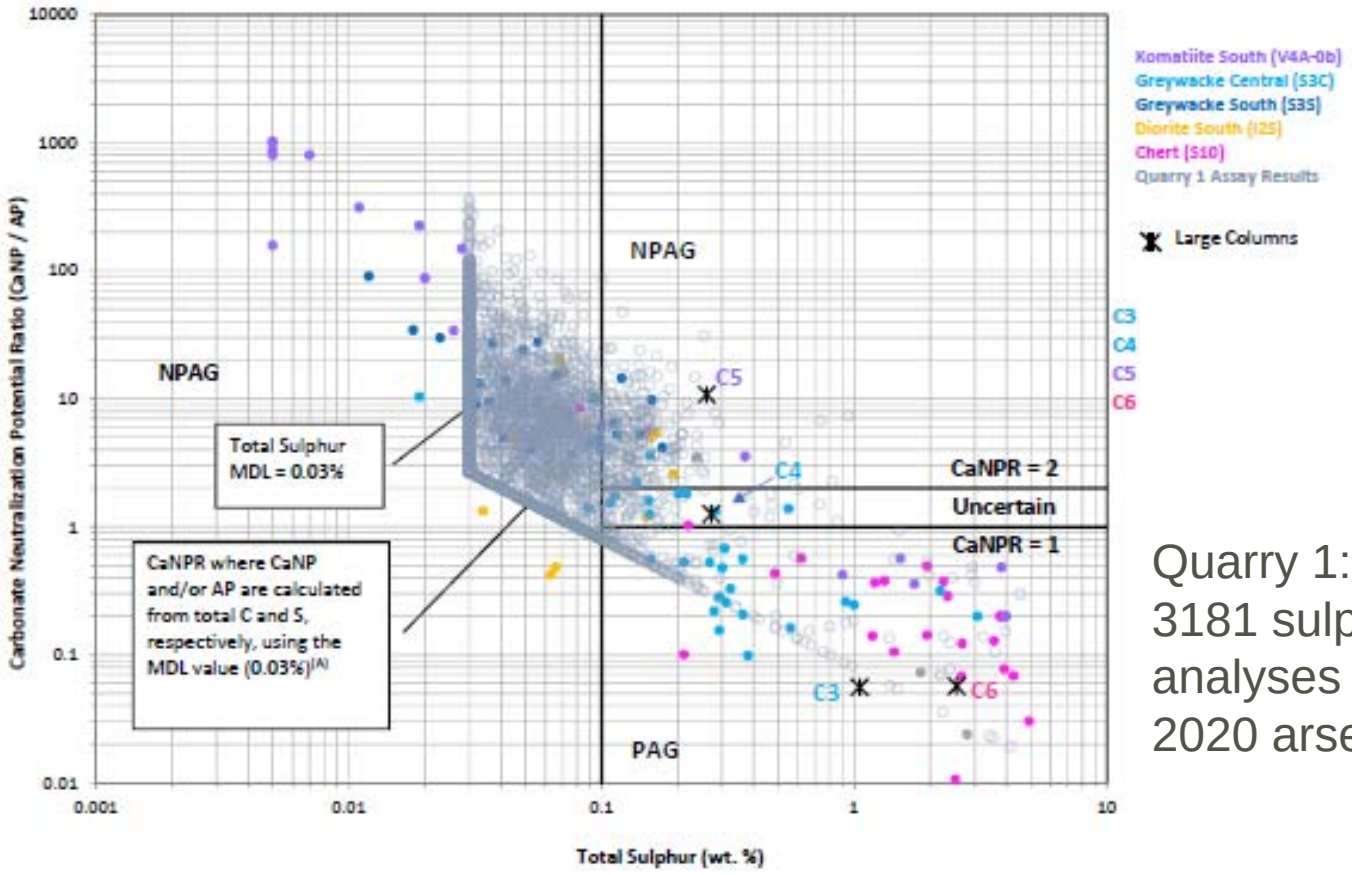
Available Site Data: data collection 2015-2017 – FEIS Baseline and updates

- **296 samples:** Chemical composition of rock, overburden, sediment:
- **328 static tests, 31 kinetic tests, 2 field cells**: leachate quality
- **21 samples** of groundwater
- Site water quality data, flow data, bathymetry, Environment Canada weather data, mine plan.

Site Data

CHEMISTRY OF WASTE ROCK

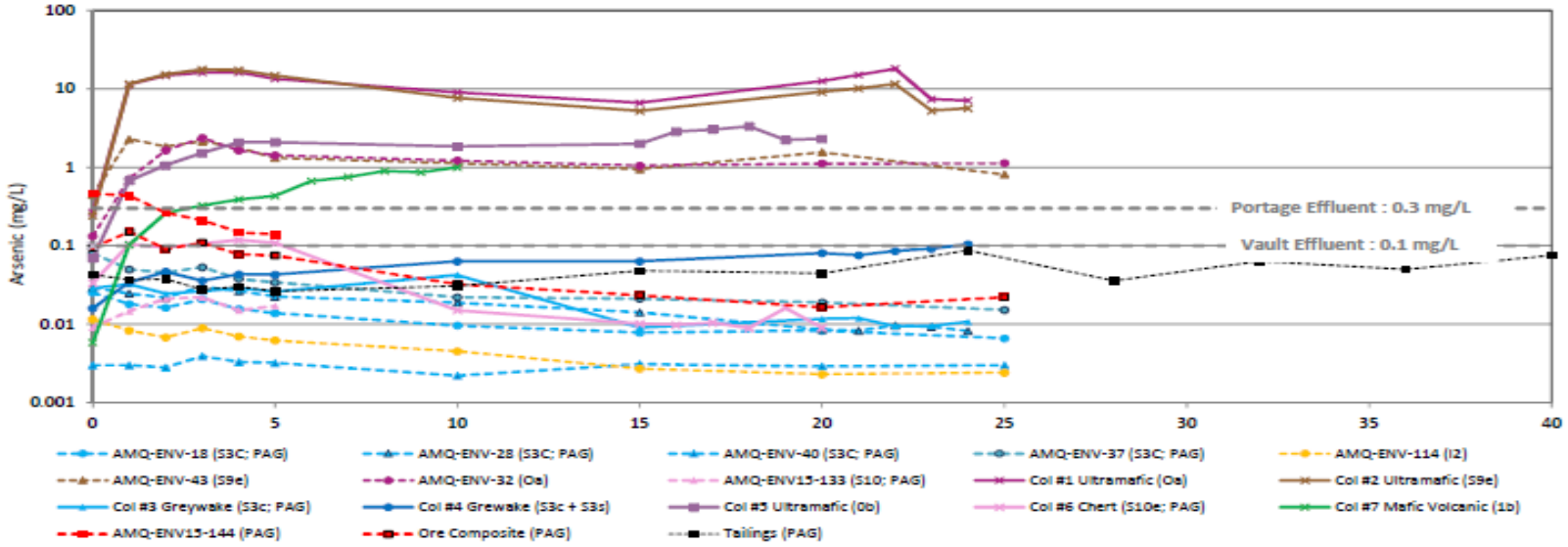
Kinetic test sample representativeness

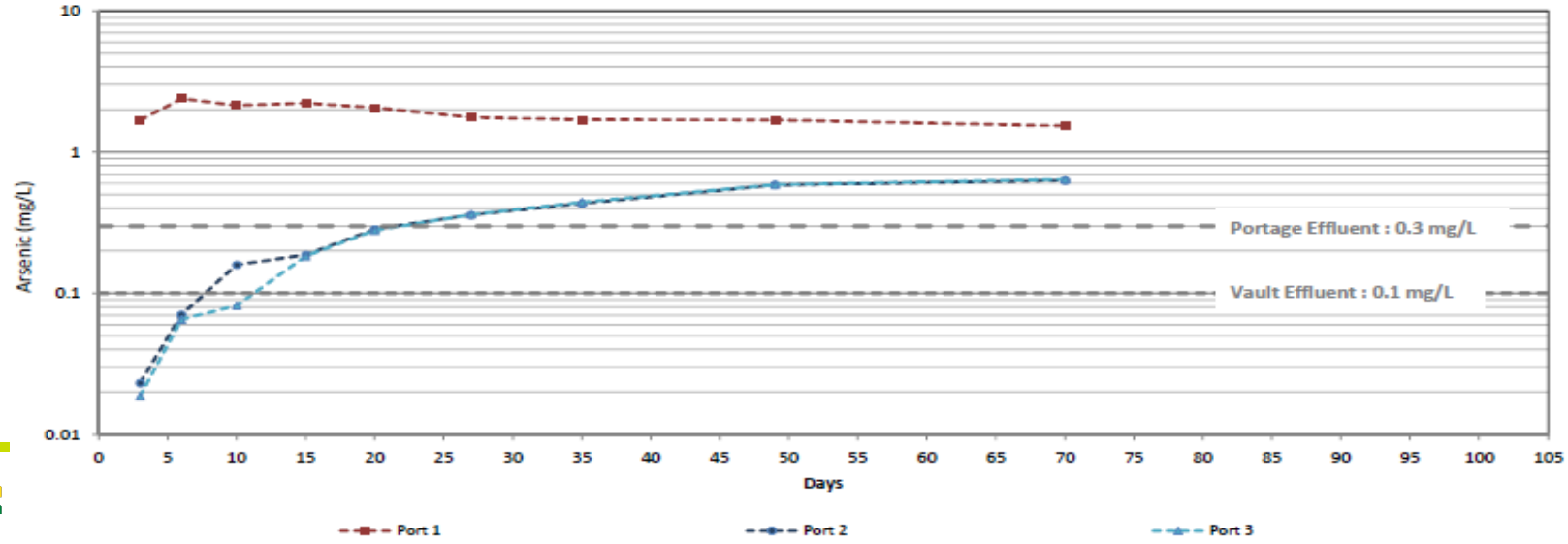


Quarry 1:
3181 sulphur and carbon analyses
2020 arsenic content

Kinetic test results - FEIS

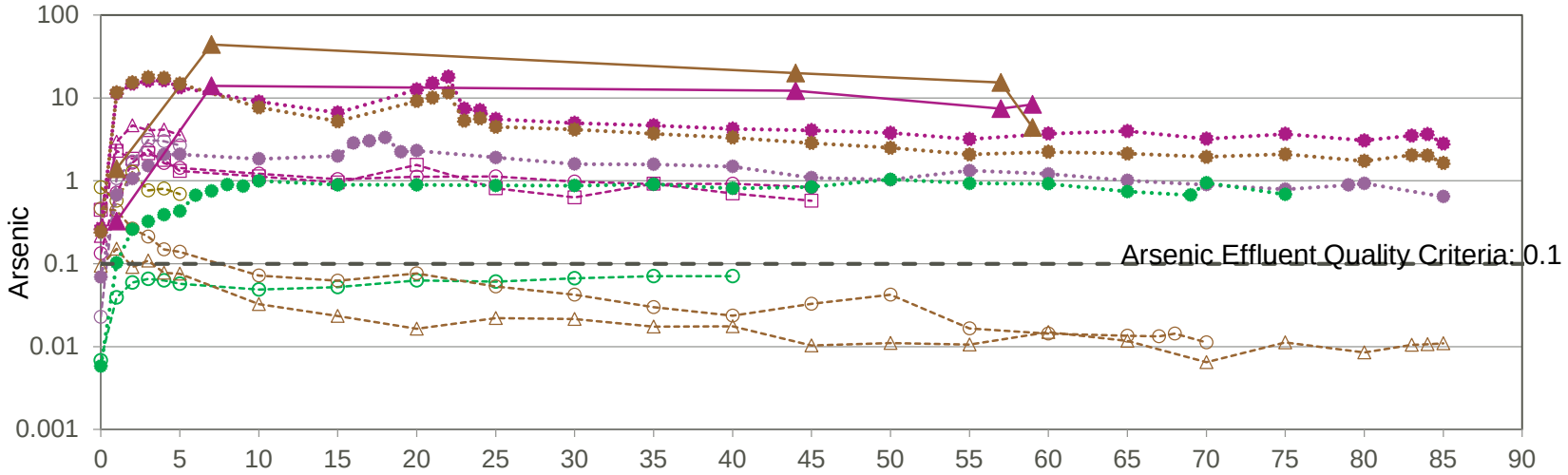
LABORATORY DATA BASED ON SITE SAMPLES

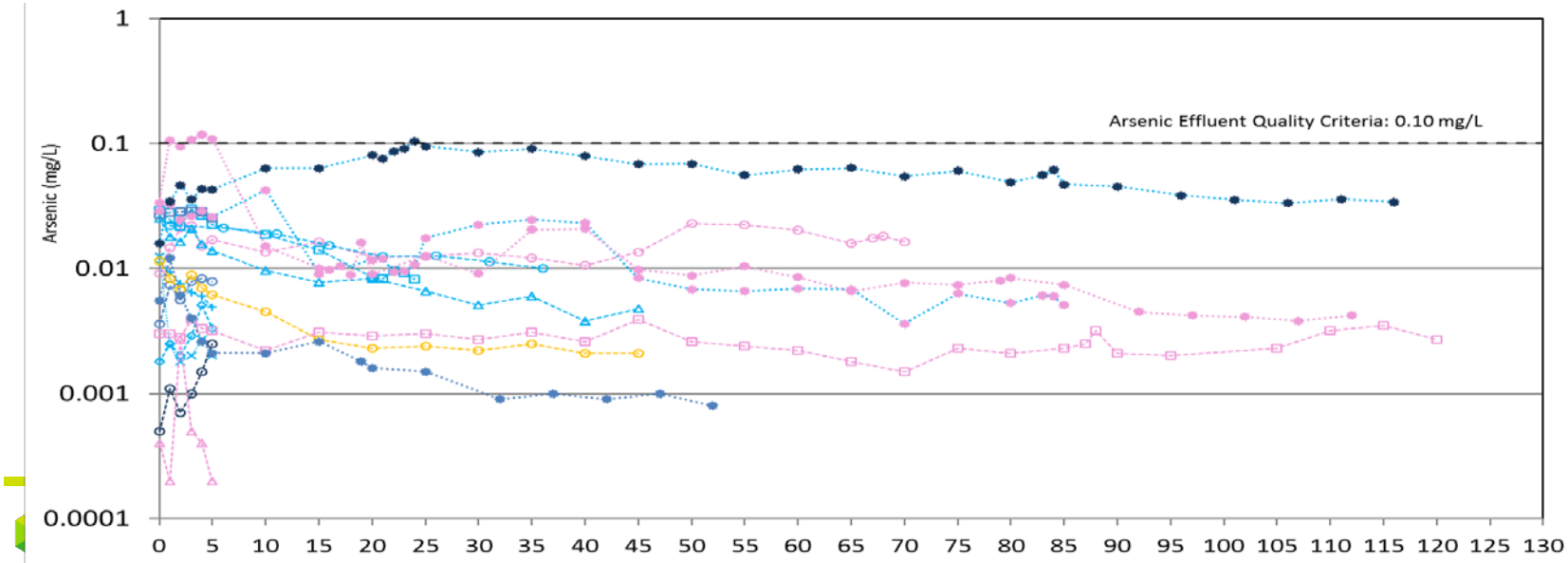




Kinetic test results – since FEIS

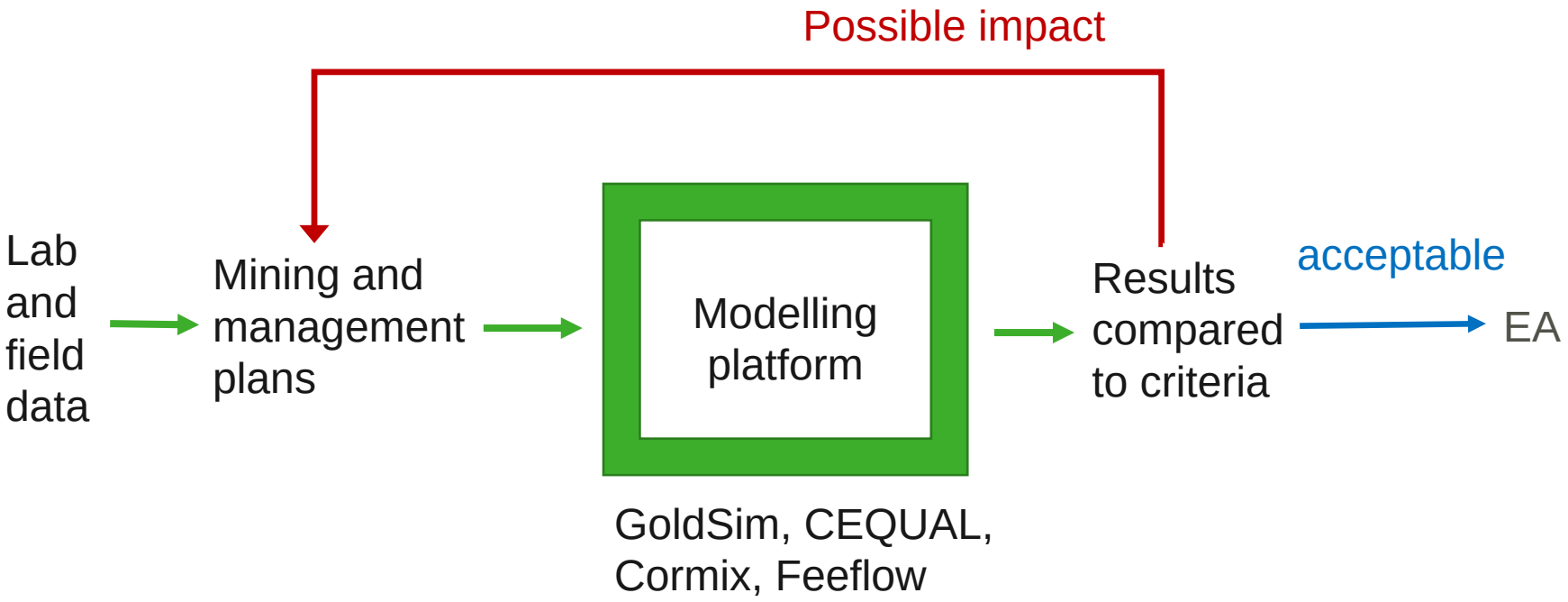
LABORATORY DATA BASED ON SITE SAMPLES





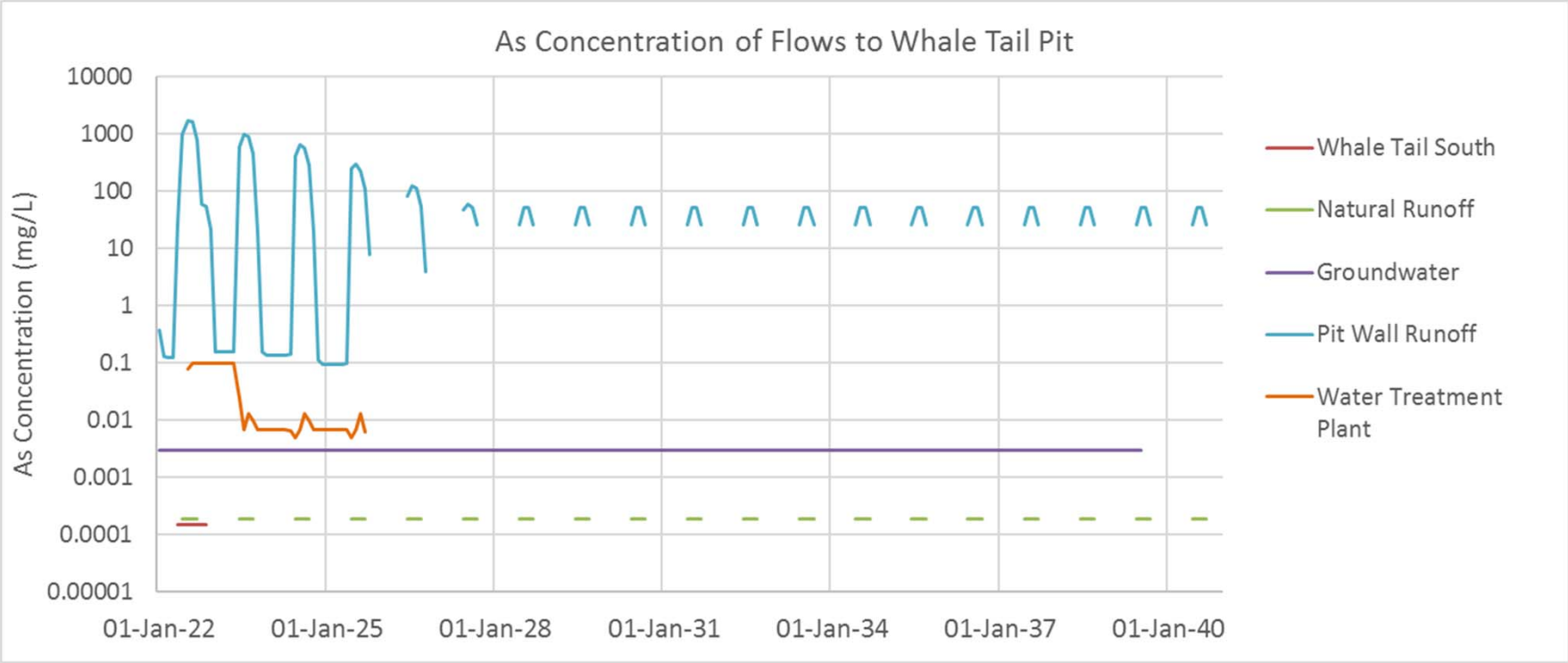
Modelling Method

Modelling approach

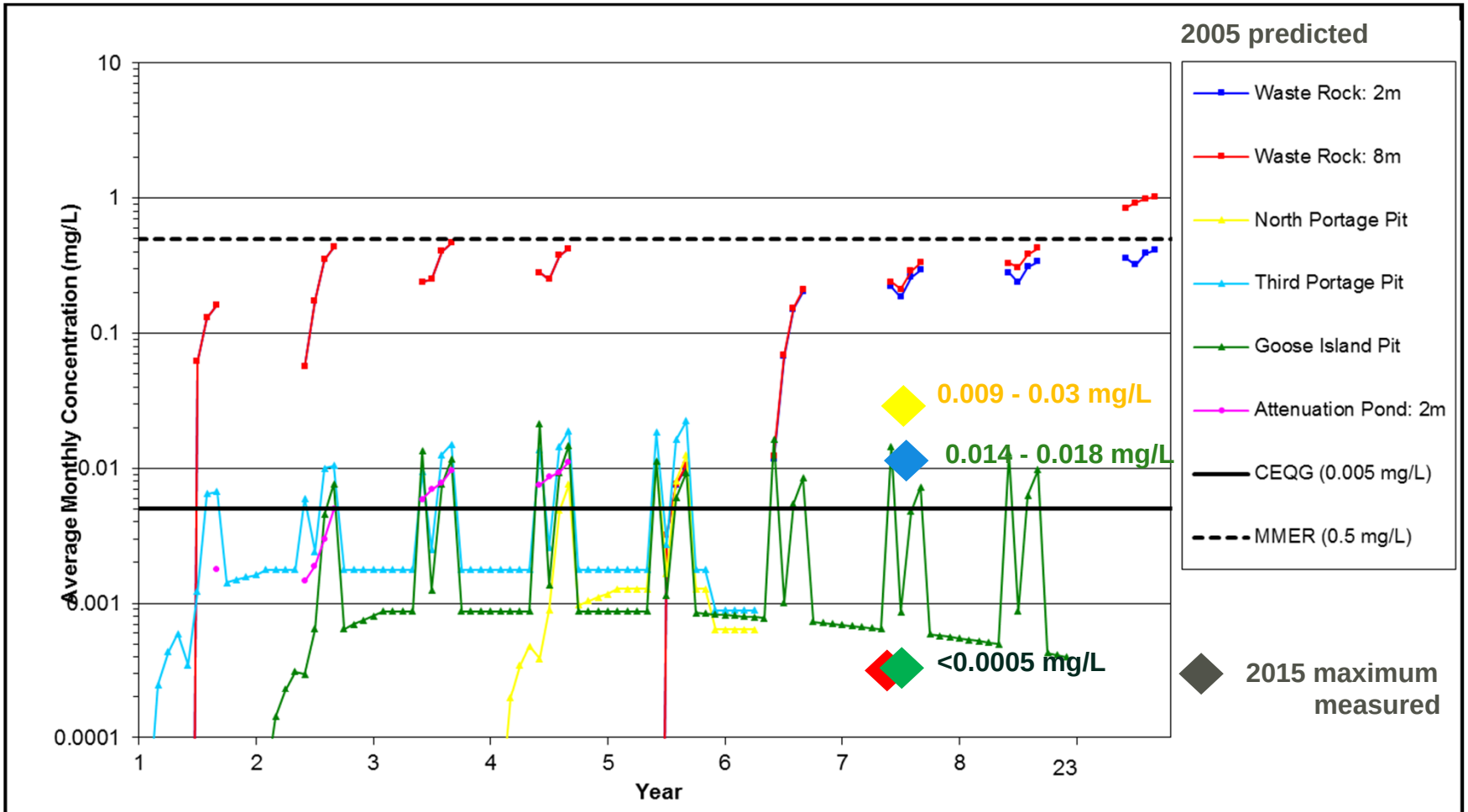


Input to Water Quality Model

ARSENIC SOURCES TO PIT FLOODING



Arsenic at Meadowbank - Portage Area



Golder Associates — Water Quality Predictions	TITLE: Portage: Dissolved Arsenic (Poor-End Case)		
	DRAWN: JMC	DATE: October 2005	JOB NO.: 04-1413-086
	CHECKED: VJB	SCALE: na	DWG. NO.:
	REVIEWED: VJB	FILE NO.:	FIGURE NO.: VIII-4

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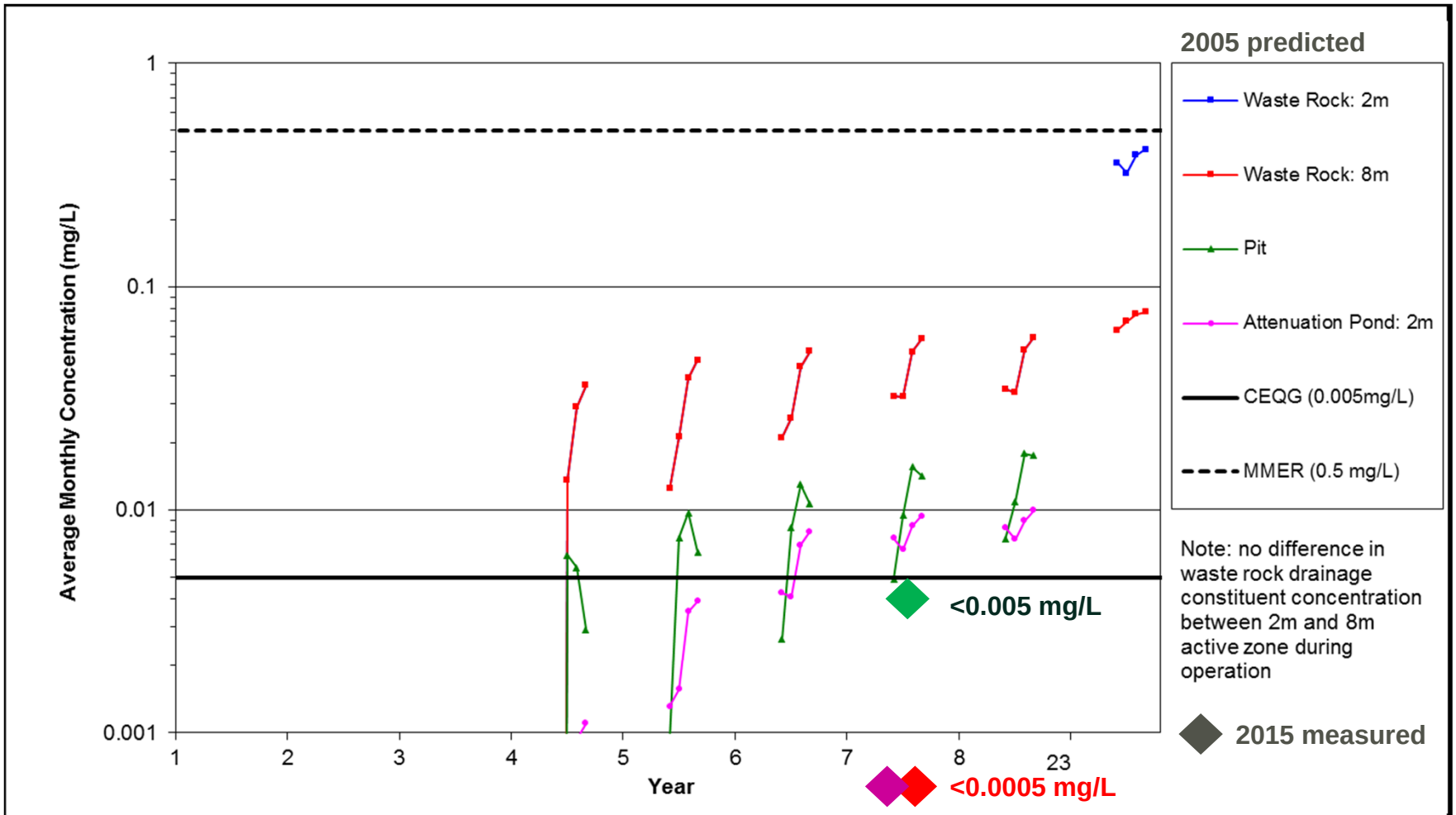
Arsenic at Meadowbank - Vault Area



Golder Associates — Water Quality Predictions	TITLE: Vault: Dissolved Arsenic (Poor-End Case)		
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CHECKED: VJB	SCALE: na	DWG. NO.:	
REVIEWED: VJB	FILE NO.:	FIGURE NO.: VIII-1	

CUMBERLAND RESOURCES LTD.

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Predicted Water Quality

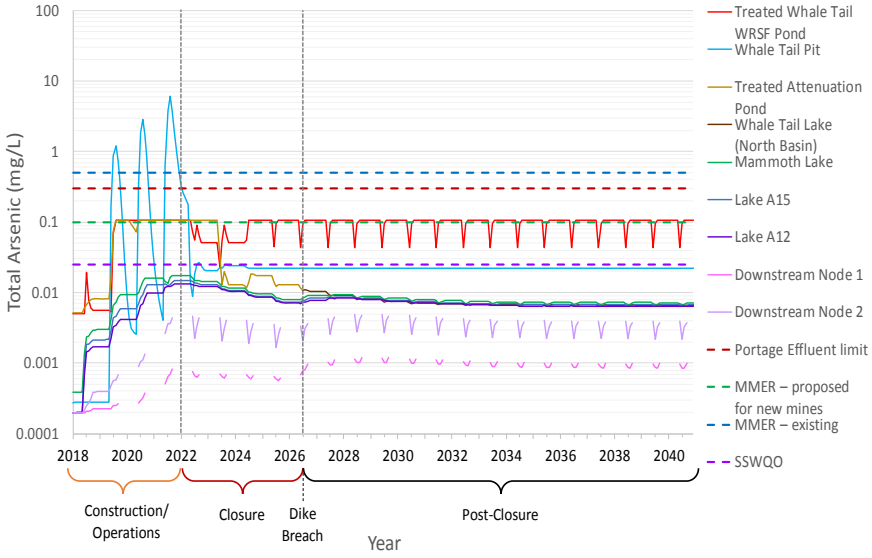
SIMILARITY BETWEEN MEADOWBANK AND WHALE TAIL

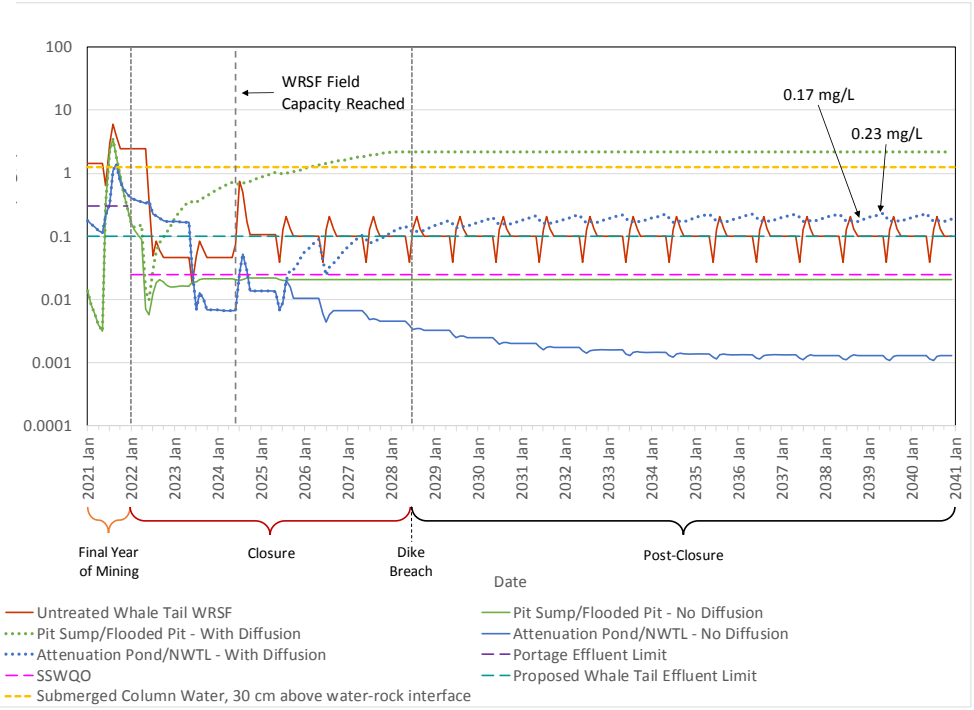
'…On the contrary laboratory tests show that the average leachable arsenic of the Whale Tail Pit waste rock is about 0.86 mg/L while that of the Meadowbank Gold Mine Project is 0.002 mg/L (i.e. 429 times greater)'

Whale Tail Pit Lake Water Quality

Sensitivity Analyses, IR Response, August 2017:
FEIS predictions with north wall push back, no effect from submerged pit walls

No treatment of arsenic from WRSF seepage – does not affect Whale Tail Pit Lake because released to Mammoth Lake

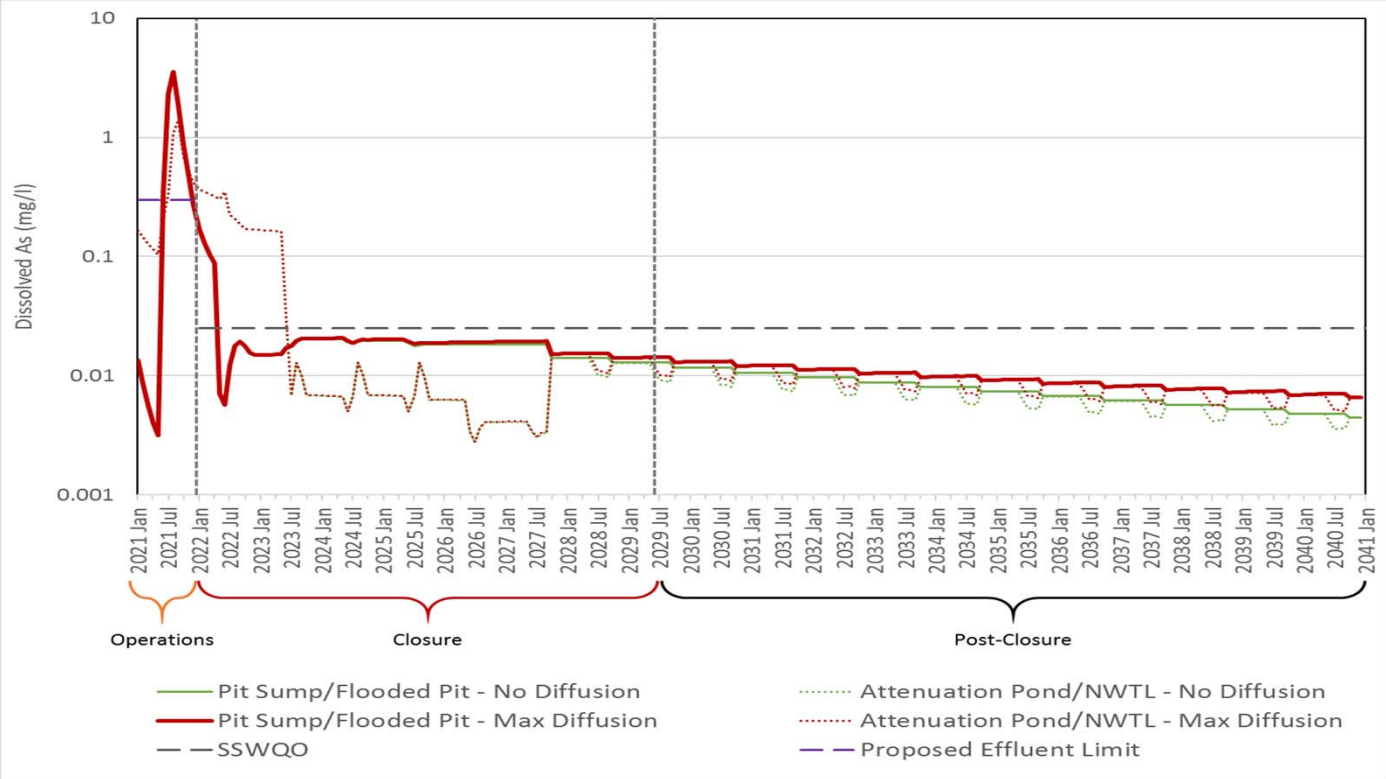




Flooded Pit Lake water quality consistently predicted to be below SSWQO, without maximum release from submerged pit wall

Whale Tail Pit Lake Water Quality

Updated water quality predictions considering updated arsenic diffusion, July 26, 2018

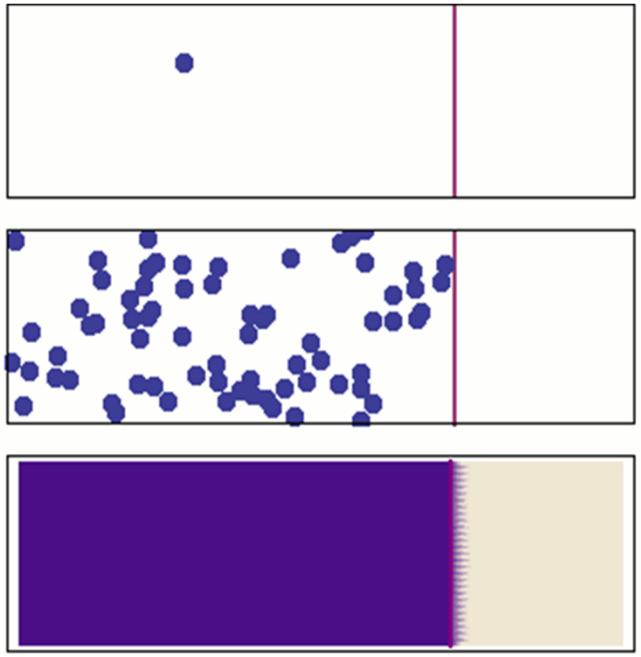


Flooded Pit Lake water quality still predicted to meet SSWQO once pit is fully flooded and decreased arsenic concentration in time.

Arsenic Release from Pit Walls

THEORY AND CONCEPT

- Pit wall contain arsenic-sulfide minerals that oxidize when exposed to air and water, forming mineral salts containing arsenic – laboratory kinetic leaching tests
- Upon flooding of the pit, mineral salts will dissolve, be released to water = first flush effect
- Once flooded, sulfide minerals in the pit walls will stop oxidizing, stop generating mineral salts, supply exhausted
- Diffusion: the slow release of stored salts to the open water – this will decrease in time from the finite quantity of salts



Refinement of Diffusion Model

Inputs:	FEIS, June 2016	Refined Diffusion Model, July 2017
Conceptual Model	Single, unchanging rate. No equation to evaluate potential.	Separate diffusion model to determing rate of mass release based on concentration of arsenic in pit.
Source Data	Submerged column: high arsenic leaching waste rock stagnant water, perpetual 'first flush' = overly conservative double couting	Submerged columns and kinetic tests: multiple samples, steady state release continual oxidation, release of arsenic = conservative mass loading
Affected Areas of Pit	High arsenic lithologies (50% of pit)	High arsenic lithologies, north wall push back (25% of pit)
Arsenic release rate	In perpetuity at first flush rate	In perpetuity at steady state rate
Concentration gradient (dC)	no concentration gradient considered: capped at maximum stagnant HCT result (2.16 mg/L)	Assumed 0 mg/L in flooded pit
Diffusion distance (dz)	Not considered (maximum release)	1 cm (likely in the meter scale)
Formation Porosity (ϕ)	Not considered	0.03 (weathered bedrock)

Predicted Whale Tail Pit Lake Water Quality

ARSENIC DIFFUSION

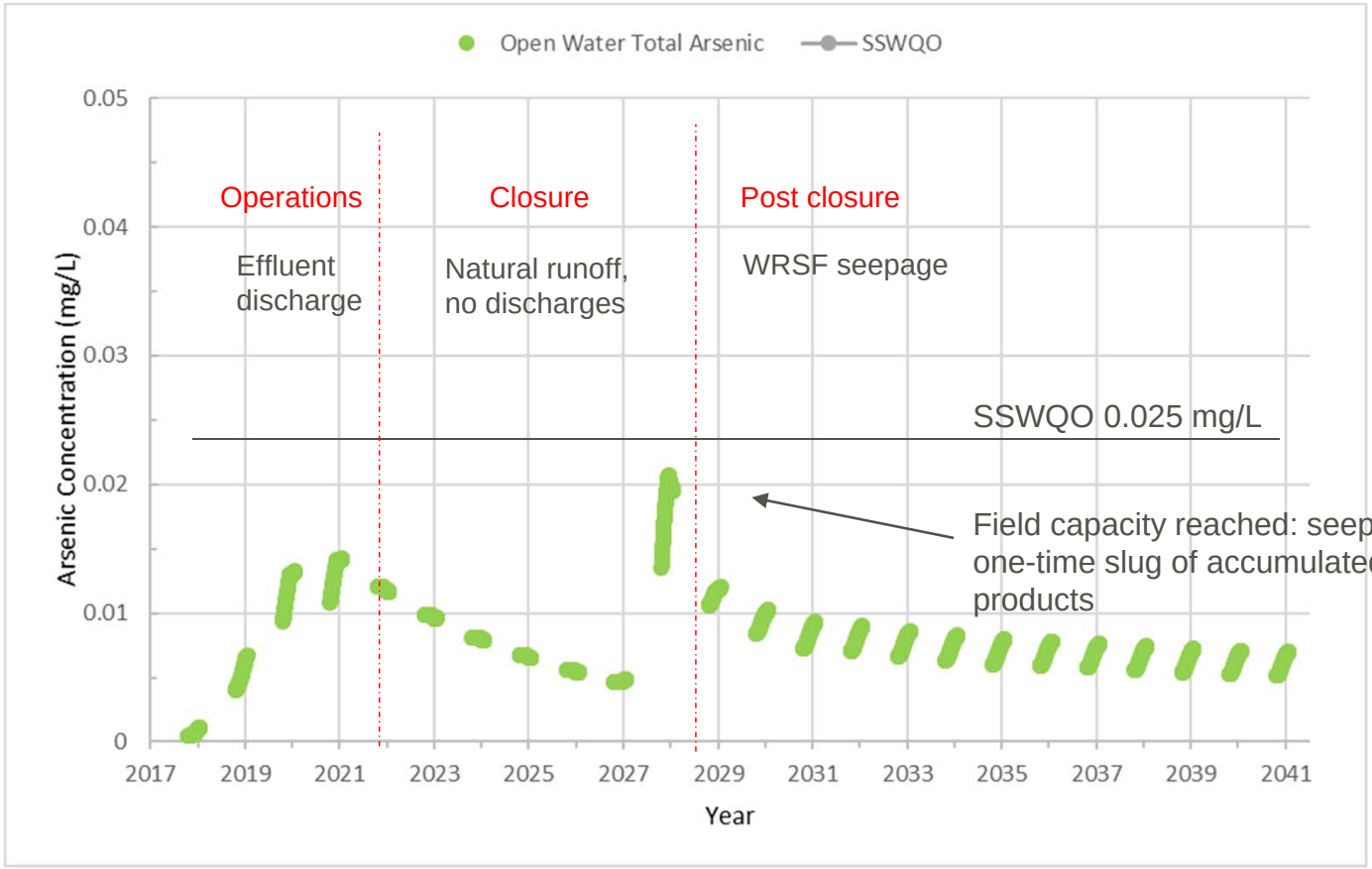
Conclusion on Arsenic Diffusion from Submerged Pit Walls:

Diffusion of arsenic from all pit walls has no significant effect on water quality in short and long-term.

Arsenic transfer to the open pit by diffusion from the submerged pit walls is not significantly affected by the hydrogeological regime/hydraulic gradient to/from the flooded open pit.

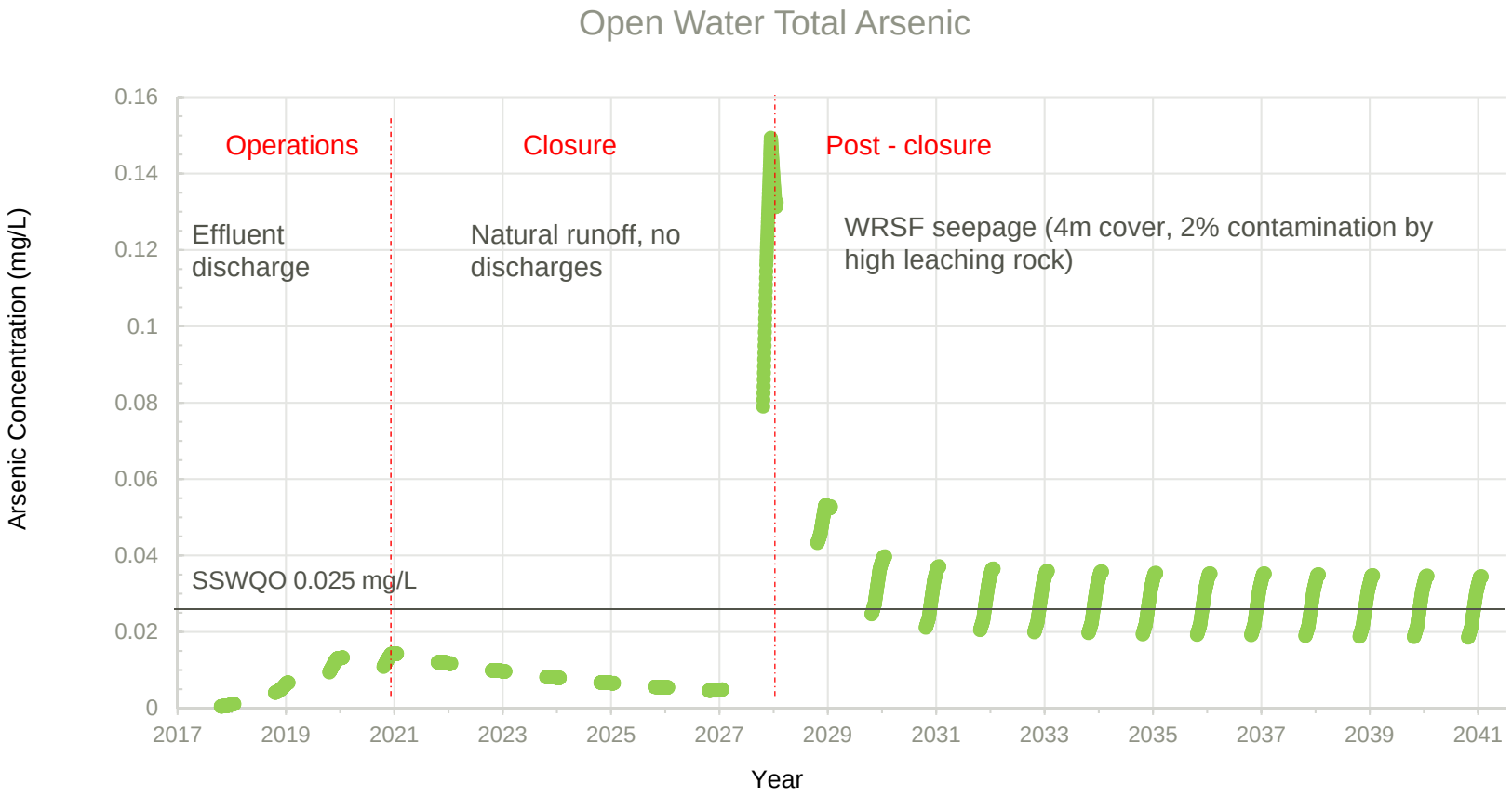
Mammoth Lake Hydrodynamic Model

Arsenic in effluent discharge during operation and arsenic released from cover (4-meter active thaw depth cover with low leaching waste rock).



Mammoth Lake Hydrodynamic Model

Arsenic release from 4-m cover with 2% contamination of high leaching waste rock



Mammoth Lake Water Quality

- Waste Rock Management Plan in place to segregate waste rock, progressive covering – Implemented plans at Meadowbank are effective
- Water Quality Monitoring Plan to validate water quality predictions and manage adaptively, to meet Water Quality Objectives during operations through post-closure:
- 10 years of monitoring for adaptive management and release when demonstrated absence of impact in the receiving lake outside the mixing zone
- Alternatives: release contact water to Whale Tail Pit Lake