AGNICO EAGLE

2AM-WTP1826
Information Request Responses
Whale Tail Pit – Expansion Project

Submitted to:
Nunavut Water Board

Submitted by:
Agnico Eagle Mines Limited – Meadowbank Division

August 1, 2019

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CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-IR1**
Re:	**WRSF Covers**		

Reference:

- *Whale Tail Pit Expansion Project: Interim Closure and Reclamation Plan*
- *Whale Tail Pit Waste Rock Management Plan*
- *Appendix E of the 2019 Mean Annual Water Balance Update for the Whale Tail Pit – Expansion Project*

Information Request / Recommendation Made By Interested Party:

CIRNAC recommends that AEM provide the report of revised WRSF thermal modelling prepared by O'Kane Consultants

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle refers CIRNAC to ECCC-IR5 and Appendix A of this response package, which presents the Final Whale Tail Project - Thermal Modelling of the Whale Tail and IVR WRSFs Report, prepared by O'Kane Consultants in July 2019.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-IR2**
Re:	**Effluent Mixing Zone**		

Reference:

- *Whale Tail Pit Water Management Plan (V4-NWB)*

Information Request / Recommendation Made By Interested Party:

CIRNAC recommends that AEM should provide information for effluent modeling calculations for future scenarios of maximum concentrations of arsenic and phosphorous within the applicable receivers. The calculations should be performed for both Mammoth Lake and Whale Tail

Lake (south basin). For each receiver and project stage (i.e., operations, closure and post-closure) the revised modeling calculations should define the required size of the mixing zones for active discharges (i.e., via a diffuser) and passive discharges (i.e., post-closure WRSF seepage).

CIRNAC notes that AEM has already committed to providing similar (but not identical) information as part of the NIRB process by 13 July 2019. However, the information requested above is also required for consideration during the NWB process and should therefore be filed to the public registry.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle considers that the updated water quality modelling completed for the NWB Water Licence Amendment, and the near-field mixing modelling report submitted to the NIRB as part of commitment 26 provides sufficient projections for the maximum modelled concentrations in the receiver on a lake average basis and an estimate of the mixing zone distances where the P and As concentrations are expected to be below their respective thresholds.

Although As and P were not the CoPCs that required the dilution factors in Mammoth or Whale Tail (South Basin) lakes that provided the conceptual diffuser design in the modelling, the mixing zone dimensions conservatively estimated the region of the lake where the maximum concentrations of these CoPCs would occur. No mine discharges of treated effluent are proposed for closure/post-closure.

Agnico Eagle refers CIRNAC to Appendix B of this response package, which presents the Nearfield Mixing Modelling in Mammoth Lake and in Whale Tail Lake (South Basin), submitted to the NIRB to fulfill commitment 26 of the Technical meeting held in Baker Lake in June 29, to be considered as part of the NWB Water Licence amendment process.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-IR3
Re:	WRSF Interflow and Temporal Scope of Assessment		

Reference:

- *Mine Site and Downstream Receiving Water Quality Predictions*
- *Whale Tail Pit Waste Rock Management Plan*
- *Appendix E of the 2019 Mean Annual Water Balance Update for the Whale Tail Pit – Expansion Project*

Information Request / Recommendation Made By Interested Party:

CIRNAC recommends that AEM extend the temporal scope of its water quality modeling to ensure that WRSF interflow is included in its predictions of surface water quality. The revised modeling should evaluate the water quality impacts of interflow under two scenarios:

Scenario 1: a cover constructed exclusively of waste rock with low metal leaching potential; and
Scenario 2: a cover that is "contaminated" with 1% waste rock that has elevated metal leaching potential (e.g., north komatiite formation).[1]

1 CIRNAC acknowledges and appreciates that AEM has already assessed the impact of 1% cover contamination in response to NIRB Commitment #28 for the Expansion Project. However, the temporal scope of that assessment was insufficient to capture the potential effects of interflow from the WRSFs.

Agnico Eagle's Response to Information Request / Recommendation:

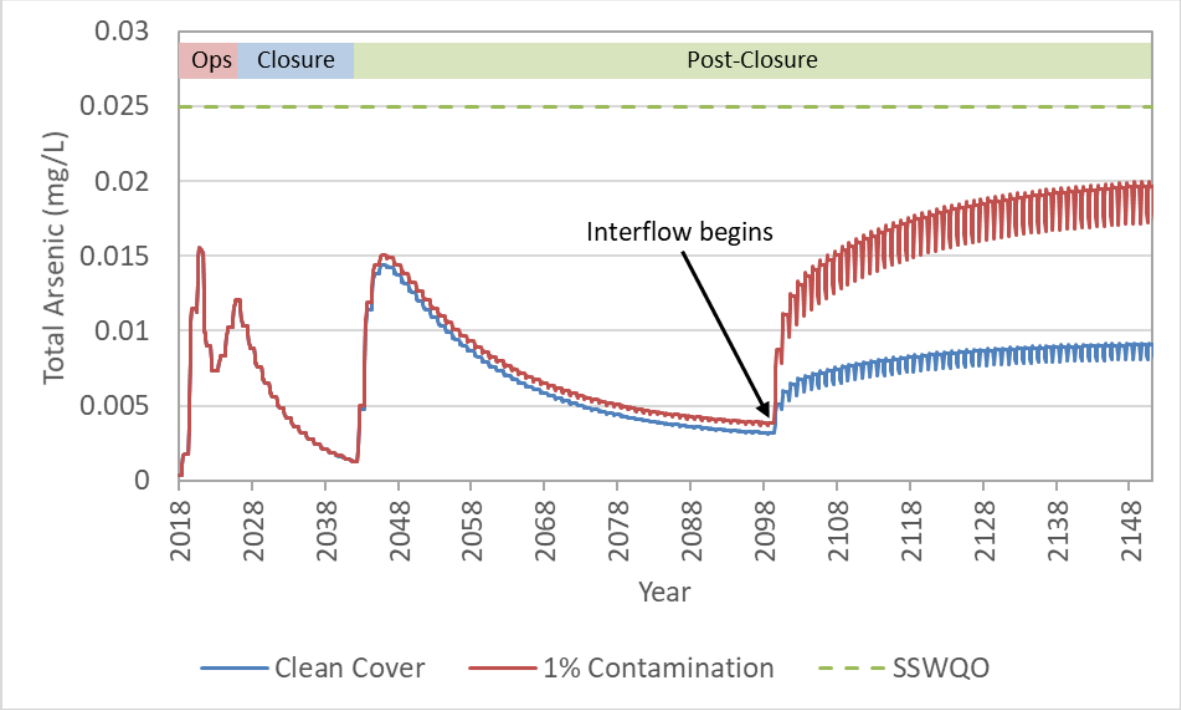
Interflow is predicted to begin 80 years following initial construction of the WRSFs. For Whale Tail WRSF, this correlates to the year 2099. To evaluate the effect of interflow, the water quality model was run 110 years into post-closure, which covers the time period between January 1, 2018 and December 31, 2150. This time period includes 51 years in which interflow is affecting the mass loading from the Whale Tail WRSF into Mammoth Lake.

To evaluate a range of potential impact, the two request scenarios were run, including a cover constructed exclusively of waste rock with low metal leaching potential and a cover with 1% waste rock that has elevated metal leaching potential.

The following assumptions were used to calculate the additional mass loading from interflow:

1. An effective interaction depth that encompasses the entire active layer (4.7 m) was assumed. This is a conservative approach as interflow would not be occurring throughout the entire pile at once and may never produce water from the plateau. Based on the surface area of the benches and slopes of the WRSFs, loadings could be between 20% to 60% lower.

2. As per the runoff loading term, the entire surface area (i.e., including vertical and horizontal faces of the benches) of the WRSF's was accounted for.
3. All factors used in the calculation of the runoff loading terms in the water quality model were applied to the interflow loading.
4. The same chemical loadings were used as those that were used for the previous sensitivity scenarios of cover material presented in the NIRB Commitment #28 (Agnico Eagle 2019) for the Expansion Project.
5. Total concentrations of arsenic are provided, under the assumption of:
    a. 7.5 mg/L TSS in the effluent during operations;
    b. 1 mg/L TSS in the flooded pit lake in post-closure;
    c. 10 mg/L TSS in flow from the Whale Tail WRSF to Mammoth Lake in post-closure.



Results show that with the inclusion of interflow from the WRSFs, the total arsenic concentration in Mammoth Lake remains below the SSWQO of 0.025 mg/L in post-closure. Interflow is anticipated to increase over time; however, the loading is assumed to remain constant throughout this time. This results in a decreasing effect of the interflow in Mammoth Lake over time, and eventually shows concentrations approaching steady state by 2150.

The assumptions made for the mass loading (specifically, the effective interaction depth and contributing surface area) are conservative. It is not possible to quantify the level of conservatism without additional landform modeling; however, conceptually:

a. The mass loads will decrease over time, as available leachable material is depleted from the cover within the effective interaction depth.
b. The interflow is likely to occur on the outer benches of the WRSFs and is not likely to interact with the entire surface area of the WRSFs.
c. The effective interaction depth is not expected to encompass the entire active layer (4.7 m).

Based on the results presented above, it is not anticipated that interflow will have the potential to result in adverse water quality impacts to surface water receivers.

Reference:

Agnico Eagle (Agnico Eagle Mines Limited). 2019. Technical Comment Responses Whale Tail Pit – Expansion Project. Submitted to Nunavut Impact Review Board. May 29, 2019.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-IR4**
Re:	**Prior Management Plan Revisions**		

Reference:

- *CREMP Addendum Mercury Monitoring Plan;*
- *Haul Road Management Plan;*
- *Water Quality and Flow Monitoring Plan;*
- *Water Management Plan;*
- *Waste Rock Management Plan;*
- *Operation ARD-ML Sampling and Testing Plan; and*
- *Groundwater Monitoring Plan*

Information Request / Recommendation Made By Interested Party:

CIRNAC recommends that AEM provide a table summarizing if and how the Department's October, 2018 input on prior versions of the Management Plans for the Approved Project have been incorporated into the revised submissions. A separate response should be provided for each of CIRNAC's comments and recommendations within the table. This information will be used to confirm the adequacy of the revised Management Plans to mitigate potential environmental impacts associated with the Expansion Project.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle has met this Information Request No. 4. For example, regarding the Management Plans listed in IR No. 4 (in particular, the Water Quality and Flow Monitoring Plan and the Groundwater Monitoring Plan), to obtain approval of the Management Plans from the NWB, Agnico Eagle has previously presented detailed information to CIRNAC and to the NWB on February 6, 2019 about how CIRNAC's October 2018 input on prior versions of the Management Plan has been incorporated (Agnico Eagle 2019). The NWB considered this information in approving the Management Plans, and the approved Management Plans were used as the base for the amendments necessary to proceed with the Expansion Project.

It would not be effective for Agnico Eagle to go back and revisit the October 2018 CIRNAC table now that the Management Plans have been approved by the NWB (who took into account the October 2018 CIRNAC comparison Table in making its decision to approve the plans).

Reference:

Agnico Eagle. 2019. RE: Agnico Eagle's justification for compliance with NIRB Project Certificate No.: 008 Term and Condition No. 15, February 6, 2019.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-IR5**
Re:	**Alternative Discharge Locations**		

Reference:

- *Whale Tail Pit – Expansion Project: Main Application Document*
- *NWB Water Licence 2AMWTP1826 Amendment*

Information Request / Recommendation Made By Interested Party:

CIRNAC recommends that;

1. AEM should provide information that shows evidence of assessment of the referenced discharge locations.

2. AEM should provide information that demonstrates an assessment of potential impacts to the surface water receivers was conducted

Agnico Eagle's Response to Information Request / Recommendation:

Baseline sampling was completed at Lake D1 (Figure 2) and Lake D5 (Figure 3) beginning in August 2018. The study design followed the framework for the Core Receiving Environment Monitoring Program (CREMP) as outlined in the Whale Tail Pit Addendum (Azimuth 2018b), which mirrors the CREMP study design regarding monitoring components, the approach to sampling (SOPs), the QA/QC program, and data evaluation (Azimuth 2015a). The purpose of the sampling program at Lake D1 and D5 is to provide baseline information on water quality, sediment chemistry, and biological communities (i.e., phytoplankton and benthic invertebrate taxonomy) in the event that one or both of the lakes is selected as an alternate discharge location for the Expansion Project.

The components of the baseline freshwater monitoring program include:

- In situ water quality measurements (i.e., pH, DO, temperature, and specific conductivity)
- Water chemistry (e.g., metals concentrations [total and dissolved], nutrients, anions)
- Sediment chemistry (i.e., metals concentrations, particle size, TOC)
- Phytoplankton community
- Benthic invertebrate community

Bathymetry mapping of the north basin of Lake D1 and most of the Lake D5 was completed during the August 2018 sampling event. The real-time bathymetry data were used to identify suitable sampling areas for collecting sediment and benthic invertebrates.

Results of the Aquatic Baseline works were presented in the Lake D1 and Lake D5 Baseline Aquatic Receiving Environment Data Memorandum (August 2018 to March 2019) (Azimuth 2019). This report was

submitted to the NIRB to respond to technical comment NIRB-TRC-12, on May 29, 2019. The document has been provided as Appendix J to this response package.

Agnico Eagle is planning to complete additional baseline monitoring in 2019 to define the range of benthic invertebrate community abundance and richness metrics under baseline conditions.

Reference:

Azimuth. 2019 - RE: Whale Tail Permitting Support – Lake D1 and Lake D5 Baseline Aquatic Receiving Environment Data Memorandum (August 2018 to March 2019), May 23, 2019.

ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-IR1**
Re:	**Control Strategies to Reduce Acid Rock Drainage/Metal Leaching (ARD/ML)**		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix G.1: Whale Tail Pit Waste Rock Management Plan, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide information on other planned control strategies to reduce ARD/ML besides climate.

Agnico Eagle's Response to Information Request / Recommendation:

The approach for managing ML/ARD is based on a thermal cover design, not climate alone. The cover system was designed specifically considering the regional climate, which is leading practice as outlined in The INAP Global Cover System Design - Technical Guidance Document. Not considering the climate can lead to selection of a cover that may function in one region but not another. For example, a compacted clay layer may limit infiltration in a tropical (wet) environment where desiccation of the layer is low risk, whereas in a permafrost environment, freeze-thaw cycling, high evaporative summer conditions and frost heaving make this highly engineered cover system type a poor choice for ARD management.

The attributes that the cover system at Whale Tail include: low annual precipitation (less than 300 mm per year); high summer evapotranspiration; coarse-texture soil availability; high spring surface runoff; and creation of low permeability ice barriers. The cover will consist of material identified through project development studies and operational sampling with low levels of arsenic and non-ARD forming (i.e., non-PAG). The 4.7 m thickness of the cover will allow for permafrost to develop below the cover, and as a result, oxidation rates will effectively stop and water will be frozen, which will inhibit water that contacts the frozen waste to leave the WRSF. Any water that runs-off the WRSF will only interact with non-PAG and non-ML material. The thermal modelling report prepared by O'Kane Consultants (Appendix A) provides additional details on the cover design and function.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-IR2**
Re:	**Active Layer Depth**		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix G.1: Whale Tail Pit Waste Rock Management Plan, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide the actual depth of the active layer above the permafrost in the Project area.

Agnico Eagle's Response to Information Request / Recommendation:

The active layer depth of 2m was taken into account in the design of the Whale Tail and IVR Waste Rock Storage Facility. Please reference to the Appendix A: ''*Whale Tail Project - Thermal Modelling of the Whale Tail and IVR WRSFs*'' for additional details.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-IR3**
Re:	**Permafrost**		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix G.1: Whale Tail Pit Waste Rock Management Plan, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent clarify the large discrepancy between the length of time it takes for permafrost to melt completely underneath Whale Tail and IVR Pit Lakes.

Agnico Eagle's Response to Information Request / Recommendation:

The following figures provides the conceptual models that includes both the IVR and Whale Tail pits at their maximum depths for the following three phases:

- Figure ECCC-IR3-1. At the end of mining.
- Figure ECCC-IR3-2. At the end of closure.
- Figure ECCC-IR3-3. 1000 years into post-closure.

IVR Pit is located within regional permafrost, and because of the increased thickness of permafrost surrounding the pit, it takes longer to fully degrade the underlying permafrost. Whale Tail Pit is in an area of partially closed talik, and because of the smaller volume of underlying permafrost, the permafrost degrades faster.

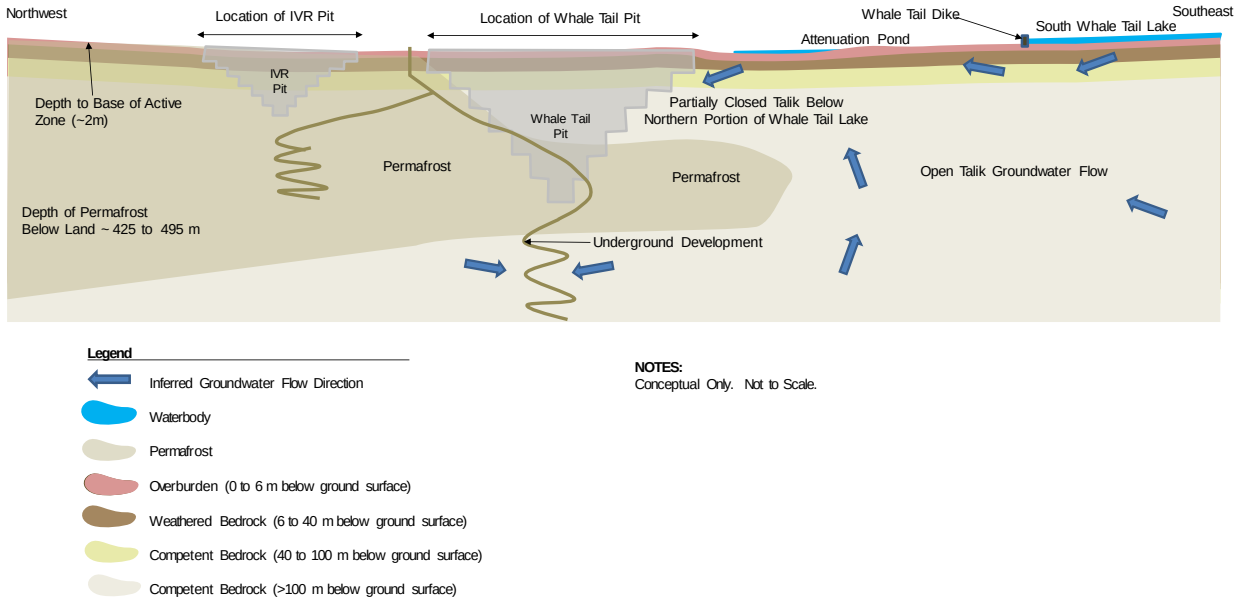


Figure ECCC-IR3-1: Conceptual Model of Deep Groundwater Flow Regime during Mining - Cross-Section View

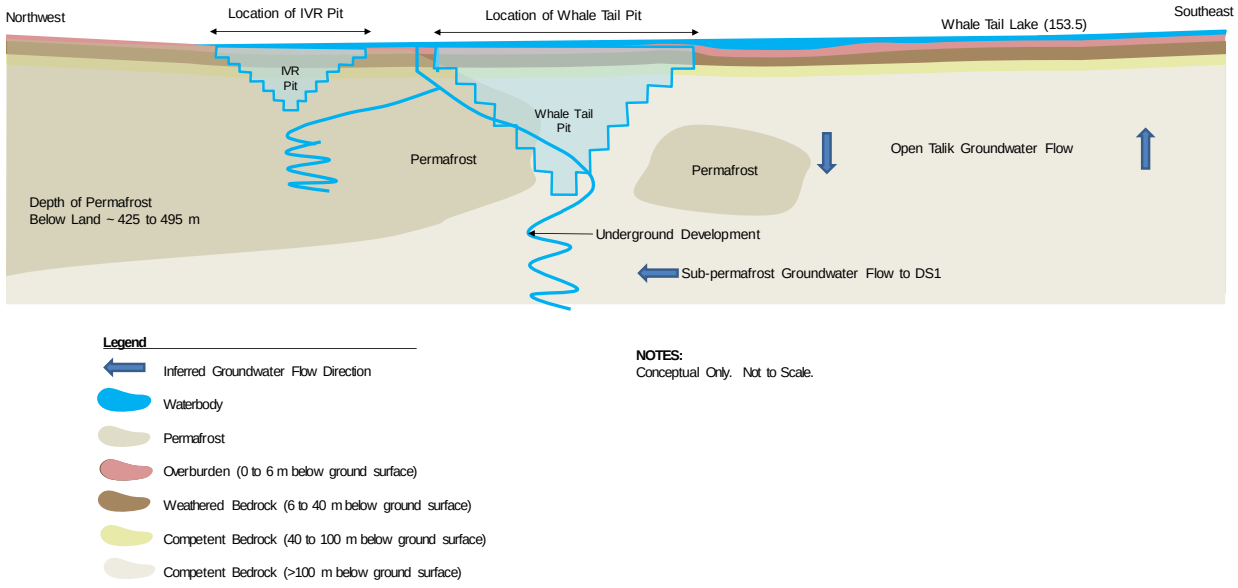


Figure ECCC-IR3-2: Conceptual Model of Deep Groundwater Flow Regime at the end of Closure - Cross-Section View

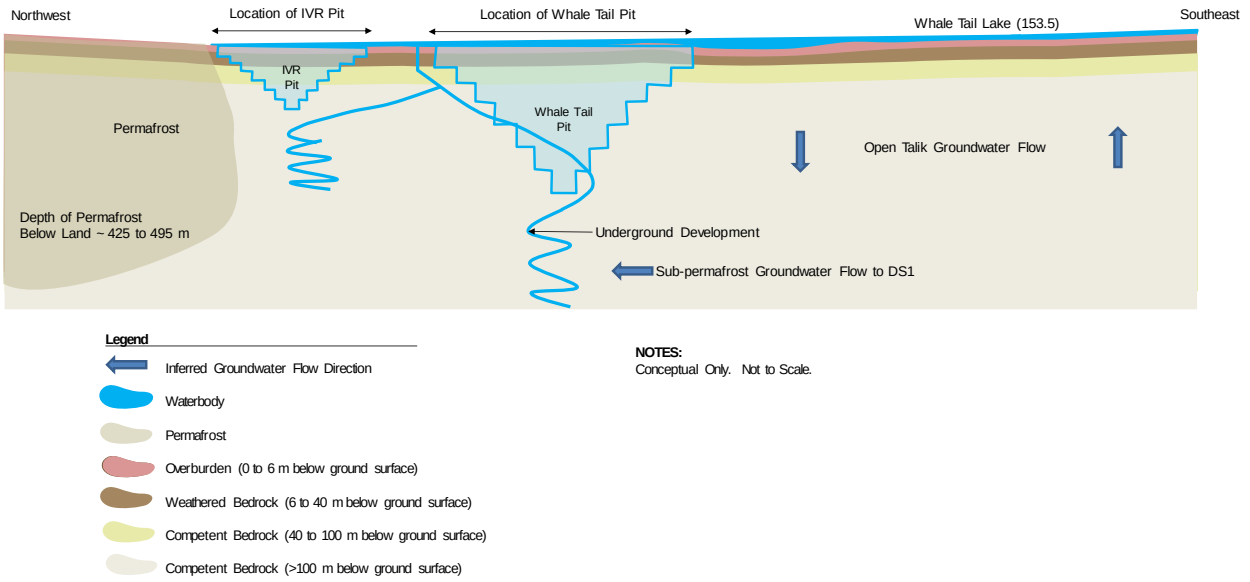


Figure ECCC-IR3-3: Conceptual Model of Deep Groundwater Flow Regime at Post-Closure - Cross-Section View

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-IR4**
Re:	**Climate Change Information - Consultant Reports**		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix G.1: Whale Tail Pit Waste Rock Management Plan, May 2019.*
- *Agnico Eagle Mines Limited. Whale Tail Pit Project (Approved Project) Final Environmental Impact Statement (FEIS), 2016.*
- *Agnico Eagle Mines Limited. Whale Tail Pit – Expansion Project Final Environmental Impact Statement Addendum, December 2018.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide the following reports:

- *O'Kane Consultants Ltd. 2015. TSF North Cell Closure Design Report Construction Plan. Prepared for Agnico Eagle Mines Ltd – Meadowbank Mine.*
- *O'Kane Consultants Ltd. 2015. Climate Change Assessment for the Meadowbank Mine.*
- *Modelling details and results of the climate change modelling conducted by O'Kane Consultants which is described in Approved Project FEIS Volume 5 (Terrestrial Environment), Section 5.3.2.3.1 (Baseline Climate Conditions and Projected Climate Change).*

Agnico Eagle's Response to Information Request / Recommendation:

The TSF North Cell Closure Design Report Construction Plan, 2015 prepared by O'Kane Consultants is presented in Appendix C of this IRs response package.

The climate change assessment and modelling details and results, which are described in the Approved Project FEIS Volume 5 (Terrestrial Environment), Section 5.3.2.3.1 (Baseline Climate Conditions, and Projected Climate Change), are included in Appendix C and D of the TFS North Cell Closure Design Report Construction Plan (2015), respectively.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-IR5**
Re:	**Modelling Information – Consultant Report**		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.1: Whale Tail Pit – Expansion Project 2019 Mean Annual Water Balance Update, May 2019, Appendix E – O'Kane Landform Water Balance Modelling of Whale Tail and IVR WRSF.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide the following detailed modelling report, which summarizes specific modelling background and methodology:

- *O'Kane Consultants Inc. 2019. Agnico Eagle - Detailed Thermal Modelling Report for the Whale Tail and IVR WRSFs – DRAFT.*

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle refers ECCC to Appendix A of this response package, which presents the Final Whale Tail Project - Thermal Modelling of the Whale Tail and IVR WRSFs Report, prepared by O'Kane Consultants in July 2019.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-IR6**
Re:	**Effluent Mixing Zone**		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix G.5: Whale Tail Pit Water Management Plan, May 2019.*

Information Request / Recommendation Made By Interested Party:

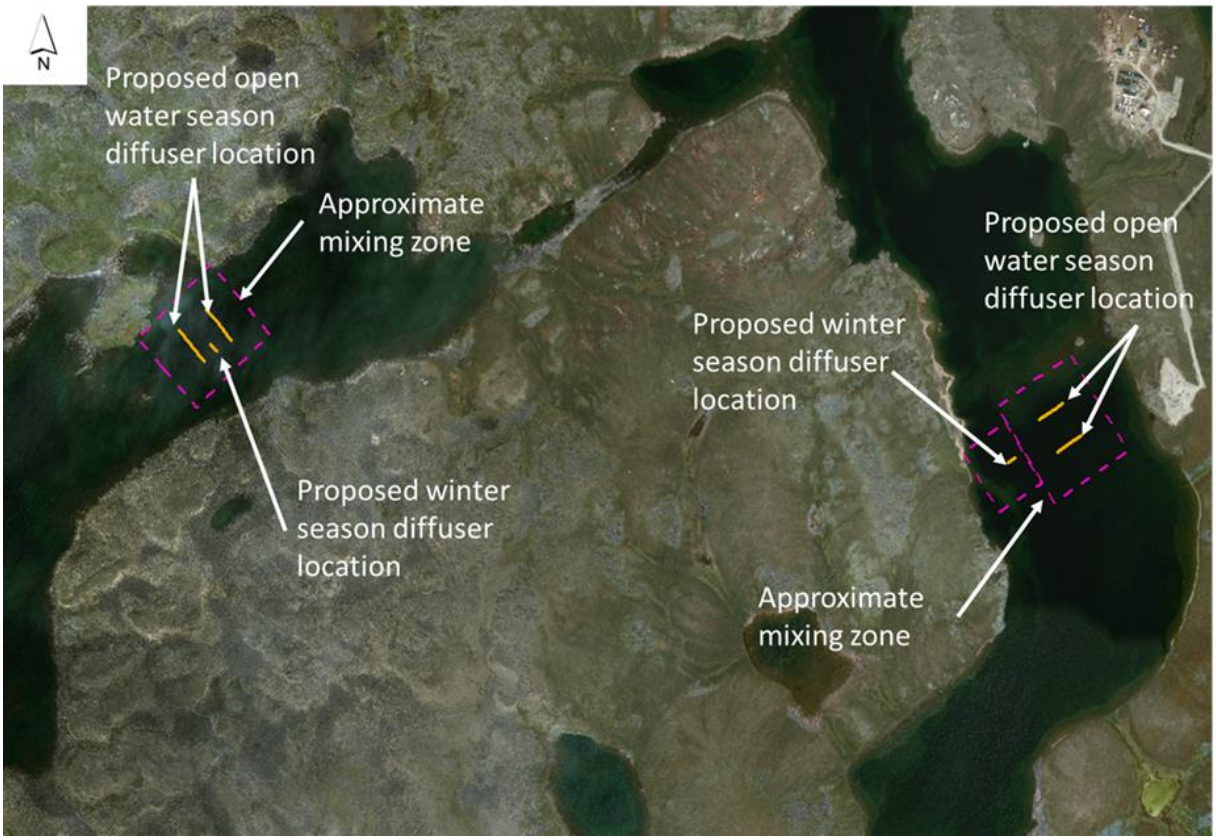
ECCC requests that the Proponent provide:

- *A map indicating the location and extent of the mixing zone for each diffuser, including all planned and potential open season and winter diffusers for the Project.*
- *A description to explain the map and outline the timing of discharge to each diffuser location.*

Agnico Eagle's Response to Information Request / Recommendation:

The figure below shows the location and extent of the proposed regulatory mixing zone for each diffuser, including all planned and potential open water season and winter diffusers for the Project. In Mammoth Lake, the open water season diffusers will consist of two diffuser lines, each with ten ports that are spaced 12.6 m apart. In Whale Tail South, the open water season diffusers will consist of two diffuser lines, each with seven ports that are spaced 14 m apart. The winter diffusers for both receiving lakes will consist of only one line in each lake, with three ports that are spaced 14 m apart.

Effluent discharge is expected to occur in Mammoth Lake between 2019 and May 2021; during this time, water collected at the base of Whale Tail Dike will be discharged via diffuser to Whale Tail Lake (South Basin). Starting in June of 2021, all effluent discharges will be directed to Whale Tail Lake (South Basin). Summer, or open water season, discharge is defined as discharge occurring between June and September (inclusive) for both receiving bodies. Winter discharge is defined as discharge occurring between October and May (inclusive).


N
Proposed open water season diffuser location
Approximate mixing zone
Proposed winter season diffuser location
Proposed open water season diffuser location
Proposed winter season diffuser location
Approximate mixing zone

Interested Party:	ECCC	Rec No.:	ECCC-IR7
Re:	GoldSim Model and Underlying Models		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent:

- *Specify where the modelling reports (listed above) are located within the water licence amendment application.*
- *Provide any reports that are listed above but which are not included in the application.*

Agnico Eagle's Response to Information Request / Recommendation:

The following table provides a summary of where the various modelling reports referenced in the *Mine Site and Downstream Receiving Water Quality Predictions* report are located within the Water Licence Amendment Application or are now provided as a supporting document to these IR responses.

Reference	Location in Water Licence Amendment / Supporting Document
Mean Annual Water balance update (Golder 2019a)	Appendix H.1 [(a)] of Water Licence Amendment Application
Hydrogeological model update (Golder 2019b)	Appendix H.4 of Water Licence Amendment Application
Thermal modelling (Golder 2019c)	Appendix H.3 of Water Licence Amendment Application
Appendix E of Mean Annual Water balance update (Golder 2019a)	Appendix H.1
Hydrodynamic Model Mammoth Lake (Golder 2019d)	Appendix D[(b)]
Hydrodynamic Model Pit Lake (Golder 2019e)	Appendix E[(b)]
Effluent Diffuser Models (Golder 2019f)	Appendix F[(b)]

(a) on the NWB Registry there are two files with Appendix H.1 in the file name, one is incorrectly labelled

(b) was provided to NWB as part of the 2018 Annual Report submission

Interested Party:	ECCC	Rec No.:	ECCC-IR8
Re:	Waste Rock Storage Facility (WRSF) Interflow		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent clarify:

- *The temporal boundaries for the model described in Table 4 regarding interflow.*
- *Whether and how the predicted post-closure interflow could potentially affect seepage quality from the Whale Tail and IVR WRSFs.*

Agnico Eagle's Response to Information Request / Recommendation:

The temporal boundary for the Mine Site and Downstream Receiving Water Quality Model is from January 1, 2018, through December 31, 2050. Interflow is predicted to begin 80 years following the initiation of the construction of the WRSFs. For the Whale Tail WRSF, this correlates to the year 2099.

In post-closure, seepage from the WRSF will not occur and as a result, interflow will not impact seepage. A discussion on interflow in the thermal cover took place during one of the evening sessions at the Technical Hearing in Baker Lake in June 2019. The discussion is summarized in a technical note and accompanies this response as presented in Appendix G. The key consideration for interflow is that it is intended to describes water that moves below the surface of the pile but above low permeability barrier. This situation is expected to develop as a result of ice lenses that will form in the WRSF in the frozen waste rock below 4.7 m. The earliest this is predicted to occur is around year 80 (Appendix A), during summer rainfall events on the lowermost bench as the waste rock on the bottom of the WRSF may have formed enough ice lenses that a permeability barrier will have developed.

Interested Party:	ECCC	Rec No.:	ECCC-IR9
Re:	Seepage from Whale Tail and IVR Waste Rock Storage Facilities (WRSFs)		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide clarification of the seepage quality (using total fractions) and quantity predicted to occur during operations, closure and post-closure at the Whale Tail and IVR WRSFs; and the level of uncertainty associated with each of these water quality predictions.

Agnico Eagle's Response to Information Request / Recommendation:

As noted in ECCC- IR8, seepage is not predicted to occur from any of the WRSFs. The contributors to water quality from the WRSFs include run-off during operations, closure, and post-closure for the temporal boundaries provided in the Water Licence Application.

The model was extended beyond the Water Licence Application boundaries to look at the impact of interflow on water quality from year 80 to 100. The results of this extension shows that water quality will remain below regulatory criteria. Additional details of the extended model are provided in the response to CIRNAC-IR3.

Interested Party:	ECCC	Rec No.:	ECCC-IR10
Re:	Underground Mine Facilities – Water Quality		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide:

- *Clarification regarding the potential for connectivity between the water in the underground mine facilities, and surface and groundwater, during closure and post-closure.*
- *A discussion of the potential for movement of the water in the underground workings with respect to (a) the active layer above the permafrost, (b) deep groundwater pathways, and (c) connectivity of the mine workings to any taliks; and describe any associated uncertainty with each type of movement.*

Agnico Eagle's Response to Information Request / Recommendation:

The underground is connected to the active layer only in a localised area near the underground portal and ventilation raises. The primary connection to groundwater flow system is through the talik below Whale Tail Lake, and through the deeper sub-permafrost flow system present below the regional permafrost (i.e., underground area outside of the Whale Tail Lake footprint). Direct connection to surface water is not present.

During mining, groundwater from the sub-permafrost flow system will migrate towards the underground in response to dewatering. Following filling of the underground, this flow pattern is predicted to reverse, and post-closure groundwater is predicted to discharge from the underground to the groundwater flow system (both to the talik below Whale Tail Lake and the deeper sub-permafrost flow system). Recent monitoring of the Westbay monitoring well supports this prediction through the observation of a downward hydraulic gradient in the talik below Whale Tail Lake. Water discharged from the underground is predicted to migrate through the sub-permafrost groundwater flow system to Lake DS1.

Interested Party:	ECCC	Rec No.:	ECCC-IR11
Re:	Mass Load Model and Total Suspended Solids (TSS)		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide:

- *the rationale for excluding TSS from the mass load model,*
- *any assumptions underlying this rationale, and*
- *the level(s) of uncertainty associated with the assumption(s).*

Agnico Eagle's Response to Information Request / Recommendation:

Total suspended solids (TSS) have been provided to ECCC through the NIRB technical comments process as ECCC-TC-17. That response showed that the previous mass load model accounted for up to 95% of arsenic and phosphorus by using dissolved fractions.

The assumptions and associated uncertainty used in the totals prediction were discussed during a phone call with ECCC on June 28, 2019, and a subsequent technical memo was submitted to ECCC to address the concern. This technical memo is provided as Appendix H to this response package.

Interested Party:	ECCC	Rec No.:	ECCC-IR12
Re:	Total Arsenic and Phosphorus Levels		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide a graph that is analogous to Figure 7 but that uses total phosphorus and total arsenic rather than dissolved constituents.

Agnico Eagle's Response to Information Request / Recommendation:

Graphs of total arsenic and phosphorus in effluent discharge are provided in ECCC-IR14.

Additional clarification on the model assumptions and predictions for total constituents include:

- The dissolved phosphorus levels in treated Water Treatment Plant (WTP) effluent discharge during operations was capped at a treatment level of 0.05 mg/L. Concentrations of dissolved phosphorus reach a peak between 0.14 to 0.16 mg/L in the Whale Tail Attenuation Pond, which is untreated contact water.
- The concentration of dissolved arsenic in the effluent discharge reaches 0.1 mg/L because it is assumed to be treated to that concentration through the water treatment plant.
- The model assumes the particulate fraction is added to the dissolved effluent discharge concentrations, regardless of whether they are at the effluent treatment limit. This means that when they are at the effluent treatment limit, total concentrations may be above the discharge criteria in the model (i.e., 0.1 mg/L As). The water treatment plant will be able to treat total arsenic to 0.1 mg/L, and total phosphorus to 0.05 mg/L, so the effluent quality criteria will not be exceeded, even for total concentrations. This is a level of conservatism that was maintained in the model.

Interested Party:	ECCC	Rec No.:	ECCC-IR13
Re:	Alternative Effluent Discharge Location		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent describe what adaptive management mitigations (such as increased contaminant source control and/or effluent treatment optimization) would be used as a first and preferred response for managing effluent volume and quality, prior to considering the use of alternative discharge locations.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle provided a response to Technical Comment Request (ECCC-TC16) in an email to ECCC on July 17. The Technical Comment Request was the same as this IR and the same response has been provided below.

Currently, the water quality assessment under the Expansion FEIS shows that changes to water quality in Mammoth Lake and Whale Tail Lake (South Basin) as a result of the Project will not have a significant effect to water quality, which includes the expectation that a healthy aquatic ecosystem would be maintained and continued traditional use would not be affected.

Further, updated water quality modelling for the NWB Water Licence Application package, which reduces some of the conservativism present in the FEIS modelling case, illustrates a substantially lower rate of change in the receiving lakes. The main changes in the NWB water quality modelling to reduce conservatism included:

- Reducing the interaction depth of runoff from the WRSFs
- Removing an interaction depth source term from the vertical walls between benches
- Updating the leaching rate of phosphorus to reflect site measured conditions
- Using a loading-based approach for water that contacts lakebed sediments
- Updating the effluent limit for phosphorus from the STP to 0.5 mg/L, and to 0.05 mg/L for the O-WTP

Under the FEIS and Water Licence Amendment modeling cases, and considering the potential for enhanced treatment capabilities, the likelihood of needing to discharge any treated effluent to Lakes D1 and D5 is low. However, Agnico Eagle will maintain the option for discharge to Lake D1 and/or Lake D5 as

a contingency considered as part of the Mine's adaptive management plan. It is anticipated that adaptive management decisions will be evaluated in the event that one of two occurrences take place during operations:

1. **Water quality in the receiving lakes is measured consistently above FEIS projections during operational discharge periods:**
   The Water Quality and Flow Monitoring Plan specifies how water quality in the receiving environment will be monitored during the operations and closure phase. Results of the monitoring are intended to inform the "adaptive management" process, supporting the early identification of potential problems and development of mitigation options to address them by comparing results to established threshold and trigger levels.

   For regulated discharges, the Compliance Monitoring (CM) Program ensures compliance of mine contact water with regulatory requirements; the Core Receiving Environment Monitoring Plan (CREMP) is designed to measure and assess the potential impacts to receiving environment of constituents not regulated under MDMER or NWB. The CREMP describes trigger levels that were developed to facilitate adaptive management of potential water quality issues in the receiving environment. The criteria were developed with the assumption that action will be considered before certain monitored parameters reach levels that cause or have the potential to cause adverse effects to aquatic biota. Triggers are intended to act 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. In general, exceedance of early warning triggers will trigger further assessment, which may then lead to mitigation.

2. **If the volume of water to be discharged during the summer period consistently exceeds that proposed as part of the Mine plan**
   For example, if the volume of water to be managed on site tracks above the water management plan for a period of six months without corresponding decreases in water quality (i.e., dilution; which would then result in an increase in Contaminants of Potential Concern (CoPC) load to the receiving lake), this contingency may be considered.

   For example, if water quality in both Mammoth Lake and Whale Tail Lake (South Basin) start to show increasing trends beyond FEIS projections for a period of 6 months, whereby concentrations of arsenic, phosphorus, or other CoPC indicate that they will increase above SSWQO or guidelines, the contingency of discharging treated effluent to Lake D1 or Lake D5 may be considered. The decision would be supported by the inability of other management practices to reduce loading to the receiving lakes to reduce the cumulative increase in the CoPC. Other management practices that will be considered prior to any decision in triggering the contingency of discharge to Lake D1 or Lake D5 include, but are not limited to:

   - Increased sediment and erosion control
   - Deployment of absorbent booms and/or barriers within ponds to isolate surface petroleum hydrocarbon films for removal and/or treatment

- Adjustments to on-site sewage treatment
- Increase frequency and extend areal coverage to proactively identify any additional seeps around areas of concern, conduct additional monitoring, and control and contain seepage on site
- Enhanced water treatment of mine effluent, which could include the following, and which would serve to reduce the concentration of arsenic and phosphorus in the receivers:
    - Increase of coagulant dosing
    - Increase of sludge recirculation
    - Increase of retention time for reaction;
    - Addition of Ferric Sulphate ($Fe_2[SO_4]_3$) to help precipitation of arsenic prior to treatment in the O-WTP
    - Addition of lime to increase a low pH value or reduce metal concentrations

The requirement for consideration of the discharge contingency will not be immediate. Triggers will be developed that represent some initial examples of the criteria that would be incorporated to a decision tree under the water management plan. Specifics around these triggers will be further developed as part of the NWB water licensing phase as per a commitment made during the Technical Meeting (Commitment 23; refer to the NIRB Public Registry, NIRB Document ID 325434).

Should application of the contingency discharge option be triggered by water quality, water quality in either Mammoth Lake or Whale Tail Lake (South Basin) will improve. With recovery, treated effluent discharge could be reinstated back to the original receiver lakes. Similarly, should the application of the contingency option be triggered by increased water volumes, it would remain an option until the water volume concerns are resolved and water management strategies on site were adequate.

Interested Party:	ECCC	Rec No.:	ECCC-IR14
Re:	Water Quality Predictions for Total Fractions		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide:

- *Clarification on whether the tables in Appendix C (Site and Downstream Water Quality Model Results) represent water quality predictions of dissolved or total concentrations of constituents.*
- *Water quality predictions for total concentrations of constituents for (a) contact water, wastewater, effluent, pit lake water, seepage and runoff that would or could potentially be discharged, released or deposited to the aquatic receiving environment during operations, closure and postclosure; and (b) receiving environment and downstream.*
- *Detailed discussion of the water quality predictions described in the second bullet above, accompanied by illustrative graphs.*
- *The water quality predictions for total concentrations of constituents, the discussion, and graphs should all clearly indicate what TSS concentration was used in the model.*

Agnico Eagle's Response to Information Request / Recommendation:

Constituent concentrations in Appendix C of Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project are shown for the dissolved fraction for all receiving environments (Mammoth Lake, Whale Tail Lake [South Basin], DS1, and DS2). For all predictions on site, concentrations are given as the dissolved fraction for average monthly results; however, summary statistics are provided for both dissolved and total concentrations for each period (operations, closure, post-closure). Total results in Appendix C are based on 15 mg/L TSS for operations, closure, and post-closure. Assumptions regarding the composition of TSS can be found in the Mine Site and Downstream Receiving Water Quality Predictions report.

Water quality predictions for total concentrations in the receiving environment were provided in the responses to the technical comments for the NIRB process (ECCC-TC17, Agnico Eagle 2019). For these responses, the TSS assumptions were revisited to remove some of the conservatism in the 15 mg/L assumption. Assumptions for the responses were as follows:

- TSS in effluent: 7.5 mg/L
- TSS in WRSF runoff in post-closure: 10 mg/L
- TSS in flooded pit lake: 1 mg/L

With these assumptions applied, predicted total concentrations for phosphorus, arsenic, aluminum, and iron are shown below, in effluent (Figure 1), Whale Tail Pit Lake (Figure 2), and the WRSF runoff into Mammoth Lake (Figure 3).

With the assumption of 7.5 mg/L TSS in the effluent during operations, aluminum, iron, and phosphorus remain below their respective Effluent Quality Criteria (EQC). Dissolved arsenic is assumed to be treated to 0.1 mg/L. In the model prediction for total arsenic, 0.0018 mg/L of particulate is added, which causes the total arsenic concentrations to occasionally exceed the effluent quality criteria of 0.1 mg/L. However, the treatment plant is designed to treat total arsenic to 0.1 mg/L and the small exceedances are not expected during operations..

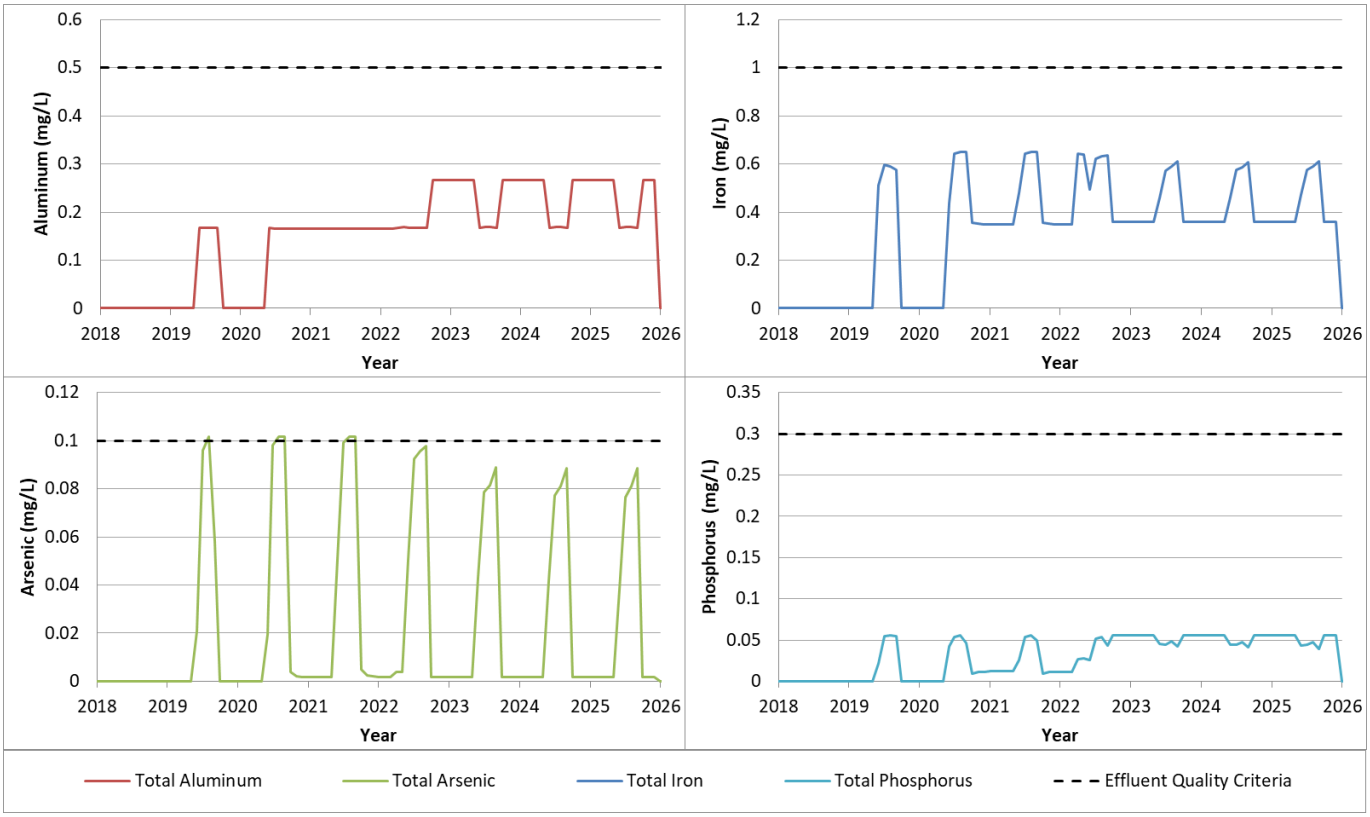


Figure 1. Predicted total concentrations in effluent discharge. TSS is assumed to be 7.5 mg/L.

With the assumption of 1 mg/L TSS in the effluent during post-closure, total concentrations of aluminum, iron, and phosphorus are predicted to remain below Canadian Environmental Quality Guidelines (CEQG) for the Protection of Aquatic Life (Freshwater) in the Whale Tail Pit Lake. Total arsenic concentrations are predicted to remain below the Site Specific Water Quality Objective (SSWQO) of 0.025 mg/L. Total iron, arsenic, and phosphorus show decreasing trends as the pit lake continues to be flushed with freshwater;

concentrations will eventually reach a steady state. Aluminum continues to be constrained by applied solubility limits as described in the Mine Site and Downstream Receiving Water Quality Predictions report.

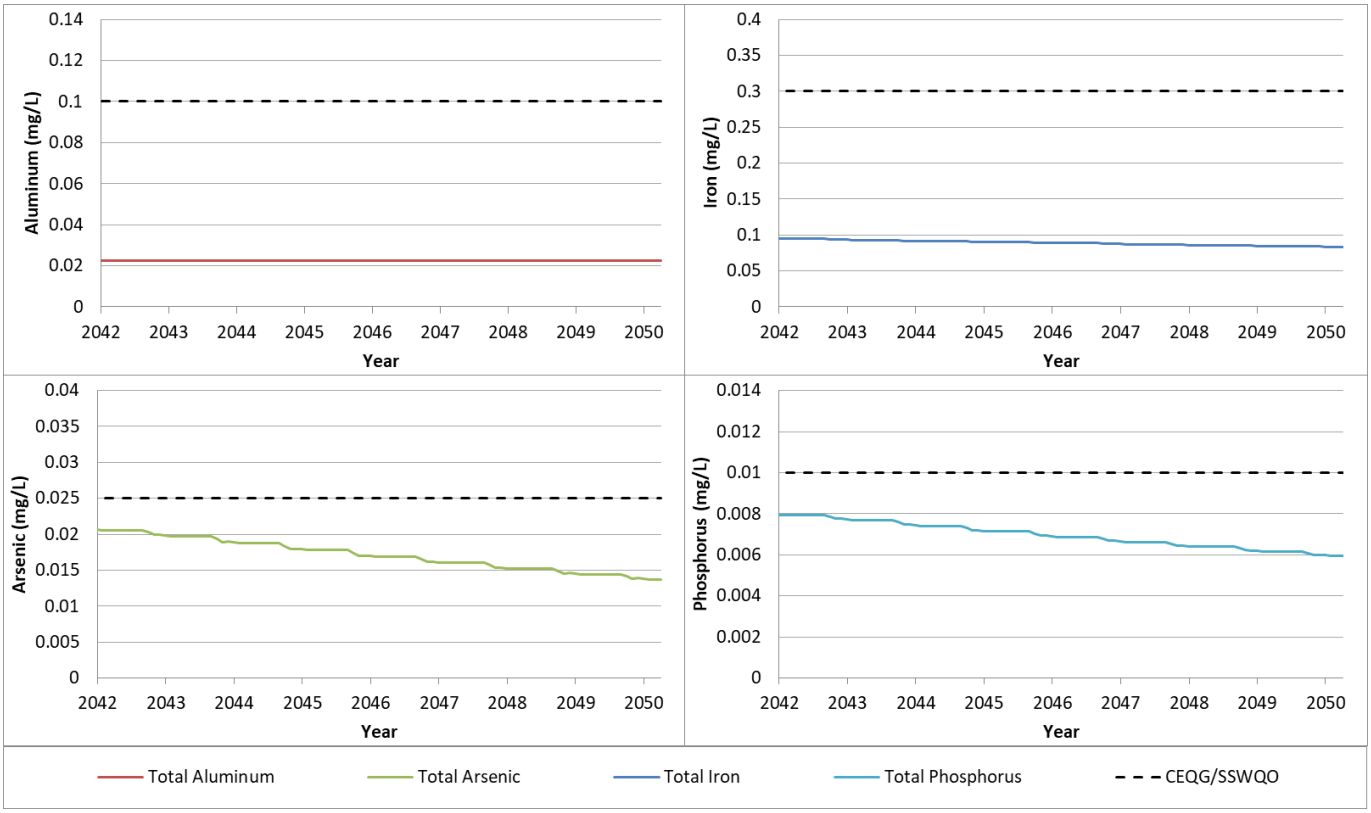


Figure 2. Predicted total concentrations in Whale Tail Pit lake. TSS is assumed to be 1 mg/L.

With the assumption of 10 mg/L TSS in the effluent during post-closure, total concentrations of aluminum, iron, arsenic, and phosphorus are predicted to remain below the EQCs in the runoff from the Whale Tail WRSF to Mammoth Lake. Variability in concentrations in total arsenic and total phosphorus are due to high flow conditions in freshet (troughs) and low flow conditions in July and August (peaks). Total aluminum and iron are constrained by the applied solubility limits as documented in the Mine Site and Downstream Receiving Water Quality Predictions report.

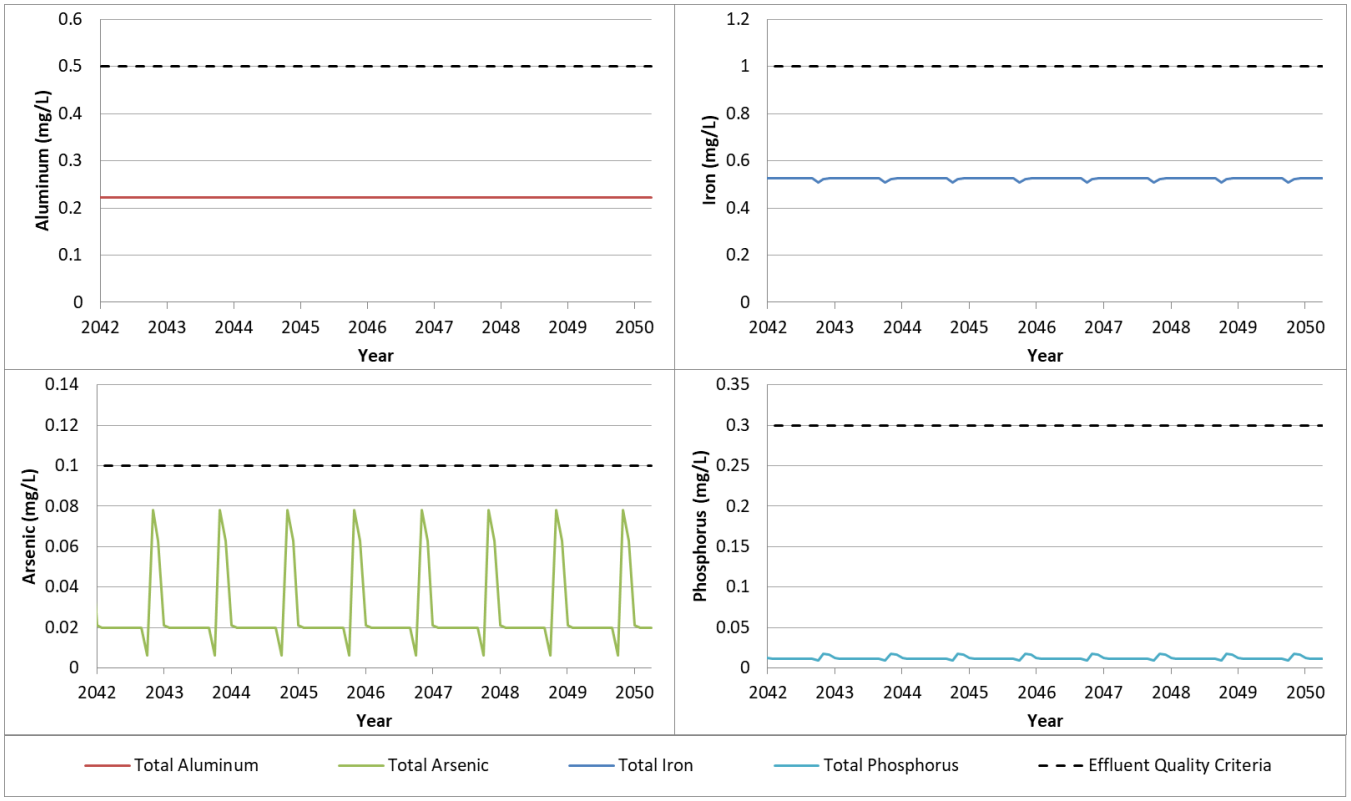


Figure 3. Predicted total concentrations in runoff from the Whale Tail WRSF to Mammoth Lake. TSS is assumed to be 10 mg/L.

Reference:

Agnico Eagle (Agnico Eagle Mines Limited). 2019. Technical Comment Responses Whale Tail Pit – Expansion Project. Submitted to Nunavut Impact Review Board. May 29, 2019.

Interested Party:	ECCC	Rec No.:	ECCC-IR15
Re:	Water Quality Predictions for Mammoth Lake, Whale Tail Lake (South Basin) and the Flooded Pit Lake		

Reference:

- *Agnico Eagle Mines Limited. Main Application Document NWB Water Licence 2AM-WTP1826 Amendment, May 2019. Appendix H.2: Mine Site and Downstream Receiving Water Quality Predictions, Whale Tail Pit – Expansion Project, May 2019.*

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide clarification regarding:

- *Whether the water quality predictions for Mammoth Lake and Whale Tail Lake (South Basin) are whole lake concentrations or maximum values expected in the receiving area of the lake.*
- *Whether the water quality predictions for Mammoth Lake, Whale Tail Lake (South Basin), and the flooded pit lake (before and after reconnection) are year-round values, or are seasonal highs.*

Agnico Eagle's Response to Information Request / Recommendation:

Water quality predictions for Mammoth Lake and Whale Tail Lake (South Basin) are whole lake concentrations (i.e., fully mixed), and do not represent maximum values expected in the receiving area of the lake.

Water quality predictions for Mammoth Lake, Whale Tail Lake (South Basin), and the flooded pit lake (before and after reconnection) are monthly average values. They do not represent seasonal highs.

FISHERIES AND OCEANS CANADA (DFO)

Interested Party:	**DFO**	**Rec No.:**	**DFO-IR1**
Re:	**n/a**		

Reference:

- *n/a*

Information Request / Recommendation Made By Interested Party:

As part of the Nunavut Impact Review Board's (NIRB) ongoing assessment of AEM's proposed "Whale Tail Pit Expansion" project proposal (NIRB File No: 16MN056), DFO noted potential impacts of widening the haul road on fish passage. DFO-FFHPP acknowledges that AEM has provided additional information in response to Technical Comments submitted to the NIRB (e.g. minimum/ maximum flow, fish size/swimming speed) that were used to inform the sizing of the proposed culvert upgrades to ensure fish passage. However, review of this additional information is still underway. DFO-FFHPP will provide updated comments and recommendations as part of the final submission to NIRB; the final submission will inform DFO-FFHPP's follow-up technical comments for the ongoing NWB process.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle acknowledges DFO's comment and looks forward to discussing further during the final submission to NIRB.

Interested Party:	**DFO**	**Rec No.:**	**DFO-IR2**
Re:	**n/a**		

Reference:

- *n/a*

Information Request / Recommendation Made By Interested Party:

i. Update the Main Application Document Table 1.2-2 to ensure all values are up-to-date, with the annual and total freshwater requirements for all waterbodies recalculated;

ii. Modify Table 1.2-2 to clearly indicate where differences in daily / annual / total amounts between the original application and the amendment application have occurred (e.g. provide original volumes in parenthesis in appropriate cells);

iii. Update all Management Plans and Supporting Documents to ensure consistency regarding water withdrawal values and timeframes; and,

iv. Clarify how proposed annual and total water withdrawals relate to under ice volume for Nemo Lake

Agnico Eagle's Response to Information Request / Recommendation:

In response to comment IR (i) and (ii), water withdrawals have been updated as presented below in Table 1. The revised table clearly indicates where differences between the original application and the amendment application have occurred (with original volumes in parenthesis in appropriate cells). For clarification of the issues identified by DFO in their comments:

- Whale Tail South is the source for freshwater requirements from January 2018 to August 2018 and during closure. Nemo Lake is the freshwater source from September 2018 to the end of operations.
- The correct estimates for consumptive flows for 'camp use' are based on an individual withdrawal rate of 0.24 m^3/person/day.
    - From January 2018 to December 2020, the total daily rate – approximately 77.8 m^3/day or 28,397 m^3/year – is based on an occupancy of 325 people.
    - From January 2021 to the end of the end of operations, the total daily rate – approximately 131 m^3/day - is based on an occupancy of 544 people; the total expected annual withdrawal rate of 47,815 m^3/year is higher than the reported 28,397 m^3/year in Table 1.2-2 in the Main Application Document
    - During closure, the total daily rate – 12 m^3/day or 4,380 m^3/year – is based on an occupancy of 50 people.

- The Main Application Document report the correct estimates for consumptive flows for drilling, specifically: the volume of 24-48 m^3/day is required for construction (2018), whereas the range of volumes increases to 24-96 m^3 for operations (2019-2025)
- Section 3.4 in Appendix H.1 Whale Tail Pit - Expansion Project 2019 Mean Annual Water Balance Update (May 2019) report the correct estimates for consumptive flows for drilling, specifically: "Drilling water for open pits: 24 m^3/day from January 2018 to June 2018; 48 m^3/day July 2018 to December 2018; 24 m^3/day from January 2019 to June 2019; and 48 m^3/day from July 2019 to the end of operations.". The IVR pit is operational starting July 2020, after which date the drilling water requirements double (to 96 m^3/day).
- The cement requirements have been updated for the Expansion Project. The updated water requirements range from 422 m^3/year to 16,792 m^3/year.
- The haul road under the Expansion Project will be widened to 15 m from 9.5 m (as stated in MAD Table 1.1-1). This will result in a corresponding increase in the water extraction for dust suppression from 45,750 m^3/year to 72,240 m^3/year

As requested in IR (iii), Agnico Eagle is committed to provide updates on consumptive flows to all Management Plans and Supporting Documents, where needed. It is important to note that total annual withdrawals of water from Nemo Lake (209,554 m^3/year) will remain well below i) the lake's annual inflow volume of approximately 476,000 m^3 (based on the mean annual water balance of the lake under baseline conditions [Golder 2017]), and ii) DFO's guideline of 10% of the under ice volume for the duration of operations (i.e., under-ice volume of 6,170,000 m^3 [derived from FEIS Addendum Appendix 6-M submitted with the Whale Tail Pit - Expansion Project). Residual effects to fish and fish habitat are therefore expected to be negligible.

Reference:

Golder (Golder Associates Ltd.). 2017. Commitment 34 – Nemo Lake Water Balance. Ref No. 1658927-Commitment 34. Submitted to Nunavut Water Board and Nunavut Impact Review Board. Dated June 19, 207.

Table 1: Summary of Freshwater Source Requirements For the Whale Tail Expansion Project (Table 1.2-2 Updated)

Water Use	Construction (2018)			Operations (2019 - 2025)			Closure (2026 – 2042)			Total for All Phases
	Daily	Annual	Total Construction	Daily	Annual	Total Operations	Daily	Annual	Total Closure	
	(m^3/d)	(m^3/yr)	(m^3)	(m^3/d)	(m^3/yr)	(m^3)	(m^3/d)	(m^3/yr)	(m^3)	(m^3)
Whale Tail Lake (North Basin)										
Dewatering (dewatering North Basin to South Basin)	38,400	3,172,810	3,172,810	-	-	-	-	-	-	**3,172,810**
Whale Tail Lake (South Basin) [a]										
Camp Use	78	18,905	18,905	-	-	-	12	4,380	73,095	92,000
Truck Shop	103	25,053	25,053	-	-	-	-	-	-	25,053
Drilling Water - Pits	24 - 48	7,320 (7,668)	7,320 (7,668)	-	-	-	-	-	-	7,320 (7,668)
Transfer/Reflooding Whale Tail Pit - (Whale Tail South Basin to Open Pit and Whale Tail North)	-	-	-	-	-	-	-	8,280,000[c]	55,505,966	55,505,966
Total Whale Tail Lake (South Basin)	*205 - 229*	51,278 (51,626)	51,278 (51,626)	-	-	-	12	8,284,380	55,579,061	55,630,339 (55,630,687)
Nemo Lake [b]										
Camp Use	78	9,569 (21,239)	9,569 (21,239)	78-131 (78)	28,397 - 47,815 (28,397)	295,869 (187,187)	-	-	-	305,438 (208,426)
Truck Shop	103	12,681 (28,146)	12,681 (28,146)	103	37,657	263,599 (248,059)	-	-	-	276,281 (276,205)
Drilling Water – Pits[d]	48 (24 – 48)	5,856 (9,120)	5,856 (9,120)	24-96 (36-96)	13,176 - 35,040 (17,197 -35,064)	214,776 (211,597)	-	-	-	220,632 (220,717)
Makeup Water Underground	4 – 10	826	826	-	-	-	-	-	-	826
Cement Mixing	-	(-)	-	- (24 – 65)	422 – 16,792 (8,766 - 23,741)	72,573 (80,769)	-	14,211 – 14,712 [e] (-)	28,923 (-)	101,496 (80,769)
Industrial/Miscellaneous – dust suppression	-	72,240 (45,750)	72,240 (45,750)	-	72,240 (45,750)	505,680 (274,500)	-	72,240 (45,750)	1,155,840 (732,000)	1,733,760 (1,052,250)
Total Nemo Lake	*233 - 239 (209 – 239)*	*101,173 (105,081)*	*101,173 (105,081)*	*205-330 (241-342)*	*151,892-209,544 (137,767-170,609)*	*1,367,497 (1,002,112)*	-	72,240 (45,750)	1,184,763 (732,000)	***2,638,433 (1,839,193)***
Mammoth Lake										

Water Use	Construction (2018)			Operations (2019 - 2025)			Closure (2026 – 2042)			Total for All Phases
	Daily	Annual	Total Construction	Daily	Annual	Total Operations	Daily	Annual	Total Closure	
	(m^3/d)	(m^3/yr)	(m^3)	(m^3/d)	(m^3/yr)	(m^3)	(m^3/d)	(m^3/yr)	(m^3)	(m^3)
Explosives Mixing	-	2,500*	2,500	-	2,500*	15,000	-	2,500*	40,000	**57,500**
Lake A53										
Dewatering (dewatering Lake A53 to Whale Tail Lake [South Basin])	-	-	-	-	153,735	153,735	-	-	-	**153,735**
Other - Small Lakes/Ponds proximal to drilling sites										
Operational Geological Drilling	-	-	-	299	109,135	-	-	-	-	-
Total for Project										
Total for Project	-	-	3,327,761 (3,332,017)	-	-	1,367,497 (1,170,847)	-	-	56,803,824 (56,351,061)	**61,499,082 (60,853,925)**

* Licence maximum value approved prevails over value provided in NWB decision (NWB 2018)

a) Whale Tail Lake (South Basin) is the fresh water source from January 2018 to August 2018 and during closure

b) Nemo Lake is the fresh water source from September 2018 to the end of operations

c) max volume for first year of closure at 10,655,000 m^3 and 4,500,000 m^3 annually thereafter (NWB Decision 2018)

d) IVR pit is operational July 2020

e) 2026 and 2027 only

Interested Party:	**DFO**	**Rec No.:**	**DFO-IR3**
Re:	**n/a**		

Reference:

- *n/a*

Information Request / Recommendation Made By Interested Party:

i. Provide / clarify the locations of small lakes / ponds proximal to drilling sources used as freshwater sources for operational drilling;

ii. Provide information respecting the potential fish-bearing status (or connection to fish-bearing watercourses) of the source lakes/ponds; and

iii. Provide details / calculations used to inform the daily estimate of 299m^3

Agnico Eagle's Response to Information Request / Recommendation:

In response to the comment (i and ii), the source lakes for withdrawing water for operational drilling during 2018 and 2019 included Lake A47, Lake A49, Lake A50, Lake A51, Lake A52, Lake A53, Whale Tail Lake, and Mammoth Lake. Of these sources, Lake A47, Lake A49, Lake A53, and Mammoth Lake are relatively deep (e.g., deeper than approximately 3.5 m) and support large-bodied fish (FEIS Addendum, Section 6.5). However, Lakes A50, 51, and 52 are relatively shallow (e.g., shallower than approximately 2 m) and only provide foraging habitat for small-bodied fish when spring and summer conditions allow it, such as relatively high annual precipitation totals (e.g., Agnico Eagle 2019). These shallow waterbodies are expected to freeze to the bottom during winter. The connectivity of lakes A50, 51, and 52 to any nearby fish-bearing waterbodies is best described as intermittent because of the headwater location in the watershed and the seasonal hydroperiod of the waterbodies. In other words, it is expected that lakes A50, 51, and 52 are typically isolated from fish-bearing waterbodies.

Under the approved Amended Licence 2BB-MEA1318, the water use section indicates: *The Licence issued on April 4, 2013, permitted a water use volume of 269m3/day that was increased to 299m3/day as per Amendment 2 and Amendment 3, dated February 27, 2015 and January 27, 2016, respectively.* In response to the request in comment (iii) to provide details/ calculations used to inform the daily water withdrawal rates, Agnico Eagle proposed the rate of 299 m^3/day based on operational requirements while considering protections for fish habitat.

To minimize impacts to fish and fish habitat, the water withdrawal approach relied on a diversity of sources that included large bodied lakes such as Whale Tail Lake and Nemo Lake (for bathymetry statistics, see Appendix 6-M in FEIS Addendum). Available data for 2018 show that there was a total of 1,459 'rig' days when water was used for 10 operational rigs within the Project area. Based on this data, the average

withdrawal rate across the calendar year was 124.8 m^3/day for days when rigs were in operation. The total water withdrawal volume required for operational drilling in 2018 was calculated as 40,796 m^3, of which 49% was withdrawn during the ice-covered season (31 October to 1 June). As all water is expected to freeze to the bottom in lakes A50, 51, and 52 during winter, water withdrawal from these lakes could only occur during the summer.

The management and summary of water withdrawal data for the source lakes are on-going, and Agnico Eagle is committed to continue discussions with DFO on water withdrawal requirements, as needed.

Reference:

Agnico Eagle. 2019. Information request Response to IR-SD-1 – 2018 Fish and Fish Habitat Investigation Report. 67 pages.

Interested Party:	**DFO**	**Rec No.:**	**DFO-IR4**
Re:	**n/a**		

Reference:

- *n/a*

Information Request / Recommendation Made By Interested Party:

Clarify how the setback distances of 22m and 101m relate to guidance provided in Monitoring Explosive-Based Winter Seismic Exploration in Waterbodies, NWT 2000-2002" (Cott and Hanna, 2005).

Agnico Eagle's Response to Information Request / Recommendation:

The setback distances of 22 m and 101 m for the Expansion Project were calculated based on the Guidance for the Use of Explosives in or Near Canadian Fisheries Waters (DFO 1998), as shown in Volume 4, Appendix 4-E of the FEIS Addendum. The instantaneous peak pressure limit (PPL) used for the expansion project was 100 kPa, which is double the recommended limit by Cott and Hanna, 2005.

It is important to note that, although no drilling and blasting will be required for the widening of the Haul Road, Agnico Eagle is committed to having continued discussions with DFO on the blasting mitigation plan prior to construction, to ensure adherence to more recent guidelines on the matter.

KIVALLIQ INUIT ASSOCIATION (KIVIA)

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR1**
Re:	**Potential storage options for IVR waste rock**		

Reference:

- *Thermal Monitoring Plan– Version 2 May 2019 -NWB Section 3.4.1, p. 15 IVR Pit*
- *Main Application Document Table 1.4.1*

Information Request / Recommendation Made By Interested Party:

Please confirm the correct schedule for mining of the Whale Tail and IVR pits in the Thermal Monitoring Plan

OR

Please explain the feasibility of storing waste rock from the IVR pit in the mined out Whale Tail pit.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle confirms that that Mining sequence shown in Table 1.4.1 is correct and that mining of IVR Pit and Whale Tail Pit expansion will happen simultaneously. Section 3.4.1 of the Thermal monitoring plan will be updated to reflect this. As a result, backfilling the Whale Tail Pit with IVR waste rock will not be possible.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR2**
Re:	**Thermal Monitoring of WRSF**		

Reference:

- *Thermal Monitoring Plan– Version 2 May 2019 -NWB*
  Section 3.2.3, p. 14
  Section 3.3.3, p. 15
  Section 3.6.3, p. 18

Information Request / Recommendation Made By Interested Party:

Section 3.2.3
Please describe how the need for more thermistors will be established.
Section 3.3.3
Please describe how the need for additional thermistor installation will be determined during mining and what the schedule for replacement of displaced thermistors is).
Section 3.6.3
Please describe how the need for additional thermistor installation will be determined.

Agnico Eagle's Response to Information Request / Recommendation:

Thermal monitoring specific to the WRSF will consist of near surface water and thermal monitoring to confirm in situ properties of the cover system material.

Determination of whether additional monitoring is required will be based on the results of 2019 thermal monitoring which includes 3 horizontal thermistors and 2 drilled thermistors to monitor conditions within bedrock below the WRSF.

The need for additional thermistor installation will be determined if the WRSF does not behave in a manner consistent with numerical modelling results. In such case, the near surface monitoring will be triggered. This allows for development of an understanding on the reasons why modelling results and observed results are not consistent for example incorrect modelling inputs, or statistically different climate year happened to be experience during early life of mine.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR3
Re:	Climate Change and Project Timeline		

Reference:

- *Water Management Plan, Sect. 2.1.5 p.12*
  Section 2.1.1. Table 2.1
  Section 3.4 p. 54

Information Request / Recommendation Made By Interested Party:
Please provide the period of record for the climate descriptions provided in Table 2.1.

Please provide an updated assessment of the water budget, its sensitivity to projected changes in climate and a plan for adaptive management of climate change impacts to the water management plan.

Agnico Eagle's Response to Information Request / Recommendation:
The data in Table 2.1 is from the Baker Lake A meteorological station (1946 - 2015). However, years 1946 - 1949, 1973, 1993, and 2015 were removed from the analysis due to important data gaps (SNC 2015). The resulting dataset covers 63 full years.

Given the short duration of the proposed project, climate change was not explicitly considered in the project water management. However, the water management should be sufficiently conservative for the following reasons:

- The average precipitation values used in the water balance consider undercatch correction factors (1.15 for rainfall and 1.55 for snowfall). These factors were assumed to correct for under-recording at the stations. This increases the average annual precipitation used for the water balance from 249mm to 323mm (a 30% increase), which is higher than the projected increase under climate change.
- The water management facilities are designed, not based on average conditions, but to be able to contain extreme events as well.
- For further conservatism in the design, Agnico Eagle is considering running a wet year scenario for the water balance to ensure the water management can handle extreme annual flows. Based on the frequency analysis performed for a similar site (Meadowbank Mine), the 25-year wet is ~45% wetter than the average year (see Table 2.26 below taken from the Meadowbank baseline hydrology report). The increases in precipitation under climate change fall well within this range.

Based on this approach to water management, the present plan provides a conservative approach to manage potential impacts from climate change. Adaptive water management is further embraced through the potential for additional water storage on-site. As presented in Section 6.0 of the Water

Management Plan, the operational timing of GSP-2, the construction of GSP-3, increasing the storage capacity of IVR Attenuation Pond by increasing the design dike elevation, and temporarily using the underground mine for storage, are all options that have been considered as potential contingencies.

TABLE 2.26
Estimates of Extreme Annual Rainfall, Snowfall and Total Precipitation at Meadowbank Camp

Return Period (Years)	Condition	Rainfall (mm)	Snowfall (cm)	Total Precipitation (mm)
100	Wet	245	265	452
50	Wet	232	252	433
25	Wet	218	237	411
10	Wet	195	212	376
5	Wet	175	189	343
2	Average	139	145	285
5	Dry	108	104	233
10	Dry	93.6	84.4	208
25	Dry	79.2	64.6	183
50	Dry	70.4	52.4	168
100	Dry	62.9	41.8	155

Source: AMEC. 2003. Meadowbank Gold Project Baseline Hydrology Report, report no CW1593.4 submitted to Cumberland Resources Ltd. October 2003.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR4**
Re:	**Uncertainty in Waste Rock Seepage Estimates**		

Reference:

- *Water Management Plan, Section 3.1.4.5, pp. 31-33, Tables 3.7, 3.8*

Information Request / Recommendation Made By Interested Party:

Please provide a comparison of weather records for 2019 with those used to develop the original 2019 seepage model.

Please provide the range of seepage and runoff that can be accommodated by the attenuation ponds and comment on their ability to handle increased variance in runoff or climatic extremes.

Agnico Eagle's Response to Information Request / Recommendation:

A comparison of weather records for 2019 with those used to develop the original 2019 seepage model indicate a very good match overall as follows:

- The model input slightly overestimates temperatures in the late spring to early summer period.
- Relative humidity shows less variation in observed data than was estimated for model input. The overall trend in both maximum and minimum relative humidity matches observed data.
- Predicted wind speed is within the observed range.
- Large precipitation events are underestimated by the model input.

The model input is dominated by many small events, while observed data is dominated by a few large events. Total cumulative precipitation is a better match, but is still underestimated for the year so far, with observed cumulative precipitation totaling approximately 120 mm, while the model inputs estimated approximately 95 mm. Based on the Meadowbank weather station data, Meadowbank typically receives less precipitation than Baker Lake, so the model input is likely a good match to Whale Tail, as shown in the figure below.

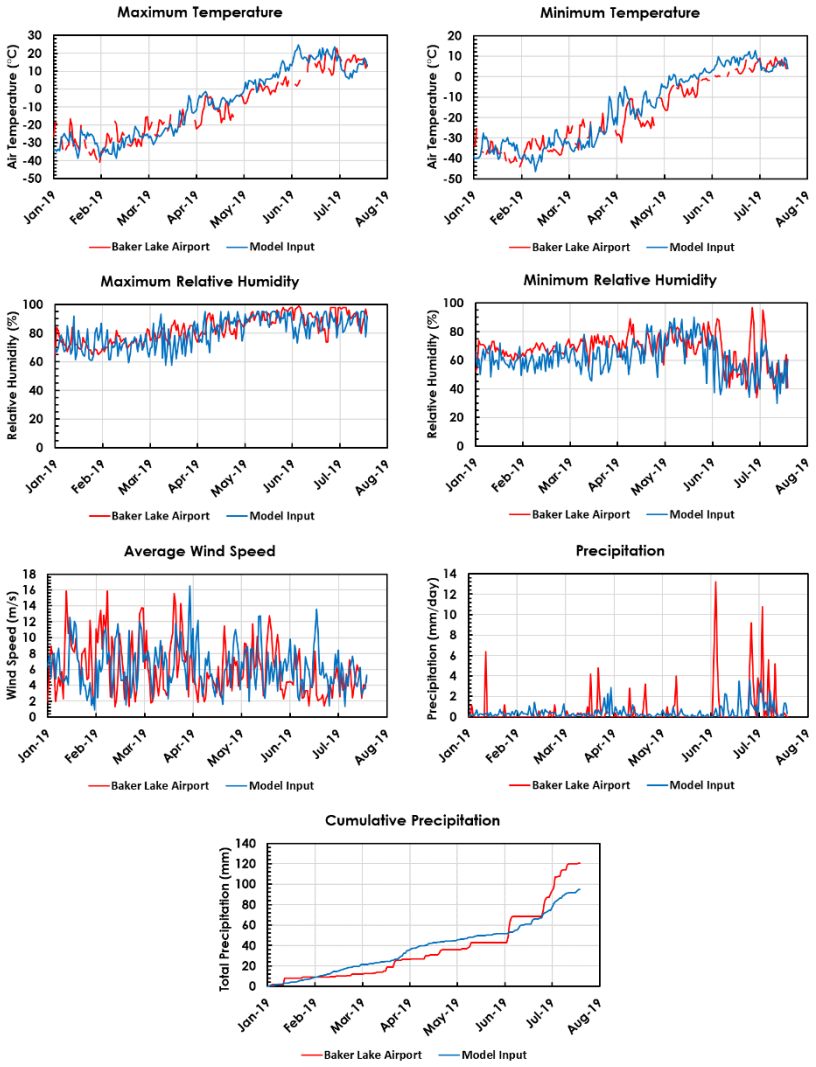


Figure KivIA-WL-IR4-1. Comparison of weather records for 2019 with those used to develop the original 2019 seepage model.

For clarification, the change to the contact water volume reporting to the attenuation pond is not related to 2019 Weather data but due to a refinement of the Landform Water Balance for the WRSFs.

Concerning the range of seepage and runoff that can be accommodated by the attenuation ponds and their ability to handle increased variance in runoff or climatic extremes, Agnico Eagle has conducted flood routing analyses for the attenuation ponds based on the mine plan and construction sequence of the ponds considering 1:100 and 1:1000-year flood events. Pumping rates were also analyzed and adjusted when required in order to maintain a water level below or equal to the Maximum Water Level (MWL) in the ponds during the passage of the 1:100-Yr Flood. All flood routing charts indicate that indicate that extreme events can be managed within the infrastructures with adequate freeboards.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR5
Re:	**Uncertainty in Groundwater Inflows to Whale Tail Pit**		

Reference:

- *Water Management Plan,*
  Sect 3.1.1. p. 15
  Section 3.1.4.9 p. 35
  Section 3.1.4.13 p.39

Information Request / Recommendation Made By Interested Party:
Please describe the range of groundwater flows that can be managed by the proposed system and the adaptive management plan for management of groundwater quantity and quality.

What percentage change in groundwater volumes can be handled by the third (contingency) GS pond?

Agnico Eagle's Response to Information Request / Recommendation:
Flows to the GSPs include: groundwater flows, brine from treatment, and surface runoff. If the groundwater flows were to increase to the extent where they cannot be handled in GSP-1 and GSP-2, the overflow could be handled in GSP-3.

Assuming the predicted flows in 2024 (the year with the highest predicted groundwater inflows)):

- the total groundwater flows to surface in 2024 (150,100 m^3)
- the total brine volume generated in treatment that would typically go to GSP-1 (18,300 m^3)
- the surface runoff from the GSP-3 watershed (12,500 m^3)

As currently proposed, GSP-3 has a capacity of approximately 463,000 m^3. Based on the 2024 flows presented above, GSP-3 would be able to contain the 100% of the peak annual groundwater annual flows for almost 3 years (2.94 years). This additional storage would allow time to adjust the water management strategy as required.

Another way to assess the capacity of GSP-3 is by comparing its capacity with the total groundwater flows predicted during operations: The total groundwater flows to surface during operations is estimated to be 553,150 m^3. GSP-3 has the capacity (463,000 m^3) to handle approximately 84% of this flow.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR6**
Re:	**Sludge and Brine Management**		

Reference:

- *Water Management Plan, Sect 3.1.4.12, p.37*

Information Request / Recommendation Made By Interested Party:

Please describe:
a) where brine and sludge from the WTP will be stored in the WRSF as the mine progresses
b) how it will be stored so that a frozen barrier is maintained around the sludge, and
c) the expected temperature required to freeze the brine sludge.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle would like to clarify that brine will be stored in GSP-1 from construction until closure and treated in the S-WTP prior to discharge in Whale Tail South Basin. No brine is expected to be stored in the WRSF. Only sludge from the O-WPT will be disposed in the WRSF or in a landfarm as a nutrient as per the Approved Water Licence 2AM-WTP1826, Part F, item 3.

The sludge will be disposed by spreading it over the extent of the WRSF surface area creating a thin layer of sludge over the waste rock and containing it. It is expected that some migration of the fines in the sludge into coarser waste rock will occur, resulting in areas with slightly higher water content. However, considering the large surface area of the WRSF and comparing the daily placement rate of waste rock and sludge, the volume of sludge would represent approximately 0.01% of the volume of waste rock to be placed in the WRSF. As such, any changes in the freezing mechanisms of the WRSF as a result of sludge disposal would be negligible.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR7**
Re:	**Addressing a changing climate in project design**		

Reference:

- *Appendix K – Project Design Considerations*
  p. 1
  Sect. 2.1.1. Temperature and 2.1.3 Precipitation
  Table 1

Information Request / Recommendation Made By Interested Party:
Please compare annual and seasonal temperature averages for the 1981 -2010 period with the most recent 5 years and with projections for the next 10 years of operations and into closure (filling of IVR and Whaletail Pits). Have precipitation amounts and patterns changed over the period of record?

What safety factors, contingencies and capacity allowances have been considered in the design of project infrastructure for managing surface water and any changes in permafrost between project development and final closure?

Were any sensitivity estimates applied to analyses made using the precipitation data in Table 1 (p.5)?

Agnico Eagle's Response to Information Request / Recommendation:
As stated in KivIA-WL-IR3, Baker Lake meteorological data were used to estimate climate conditions for the Project site. The recorded monthly temperature and precipitation values are compared with the 1980 – 2010 climate normals in Figures KivIA-WL-IR7-1 and KivIA-WL-IR7-2, respectively. Apart from a particularly wet March in 2018 when 227 mm of precipitation was recorded, the values to not vary greatly from the climate normals.

Figures KivIA-WL-IR7-3 and KivIA-WL-IR7-4 show the predicted changes in temperature and precipitation under climate change. Figure KivIA-WL-IR7-4 also shows the modelled annual precipitation corrected for undercatch (as described in KivIA-WL-IR3). This figure shows that the precipitation values used in the water balance exceed the predicted increase in precipitation under climate change.

As further stated in KivIA-WL-IR3, with the use of the undercatch correction factor additional sensitivity estimates on the precipitation were not considered necessary to produce an adequately conservative system.

With regards to contingencies and capacity allowances, KivIA-WL-IR3 also addresses the adaptive management contingencies considered by Agnico Eagle. These contingencies can be used in the case of additional surface water or if changes in permafrost result in additional groundwater flows to the Project.

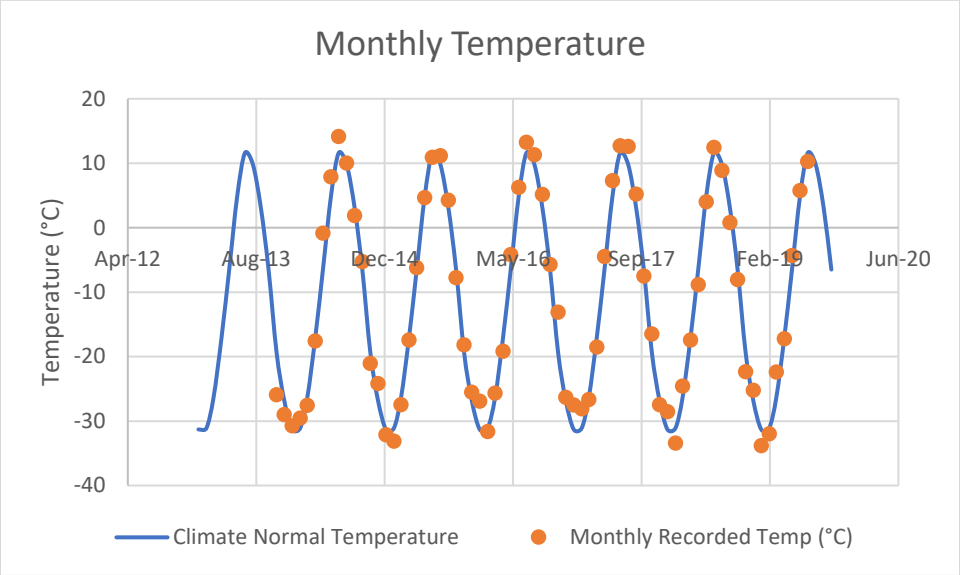


Figure KivIA-WL-IR7-4: Comparison of Baker Lake Climate Normal Temperature (1980 – 2010) to monthly temperature (2013-2019)

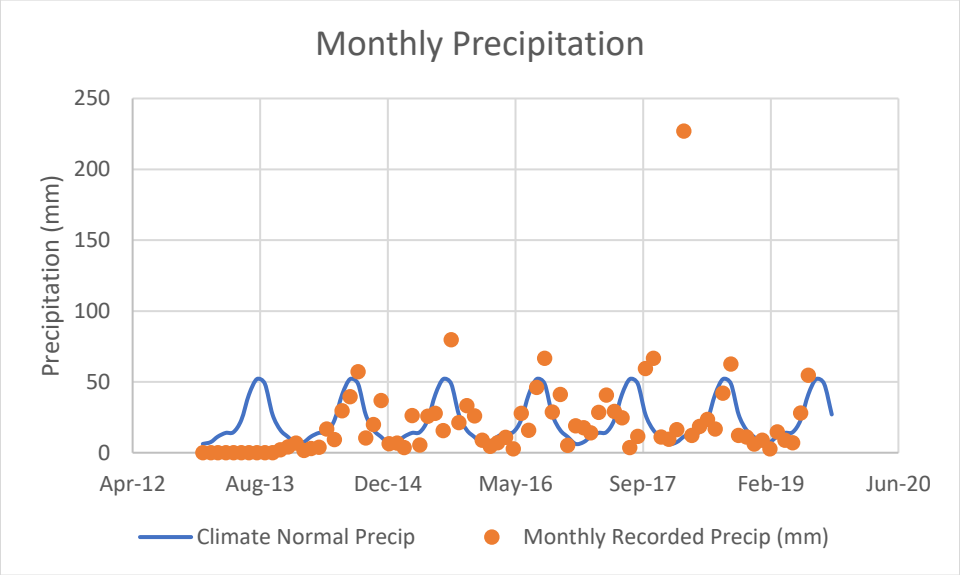


Figure KivIA-WL-IR7-5: Comparison of Baker Lake Climate Normal Precipitation (1980 – 2010) to monthly precipitation (2013-2019)

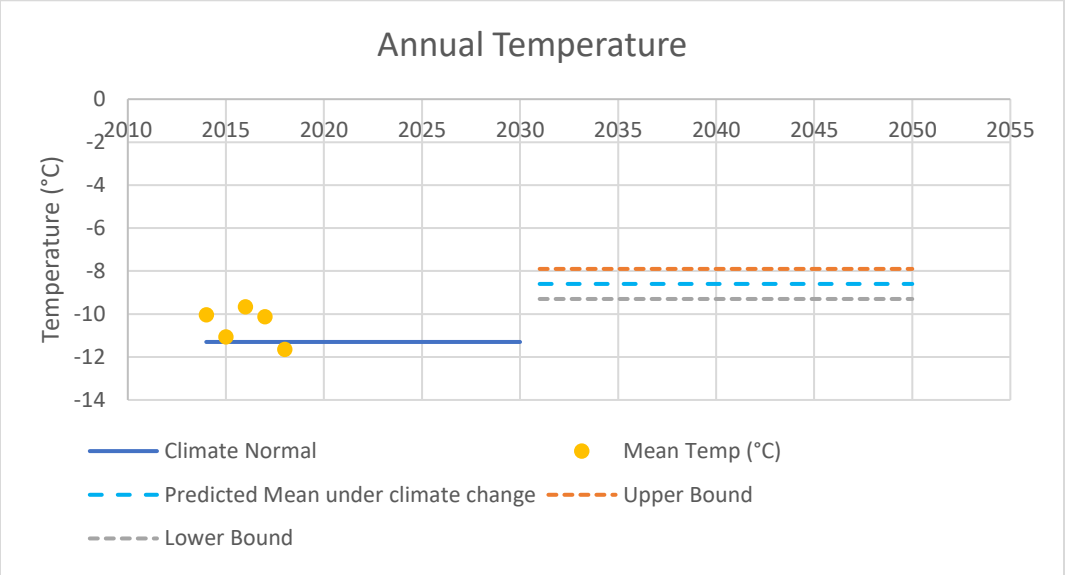


Figure KivIA-WL-IR7-6. Annual Temperature Comparison under Climate Change

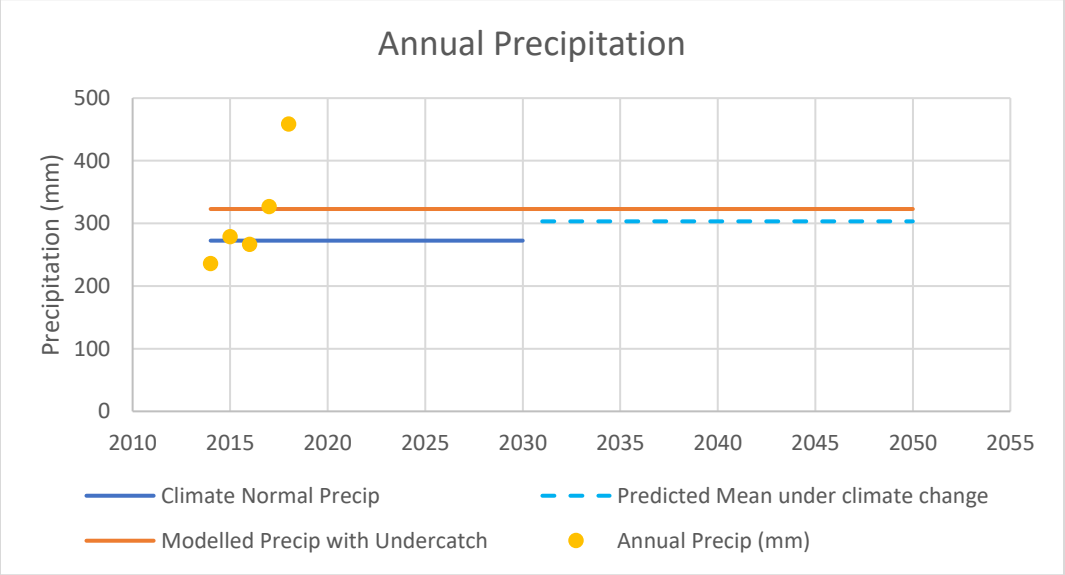


Figure KivIA-WL-IR7-7: Annual Precipitation Comparison under Climate Change

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR8
Re:	Water Management- Fate of Groundwater Inflows		

Reference:

- *Appendix K – Project Design Considerations*
  Section 5 Table 4, Table 7

Information Request / Recommendation Made By Interested Party:

What is the fate of the excess inflow to the attenuation pond?

Does this water report back to the Whale Tail Pit and Underground, as shown in Table 7?

Agnico Eagle's Response to Information Request / Recommendation:

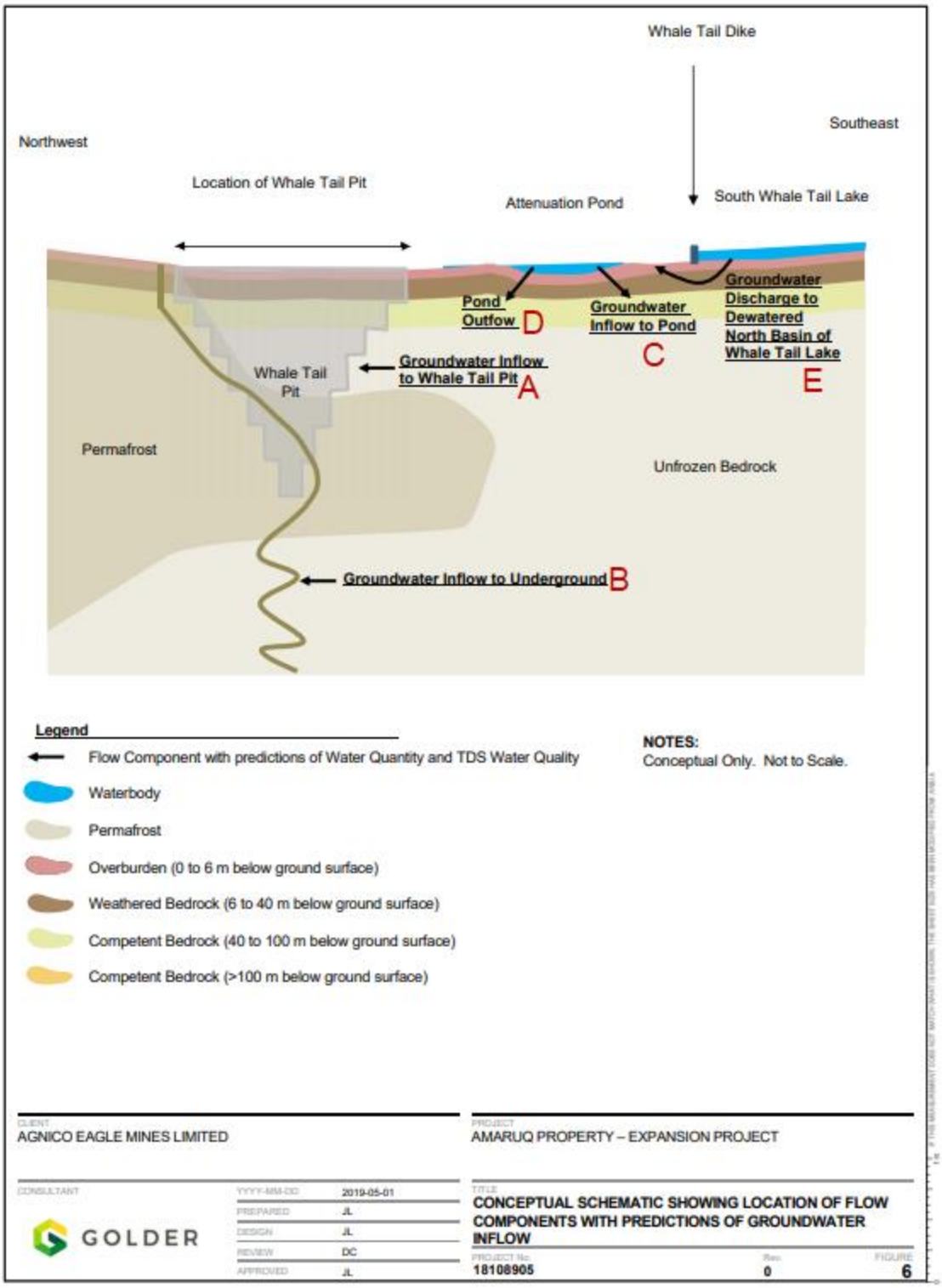
Agnico Eagle would refer the KivIA to the Appendix H.4: Whale Tail Pit Updated Hydrogeological Assessment to clarify the meanings of the flow reported in the Appendix K – Project Design Considerations – Section 5 Table 4 and Table 7 as the numbers presented in these two tables have been extracted from the hydrogeological assessment.

The Figure 6 of the Hydrogeological Assessment presents the Conceptual schematic showing location of flow components with predictions of groundwater inflows and illustrate the flow reported in the table 4. Predicted Groundwater inflow during Mining – Base Case Scenario – Whale Tail Pit and Underground. For clarification, the table 4 only presents the groundwater flow reporting to the mining areas and does not refer to any discharge to the receivers. Red letters from A to E have been added to the table 4 and figure 6 presented below to facilitate referencing.

Table 4: Predicted Groundwater Inflow during Mining – Base Case Scenario – Whale Tail Pit and Underground

Phase	Time Period	Whale Tail Pit	Underground	Whale Tail Attenuation Pond		North Basin of Whale Tail Lake (within the diked area)
		Groundwater Inflow (m^3/day) A	Groundwater Inflow (m^3/day) B	Groundwater Inflow (m^3/day) C	Surface Water Outflow (m^3/day) D	Groundwater Discharge to Surface (m^3/day) E
Mining	August-December 2019[1]	970	NA	350	180	650
	2020	1160	20	120	860	720
	2021	1310	30	90	1040	730
	2022	1340	110	90	1080	720
	2023	1340	180	90	1080	720
	2024	1340	170	90	1080	720
	2025	1340	130	90	1080	720

Notes:
IVR Pit is located in permafrost and was therefore not modelled. Interception of runoff / direct precipitation accounted for in Site Wide Water Balance.
[1] Mining prior to Q4 2019 is within permafrost and groundwater inflow will be negligible.
NA = not applicable; m^3/day = cubic metres per day; % = percent.


Whale Tail Dike
Northwest
Southeast
Location of Whale Tail Pit
Attenuation Pond
South Whale Tail Lake
Pond Outfow D
Groundwater Inflow to Pond C
Groundwater Discharge to Dewatered North Basin of Whale Tail Lake E
Whale Tail Pit
Groundwater Inflow to Whale Tail Pit A
Permafrost
Unfrozen Bedrock
Groundwater Inflow to Underground B
Legend
Flow Component with predictions of Water Quantity and TDS Water Quality
Waterbody
Permafrost
Overburden (0 to 6 m below ground surface)
Weathered Bedrock (6 to 40 m below ground surface)
Competent Bedrock (40 to 100 m below ground surface)
Competent Bedrock (>100 m below ground surface)
NOTES:
Conceptual Only. Not to Scale.
CLIENT
AGNICO EAGLE MINES LIMITED
PROJECT
AMARUQ PROPERTY – EXPANSION PROJECT
CONSULTANT
GOLDER
YYYY-MM-DD 2019-05-01
PREPARED JL
DESIGN JL
REVIEW DC
APPROVED JL
TITLE
CONCEPTUAL SCHEMATIC SHOWING LOCATION OF FLOW COMPONENTS WITH PREDICTIONS OF GROUNDWATER INFLOW
PROJECT No. 18108905
Rev. 0
FIGURE 6

Section 5 Table 7 is presenting a breakdown of the groundwater flows reporting to the Whale Tail Pit and to the Underground. As presented on the Figure 6, the groundwater flow can be divided in two sources: one coming from the Whale Tail Lake (flow A and B) and another one coming from the Attenuation Pond (D). The table 7 is presenting the portion of each of these sources reporting to the Whale Tail Pit and Underground Mine.

Agnico Eagle is confident in the assessment of the different flows reporting to the attenuation ponds and refer KivIA to site water balance presented in the Appendix H.1: Water Balance Update for additional detail on the assessment of the discharge volumes to the receivers.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR9**
Re:	**Flow of low grade ore**		

Reference:

- *Interim Closure and Reclamation Plan, p. 12, 13, 46*

Information Request / Recommendation Made By Interested Party:

Please explain how the decision to process low grade ore will be made and what factors may cause AEM to leave it at the site for closure.

If it were to be left on site, how would it be managed at closure?

Agnico Eagle's Response to Information Request / Recommendation:

Low-grade ore will be incorporated into the existing WRSF and covered with a 4.7 m thermal cover system at closure. No low-grade ore will be left on the site. Based on expected oxidation rates from Humidity Cell Test incorporated into the thermal modeling completed, increased oxidation rates associated with low-grade ore compared to waste rock are not expected to result in internal heating and degradation of the effectiveness of the thermal cover system.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR10**
Re:	**Inuit Input into Closure Objectives**		

Reference:

- *Interim Closure and Reclamation Plan,*
  Section 2.4 p. 14
  Sections 2.6 and 2.7

Information Request / Recommendation Made By Interested Party:
Please describe how consultation with KivIA Inuit and IQ informed the formulation of closure goals and objectives.

Agnico Eagle's Response to Information Request / Recommendation:
Table 2-D-2 of the FEIS Addendum Appendix 2-D (as cited in the ICRP) indicates that three topics of concern were raised with respect to closure during consultation.

The first two relate to the water quality in the flooded open pits and their suitability to support a fishery after back-flooding. The proposed process for flooding the open pits after closure is described in Section 5.2.2 of the ICRP, and this process is intended to address these two concerns. In brief, the pits will be flooded over the course of 16 years and the water quality will be profiled and monitored. The water in the pits will be treated, if necessary, during flooding. The Whale Tail Dike and the Mammoth Dike will be breached only when the water quality meets discharge criteria. At this stage, the water quality within the open pits will be non-toxic to fish. Agnico Eagle proposes further consultation regarding potential enhancement of food sources to support fish and is committed to continued consultation during operations to support closure objectives and goals.

The third concern raised in Table 2-D-2 with respect to closure was the workforce after closure. Agnico Eagle has prepared a Conceptual Socio-Economic Closure Plan for the Kivalliq Operations to address Project Certificate No. 008, term and condition No. 51 ("to ensure workers at the Project would be supported once operations cease … [and to] develop a conceptual Socio-economic Closure Plan [CSECP]…). Agnico Eagle notes this particular item is not within the jurisdiction or mandate of the NWB. Agnico Eagle acknowledges and respects that the final decision related to jurisdiction and mandate rests with the Board but it should be noted that socio-economic matters (e.g., workforce) are related to other materials potentially outside the scope of the Application.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR11**
Re:	**Overburden for Closure**		

Reference:

- *Interim Closure and Reclamation Plan, Section 4.5.3, p. 42*

Information Request / Recommendation Made By Interested Party:

Please estimate the amount of overburden that can be used for closure to enhance revegetation of mine and road footprint areas.

Agnico Eagle's Response to Information Request / Recommendation:

For clarification the 0.1 Mt of overburden presented in the ICRP will be destined for research purposes as per Approved Project. Furthermore, most of the overburden generated by the project (5.5 Mt) will be composed of bed lake sediments, which is currently not considered as adequate for revegetation or for use in road foot print areas.

Agnico Eagle estimates that approximately 0.1 Mt of overburden other than bed lake sediments would be available for revegetation and road footprint areas.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR12**
Re:	**Fate of Equipment**		

Reference:

- *Interim Closure and Reclamation Plan, Section 5.2.1.5, p. 60; Table 5.2.4, p. 73*

Information Request / Recommendation Made By Interested Party:
Please discuss the results of consultation with the KivIA and their response to the plan to leave equipment in the mine workings at closure.

Agnico Eagle's Response to Information Request / Recommendation:
Agnico Eagle will commit to consultation on this matter during operations and prior to the preparation of Final Closure and Reclamation Plan (FCRP). However, the Approved Project ICRP was reviewed by KivIA and its consultants. The Expansion Project ICRP is an extension of the Approved Project and further discussions with KivIA related to the proposed ICRP and associated security will continue during the NWB process.

The RECLAIM cost estimate currently assumes that mining equipment will be decommissioned, cleaned, and disposed in the underground workings. It also assumes that scrap metal will be disposed on-site in a non-hazardous solid landfill. Planned disposal of cleaned mining equipment in underground workings has been approved by the NWB for other mining projects in Nunavut, such as Ulu Mine and Lupin Mine. .

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR13
Re:	IVR High Pit Walls As Mitigation		

Reference:

- *Interim Closure and Reclamation Plan, Section 5.2.2.5, p. 66*

Information Request / Recommendation Made By Interested Party:

Please indicate the slope at which the IVR Pit high walls will be mined, the depth to which overburden will be added, the type of erosion protection that will be used and how the integrity of the overburden coverage and erosion protection will be assured.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle's current practice at the Meadowbank Mine is to build a thermal cap around the pit to protect exposed till and prevent erosion. A similar concept and practice will be developed for the Expansion project. Agnico Eagle is currently working on a conceptual design of this mitigation measure for the IVR pit high walls and would like to differ the discussion of the outcome of this design to the technical phase of the project.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR14**
Re:	**Arsenic and ARD mitigation on Whale Tail Pit Wall**		

Reference:

- *Interim Closure and Reclamation Plan, Section 5.2.2.5, p. 66*

Information Request / Recommendation Made By Interested Party:

Please describe the adaptive management process to respond to changes in As and PAG release from pit walls, what control mechanisms and mitigation options are available and their expected effectiveness.

Agnico Eagle's Response to Information Request / Recommendation:

The release of arsenic requires oxidation through exposure to the atmosphere. By submerging the pit walls, sulphide and arsenide oxidation will be inhibited by submergence underwater owing to the low solubility of oxygen in water (i.e., 21% in air, 0.001% in water). This is an industry best approach as described by the International Network for Acid Prevention (INAP, 2009).

As described in the Water Management Plan (Appendix G.5), the pit lakes will not be re-connected with Whale Tail Lake and Mammoth Lake until water quality is acceptable for discharge. The current predictions indicate that water quality will be acceptable even while the pits are filling. However, in the event water quality is different than predicted, mitigation options range from using the water treatment plant that will be on-site during filling of the pit, to increasing the rate of filling (this will stop oxidation sooner), to delaying the time to reconnect the lakes. While treatment is not expected to be required during closure, if it was, it would likely only be short in duration as the source of arsenic will be stopped as the pit fills.

Reference:

INAP (The International Network for Acid Prevention). 2009. Global Acid Rock Drainage Guide (GARD Guide).http://www.gardguide.com/

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR15**
Re:	**Road Decommissioning**		

Reference:

- *Interim Closure and Reclamation Plan, Section 5.2.7.4, p. 77*

Information Request / Recommendation Made By Interested Party:

Please describe the adaptive management process (timing/consultation/decision criteria) that will be used to determine where and how much regrading will be required to assure safe passage for caribou and other wildlife?

Agnico Eagle's Response to Information Request / Recommendation:

Adaptive management strategies proposed by Agnico Eagle, as well as existing monitoring programs during operations, will be used to better inform and define caribou interactions with the Haul Road. Prior to implementing mitigation, Agnico Eagle will also consider how other roads that caribou interact with have been successfully mitigated at closure/decommissioning to inform mitigation designs that could be applied. Table 5.2-5 (Closure objectives and criteria – Transportation routes), Section 5.2.7.4 (Consideration of closure options and selection of closure activities) and Section 5.2.7.8 (Closure and post-closure monitoring, maintenance and reporting) of the ICRP provide information about the current strategy. Final approach for the Haul Road decommissioning process will be included in the final closure plan and the KivIA will have a collaborative input on this process.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR16**
Re:	**Hunting pressure at closure**		

Reference:

- *Interim Closure and Reclamation Plan, Section 5.2.7.6, p. 78*

Information Request / Recommendation Made By Interested Party:

Please describe the adaptive management process (timing / consultation/decision criteria) that will be used to assure that hunting pressure along the closed haul road is kept to sustainable levels?

Agnico Eagle's Response to Information Request / Recommendation:

Hunting pressure was considered in the FEIS. Section 5.2.7.6 (Predicted residual effects) of the ICRP also states that the former Haul Road will provide a snowmobile or ATV access corridor. But Agnico Eagle only has the ability to influence access, which includes reducing access during closure and post-closure. It has no control over what activities the public chooses to do after the closure. The GN has the responsibility to determine sustainable harvest levels of caribou and implement conservation measures intended to conserve caribou populations at sustainable levels.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR17**
Re:	**Haul Road PAG Uncertainty**		

Reference:

- *Interim Closure and Reclamation Plan, Section 5.2.7.7, 5.2.7.9*

Information Request / Recommendation Made By Interested Party:

Please describe the reasons why PAG bedrock might be exposed and when such exposure could occur.

Please describe how any exposed PAG rock along the haul road will be managed during closure and safety assured post closure.

Please describe the observations that would trigger the need for surface water monitoring for acidification.

Agnico Eagle's Response to Information Request / Recommendation:

The pre-development geochemical characterization study (Golder 2018) as well as operational sampling of quarry material were designed and executed to ensure that rock with ARD potential will not be used as construction material and also would not be exposed along the haul road or in any quarry developed. The baseline geochemical characterization program performed by Golder (2018) found that overburden samples effectively had no sulphur, indicating that ARD would not be generated. Prior to the excavation of quarry material, additional sampling will be completed as outlined in our Haul Road Management Plan (Agnico Eagle 2019), along with monitoring or any water in borrow pits. All samples will be tested prior to excavation to confirm the suitability of the material as non-PAG and non-ML material for construction.

References:

Agnico Eagle (Agnico Eagle Mines Limited). 2019. Whale Tail Pit – Expansion Project. Haul Road Management Plan. Version 2. Appendix G.9.

Golder (Golder Associates Ltd.) 2018. NIRB Submission. Volume 5, Appendix 5-E: Addendum Evaluation of the Geochemical Properties of Waste Rock, Ore, Tailings, Overburden, and Sediment. Prepared by Golder Associates, November 2018.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR18**
Re:	**Water Quality Contingencies**		

Reference:

- *Interim Closure and Reclamation Plan, Section 5.2.9.9*

Information Request / Recommendation Made By Interested Party:

Please describe the available and proven in-situ water quality treatments that have been shown to be effective in maintaining water quality, particularly As within guideline values.

Agnico Eagle's Response to Information Request / Recommendation:

In the eventuality that water quality monitoring during the flooding sequence indicates that treatment is required prior to reconnecting the lake, Agnico Eagle would need, as a first step, to evaluate which treatment option would be the more effective to achieve the water quality objectives. The selection of the water treatment solution would be based on the water quality monitoring results, the water volume in the pit and a complete assessment of the situation.

However, as a primary contingency option, Agnico Eagle would consider using the Operation Water Treatment Plant (O-WTP). As detailed in the Appendix H.2 Site Water Quality Model Update, the O-WTP can treat Total Suspended Solid to 15 mg/L, Arsenic to 0.1mg/L and phosphorus to 0.05 mg/L at a maximum flow of 1,600 m^3/h.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR19
Re:	Field vs Lab Filtration Protocol		

Reference:

- *Quality Assurance / Quality Control (QA/QC) Plan May 2019 p. 3 Section 2.2.2. Surface Water Sampling*

Information Request / Recommendation Made By Interested Party:
Please document a standard procedure and timing for filtration of all samples

Agnico Eagle's Response to Information Request / Recommendation:
The delay to filter a water sample is 48 h as per a certified laboratory. The fact to filter the sample directly or not on the field does not impact the results, if conducted within the prescribe 48h delay.

Overall, the procedure at Meadowbank and Whale Tail is to not filter the sample for dissolved metals and chlorophyll if the sample can reach the laboratory within the 48 hours. If the sample cannot reach the certified laboratory on time, the sample will be filtered and preserved. For chlorophyll *a*, the sample will be filtered, and the filter will be frozen to preserve the quality of the sample.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR20**
Re:	**Cross contamination of groundwater samples**		

Reference:

- *Quality Assurance / Quality Control (QA/QC) Plan May 2019*

Information Request / Recommendation Made By Interested Party:
Please describe the QA/QC procedure to prevent cross contamination of groundwater wells and add to the QA/QC plan

Agnico Eagle's Response to Information Request / Recommendation:
The current practices is to have one sampling tube, a Waterra and a pump per well, as this would eliminate the possibility of cross-contamination between wells. If there is a well, other than the current West Bay Well at Whale Tail, the same QAQC will be followed.

Agnico Eagle technicians will continue to follow standard QA/QC procedures for surface water sampling that requires the use of sample bottles that are provided by an accredited laboratory, proper handling and storage of bottles to prevent cross-contamination between sampling locations and, if appropriate, thoroughly rinsing the sample containers with sample water prior to sample collection.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR21**
Re:	**Acceptable QA/QC Limits**		

Reference:

- *Quality Assurance / Quality Control (QA/QC) Plan May 2019*

Information Request / Recommendation Made By Interested Party:
Please describe the acceptable limits of RPD between samples and for contamination of blanks in the QA/QC plan.

Agnico Eagle's Response to Information Request / Recommendation:
Analytical precision is a measurement of the variability associated with duplicate analyses of the same sample in the laboratory. Duplicate results were assessed using the relative percent difference (RPD) between measurements. The equation used to calculate a RPD is:

$$RPD = (A-B)/ ((A+B)/2) * 100$$

where: A = field sample; B = duplicate sample.

Large variations in RPD values are often observed between duplicate samples when the concentrations of analytes are low and approaching the detection limit. Consequently, a RPD of 20% for concentrations of field and duplicates samples that both exceed 10x the method detection limit (MDL) is considered notable.

The analytical precision of one QAQC sampling event is characterized as:

- High, when less than 10% of the parameters have variations that are notable;
- Medium, when 10 to 30% of the parameters have variations that are notable;
- Low, when more than 30% of the parameters have variations that are notable.

Agnico Eagle will update the QA/QC Management Plan to include these details about the acceptable limits.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR22**
Re:	**Fuel Storage**		

Reference:

- *Site Layout 190516 2AM-WTP1826 Appl 2 – PreDevelopment*
- *Site Layout 190516 2AM-WTP1826 Appl 1 – General Arrangement*
- *Site Layout 190516 2AM-WTP1826 Appl 3 – Yearly Layout Plan 2019*

Information Request / Recommendation Made By Interested Party:

Please identify the final locations of the fuel storage areas that are currently in the future locations of the Whale Tail Ore Storage Areas 1 and 2.

Agnico Eagle's Response to Information Request / Recommendation:

The fuel tanks referred by the KivIA in the IR-22 were part of the Exploration Camp and need to be decommissioned in 2019 to complete the construction of the Permanent Camp as per the Approved Project. The final locations are being finalized.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR23
Re:	Whale Tail Dike Seepage Diffuser		

Reference:

- *Site Layout 190516 2AM-WTP1826 Appl 4 – Yearly Layout Plan 2020*

Information Request / Recommendation Made By Interested Party:

Please describe the source and expected quality of seepage to be discharged, how the diffuser will operate if the seepage will be sampled prior to discharge, effluent discharge objectives and contingencies if discharge quality is not acceptable.

Please explain why the seepage is not directed to the Whale Tail Attenuation pond to the north.

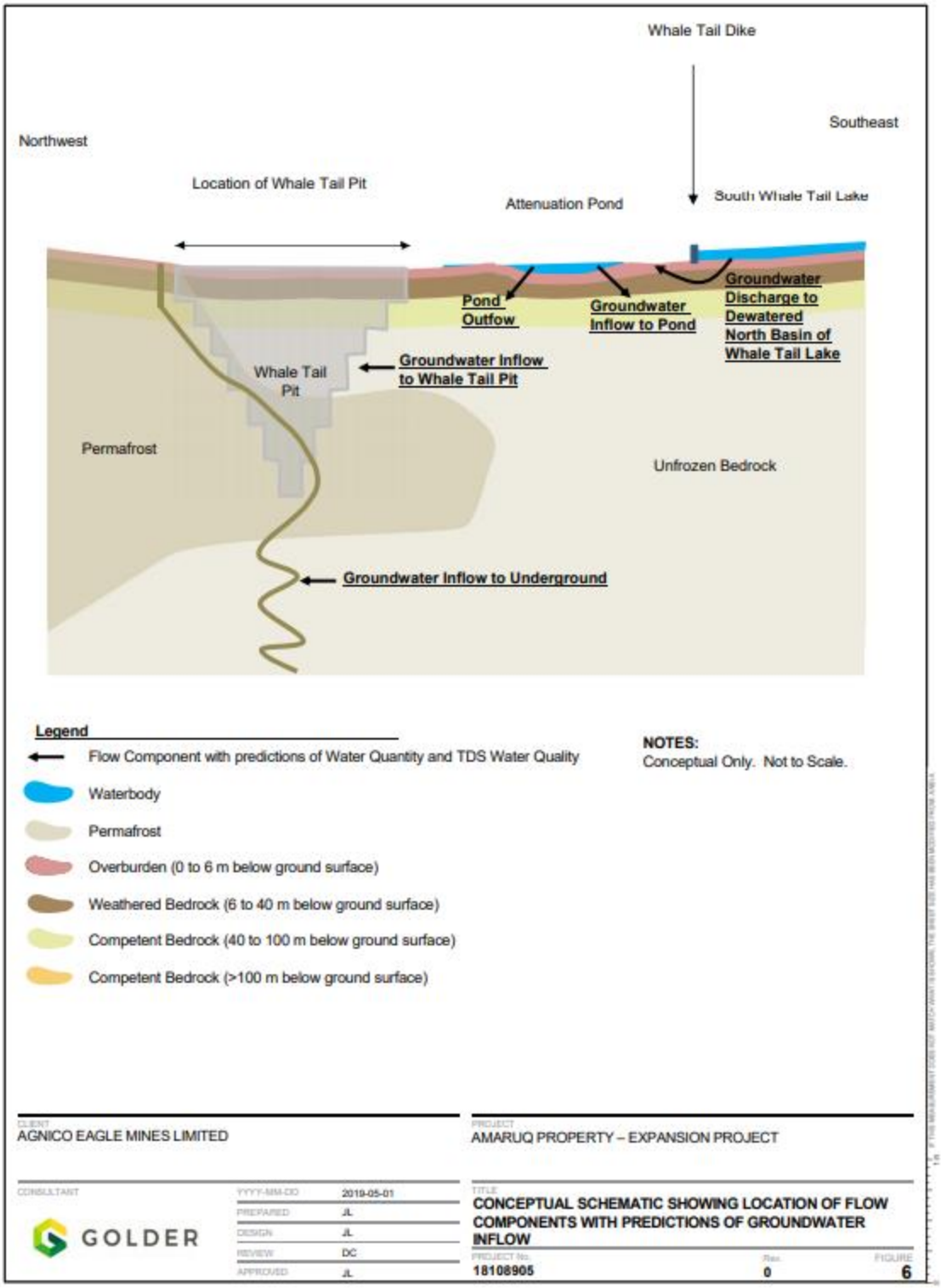
Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle would refer the KivIA to the Figure 6 of Appendix H.4: Whale Tail Pit Updated Hydrogeological Assessment is showing the Conceptual schematic showing location of flow components with predictions of groundwater inflows. As presented on this figure, the source of the Whale Tail Dike Seepage would be the Whale Tail Lake South Basin. The arrow showing the Groundwater Discharge to Dewatered North Basin of Whale Tail Lake is presenting the seepage mechanism.

As presented in Appendix H.1, Whale Tail Pt Water Balance Update, Agnico Eagle is planning operating the seepage collection system at the downstream tow of the Whale Tail dike by January 2020 to intercept the dike seepage (p. 8). Table 24: Water Balance Flow Components (Whale Tail Lake North Basin / Whale Tail Attenuation Pond are presenting the assumption in the water balance related to the Whale Tail Dike Seepage Management:

- Seepage from Whale Tail Lake (South Basin) thru the Whale Tail Dike once the Whale Tail Attenuation Pond becomes operational in June 2019, until Whale Tail Lake (North Basin) is refilled before post-closure
- 50% of the seepage is collected by the Whale Tail Dike Seepage Pumping Station when operational by January 2020 and recirculated to Whale Tail Lake (South Basin)

Water pumped from the collection system will be discharge thru the diffuser located in the Whale Tail South Basin. The objective of such system is to reduce non-contact water from the dike seepage to reach the contact water stored in the Whale Tail Attenuation Pond during operation. Based on the experience at Meadowbank with the East Dike seepage collection system the effectiveness of 50% was applied on these type of systems. This factor is including system failure due to effluent not meeting discharge objective. In such case, water would be pumped back to the attenuation pond in order to be treated by the O-WTP prior to be discharge in the active receiver (Mammoth Lake or Whale Tail Lake South Basin).


Whale Tail Dike
Northwest
Southeast
Location of Whale Tail Pit
Attenuation Pond
South Whale Tail Lake
Pond Outflow
Groundwater Inflow to Pond
Groundwater Discharge to Dewatered North Basin of Whale Tail Lake
Whale Tail Pit
Groundwater Inflow to Whale Tail Pit
Permafrost
Unfrozen Bedrock
Groundwater Inflow to Underground
Legend
Flow Component with predictions of Water Quantity and TDS Water Quality
Waterbody
Permafrost
Overburden (0 to 6 m below ground surface)
Weathered Bedrock (6 to 40 m below ground surface)
Competent Bedrock (40 to 100 m below ground surface)
Competent Bedrock (>100 m below ground surface)
NOTES:
Conceptual Only. Not to Scale.
CLIENT
AGNICO EAGLE MINES LIMITED
PROJECT
AMARUQ PROPERTY – EXPANSION PROJECT
CONSULTANT
GOLDER
YYYY-MM-DD 2019-05-01
PREPARED JL
DESIGN JL
REVIEW DC
APPROVED JL
TITLE
CONCEPTUAL SCHEMATIC SHOWING LOCATION OF FLOW COMPONENTS WITH PREDICTIONS OF GROUNDWATER INFLOW
PROJECT No. 18108905
Rev. 0
FIGURE 6

Agnico Eagle would like to refer the KivIA to the Appendix H.2 Site Water Quality Model Update for additional detail concerning the Whale Tail Dike Well Sump. Table 10 presented (page 44) the assumption made for the Whale Tail Dike seepage collection system water quality.

Table 10: Inputs and Assumptions for Other Loadings Sources

Facility	Property	Input / Assumption	Rational	Reference	Operations	Closure	Post-Closure
Industrial Sector / Main Camp Sector	Contact water quality	Developed area runoff water quality	Represents areas of constructed pad	Addendum Volume 5, Appendix 5-E	X	X	
		Natural runoff water quality	Pads are removed	Addendum Volume 6, Appendix 6-G			X
GSPs, and the IVR Attenuation Pond	Contact water quality in closure and post-closure	Developed area runoff water quality, treated similar to developed pads with respect to calculation of loadings.	These ponds will be backfilled with the NPAG/NML rock.	Agnico Eagle (2019a)		X	X
Whale Tail Dike Well Sump	Residual explosives in riprap used to create collection ditch	Applied concentrations for nitrate and ammonia in underground sump: ■ NO_3: 0.31 mg/L-N ■ NH_4: 0.13 mg/L-N Calculated as the difference between the average concentrations of the East Dike Seepage (ST-8) monitoring results (2016) and the average TPS Reference Area (2016).	Water collected by the Whale Tail dike well sump assumes the modelled water quality of Whale Tail Lake (South Basin) as it will be primarily seepage under the dike that is collected. However, site data from Meliadine shows that an increase in nitrogen species concentrations is possible due to explosives residues within the collection ditch.	Meadowbank Gold Project – 2016 Annual Report on NWB website	X		

As presented in this Table, Agnico Eagle has a similar seepage collection system installed at the downstream toe of the East Dike at the Meadowbank Mine Site. Based on the experience gained since 2015 with this system, the only recurrence when water does not meet discharge criteria is during heavy rain event or at freshet and the issue is related to elevated total suspended solids due to the erosion of the surrounding exposed lake bed sediment. During this situation, Agnico Eagle would pump the water from the seepage collection system toward the active Attenuation Pond in order to treat any parameter exceeding discharge criteria.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR24**
Re:	**Post-closure Pit Flooding**		

Reference:

- *Site Layout 190516 2AM-WTP1826 Appl 10 – Yearly Layout Plan 2042 – Post Closure*
- *Site Layout 190516 2AM-WTP1826 Appl 11 – Yearly Layout Plan 2042 – Post Closure*

Information Request / Recommendation Made By Interested Party:

Please clarify the sequence and timing of pit refilling shown in Site Layout Plans 10 and 11.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle would like to clarify that there was an error in the naming of the pdf of *Site Layout 190516 2AM-WTP1826 Appl 10.* The correct name of the pdf file is 190516 2AM-WTP1826-Appl.10 Site Layout Plan **(Year 2026_Closure**), as shown in the title block of the drawing itself.

As such, the sequence and timeline shown in Table 1.4.1 in the Main Application Document is correct and aligned with what is presented in the two layouts. Agnico Eagle will resubmit Site Layout 190516 2AM-WTP1826 Appl 10 with the correct pdf name.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR25**
Re:	**High TSS concentrations during construction**		

Reference:

- *Water Quality Monitoring and Management Plan for Dike Construction and Dewatering Section 3 Standards for the protection of fish and fish habitat, page 5, table 3.1*

Information Request / Recommendation Made By Interested Party:
Please provide a definition of the "short term" in the context of TSS discharges, describe how AEM will ensure that eggs/larvae are not present and provide information detailing the possible implications of exposure to TSS concentrations up to 50 mg/L on fish.

Agnico Eagle's Response to Information Request / Recommendation:
As per the Updated Threshold and Trigger Development for CREMP Water Parameters in the Core Receiving Environment Monitoring Program (CREMP): 2015 Plan Update (Appendix D, Azimuth 2015), short-term, with respect to TSS compliance assessment, means not greater than 24 hours. This timeframe is consistent with the short-term duration in the CCME guidelines for TSS (CCME 1999). For project context, the trigger of the short-term maximum (STM) concentration at a monitoring stations during open water dike construction or and dewatering is based on a single TSS monitoring value that exceeds the STM concentration.

Agnico Eagle has a comprehensive understanding of the fish habitat in the receiving lakes, and the areas within those lakes that can be characterized as spawning habitat (Portt 2018; Appendix 6-M in the FEIS Addendum). Previously completed baseline information includes fish habitat maps and bathymetric maps of Whale Tail Lake and Mammoth Lake. Discharge locations will avoid previously identified spawning shoals, including locations characterized by a dominance of gravel/cobble substrates at depths of 2 to 6 m where there is potential for spawning Lake Trout and Round Whitefish (FEIS Volume 6, Sections 6.5.1). The potential for eggs and larvae to be in the vicinity of a station would be during late summer or early fall through the winter (ice covered conditions). Therefore, Agnico Eagle can apply the appropriate varied triggers for TSS maximum concentrations during dike construction based on spawning habitat and times when eggs or larvae are expected to be present.

The TSS limits developed for the *Water Quality Monitoring and Management Plan for Dike Construction and Dewatering* are protective of the environment, and representative of conditions where harm to the environment may occur if exceeded. We know that the nature and extent of adverse effects of increased TSS on fish and other aquatic organisms is influenced by the TSS concentration and the duration of exposure. In setting the short-term trigger concentration, Agnico Eagle focused on the potential for effects to fish, with reference to work undertaken by Newcombe and Jensen (1996). This work established a Severity of Effects Value (or SEV) based on TSS concentration and the duration of exposure. The SEV was

derived from a meta-analysis and considered variability in responses. The Newcombe and Jensen study also considered habitat degradation in the SEV relationship, which would consider effects on lower trophic levels as food for fish. At this concentration and exposure time, the SEV would be below a value of 6, indicating that some minor measurable sub-lethal effects to these groups may be identified (e.g., physiological stress); however, Agnico Eagle believe that most importantly these changes would tend to be localized (i.e., in close proximity to the construction area or dewatering discharge locations) and of short duration, such that the vast majority of fish, as well as the plankton and benthic invertebrate community assemblage, in the receiving lake would not be affected, and be recoverable. This is consistent with the findings of the aquatics monitoring studies completed for dike construction and dewatering at the Meadowbank Mine.

Additionally, trigger concentrations have also been built into the *Water Quality Monitoring and Management Plan for Dike Construction and Dewatering* for a 7-day check and a 30-day average TSS concentrations at each monitoring station. Should maximum TSS concentrations in the water column at any station exceed the trigger values during dike construction, a response, or series of responses will be activated.

References:

Newcome, CP and Jenson, JOT. 1996. Channel Suspended Sediment and Fisheries - A Synthesis for Quantitative Assessment of Risk and Impact. North American Journal of Fisheries Management. 16(4): 693-727.

Portt, C., and Associates. 2018. Whale tail pit 2014 - 2016 fish and fish habitat field investigations: Agnico Eagle Mines Ltd. - Meadowbank Division. xi +157 pp.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR26**
Re:	**TSS monitoring during the construction of dikes**		

Reference:

- *Water Quality Monitoring and Management Plan for Dike Construction and Dewatering Section 4.3 Water quality monitoring, Page 8*

Information Request / Recommendation Made By Interested Party:

Please compare TSS concentrations from grab samples in addition to average daily concentrations to MDMER grab sample maximum concentrations or provide a rationale as to why this approach would not be appropriate for TSS monitoring.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle has proposed trigger concentrations for dewatering discharge in the *Water Quality Monitoring and Management Plan for Dike Construction and Dewatering* that are consistent with the MDMER (i.e., a Maximum Monthly Mean of 15 mg/L [which is equivalent to the Maximum Authorized Monthly Mean Concentration in the MDMER] and a Short-term Maximum of 22.5 mg/L [which is equivalent to the Maximum Authorized Concentration in the MDMER]). The use of the MDMER limits for dike construction is not considered by Agnico Eagle to be applicable because the intent of the MDMER is for monitoring of continuous/long-term discharge of effluent from a mine site, which includes direct discharge, or seepage or surface runoff that flows over, through, or out of the mine site, which has a specifically identifiable discharge point. However, the triggers for dike construction remain protective of the receiving aquatic environment.

The TSS triggers for dike construction were developed with an understanding of dike construction activities to a receiving lake and the potential for the short-term generation of diffuse, localized TSS, which will only result in potential effects to the receiving lakes if mitigation (e.g., silt curtains or turbidity barriers around the construction area) fails. In proposing TSS limits for the *Water Quality Monitoring and Management Plan for Dike Construction and Dewatering*, Agnico Eagle investigated the literature with reference to the aquatic biota and habitat in the receiving lakes, and examined the findings of the environmental monitoring associated with dike construction activities completed at its Meadowbank Mine (e.g., the Bay Goose dike).

In combination of the regular monitoring of TSS and turbidity in the receiving lakes during dike construction activities and the proposed triggers for TSS, Agnico Eagle will be able to continually assess the effectiveness of mitigation around the dike construction area, to readily identify the occurrence of problems with the mitigation through TSS events within the receiving lakes, and initiate and oversee appropriate responses to correct any issues.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR27**
Re:	**TSS Guideline Comparison**		

Reference:

- *Water Quality Monitoring and Management Plan for Dike Construction and Dewatering Section 4.4.2, Page 10*

Information Request / Recommendation Made By Interested Party:

Please specify which short term maximum this statement refers to: the short term maximum described in Table 3.1 (50 mg/L),the short term maximum described in table 3.2 (30 mg/L) or the average short composite sample identified in the MDMER (22.5 mg/L).

Agnico Eagle's Response to Information Request / Recommendation:

Short-term Maximum limit presented in Table 3.1 are the limit that will be used to trigger the construction stop and the following actions.

Table 3.2 refer to the limit to be respected during the dewatering. TSS limits are not the same for both activities.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR28
Re:	Trigger value for water quality parameters below the detection limit		

Reference:

- *Water Quality and Flow Monitoring Plan Section 3.3.2.1 CREMP threshold and trigger levels, Page 22*

Information Request / Recommendation Made By Interested Party:

Please provide a rationale for using two times the detection limit as a trigger for parameters that during baseline monitoring had 95% of measurements below the detection limit.

Agnico Eagle's Response to Information Request / Recommendation:

The setting of two times the detection limit (DL) as the trigger for parameters that had 95% of measurements below the DL during baseline monitoring applies only to parameters without effects-based thresholds (p. 22, Agnico Eagle 2019; pp. 7 and D-1, Azimuth 2019). While this may not appear to consider the same level of conservatism in comparison to the trigger setting for parameters with effects-based thresholds, there is negligible risk to the receiving environment in the event concentrations of these parameters increase above detection during Mine operations (i.e., show a higher frequency above detection). Currently, the analytical resolution of the laboratory techniques used for the parameters required under the CREMP is very good; that is, the limit of detection for parameters with effects-based thresholds is at very low concentrations, substantially below the concentrations where potential risk to aquatic life may exist. The low limit resolution also exists for the parameters without effects-based thresholds. Two times the detection limit for these parameters still represents a very low concentration and does not necessarily indicate a drastic change in water chemistry; it may be argued that this trigger level may be too low for parameters without an effects-based threshold, however, this trigger is sufficient to provide an indication of an increasing concentration based on an annual mean concentration of that parameter in a lake- or basin-specific area that requires an evaluation of cause. Although there would be no risk to the aquatic biota in the receiving environment under such a trigger, the trigger would still generate a response for Agnico Eagle to review and identify the cause. Finally, a trigger based on a parameter concentration does not mean that mine-related changes have occurred in the receiving environment; it highlights a result that should be looked at more closely to determine the most plausible explanation.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR29
Re:	Early warning trigger development		

Reference:

- *Core Receiving Environment Monitoring Program (CREMP): 2015 Plan Update – Whale Tail Pit Expansion Addendum_NWB Section 2.2.1 Approach, Page 3*

Information Request / Recommendation Made By Interested Party:

Annual average data is compared to early warning triggers, however triggers have not been developed and mine operations are to commence this year (2019). Therefore, to ensure AEM is following the procedures and protocols laid out in their CREMP triggers must be developed or rationale provided as to why this is not possible at this time accompanied by supporting adaptive management procedures.

Agnico Eagle's Response to Information Request / Recommendation:

Water quality trigger and threshold values screening values will be developed for the Whale Tail Expansion Project. These will be derived from the recently completed 2018 Core Receiving Environment Monitoring Program (CREMP) – Meadowbank Mine and Whale Tail Project (Azimuth 2019), so that all relevant baseline data can be included in the derivation. Water quality trigger and threshold values have been developed for the Meadowbank CREMP (Azimuth 2015a), which will also be considered as part of the derivation of trigger and threshold values for this Project due to their regional context.

References:

Azimuth (Azimuth Consulting Group). 2015a. Core Receiving Environment Monitoring Program (CREMP): 2015 Plan Update. Report prepared by Azimuth Consulting Group, Vancouver, BC for Agnico Eagle Mines Ltd., Baker Lake, NU. November, 2015.

Azimuth. 2019. Core Receiving Environment Monitoring Program (CREMP) 2018, Meadowbank Mine and Whale Tail Project. Report prepared by Azimuth Consulting Group, Vancouver, BC for Agnico Eagle Mines Ltd., Baker Lake, NU. March, 2019.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR30**
Re:	**Predicted mercury concentrations in water and fish**		

Reference:

- *Core Receiving Environment Monitoring Program (CREMP): 2015 Plan Update – Whale Tail Pit Expansion Addendum_NWB Appendix A: Mercury monitoring plan or Whale Tail South Area Section 2.3.2 Fish Tissue, Page 10 Section 5 Data Evaluation, Page 12*

Information Request / Recommendation Made By Interested Party:

The reviewer is aware that the information provided in the water license submission pertaining to the aquatic environment and fish are currently out of date and will be updated by the proponent in a technical memo on August 5th. As committed to during the EIS technical hearings in June 2019. Review of that documentation will be used to confirm whether the management and mitigation measures proposed in the application are appropriate.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle acknowledges the Information Request from the KivIA and is looking forward to having the updated memorandum available for the technical comment review period.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR31**
Re:	**Cryo-concentration in water quality model assumptions**		

Reference:

- *Mine site and downstream receiving water quality predictions Whale Tail Pit – Expansion Project Section 2.1.1 Changes to FEIS Addendum Table 1: General water balance assumptions pertinent to the water quality model Page 11*

Information Request / Recommendation Made By Interested Party:

Please update the water quality model to include cryo-concentration

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle acknowledges the Information Request from the KivIA and will update the water quality model to include cryo-concentration and will be available for the technical comment review period.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR32
Re:	Removal of pit walls from water quality model predictions		

Reference:

- *Mine site and downstream receiving water quality predictions Whale Tail Pit – Expansion Project Section 3.2.2.1 Surface facilities Table 4: Changes in surface facility inputs Page 24*

Information Request / Recommendation Made By Interested Party:

Please provide rationale for the removal of pit walls from water quality model to better justify the updated receiving environment water quality predictions.

Agnico Eagle's Response to Information Request / Recommendation:

The main sources of leaching in an open pit are the benches due to the rubble zone that includes fine grained material that develops on account of over drilling and blasting. Particle size is a key consideration when evaluating leaching rates. This is because the smaller the particle, the higher the surface area and therefore potential for reactivity and subsequent leaching (INAP 2009; MEND 2009). The importance of particle size is also directly considered in industry standard leaching tests (i.e. humidity cells) that specify a maximum particle size of 6.35 mm to be used for geologic materials undergoing testing.

The vertical face of a pit wall is not composed of fine-grained material and is instead analogous to large boulders with relatively low surface area as compared to the benches. The majority of mass in the vertical face is occluded from the atmosphere and will not react. As a result, only centimeter deep outer crust of the high wall will react, and any water passing over the vertical face picks up negligible load. The prediction for the bench assumes the entire surface area of 1 m deep reacts, which is an overestimate as not all the rock fragments will have a high surface area and therefore the small load from the vertical face is expected to be more than accounted for in the prediction by including only the surface area of the pit benches in the pit.

References:

INAP (The International Network for Acid Prevention). 2009. Global Acid Rock Drainage Guide (GARD Guide).http://www.gardguide.com/.

MEND (Mine Environment Neutral Drainage) Program. 2009. Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials. MEND Report 1.20.1. December 2009.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR33**
Re:	**Loading rate and mass release rate**		

Reference:

- *Mine site and downstream receiving water quality predictions Whale Tail Pit – Expansion Project Section Table 7: Inputs and assumptions for the Whale Tail and IVR Pits Page 34*

Information Request / Recommendation Made By Interested Party:

Please ensure all model inputs are clearly stated. Specifically, please provide the loading rate and release rate associated with the release from the pit benches and floors upon submersion.

Agnico Eagle's Response to Information Request / Recommendation:

The release rate of residual oxidation products from the pit benches during pit flooring area release of accumulated oxidation products mass that would not have been flushed from the pit benches during operations. While a loading rate is used to calculate the load to release, the release is not a continual input as flooding effectively inhibits any further production of oxidation products to leach.

The release rate during filling is a function of two factors in the model: submerged flush and diffusion. To calculate the amount of submerged flush to add to the model on a monthly time step, the submerged area of the pit walls is calculated and compared to the submerged area one month prior. The difference in those areas contributes to the submerged flush loading. This loading is calculated in the same way as runoff over the exposed pit walls is calculated, with the exception that a constant temperature factor of 0.25 is applied, rather than the variable temperature factor that is applied to runoff over the pit walls. Pit wall interaction depth remains as 1 m; the assumed density remains as 2 t/m^3; pit channelization factor of 0.3 is applied. These calculations are done with every time step. The equation used in the water quality model is:

- Submerged flush (kg/month) = Area (m^2, submerged in past 1 month, calculated by GoldSim) * weighted loading rate by lithology (mg/kg/month) * Pit wall interaction depth (1 m) * Density (2 t/m^3) * Pit channelization factor (0.3) * temperature factor (0.25)

The diffusion component of the release rate is described in Golder (2018). It accounts for the oxidation products that might be further into the fracture rock that are not readily flushed upon the initial submersion. It starts assuming 30% fracturing of the wall with a 2 mg/L source term and slowly depletes this load until background arsenic concentrations are reached. This adds a level of conservatism as the submerged flush assumes all built up oxidation products are depleted, and diffusion adds additional load.

Reference:

Golder 2018. Arsenic Diffusion Model – Description of Methods. Ref. 1789310-233-TMRev0. Submitted to Agnico Eagle Mines Limited November 2018. Prepared by Golder Associates Ltd.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR34
Re:	Climatic inputs for water quality model		

Reference:

- *Mine site and downstream receiving water quality predictions Whale Tail Pit – Expansion Project Section 4.0 Water quality predictions, Page 47*
- *Water Management Plan*

Information Request / Recommendation Made By Interested Party:

Please update the water management plan with the decision tree for water quantity management as committed to in the EIS technical hearings in June 2019.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle acknowledges the Information Request from the KivIA and will have the water management decision tree available for the technical comment review period.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR35
Re:	Guideline exceedance prevention		

Reference:

- *Mine site and downstream receiving water quality predictions Whale Tail Pit – Expansion Project Section 4.4 Effect of total suspended solids on total constituent concentrations Table 13: Particulate concentrations at 5 mg/L, 10 mg/L, and 15 mg/L TSS. Page 63 and 64 Section 5 Conclusions Page 65*

Information Request / Recommendation Made By Interested Party:

Please determine what TSS concentrations must be met in the effluent discharges to prevent exceedances of the total aluminum and total chromium discharge criteria, and potential impacts within the receiving environment. Please provide a discussion pertaining to adopting a TSS effluent quality criterion at or below this concentration to limit impacts to Mammoth Lake.

Agnico Eagle's Response to Information Request / Recommendation:

A back-calculation of total suspended solids (TSS) concentrations that could result in the maximum authorized monthly mean concentrations for total chromium (0.02 mg/L) and total aluminum (0.5 mg/L) in the discharge, was completed over the length of operations. It is important to note that the composition of TSS assumed in the model may vary from the composition of the TSS observed on-site.

Results of the back-calculations show that TSS concentrations would need to be between 18 mg/L and 37 mg/L for total chromium and aluminum to reach their respective discharge concentration limits. These values are higher than the maximum authorized monthly mean concentration of 15 mg/L.

As per the response to technical comment ECCC-TC17 of the NIRB process (Agnico Eagle 2019), total concentrations for this model have been predicted using a TSS concentration of 7.5 mg/L, similar to the average TSS concentration measured at the Meliadine effluent discharge. Based on these results, total aluminum does not show any exceedances in the receiving environment. There is no receiving environment guideline for total chromium; maximum monthly average concentrations of total chromium are predicted to be 0.0027 mg/L for Mammoth Lake and 0.0021 mg/L for Whale Tail Lake (South Basin) based on a TSS concentration of 7.5 mg/L in the effluent.

Reference

Agnico Eagle (Agnico Eagle Mines Limited). 2019. Technical Comment Responses Whale Tail Pit – Expansion Project. Submitted to Nunavut Impact Review Board. May 29, 2019.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR36
Re:	Footprint and Underground Area		

Reference:

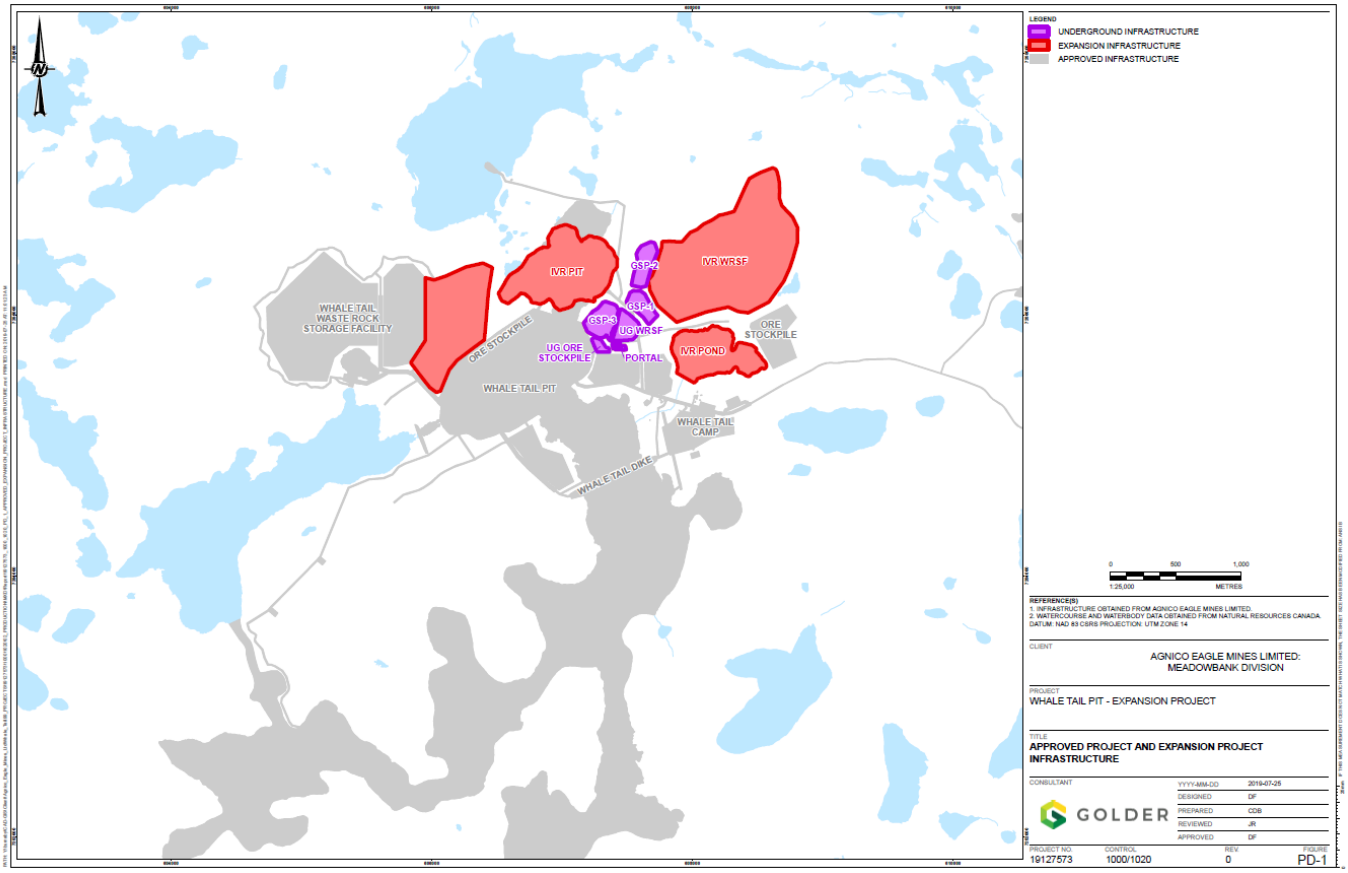
- *Main Application Document NWB Water Licence 2AM-WTP 1826 Amendment, Section 1 Project Description*

Information Request / Recommendation Made By Interested Party:

Please include a figure showing the footprint of the underground pit and associated waste rock storage facility and groundwater storage ponds required for the Expansion Project.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle updated the figure below to include every component associated with the Whale Tail Expansion Project. Items in purple are the infrastructures related to the underground mine such as the Portage, GSP-1, GSP-2, GSP-3, and the UG WRSF. The infrastructure in red are the ones related to the open pit mining and other surface activities Whale Tail WRSF Expansion, IVR Pit, IVR Attenuation Pond and IVR WRSF.



Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR37**
Re:	**Freshwater Requirements**		

Reference:

- *Main Application Document NWB Water Licence 2AM-WTP 1826 Amendment, Section 1 Project Description, table 1.1-1*

Information Request / Recommendation Made By Interested Party:

Please clarify freshwater requirements for the Expansion Project, including volume of freshwater required for the emulsion plant operations and the source and volume of freshwater required for operational geological drilling.

Agnico Eagle's Response to Information Request / Recommendation:

Please see DFO-IR2 for an updated table on the freshwater requirements for the Project.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR38
Re:	Mine development sequence and key activities		

Reference:

- *Main Application Document NWB Water Licence 2AM-WTP 1826 Amendment, Section 1.4 Pace, Scale, and Timing of Project*

Information Request / Recommendation Made By Interested Party:

Please clarify the coloured cells in Table 1.4-1.

Agnico Eagle's Response to Information Request / Recommendation:

Based on the first row of Table 1.4-1 (snapshot below), the colour used to highlight the mine sequence translates to each development of each key mining activity and they year that it will take place. As an example, GSP-2 construction would take place in 2020, followed by operations phase 2021 to 2015, and closure in 2026.

For clarity, construction of key activity (Expansion Project) = orange; operation of key project component or activity = blue; closure or stoppage of key project component or activity = yellow. Green cells represent key project components or activities which have already been constructed or initiated as part of the Approved Project. In some instances, infrastructure and associated activities required for operations are also required during closure (e.g., until water quality has met discharge criteria). Therefore, these project components and/or activities are highlighted in blue as operating during the closure phase. The use of purple at the end of the timeline of these activities represents the decommissioning and the end of active monitoring prior to post-closure.

Table 1.4-1: Mine Development Sequence and Key Activities

		Construction[1]	Operations[2]							Closure[3]									Post-closure[4]
		-1	1	2	3	4	5	6	7	8	9	10	11-19	20	21	22	23	24	24
		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029-2037	2038	2039	2040	2041	Q1-Q3 2042	Q4 2042
Water Management Infrastructure	**Status[5]**																		
Groundwater Storage Pond 1 (GSP-1)	Approved																		
Groundwater Storage Pond 2 (GSP-2)	New																		
Groundwater Storage Pond 3 (GSP-3)	New (Optional)																		
Water Intake in Nemo Lake and Freshwater Pump Station	Approved																		
Whale Tail Attenuation Pond Pump Station	Approved			[6]															
IVR Attenuation Pond Pump Station	New																		
Whale Tail WRSF Dike	Approved*																		
WRSF Pond	Approved																		
Whale Tail Dike	Approved																		
Mammoth Dike	Approved																		
Northeast Dike	Approved			[7]															
Whale Tail Dike Seepage Pump Station	New																		
South Whale Tail Diversion System	Approved																		
Whale Tail WRSF Contact Water Collection System	Approved																		
IVR WRSF Contact Water Collection System	New																		
East Channel	Approved																		
IVR Diversion	New																		
IVR Attenuation Pond	New																		
Underground Water Management System	New																		

For future iterations of this table, Agnico Eagle will provide additional clarity on the color coding within the footnotes.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR39**
Re:	**Waste Asbestos**		

Reference:

- *Landfill and Waste Management Plan, Section 3.2.1 Waste Asbestos*

Information Request / Recommendation Made By Interested Party:
Please clarify (i) under what circumstances use of asbestos might be required, (ii) what cover material will be used for its disposal, and (iii) what steps will be taken to ensure areas of buried waste asbestos remain undisturbed.

Please explain why the recommended 0.6 m cover is not proposed for waste asbestos disposal.

Agnico Eagle's Response to Information Request / Recommendation:
The use of asbestos in buildings is prohibited in Canada, so it will not be present in the site buildings. The only foreseeable components that could conceivably contain asbestos may be in clutches or brakes for heavy equipment. Any potential waste asbestos will be covered with NPAG/NML material for its disposal with a dozer. NPAG/ML is a much competent cover material than soil, with geotechnical and hydraulic properties that will help encapsulate the asbestos waste.

The area where asbestos materials will be disposed will be georeferenced and identified in plans for future reference. Access to these areas of the WRSF is only permitted to authorized vehicles; this limits access to the area.

As noted in the Landfill management Plan, Agnico Eagle will adhere to the recommendations by the GN in its Environmental Guideline for Waste Asbestos guideline and Environmental Guideline for the General Management of Hazardous Waste before landfilling waste asbestos.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR40
Re:	Landfill Leachate		

Reference:

- *Landfill and Waste Management Plan, Section 5.1.5 Leachate Management*

Information Request / Recommendation Made By Interested Party:

Please describe the monitoring program to track leachate volume and ionic strength and discuss what trigger values will be used for these parameters to flag potential problems. Please also discuss the water management implications of greater than anticipated leachate volumes in the absence of an installed liner.

Agnico Eagle's Response to Information Request / Recommendation:

As presented in the Landfill and Waste Management Plan, Section 5.1.5, leachate from the landfill is expected to be very weak (dilute) or simply absent due to controls on materials placed in the landfills. In the event there is leachate from the landfill during periods of heavy rainfall or spring freshet, the runoff will be collected in WRSF Pond and directed to the Whale Tail Attenuation Pond where it will be integrated as part of the water management plan and then, if necessary, treated before release to the receiving environment. The water management plan also includes the implementation of the Water Quality and Flow Monitoring Plan.

Agnico Eagle refers the KivIA to the Water Quality and Flow Monitoring Plan for more details on the procedures and parameters that Agnico Eagle will use to track any potential increase in volume (i.e., increase in leachate), in the attenuation ponds and the criteria to flag potential problems and manage them. Should thermistor reading not be consistent with expected thermal modelling results in the WRSF, additional monitoring proposed of near surface conditions will be implemented to understand the mechanisms causing potential Water Quality problems prior to poor water quality detection in the attenuation pond.

Agnico Eagle refers KivIA to the Landform Water Balance memo (948-011-M-006) prepared by O'Kane Consultants, 2019 (Appendix I). As shown in the memo, basal flow from the WRSF is expected to be minimal and no seepage is expected to reach the toe of the WRSF. Specific triggers that will result in additional mitigation and monitoring is that waste rock temperatures not behaving consistently with modelled results. Basic thermal monitoring from thermistors should provide an early indication that there is the potential for a water quality issue before being able to measure any changes in water quality in the attenuation ponds.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR41**
Re:	**Sewage Sludge**		

Reference:

- *Incinerator and Composter Waste Management Plan, Executive Summary and Section 4.1 Incinerator Selection; Landfill and Waste Management Plan, Section 3.1 Approach*

Information Request / Recommendation Made By Interested Party:
Please clarify how sewage sludge will be disposed of. Will it be added to the incinerator, in addition to being used at the landfarm and disposed of at the waste rock storage facility?

Agnico Eagle's Response to Information Request / Recommendation:
Agnico Eagle refers the KivIA to the Operation and Maintenance Manual Sewage Treatment Plan (OMM_STP Plan), section 3.3. Sludge Disposal. As presented in this plan, sludge will be disposed at Amaruq or Meadowbank site in the WRSF or the Tailings Storage Facility (Meadowbank only) or in a landfarm as a nutrient amendment as per the approved Water Licence, 2AM-WTP1826 Part F Item 3.

The bulk of the sludge will be disposed of at the WRSF, but other options such as incineration and use in a landform as a nutrient will also be considered as options after assessing environmental, technical, and economic feasibility of each option.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR42**
Re:	**Incinerator ash leachate guidelines**		

Reference:

- *Incinerator and Composter Waste Management Plan, Section 4.2 Incinerator Ash*

Information Request / Recommendation Made By Interested Party:

Please clarify how the metal guidelines for incinerator ash leachate were derived.

Agnico Eagle's Response to Information Request / Recommendation:

The metal guidelines for incinerator ash leachate were derived using the values listed in Table 1 from the following Government of Nunavut Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities (revised April 2011). Available at this location: https://www.gov.nu.ca/sites/default/files/industrial_waste_discharges_2011.pdf

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR43**
Re:	**Total particulate matter generated by incinerator**		

Reference:

- *Incinerator and Composter Waste Management Plan, Section 5.1 Incinerator*

Information Request / Recommendation Made By Interested Party:

Please estimate how much total particulate matter will be generated by the incinerator annually and provide supporting evidence (e.g., from other mines) that such an amount does not require dust collection.

Agnico Eagle's Response to Information Request / Recommendation:

An identical incinerator used at the Meadowbank Mine was assumed for the Expansion Project. The total particulate (TSP) emission rate of 2.8 kilogram per day (kg/day) measured by stack gas sampling and testing in 2017 for the Meadowbank Mine incinerator was applied to the Expansion Project (FEIS Addendum Volume 4, Appendix 4-B).

When comparing emissions to other sources as listed in the following table, the daily emissions for the incinerator is negligible (representing 0.04% of the total daily emission rate); thus, Agnico Eagle believes that dust collection technology is not required for the incinerator.

Sources	Daily Emission rate, kg/day	Percentage of Daily Emission, %
Incinerator	2.8	0.04
Other combustion sources	79.7	1.07
Haul Road	3,432.9	46.11
WT Pit	3,434.4	46.13
IVR Pit	401.5	5.39
Underground Mine	93.4	1.25

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR44**
Re:	**Dust Suppression**		

Reference:

- *Haul Road Management Plan Section 8.3 Dust Suppression*

Information Request / Recommendation Made By Interested Party:

Please clarify whether the widening of the haul road will require additional water extraction from Nemo Lake, beyond what is approved under the current water licence.

Agnico Eagle's Response to Information Request / Recommendation:

Yes, the widening of the road will result in additional water extraction from Nemo Lake. Where previously 45,750 m^3/yr was to be extracted for dust suppression along the haul road, the water extraction will proportionally increase with the widening of the road. The road width will increase from 9.5 m to 15 m, resulting in an updated extraction volume of 72,240 m^3/yr.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR45**
Re:	**Impacts to Permafrost**		

Reference:

- *Appendix G.15 – Whale Tail Project Groundwater Monitoring Plan, May 2019 Section 2.2.1, pages 8 - 10*

Information Request / Recommendation Made By Interested Party:

To what extent will the Permanent and Active Zone permafrost to the northwest (relatively close to the pit) be impacted by the pit during operation and/or post closure? Please provide supporting rationale.

Agnico Eagle's Response to Information Request / Recommendation:

Permafrost degradation is expected during and following pit refilling. Thermal analysis (Golder 2018) was conducted to evaluate thawing progress of the permafrost below the Whale Tail and IVR pits following formation of the pit lakes during closure and post-closure, as documented in Appendix A of the Groundwater Modelling Report (Appendix 6-B of the FEIS).

Figure 2-7 of Golder 2018 presents the steady state thermal modelling for post-closure. Full permafrost degradation is predicted to occur below the entire surface footprint of the pits. Although the 2D section analyzed did not extend through the northwest wall of Whale Tail Pit, conditions predicted for the northwest wall of IVR Pit can be used to illustrate conditions expected for the northwest wall of Whale Tail pit. Expanded permafrost degradation near surface is not expected at the margins of the pit (including the active zone); however, the depth of the permafrost is predicted to be reduced.

Reference:

Golder (Golder Associates Ltd.). 2018. Pit Lake Thermal Assessment in Support of Hydrogeological Post-closure Analysis, Whale Tail Pit Expansion Project. Ref No. 1789310-206-TM-Rev0. Dated 16 November 2018.

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR46
Re:	Conceptual changes to permafrost around the IVR Pit		

Reference:

- *Appendix G.15 – Whale Tail Project Groundwater Monitoring Plan, May 2019 Section 2.2*

Information Request / Recommendation Made By Interested Party:

Please provide a reference to conceptual models, figures or an inclusive description of permafrost-groundwater changes around the IVR pit as they relate to the Whale Tail pit. A summary of the current, operational and post-closure groundwater and permafrost conditions would be helpful to understand the dynamic between the pits.

Agnico Eagle's Response to Information Request / Recommendation:

The following figures provides the conceptual models that includes both the IVR and Whale Tail pits at their maximum depths for the following three phases:

- Figure KivIA-WL-IR46-1. At the end of mining.
- Figure KivIA-WL-IR46-2. At the end of closure.
- Figure KivIA-WL-IR46-3. 1000 years into post-closure.

IVR Pit is located within regional permafrost and therefore ground inflow during mining and pit refilling is not expected. Post-closure thermal modelling (Golder 2018) indicates it will take approximately 1000 years to fully melt the permafrost below the pit footprint. Whale Tail Pit is in an area of partially closed talik, and because of the smaller volume of underlying permafrost, the permafrost degrades faster. After approximately 11 years of filling, the base of the Whale Tail Pit Lake is predicted to be hydraulically connected to the deeper groundwater flow system, and after 50 years, the permafrost below a significant portion of the pit footprint is predicted to have nearly completely melted.

Reference:

Golder (Golder Associates Ltd.). 2018. Pit Lake Thermal Assessment in Support of Hydrogeological Post-closure Analysis, Whale Tail Pit Expansion Project. Ref No. 1789310-206-TM-Rev0. Dated 16 November 2018.

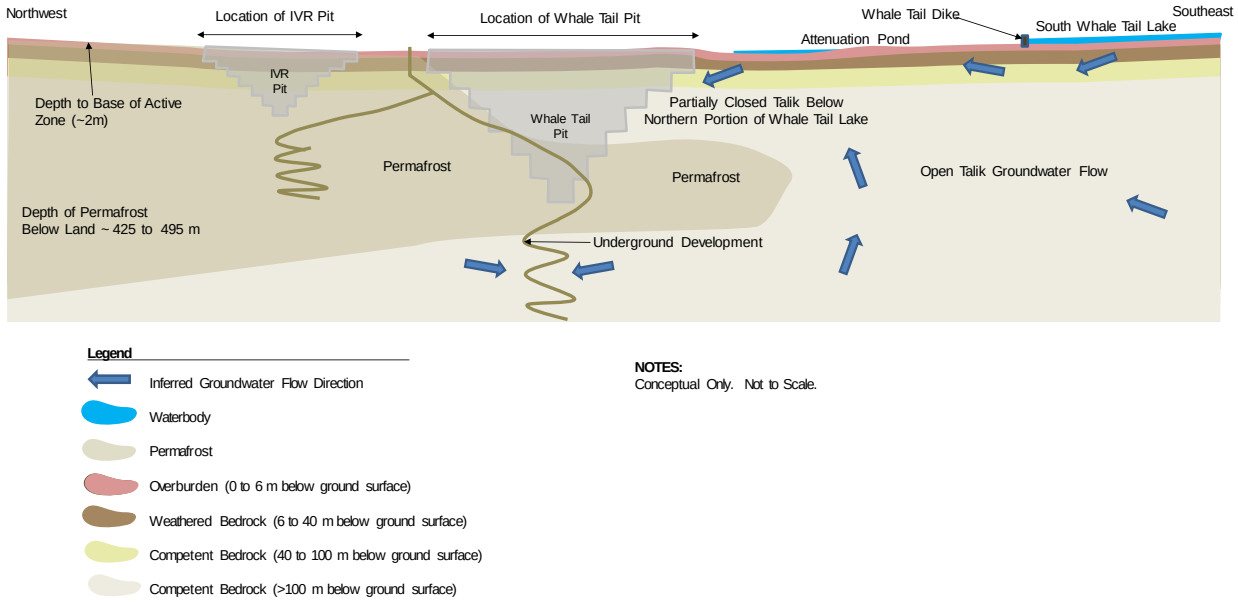


Figure KivIA-WL-IR46-1: Conceptual Model of Deep Groundwater Flow Regime during Mining - Cross-Section View

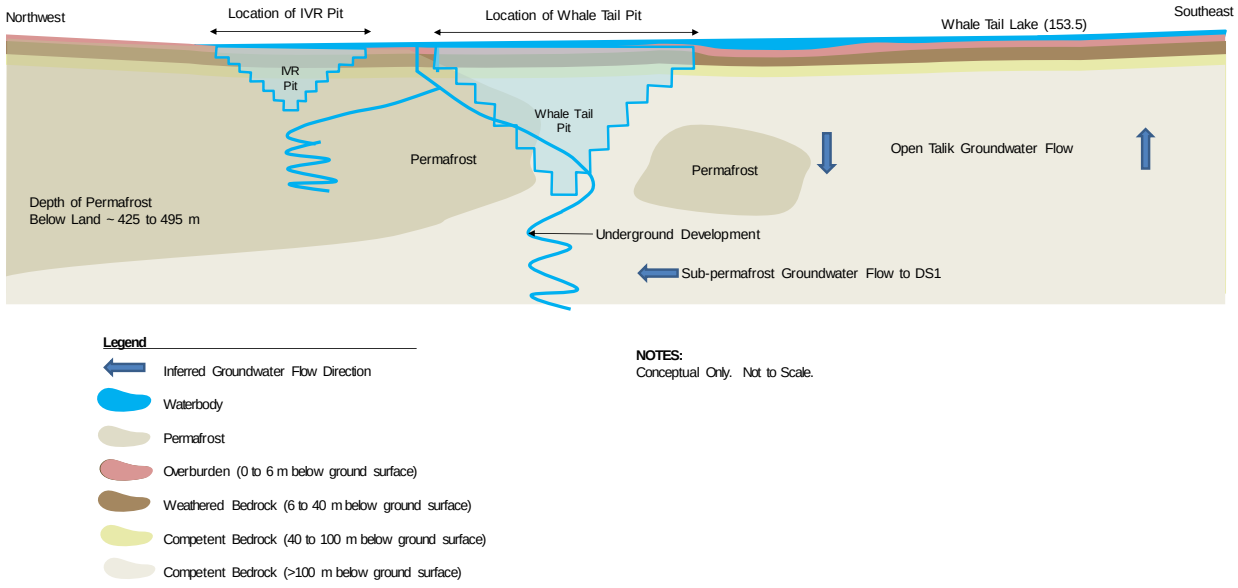


Figure KivIA-WL-IR46-2: Conceptual Model of Deep Groundwater Flow Regime at the end of Closure - Cross-Section View

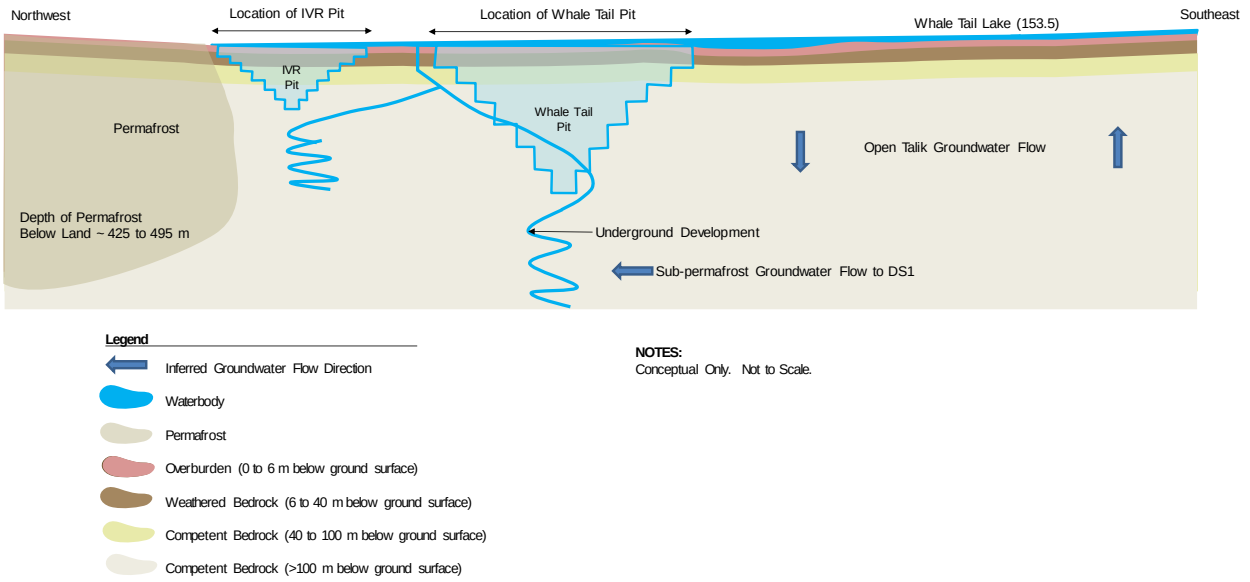


Figure KivIA-WL-IR46-3: Conceptual Model of Deep Groundwater Flow Regime at Post-Closure - Cross-Section View

Interested Party:	KivIA	Rec No.:	KivIA-WL-IR47
Re:	Implications of rock fracturing on groundwater volumes		

Reference:

- *Appendix G.15 – Whale Tail Project Groundwater Monitoring Plan, May 2019 Section 2.0*

Information Request / Recommendation Made By Interested Party:

Please provide a reference to the description of how rock fracturing could affect groundwater migration/infiltration

Agnico Eagle's Response to Information Request / Recommendation:

Mechanical fracturing of rock along the pit perimeter may locally increase the hydraulic conductivity near the pit walls; however, flow to the pit will be primarily controlled by the vertical gradient induced by mine dewatering (i.e., it will be controlled the relative depth of the unfrozen portion of the pit and the lake elevation in the South Basin of Whale Tail Lake) and the bedrock hydraulic conductivity. Some small temporary increases in flow from storage release may occur, but these flows will be minimized by the portions of the pit perimeter that is located in permafrost, and they would be small in comparison to the flow through the weathered bedrock, which is significant due to its high hydraulic conductivity (1×10^{-5} m/s).

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR48**
Re:	**Time of Seepage Monitoring**		

Reference:

- *Appendix G.15 – Whale Tail Project Groundwater Monitoring Plan, May 2019 Section 4.0*

Information Request / Recommendation Made By Interested Party:

Please provide a reference to the rationale for only monitoring seepage in August, after the first year of development.

Agnico Eagle's Response to Information Request / Recommendation:

The open pit seepage survey will focus on identifying preferential groundwater flow paths and quantifying the contribution of these features to groundwater inflow quantity and quality to the open pits. Results of the open pit seepage study will be used to refine the hydrogeological model of the site, as required.

The purpose of the survey is to identify if preferential groundwater flow paths in the walls of the open pits, due to features of enhanced permeability, are present and to determine the relative contribution to the total groundwater inflow quantity and quality from these features. The survey shall involve the measurement of flow rates in selected drainage structures, mapping of seepage faces in the walls of each pit, the measurement of in situ physico-chemical water quality conditions (i.e., pH, conductivity, and temperature) and the collection of surface water samples for laboratory chemical analysis. Surveys can only be conducted when the walls of the pit are melted; therefore, the survey is conducted in August.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR49**
Re:	**Exclusion of perimeter groundwater monitoring wells**		

Reference:

- *Appendix G.15 – Whale Tail Project Groundwater Monitoring Plan, May 2019 Section 4.0 and 5.0*

Information Request / Recommendation Made By Interested Party:

Please provide a reference to other perimeter monitoring programs, or a reference to rationale to why perimeter monitoring is not necessary.

Agnico Eagle's Response to Information Request / Recommendation:

Sump water quality and quantity were predicted by the hydrogeological model together with the GoldSim side-wide water quality model and water balance. The sump integrates the inflows from groundwater from the entire circumference and depth of the pit. It is an actual measure of the total inflow to the pit and therefore is a very accurate data point to compare observed to predicted pit inflows. A perimeter well measures a single point in space. If seepage surveys cannot be conducted, average monthly sump data during the winter and late summer (i.e., August) will provide the next most reliable estimate of groundwater inputs to the open pit.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR50**
Re:	**Waste Rock Storage Facility Design**		

Reference:

- *Appendix G.17, Whale Tail Pit ARD-ML Sampling Plan v.5; Section 2.2.1, page 4.*

Information Request / Recommendation Made By Interested Party:

Provide the Golders report on thermal modeling that considers thermistor readings at the Portage waste rock facility as soon as is reasonable possible.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle refers KivIA to Appendix A of this response package, which presents the Final Whale Tail Project - Thermal Modelling of the Whale Tail and IVR WRSFs Report, prepared by O'Kane Consultants in July 2019. The report provides modelling results and rationale to justify the use of a 4.7 m thick NPAG / NML thermal cover on the WRSFs. The report also presents data that considers thermistor readings at the Portage Waste Rock Storage Facility.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-WL-IR51**
Re:	**Assessment of ARD/ML Potential at the Whale Tail Pit**		

Reference:

- *Appendix G.17, Whale Tail Pit ARD-ML Sampling Plan v.5; Section 2.1, Table 2.0, page 3; Section 3.1, Table 3.0, page 5.*

Information Request / Recommendation Made By Interested Party:

Could the proponent comment on modifying the default sampling of every fourth drill hole as it relates to accurately defining the distribution of the PAG and ML rock types outlined in Table 2.0.

Agnico Eagle's Response to Information Request / Recommendation:

Increasing the sampling of drill holes will not better define where the various lithologies are located in the pit. This was established during project development studies as part of developing the economic resource model and the geochemical baseline study. The majority of rock that will be used for the cover and construction will come from the southern section (south wall) of the Whale Tail pit in the greywacke and diorite lithologies. The stringent criteria for rock to be considered suitable for construction or as cover material will likely exclude much of the rock from the other lithologies. As the contact between the lithologies is well defined, there is a low probability of ML/ARD material being used as construction or cover material.

Further reducing the risk of ML/ARD material being used for construction is the operational sampling plan of 1 in every 4 holes being completely sampled. This blast hole sampling frequency will generate approximately 40,000 samples per year for analysis, which to Agnico Eagle's knowledge, far exceeds typical industry practice. Additional sampling does not appear to be warranted at this time to manage the risk.