

**Summary of How the Concerns in Environment and Climate Change Canada's Final Written
Submission to the Nunavut Water Board Regarding the Whale Tail Pit Project Were
Addressed**

ECCC#1: North Wall Pushback of Whale Tail Pit		
Summary of the issue: The environmental risks and benefits of removing approximately half of the exposed north wall ultramafic material from the Whale Tail pit (i.e., a north wall pushback) had not been fully quantified or discussed.		
ECCC Recommendation	Purpose of Recommendation	Resolution
ECCC recommended that the Proponent conduct an alternatives analysis of the pit design with and without the north wall pushback scenario. The alternatives analysis should consider the entire life of mine and through post-closure.	Assess the potential risks and benefits to the aquatic receiving environment from the north wall pushback option.	The Proponent confirmed that the north wall pushback would be the preferred design over base case and provided a revised sensitivity analyses on water quality modelling on August 10, 2017 to Indigenous and Northern Affairs Canada, Kivalliq Inuit Association and ECCC, which outlined the benefits of the north wall pushback. In addition, the Proponent provided a summary of the completed evaluations in their response to final written submissions.

ECCC#2:**Sensitivity Analyses on Water Quality Modeling****Summary of the issue:**

The Proponent provided sensitivity analyses for a range of modeled conditions which highlight the potential for problems to arise if conditions are not as predicted (i.e. potential increase in arsenic and phosphorus loadings that could affect the receiving environment).

ECCC Recommendation	Purpose of Recommendation	Resolution
<p>ECCC recommended that the Proponent submit detailed management plans to be implemented for:</p> <ul style="list-style-type: none">• waste rock segregation and testing,• thermal monitoring of waste rock and• seepage management and monitoring. <p>Plans should include a schedule for reporting of results and periodic updating of predictions for the waste rock storage facility pond quality, along with proactive planning for optimal cover conditions. Contingency measures should be identified as appropriate.</p> <p>Monitoring results for receiving waters should be compared to model predictions and thresholds identified for management actions should trends indicate water quality objectives may be exceeded.</p>	<p>Ensure management plans will include provisions to prevent, mitigate, monitor and address potential water quality issues.</p>	<p>In their response to final written submissions, the Proponent agreed with ECCC's recommendations and noted the management plans where contingency measures would be found. The Proponent also committed to updating the models with monitoring data obtained throughout the construction and operation phases in order to validate predictions.</p>

ECCC#3:**Effluent Quality Criteria****Summary of the issue:**

The effluent quality criteria for some parameters could be reduced to reflect achievable levels.

ECCC Recommendation	Purpose of Recommendation	Resolution
ECCC recommended the effluent quality criteria be set based on concentrations that are achievable and that minimize discharge levels to receiving waters. Effluent quality criteria should be applicable to all mine-related discharges to surface waters.	<p>This recommendation provided general guidance and also specifically addressed proposed effluent quality criteria for aluminum, iron, lead and zinc, which were subsequently reduced to reflect achievable levels.</p> <p>ECCC also provided input through discussions with the Proponent to ensure the effluent quality criteria parameters and limits are appropriate.</p>	Through discussions with the Proponent via email, telephone, and in-person, effluent quality criteria were agreed upon by both parties. The email exchange occurred on August 24, 2017 when the Proponent had updated the effluent quality criteria for iron, lead, and zinc. ECCC indicated that in addition to these three parameters, effluent quality criteria should be developed for ammonia, total dissolved solids, cadmium, and mercury. The telephone discussion occurred on August 28, 2017 to discuss all effluent quality criteria and the in-person meeting occurred on September 25, 2017 in Baker Lake to finalize the effluent quality criteria for mercury.

ECCC#4: Sludge Management		
Summary of the issue: The Proponent considered disposing of thickened sludge either within the waste rock storage facility or encapsulated within the attenuation pond.		
ECCC Recommendation	Purpose of Recommendation	Resolution
ECCC recommended that sludge be disposed using methods that have been demonstrated to provide effective containment and isolation under Northern conditions. Therefore, ECCC recommended disposing of sludge into the Waste Rock Storage Facility or the Tailings Storage Facility at Meadowbank, rather than into the attenuation pond/Whale Tail Lake.	Prevent disposal of sludge in the attenuation pond because this site will ultimately become submerged within Whale Tail Lake upon re-flooding of the north basin. Disposal in the attenuation pond would result in sludge waste within the lakebed of Whale Tail Lake (North Basin) in perpetuity with no way to manage potential environmental effects, such as migration of contaminants from the sludge into Whale Tail Lake over time.	In the Proponent's final written submission, the Proponent agreed to dispose of the sludge into the Waste Rock Storage Facility rather than into the attenuation pond.

ECCC#5: Mercury Study		
Summary of the issue: The Arctic is an untested environment with respect to mercury modeling for impoundment.		
ECCC Recommendation	Purpose of Recommendation	Resolution
ECCC recommended conducting a separate study during the construction, operations, and closure of the flooded areas to address key uncertainties (Arctic environment, ice rafting, tundra soils, ice cover, interrupted discharge, cold water, slow fish growth, and shortened reservoir life) that were identified in the Azimuth report (February 2017), in order to inform mercury modeling for this Project. Adaptive management actions should be considered based on the results from this study.	Investigate key uncertainties (i.e. ice rafting, tundra soils, ice cover, interrupted discharge, cold water, slow fish growth and shortened reservoir life) to contribute to understanding mercury dynamics in a Northern impoundment scenario and to improve mercury predictions for fish, other aquatic biota, sediment, and water quality.	In their response to final written submissions, the Proponent agreed with ECCC's recommendation and proposed a term and condition to conduct a separate mercury monitoring program alongside the Core Receiving Environment Monitoring Program and the Fisheries and Offsetting Monitoring Plan, with results compared to model predictions. The Proponent also indicated (during the September 25, 2017 meeting) that it would include triggers and thresholds for total mercury and methylmercury within this monitoring program.

ECCC#6:**Sediment Core Analyses****Summary of the issue:**

ECCC noted that sediment core analysis was limited to metals only and had asked the Proponent to conduct a full suite of testing. During the technical meeting, the Proponent indicated that there was insufficient material to conduct a full suite of testing.

ECCC Recommendation	Purpose of Recommendation	Resolution
ECCC recommended that a full suite of testing be conducted on sediment core samples. Recommended analyses included pH, metals, particle size, Total Organic Carbon, Total Phosphorus, and moisture content.	To allow comparisons with Ekman data and support interpretation of benthic data.	On August 8, 2017 via email, the Proponent was able to confirm with ECCC that they have been analysing their sediment grab samples for a full suite of testing and indicated that they will continue to do so. Sediment core samples will be collected in 2017 (for analysis of moisture, metals and pH). This is also outlined in the Proponent's response to final written submissions.