



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

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ECCC File: 6100 000 008/014
NIRB File: 16MN056

February 21, 2019

via email at: info@nirb.ca

Sophia Granchinho
Manager, Impact Assessment
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Sophia Granchinho:

**RE: 16MN056 – Agnico Eagle Mines Ltd. – Whale Tail Pit Expansion Project –
Final Environmental Impact Statement (FEIS) Addendum Information Requests**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) regarding the above-mentioned FEIS Addendum and is submitting the attached Information Requests. ECCC's specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Should you require further information, please do not hesitate to contact me at (867) 669-4732 or Emily.Nichol@canada.ca.

Sincerely,

Margaret Fairbairn
Acting Regional Director

Attachment – Information Requests

cc: Bradley Summerfield, A/Head, Environmental Assessment North (NT and NU)

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ENVIRONMENT AND CLIMATE CHANGE
CANADA'S
FINAL ENVIRONMENTAL IMPACT
STATEMENT ADDENDUM INFORMATION
REQUESTS TO THE NUNAVUT IMPACT
REVIEW BOARD

RESPECTING THE
WHALE TAIL PIT EXPANSION PROJECT
PROPOSED BY
AGNICO EAGLE MINES
LIMITED

FEBRUARY 21, 2019

List of Acronyms

AQMS	Air Quality Management System
AA	Assessment of Alternatives
CAAQS	Canadian Ambient Air Quality Objectives Standards
CCME	Canadian Council of Ministers of the Environment
CREMP	Core Receiving Environment Monitoring Program
DO	Dissolved Oxygen
ECCC	Environment and Climate Change Canada
FEIS	Final Environmental Impact Statement
GSP	Groundwater Storage Ponds
HHERA	Human Health and Ecological Risk Assessment
LSA	Local Study Area
MDMER	Metal and Diamond Mining Effluent Regulations
NO ₂	Nitrogen dioxide
PM	Particulate Matter
PPM	Parts per Million
TEMP	Terrestrial Ecosystem Management Plan
TSS	Total Suspended Solids
VEC	Valued Ecosystem Component
WRSF	Waste Rock Storage Facility
RCP	Representative Concentration Pathway
SO ₂	Sulfur Dioxide

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1.0 General

1.1 ECCC-IR1: Definitions

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR1
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Definitions
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum. December 2018.
Issue/Concern:	<p>The FEIS Addendum does not contain a glossary.</p> <p>As the proposed Expansion Project involves the expansion of an approved project, clear and comprehensive definitions of the terms 'Expansion Project' and 'Approved Project' should be included.</p>
Information Request:	ECCC requests that the Proponent provide comprehensive definitions of 'Approved Project' and 'Expansion Project.'

1.2 ECCC-IR2: Pre-development Map

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR2
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Pre-development Map
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Section 1.0 – Project Description. December 2018.
Issue/Concern:	<p>The Project Description does not include a pre-development map of the proposed Expansion Project site area.</p> <p>As the Approved Whale Tail Project and the proposed Expansion Project both involve draining and diverting surface waters, a pre-development map would be helpful to identify locations of all waterbodies.</p>
Information Request:	ECCC requests that the Proponent provide a pre-development map of the proposed Expansion Project site area.

1.3 ECCC-IR3: Model Inputs

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR3
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Model Inputs
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Section 4.2.3.2 – Effects of Climate Change on the Expansion Project. December 2018.
Issue/Concern:	<p>The Proponent should consider what aspects of climate change may impact the proposed Expansion Project (e.g., changes in mean annual precipitation and precipitation extremes). In assessing the potential impacts of climate change, a range of projections by different models should be considered for a range of scenarios including the highest emissions scenario (Representative Concentration Pathway [RCP]8.5).</p> <p>The proposed Expansion Project does not appear to incorporate the highest emissions scenario (RCP8.5) in the climate change models and the effects of climate change have not been sufficiently evaluated. The highest emissions scenario should be included for the following Project elements:</p> <ul style="list-style-type: none"> Project impact/effects assessment on valued components, including surface water quality and quantity. Closure and post-closure predictions (ex. seepage, runoff, groundwater and surface water quality and quantity; water balance; loading predictions). Long-term water, wastewater and waste management.
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> Clarify what climate change scenarios were used to inform the proposed Expansion Project. Clarify whether the highest emissions scenario (RCP8.5) was included. Provide an incorporation of RCP8.5 into climate change models for the proposed Expansion Project and the following Project elements listed above.

1.4 ECCC-IR4: Construction Phase Timing

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR4
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Construction Phase Timing
Reference(s):	<ul style="list-style-type: none">Agnico Eagle Mines Limited. Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Table 1.4-1 – Mine Development Sequence and Key Activities. December 2018.
Issue/Concern:	Table 1.4-1 - Mine Development Sequence and Key Activities in the FEIS Addendum does not indicate timing of the construction phase for the proposed Whale Tail pit expansion or the IVR pit.
Information Request:	ECCC requests that the Proponent provide the timing of the construction phase for the proposed Expansion Project pits (i.e., the proposed Whale Tail pit expansion and IVR pit).

Atmospheric Environment

1.5 ECCC-IR5: Air Quality Model Details and Files

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR5
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Air Quality Model Details and Files
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 4-B: Addendum Air Emissions Inventory and Appendix 4-C: Addendum Air Quality Modelling Technical Summary. December 2018.
Issue/Concern:	<p>The Proponent conducted separate air quality modeling for the Whale Tail open pit and the haul road using the AERMOD model, but provided few details regarding the model's input. Specifically, the Proponent did not include the model version, settings and configuration, details about emission source types (e.g., area, volume, point, and line sources), source parameters (e.g., source dimensions, release height, initial dispersion) and the precise locations of each source within the model domain. This information would be helpful to assess the validity of the model results.</p> <p>In addition, model input and output files would also be helpful to check for consistency with the provided Air Emissions Inventory, and for examining any irregularities in the model results.</p>
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> Provide details regarding the model input for both the Whale Tail open pit and haul road modeling exercises. This should include the model version, settings and configuration, details about emission source types (area, volume, point, and line sources), source parameters (e.g., source dimensions, release height, initial dispersion) and the precise locations of each source within the model domain. Provide all input and control files used in the AERMOD model to generate the air quality predictions presented in the FEIS Addendum. All input and control files should be in a format that can be used directly into the AERMOD model. Provide all output files in the raw AERMOD format.

1.6 ECCC-IR6: Air Quality

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR6
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Air Quality
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 4-C: Addendum Air Quality Modelling Technical Summary, Section 4.C-7.1 – Study Area and Air Quality Receptors. December 2018. Government of Alberta. Air Quality Model Guideline. October 2013.
Issue/Concern:	<p>The Proponent employed air quality modeling within a 60 km x 60 km study area, and gridded receptors with a spacing of 100 m along the proposed Expansion Project boundary and 1000 m for the remainder of the domain.</p> <p>This receptor spacing does not provide adequate resolution to accurately determine predicted concentrations for locations close to emission sources. Guidance for appropriate receptor grid spacing should be obtained from a relevant air modeling guideline. For example, the Alberta Air Quality Model Guideline (2013) requires the following, at a minimum:</p> <ul style="list-style-type: none"> 20 m receptor spacing in the general area of maximum impact and the property boundary; 50 m receptor spacing within 0.5 km from the source; 250 m receptor spacing within 2 km from the sources of interest; 500 m spacing within 5 km from the sources of interest; and 1000 m spacing beyond 5 km. <p>Receptor spacing that is too coarse has the potential to result in a misrepresentation of results, leading to predicted pollutant concentrations that are underestimated or erroneous.</p>
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> Provide revised air quality modeling which employs appropriate receptor grid spacing, from a relevant air modeling guideline. Present new results for predicted air pollutant concentrations, including isopleth maps and all discrete receptors.

1.7 ECCC-IR7: Canadian Ambient Air Quality Standards for Nitrogen Dioxide and Sulfur Dioxide

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR7
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Canadian Ambient Air Quality Standards for Nitrogen Dioxide and Sulfur Dioxide
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 4-C: Addendum Air Quality Modelling Technical Summary, Section 4.C-2.2 - Ambient Air Quality Standards, Table 4-C-2 – Applicable Ambient Air Quality Criteria and Appendix 8-E.1: Air Quality and Dustfall Monitoring Plan 8-E.1, Table 2 - Government of Nunavut Environmental Standards for Ambient Air Quality (October, 2011) for the parameters of concern at Meadowbank and Whale Tail. December 2018.
Issue/Concern:	<p>Federal, provincial and territorial governments are working collaboratively to improve air quality through the implementation of the Air Quality Management System (AQMS). The Canadian Ambient Air Quality Standards (CAAQS) are non-binding objectives intended to be the drivers for air quality improvements across the country in order to protect human health and the environment. They are supported by air quality management levels, which call for progressively more rigorous actions by jurisdictions as air quality levels within designated air zones approach or exceed the CAAQS, thereby ensuring that the CAAQS are not treated as “pollute-up-to” levels.</p> <p>While the monitors used to report on CAAQS achievement are usually located in population centres, air zones are designed to cover all geographic areas within a jurisdiction and the resulting management levels and actions may be applied across an air zone, even in remote areas. The CAAQS are also designed to protect the environment and therefore should be considered during an environmental assessment even if there are no nearby human populations. In addition, air pollutants can travel long distances and affect communities far from the initial source. Modelling data may be used to compare predicted concentrations to ambient standards, including national standards such as the CAAQS, in order to estimate the contribution of a project to local air quality levels. In order to assess the impact of a proposed project on ambient air quality levels, it is recommended that modelled predictions be compared to the most stringent federal, provincial or territorial air quality standards applicable to the given area. In many cases, the CAAQS will be the most stringent levels for key air</p>

	<p>pollutants, especially for longer term projects with emissions after 2025. With the proposed Expansion Project, nitrogen dioxide (NO₂) concentrations are predicted to increase significantly, with predicted peak NO₂ concentrations expected to more than double. Predicted 1-hour and annual concentrations at special receptors are also expected to increase significantly with the expansion. Furthermore, sulphur dioxide (SO₂) concentrations are predicted to increase on a greater scale, with increases between one and two orders of magnitude in annual concentrations.</p> <p>At present, ECCC cannot properly compare the proposed Expansion Project's predicted NO₂ and SO₂ concentrations with the CAAQS because the data provided in the FEIS Addendum are not in the appropriate statistical form.</p> <p>The following table shows the CAAQS for NO₂ and SO₂ beginning in 2025, with a description of their statistical form:</p> <table><tr><th>Pollutant</th><th>Averaging Time</th><th>Numerical Limit</th><th>Statistical Form for Comparison with Model Predictions</th></tr><tr><td rowspan="2">NO₂</td><td>1-hour</td><td>42 ppb</td><td>98th percentile of daily maximum 1-hour concentrations for the modelled year</td></tr><tr><td>Annual</td><td>12 ppb</td><td>Average of all 1-hour concentrations for the modelled year</td></tr><tr><td rowspan="2">SO₂</td><td>1-hour</td><td>65 ppb</td><td>99th percentile of daily maximum 1-hour concentrations for the modelled year</td></tr><tr><td>Annual</td><td>4.0 ppb</td><td>Average of all 1-hour concentrations for the modelled year</td></tr></table>	Pollutant	Averaging Time	Numerical Limit	Statistical Form for Comparison with Model Predictions	NO ₂	1-hour	42 ppb	98 th percentile of daily maximum 1-hour concentrations for the modelled year	Annual	12 ppb	Average of all 1-hour concentrations for the modelled year	SO ₂	1-hour	65 ppb	99 th percentile of daily maximum 1-hour concentrations for the modelled year	Annual	4.0 ppb	Average of all 1-hour concentrations for the modelled year
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	Annual	4.0 ppb	Average of all 1-hour concentrations for the modelled year																
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none">• Provide a comparison of modeled ambient concentrations of NO₂ and SO₂ within the study area with the 1-hour and annual CAAQS, assessing the locations and frequency of exceedance, including discreet receptors.• Assess whether the currently proposed mitigation strategies for reducing NO₂ and SO₂ will be sufficient to reduce future concentrations below the CAAQS.• Assess whether the monitoring strategy (which employs passive monitoring for NO₂ and no monitoring for SO₂) is adequate for the mine site, given large increases in concentrations for these pollutants.																		

1.8 ECCC-IR8: Discrete Air Quality Receptors

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR8
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Discrete Air Quality Receptors
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 4-C: Addendum Air Quality Modelling Technical Summary, Section 4.C-7.1 – Study Area and Air Quality Receptors and 4.C-8 – Air Quality Modelling for the Haul Road. December 2018.
Issue/Concern:	<p>In establishing the receptors within the study area, the Proponent excluded receptors close to the haul road.</p> <p>Specifically, the Proponent states that “Project boundary receptors that are within a buffer of 200 m from the haul road were removed” (Page 12, Appendix 4-C). The Proponent explained that this was to minimize the effects of the haul road, which is assessed separately from the mining area.</p> <p>ECCC disagrees with this approach, as the haul road is a source of pollution that will add cumulatively to other pollutant sources within the mining area. While the separate modeling of the haul road (in Section 4.C-8) is helpful for understanding the distribution of particulate matter around the haul road, it cannot account for the specific cumulative effect of the haul road and mining activities occurring simultaneously within the study area. Therefore, ECCC is of the view that all relevant receptors, including those close to the haul road, should be included in the modeling study.</p>
Information Request:	<p>ECCC requests that the Proponent provide:</p> <ul style="list-style-type: none"> Provide a description and the locations of the discrete receptors that were removed from the modeling study. Provide additional justification for the removal of these receptors. Provide predicted pollutant concentrations for the omitted receptors.

1.9 ECCC-IR9: Dust Monitoring, Management and Thresholds

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR9
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Dust Monitoring, Management and Thresholds
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, 8-E.1: Air Quality and Dustfall Monitoring Plan, Table 3 - Thresholds and Mitigation Measures. December 2018.
Issue/Concern:	<p>In the Air Quality and Dustfall Monitoring Plan the Proponent lists indicators, thresholds, and mitigation measures for the management of dust at various locations. While measured dustfall is listed as an indicator, the Proponent did not list a specific numerical threshold for dustfall that would trigger management actions.</p> <p>Furthermore, active sampling of particulate matter (PM) using Partisol samplers will also be taking place at the mine site. The Proponent did not indicate how the results of this monitoring would be used to inform management actions. Active PM sampling as a monitoring method is superior to dustfall collection, as it provides more accurate, precise, and relevant data on airborne particulate matter. ECCC is of the view that dust management should be informed, at least in part, by this monitoring method.</p>
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> Specify numerical dustfall thresholds that would trigger management actions to reduce dust at the mine site and haul roads. Indicate how data from active PM sampling (Total Suspended Particulate, PM₁₀, PM_{2.5}) will be used to inform dust management practices.

1.10 ECCC-IR10: Power Plant Emissions

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR10
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Power Plant Emissions
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 4-B: Addendum Air Emissions Inventory, Section 4.B-8 Power Plant and Camp Heater. December 2018.
Issue/Concern:	Seven diesel generators will be installed for power at the proposed Expansion Project mine site, and three generators will be installed for the underground mine. While emission factors and rates were provided, the Tier of Emission Standard that each generator meets was not provided. This information is needed to determine whether improvements can be made regarding the choice of technology to minimize air pollutant emissions.
Information Request:	ECCC requests that the Proponent indicate the Tier of Emission Standard applicable to the diesel generators to be installed at the power plant and underground mine.

1.11 ECCC-IR11: Management of Incinerator Emissions

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR11
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Management of Incinerator Emissions
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 8-B.5: Whale Tail Pit – Incinerator and Composter Waste Management Plan. December 2018.
Issue/Concern:	In the Whale Tail Pit - Incinerator and Composter Waste Management Plan, the Proponent indicates that stack testing of the incinerator will be conducted, with comparison to the Canadian Council of Ministers of the Environment (CCME) Canada Wide Standards for Dioxins and Furans and for Mercury. The Proponent indicated that should exceedances occur, the frequency of stack testing will be temporarily increased. However, the Proponent did not provide details on any other management actions that would be implemented to ensure CCME standards are not exceeded in the future.
Information Request:	ECCC requests that the Proponent provide details regarding management actions that will be triggered should stack testing reveal that incinerator emissions exceed CCME Canada Wide Standards.

2.0 Terrestrial Environment

2.1 ECCC-IR12: Shorebird Exposure to Contaminants

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR12
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Shorebird Exposure to Contaminants
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 3-B: Addendum Human Health and Ecological Risk Assessment (HHERA) Summary and Appendix 8-E.9: Terrestrial Ecosystem Management Plan (TEMP), Appendix A: Screening Level Risk Assessment Plan and Table 11: Mitigation to Minimize Effects to Upland Breeding Birds at the Meadowbank Mine and Whale Tail Pit and Haul Road and Proposed Whale Tail Expansion. December 2018. Nunavut Impact Review Board and Nunavut Water Board Pre-Hearing Conference Decision Report for the Whale Tail Pit Project; Appendix F List of Commitments Generated during the Technical Meeting/Prehearing Conference for the Whale Tail Pit Project, Commitments #14, #15 and #16.
Issue/Concern:	<p>Appendix 3-B is provided as a revised Addendum HHERA Summary for the proposed Expansion Project. The Addendum HHERA Summary concludes that residual effects are not significant and consistent with the Approved Whale Tail Project ecological risk assessment. Overall risks to wildlife receptors of concern due to predicted changes in exposure pathways are negligible and no additional mitigation or monitoring commitments are required.</p> <p>Although Semipalmated Sandpiper is mentioned in the Addendum HHERA Summary, consistent with commitment #15 made at the Technical Meeting (April 2017) during the review of the Approved Whale Tail Project, the detailed ecological risk assessments analysis for this wildlife receptor of concern and the additional exposure pathway from commitment #16 has not been provided to date. It is unclear how conclusions were reached related to the proposed Expansion Project for Semipalmated Sandpiper in the Addendum HHERA Summary without having first conducted the ecological risk assessment under baseline conditions or those of the Approved Whale Tail Project.</p>

	ECCC also notes that monitoring commitment #14 related to shorebirds use of the Tailings Storage Facility and other contact water ponds has not been included in the revised TEMP under the Upland Breeding Bird Valued Ecosystem Component.
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> • Provide the detailed ecological risk assessment analyses for Semipalmated Sandpiper under baseline and Approved Whale Tail Project conditions including an analysis of ingestion of water and/or sediment at the Tailings Storage Facility as an exposure pathway. • Revise the TEMP to include monitoring commitment #14 related to shorebird use of the Tailings Storage Facility and other contact water ponds.

2.2 ECCC-IR13: Mortality of Diving Waterbirds - Fishouts

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR13
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Mortality of Diving Waterbirds - Fishouts
Reference(s):	<ul style="list-style-type: none"> • Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Section 1.2.6.3 – Dewatering and Appendix 3-C: Addendum Pathway Analysis, Table 3-C-3 – Potential Pathway for Terrestrial Wildlife and Birds. December 2018. • Golder Associates. Fish-out Diving Waterbird Protection Plan – Technical Memorandum. June 22, 2017.
Issue/Concern:	<p>Small waterbodies and ponds within the footprint of the IVR Pit and Lake A53 (IVR Attenuation Pond) will require fishouts and dewatering during the open water seasons of 2020 to 2022.</p> <p>Mortality of diving waterbirds birds due to entanglement in submerged gill nets during fishouts was identified as a secondary effects pathway in Table 3-C-3 of Appendix 3-C.</p> <p>A Fish-out Diving Waterbird Protection Plan (June 2017) was developed as part of the Approved Whale Tail Project to mitigate the risks of the Whale Tail North Basin fishout. A revised Protection Plan is needed to ensure that risks of the proposed Expansion Project fishouts are minimized and that similar mitigation, monitoring and reporting is followed.</p>
Information Request:	ECCC requests that the Proponent provide a revised Fishout Diving Waterbird Protection Plan as an Appendix to the Terrestrial Ecosystem Management Plan.

2.3 ECCC-IR14: Assessment of Direct Habitat Loss and Destruction of Nests

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR14
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Assessment of Direct Habitat Loss and Destruction of Nests
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Section 5.5.3.2 – Primary Pathway Direct Habitat Loss and Section 5.5.3.5 – Primary Pathway Destruction of Nests. December 2018.
Issue/Concern:	<p>Approximately 4.1% of the Local Study Area (LSA) habitat will be lost due to the proposed Expansion Project and was identified as a primary effects pathway for the upland breeding birds Valued Ecosystem Component (VEC). It is unclear if the habitat loss due to flooding (148.5 hectare [ha] for the proposed Expansion Project) was included in the calculation of predicted direct lost habitat and the proposed Expansion Project footprint.</p> <p>The proposed Expansion Project is predicted to displace approximately 1,675 birds (or 4.2% of birds in the LSA) based on a density estimate of 1.41 birds/ha obtained during 2015 to 2017 baseline studies. Density estimates ranging from 0.06-0.5 nests/hectare were used to predict bird nest displacement due to flooding.</p> <p>A collaborative research project between Trent University, the Proponent and ECCC was initiated in 2018, to further assess the impacts of flooding on migratory birds and assess the effectiveness of potential mitigation measures of the Approved Whale Tail Project. Preliminary results of this research indicate higher breeding bird and nest densities than densities obtained during baseline surveys (2015 to 2017). Annual variation and increased survey effort in 2018 may have contributed to these differences.</p> <p>Given the preliminary 2018 results, the data suggest a possible underestimation of the impacts of direct habitat loss on migratory birds and a possible underestimation of the impacts of flooding on destruction of migratory bird nests for the proposed Expansion Project.</p>

Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> • Clarify if habitat loss estimates and displacement of birds in Section 5.5.3.2 of the FEIS Addendum include predicted flooding. • Revise bird displacement predictions of the proposed Expansion Project due to the loss of habitat while accounting for the preliminary 2018 bird survey results. • Provide a revised analysis and determination of residual impacts for migratory bird VECs for the proposed Expansion Project while accounting for the preliminary 2018 bird survey results.
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2.4 ECCC-IR15: Migratory Birds Protection Plan - Predicted Flooding

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR15
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Migratory Birds Protection Plan Related to Predicted Flooding
Reference(s):	<ul style="list-style-type: none"> • Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 8-E.9: Terrestrial Ecosystem Management Plan (TEMP), Appendix F: Migratory Bird Protection Plan and Section 5.4.6 – Uncertainty. December 2018. • Nunavut Impact Review Board. Project Certificate No. 008: Agnico Eagle Mines Limited – Whale Tail Pit Project, Term and Condition No. 34. March 15, 2018.
Issue/Concern:	<p>Term and Condition No. 34 of the Project Certificate for the Approved Whale Tail Project requires the Proponent to maintain a Migratory Birds Protection Plan for the life of the Project related to concerns from the proposed flooding. ECCC notes that the Migratory Birds Protection Plan submitted in Appendix F of the TEMP as part of the FEIS Addendum submission has not been revised to include the details of the proposed Expansion Project nor the preliminary results of the 2018 collaborative research project between Trent University, the Proponent and ECCC (see ECCC-IR14).</p> <p>Monitoring of the extent and timing of the predicted annual flooding versus the actual flooding is not proposed in the TEMP, as it is for the proposed footprint. Section 5.4.6 of the FEIS Addendum identifies that accuracy of the hydrology modelling as an uncertainty of the impact assessment for the proposed Expansion Project and that differences in the actual versus the predicted results may vary based on climate conditions and actual filling</p>

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	duration. Monitoring of the extent and timing of flooding would allow validation of predictions and help to refine future predictions.
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none">• Provide a revised Migratory Birds Protection Plan including revised flooding predictions of the proposed Expansion Project and the preliminary 2018 bird survey results.• Revise the TEMP to include monitoring of the extent and timing of the predicted annual flooding.

3.0 Freshwater Environment

3.1 ECCC-IR16: Waterbody Use by Fish

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR16
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Waterbody Use by Fish
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Section: 1.10.6 Water Management and Schedule II Listing and Section: 6.5.4.2.2, Table 6.5-6: Waterbody Habitat Losses as a Result of the Expansion Project. December 2018.
Issue/Concern:	<p>The FEIS Addendum includes an Assessment of Alternatives (AA) for mine waste disposal associated with the development of the IVR Attenuation Pond. However, it appears as though the FEIS Addendum also includes information that would indicate the temporary or permanent storage of waste rock, ore, effluent and overburden in facilities that overprint waterbodies and for which AAs have not been included.</p> <p>Figure 1.2-1 of the FEIS Addendum depicts the following waterbodies as overprinted by mine waste:</p> <ul style="list-style-type: none"> A-P10; A-P5; Lake A50; Lake A51; Lake A52; A-P21; an unidentified waterbody east of Lake A53; and a number of unidentified streams. <p>Table 6.5-6 in the FEIS Addendum provides additional information regarding whether fish have been caught in previously conducted studies or whether fish were expected to occur in some waterbodies. The conclusions reached on fish presence/absence do not appear to be sufficiently supported as several of the waterbodies were not fished, and the conclusion that fish would not be expected was based on flow conditions. In lakes that were fished, it is not clear whether sufficient effort was made to conclude that the waterbodies were not frequented by fish at any time of the year.</p>

Information Request:	<p>In order to determine whether an amendment to Schedule 2 of the <i>Metal and Diamond Mining Effluent Regulations</i> (MDMER) would be required for the waterbodies which are listed above, ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> • Confirm the presence or absence of fish in the waterbodies which are listed above. • Provide the methods used to document the presence or absence of fish. • Provide information related to the connectivity of the waterbodies listed above to other waterbodies frequented by fish.
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3.2 ECCC-IR17: Rock Leaching Potential

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR17
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Rock Leaching Potential
Reference(s):	<ul style="list-style-type: none"> • Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 8-E.5: Operational ARD-ML Sampling and Testing Plan, Section 3.2.2 - Leaching Potential - Testing and Evaluation. December 2018.
Issue/Concern:	<p>The Proponent states that, “the amount of arsenic released by leaching has been shown to be proportional to the total arsenic content of the sample (Golder 2018), whereby samples with total arsenic content below approximately 75 parts per million (ppm), as µg/g or mg/kg, indicate a low potential to leach arsenic. This has been selected as a suitable identifier of arsenic leaching. Total arsenic will be analyzed at the Meadowbank on-site laboratory, and arsenic leaching potential be inferred based on the total arsenic content” (Page 8, Section 3.2.2).</p> <p>Although the Proponent has indicated that any rock containing 75 ppm is considered low potential to leach arsenic, ECCC notes that no information has been provided on how much arsenic is expected to leach out of such concentrations (i.e., what proportion of the arsenic content of the rock is expected to leach out).</p>
Information Request:	ECCC requests that the Proponent provide clarification on how much arsenic is expected to leach out of rock containing 75 ppm total arsenic content.

3.3 ECCC-IR18: Waste Rock Storage Facility and Management Procedures

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR18
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Waste Rock Storage Facility and Management Procedures
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 8-A.1: Whale Tail Pit –Waste Rock Management Plan, Section: 5.2.4 Waste Rock Facilities Monitoring. December 2018.
Issue/Concern:	<p>The Proponent states that, “Whale Tail Waste Rock Storage Facility (WRSF) and IVR WRSF will be monitored similarly as they are permanent infrastructure but the underground WRSF is a temporary infrastructure and will not require the same level of monitoring” (Page20, Section 5.2.4).</p> <p>While the underground WRSF is temporary infrastructure; there is no indication of how long it will be in place before the waste rock is used for back fill of the underground and what level of monitoring will apply to the temporary infrastructure.</p> <p>The Proponent also provided a list of methods of waste rock management procedures that can be put in place, but no commitment is made about whether or not these management procedures will be put in place.</p>
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> Provide clarification on how long the underground WRSF will be in place before it is used for backfill and what type of monitoring will apply. Provide clarification on which waste rock management procedures will be implemented.

3.4 ECCC-IR19: Trophic Changes – Nutrient Effects

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR19
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Trophic Changes – Nutrient Effects
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Section 6.5.4.3.2 – Results, Section 6.5.8 – Uncertainty and Section 6.5.8.1 – Mitigation and Appendix 8-E.13: Aquatic Effects Management Program, Section 4. – Management Response Plan, Section 4.2.4. – Thresholds and Triggers and Section 4.3.2 – Management Actions. December 2018.
Issue/Concern:	<p>It will be important for the Proponent to ensure nutrient loadings from various sources (e.g., camp wastewater, blasting agents and geological sources) do not reach levels which can cause harmful effects to aquatic biota. The effects of nutrient addition to the aquatic ecosystems discussed in the FEIS Addendum focused on changes to the plankton and benthic invertebrate community composition and biomass and that increased productivity may affect fish growth and production.</p> <p>Arctic lakes are vulnerable to dissolved oxygen sags over the winter; the extended ice cover and darkness reduce algal activity to a minimum, and there is no replenishment of oxygen to the water. With increased productivity due to the nutrient addition, there is increased plankton and benthic biomass. When biota dies off and settles on the sediment surface, the organic matter decomposes. This uses oxygen, and may result in such low dissolved oxygen (DO) levels that there is winterkill of fish. Effects associated with DO depletion were referenced but do not appear to have been fully evaluated for the proposed Expansion Project. The FEIS Addendum states that, “as discussed in the Approved Project FEIS, there may be challenges for coldwater species, such as Lake Trout and Arctic Char, in shallow lakes in the Arctic with respect to oxygen depletion during winter due to the length of the season with ice cover, the depth of the ice, and potential lack of inflows. The Proponent has stated that for most of operations and closure, winter DO concentrations in Mammoth Lake and downstream lakes are expected to be within the range of baseline values” (Page 275, Section 6.5.4.3.2) and that “a moderate reduction in available overwintering habitat though oxygen depletion is expected in late winter for Mammoth Lake and downstream lakes, and will most likely occur during closure when lake water levels are affected by refilling of the diked areas. It is anticipated that changes to winter</p>

	<p>habitat conditions may affect populations of Arctic Char, Lake Trout, Burbot, and Round Whitefish” (Page 275, Section 6.5.4.3.2).</p> <p>It is unclear whether effects on lake DO levels have been quantified for the additional increase in nutrients and associated productivity that will occur over the extended time frame for the proposed Expansion Project. The effects of a moderate habitat reduction are mentioned, but it is unclear if this translates to winterkill conditions, and what the extent of that might be, nor if this was assessed for the proposed Expansion Project.</p> <p>The FIES Addendum states that, “detailed water quality modelling would be required to support the future evaluation of the effects of discharge on the aquatic environment in Lake D1 or Lake D5 if selected as an alternative discharge location” (Page 281, Section 6.5.8) and that, “Agnico Eagle will implement water treatment or other mitigation options if phosphorus concentrations are observed to increase to unacceptable levels that may affect the local fishery” (Page 281, Section 6.5.8.1).</p> <p>There is limited data available for the proposed alternative sites D1 and D5 (i.e., one year of baseline monitoring) and it is unclear what the vulnerability of these lakes to winter oxygen depletion is. Unacceptable levels that may affect fish have not been defined.</p>
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> • Discuss effects on dissolved oxygen associated with the extended period of nutrient loadings. • Identify potential for effects to lakes proposed as alternative discharge locations. • Outline monitoring that will be done to track effects on lake dissolved oxygen levels. • Discuss what would constitute unacceptable levels that would trigger action, in accordance with the Management Response Plan described in the Aquatic Effects Management Program. • Identify contingency measures that can be taken (both for the inputs and for the lake) should lake DO concentrations drop to levels that would be harmful to fish.

3.5 ECCC-IR20: Baseline Data – Lakes D1 and D5

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR20
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Baseline Data – Lakes D1 and D5
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 8-E.10: Core Receiving Environment Monitoring Program: 2015 Plan Update – Whale Tail Pit Addendum, Section 2.2.2. – Sampling Areas, Table 2-2. - CREMP monitoring component sampling summary for Whale Tail Pit Project and Section 6.2.3.3.1 – Methods and Table 6.2-1 – Baseline Water and Sediment Quality Sampling Summary. December 2018.
Issue/Concern:	<p>The Core Receiving Environment Monitoring Program (CREMP): 2015 Plan Update – Whale Tail Pit Addendum states that, “alternate CREMP areas – Lake D1 and Lake D5 were identified as potential alternate discharge locations and were added to the baseline sampling program in August 2018. Additional baseline data collection is planned for 2019 to provide a better understanding of the temporal variability in water quality and biological communities in each lake; however, long-term monitoring will not be undertaken unless there is actual discharge of treated water at either location” (Page 4, Section 2.2.2.).</p> <p>Table 2–2. in the CREMP: 2015 Plan Update – Whale Tail Pit Addendum shows Lakes D1 and D5, and outlines the parameters that will be monitored, and the timing, noting that, “monitoring at these areas during the operational phase is contingent on selection as alternate locations for discharge of treated water” (Page 12, Section 2.3.). However, baseline work to be completed for 2019 is not specified.</p> <p>In the FEIS Addendum, according to Table 6.2-1, the baseline data for Lakes D1 and D5 consists of a total of four water quality, five sediment grab, and ten sediment core sampling efforts for each lake. Water quality samples were collected in August and September of 2018 and sediment samples were collected in August 2018. The water quality baseline for Lakes D1 and D5 is limited to data collected within a single season of one year. Baseline seasonal and inter-annual variation cannot be determined from such limited baseline data. This limits the ability to interpret project monitoring data and subsequently detect potential project-related changes.</p>

	ECCC notes that should the decision be taken to use an alternate discharge location, water quality would have to be appropriately modeled in advance, supported by robust baseline data. Full characterization should include a minimum of two years of data for the range of conditions which occur under ice, at freshet, and throughout the open water season.
Information Request:	<p>ECCC requests that the Proponent provide:</p> <ul style="list-style-type: none"> • Clarification of the baseline monitoring proposed for Lakes D1 and D5. • A discussion of how baseline monitoring will provide sufficient characterization of the range of natural variability to detect project-related changes.

3.6 ECCC-IR21: Remediation of Groundwater Storage Ponds for Closure

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR21
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Remediation of Groundwater Storage Ponds for Closure
Reference(s):	<ul style="list-style-type: none"> • Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 6-H: Addendum Mine Site and Downstream Receiving Water Quality Predictions, Section 5.2 - Risks and Opportunities. December 2018.
Issue/Concern:	<p>Groundwater Storage Ponds (GSPs) will hold saline waters, and are to be backfilled at closure. It is not clear if the GSPs are to be lined, or if there will be saturated sediments/soils to remediate (as they incorporate former lake beds).</p> <p>The Addendum Mine Site and Downstream Receiving Water Quality Predictions report states that, “salinity of runoff in the underground watershed area at closure: Backfilling of ponds that have contained saline water is necessary to prevent salt flushing, which would be directed to the flooded Whale Tail Pit, in post closure. To mitigate this risk, the residual salt content of ponded water and contact water should be evaluated, and salinity sources removed if necessary prior to backfilling” (Page 61, Section 5.2).</p>
Information Request:	ECCC requests that the Proponent identify available remedial measures for addressing salinity sources.

3.7 ECCC-IR22: Comparisons – Total Metals versus Dissolved

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR22
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Comparisons – Total Metals versus Dissolved
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 6-H: Addendum Mine Site and Downstream Receiving Water Quality Predictions, Section 4.0 Water Quality Predictions and Section 4.4.1 Effect of Total Suspended Solids on Total Constituent Concentrations and Appendix 6-I: Addendum Water Quality Prediction Summary. December 2018.
Issue/Concern:	<p>The modeling provided in the FEIS addendum was based on dissolved concentrations of parameters. To evaluate total metals concentrations, contributions from suspended solids were estimated as, “Total Suspended Solids (TSS) can contribute to chemical loading of water (i.e., can increase the total concentration of chemicals). The effect of 5 mg/L, 10 mg/L, and 15 mg/L TSS on particulate concentrations, which are added to the predicted dissolved concentrations to calculate total concentrations, was assessed” (Page 41, Section 4.0, Appendix 6-H) and “total concentrations are calculated by adding these particulate concentrations to the predicted dissolved concentrations for any water being discharged, as well as the Whale Tail Attenuation Pond, Whale Tail Pit, IVR Pit, and Whale Tail Waste Rock Storage Facility (WRSF) in closure and post-closure” (Page 54, Section 4.4.1, Appendix 6-H).</p> <p>However, the tables in Appendix 6-I summarizing results of the water quality modeling revert to comparing dissolved metals to guidelines and criteria which are for total metals. This is not a valid comparison, other than for zinc which has a dissolved zinc guideline.</p> <p>ECCC also notes, the graphs in Appendix 6-I presents “predicted total dissolved phosphorus” in the graph title, but “total phosphorus” as the parameter on the Y-axis label (Page 13 and 14). Graphs for arsenic do not specify which form is presented.</p> <p>For Table 6I-1, the <i>Metal and Diamond Mining Effluent Regulations</i> (MDMER) limits for arsenic have not been included. For all tables in Appendix 6-I, under the “% Above Guideline” header there are columns for various initials, but there is no key to identify what these mean.</p>

Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> • Provide comparisons for total metals in respect of guidelines and criteria that are based on total metals. • Clarify the form of phosphorus for the graphs in Appendix 6-I. • Include a presentation of total arsenic on the graphs in Appendix 6-I. • Clarify the headers in all Appendix 6-I table columns that are represented by initials.
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3.8 ECCC-IR23: Water Balance and Climate Change

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR23
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Water Balance and Climate Change
Reference(s):	<ul style="list-style-type: none"> • Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 8-B.2: Whale Tail Pit – Water Management Plan, Section 3.4 - Water Balance. December 2018.
Issue/Concern:	Potential climate change impacts on water quantity should be considered in the water balance. However, the Water Management Plan does not specify whether/how climate change was accounted for in the water balance model.
Information Request:	<p>ECCC requests that the Proponent:</p> <ul style="list-style-type: none"> • Provide whether and how the water balance incorporates climate change considerations. • Provide what climate change scenarios were used to inform the water balance. • Provide how these scenarios affect the water balance.

3.9 ECCC-IR24: Water Management Plan – Yearly Site Layout Plans

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR24
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Water Management Plan - Yearly Site Layout Plans
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 8-B.2: Whale Tail Pit – Water Management Plan, Appendix A: Yearly Site Layout Plans, Figures A.1 to A.8. December 2018.
Issue/Concern:	Appendix A, Figures A.1 to A.8 of the Whale Tail Pit – Water Management Plan shows the location of the various components of the water management system at the different development stages of the mine life. A coloured legend is not provided for any of the figures and it is unclear what the green shading is indicating on the figures.
Information Request:	<p>ECCC requests that the Proponent provide:</p> <ul style="list-style-type: none"> An interpretive colour legend for the site layout maps in Appendix A of the Water Management Plan. Clarity regarding what the green shading is indicating on the mine pits in the various layout plans.

3.10 ECCC-IR25: Water Management Plan – Mitigation and Response Measures

IR Source:	Environment and Climate Change Canada (ECCC)
IR Number:	ECCC-IR25
IR Directed To:	The Proponent – Agnico Eagle Mines Limited
Subject:	Water Management Plan – Mitigation and Response Measures
Reference(s):	<ul style="list-style-type: none"> Agnico Eagle Mines Limited. Whale Tail Pit - Expansion Project Final Environmental Impact Statement (FEIS) Addendum, Appendix 8-B.2: Whale Tail Pit – Water Management Plan. December 2018.
Issue/Concern:	The Water Management Plan does not provide sufficient detail with respect to mitigations and response measures to manage potential extremes in water quantity, or the potential situation of water quality not meeting discharge criteria and/or environmental objectives.
Information Request:	ECCC requests that the Proponent provide a summary of mitigation and response measures to manage potential extremes in water quantity and the potential situation of water quality not meeting discharge criteria and/or environmental objectives.