Review Comment Number: 1	
Subject/Topic	Sludge Management
Reference	Package 4-4: Hope Bay Project Domestic Wastewater Treatment Operations and Maintenance Plan - Section 2.4.1 – Management Response - Section A2.2.2 – Sludge Dewatering
Detailed Review Comment	Section 2.4.1 (Management Response) states that sludge is removed from the Waste Treatment Plant (WTP) and is transported directly to the Tailings Impoundment Area (TIA) for disposal. However, Section A2.2.3 (Sludge Dewatering) states that sludge/press cake that will be disposed of in the TIA will be placed in bags and stored securely at the waste management facility in a manner that will prevent wildlife from accessing the sludge until such time that it can be disposed of in this location.
Recommendation/Request	If bagged sludge is stored at the waste management facility prior to disposal in the TIA, ECCC recommends that TMAC employ secondary containment and conduct frequent inspections to mitigate against potential releases of sludge or leachate.

Review Comment Number: 2	
Subject/Topic	Sludge Management
Reference	Package 4-4: Hope Bay Project Domestic Wastewater Treatment Operations and Maintenance Plan - Section A.2.2.3 – Sludge Dewatering
Detailed Review Comment	As per Section A2.2.3 (Sludge Dewatering), TMAC will continue to explore alternative disposal methods for sludge/pressed cake generated from the sludge dewatering process which may include incineration or disposal into the landfill once constructed.
Recommendation/Request	ECCC recommends that TMAC explore alternatives options to incineration as a means of managing sludge. ECCC recommends that TMAC investigate options to replace the incineration of dewatered sludge with alternative practices which could conserve material for future reclamation activities. If landfilling is selected as a sludge disposal method, ECCC recommends the sludge be encapsulated.

Review Comment Number: 3	

Subject/Topic	Monitoring Station ST-9
Reference to FEIS	Package 4-4: Hope Bay Project Domestic Wastewater Treatment Operations and Maintenance Plan - Section A3.2 – Discharge Monitoring
Detailed Review Comment	The current water licence describes monitoring station ST-9 as "Runoff from Wastewater Treatment Plant discharge - downstream of wastewater treatment plant discharge point and just prior to flow entering Doris Lake". However, Section A3.2 (Discharge Monitoring) of the Wastewater Treatment Management Plan describes ST-9 as located near the shore of Glenn Lake.
Recommendation/Request	ECCC recommends clarification of the location of monitoring station ST-9.

Review Comment Number: 4	
Subject/Topic	Boston Sewage Treatment Plan
Reference	Package 4-5 - Hope Bay Project: Boston Sewage Treatment Operations and Maintenance Management Plan Package P2-2 – Project Description Type A Water License Boston - Section 5.5 – Sewage Treatment
Detailed Review Comment	The proposed development of the Boston Mine will require an increase in the camp's capacity to accommodate 300 people, therefore increasing the quantity of sewage effluent. The Boston Sewage Treatment Plan Operations and Maintenance Manual relates only to the requirements for sewage treatment under the existing Type B Bulk Sampling Licence associated with the 72 person camp. Given the application for a Type A Licence and development of the Boston Mine additional information relevant to the expansion of the camp will be required.
Recommendation/Request	ECCC recommends that TMAC provide an update to the Boston Sewage Treatment Operations and Maintenance Management Plan that accounts for the proposed changes and upgrades to the Boston Camp. The plan should include information on how increased sewage volumes may impact the existing plan and any upgrades that may be required for the sewage treatment system.

Review Comment Number: 5	
Subject/Topic	
Reference to FEIS	Package 4-7 – Hope Bay Project Doris-Madrid Water Management Plan

	- Section 5.3.1 – Mine water
Detailed Review Comment	The Water Management Plan discusses current efforts underway to develop a toxicity test for a saline tolerant test species and indicates that until such a time that this test is developed that TMAC will operate under an interim effluent and mine water management strategy. This interim effluent and mine water management strategy has not been presented in the Water Management Plan.
Recommendation/Request	ECCC recommends that TMAC provide the interim effluent and mine water management strategy and discuss the implications on the Water Management Plan. This could be provided as an appendix to the Water Management Plan until such a time that the interim water management strategy is no longer required.

Review Comment Number: 6	
Subject/Topic	Water Management Plans
Reference to FEIS	Package 4-7 – Hope Bay Project Doris-Madrid Water Management Plan Package 4-8 – Hope Bay Project Boston Water Management Plan
Detailed Review Comment	Overall, the Water Management Plans for Doris-Madrid and Boston are lacking in sufficient detail to adequately review.
Recommendation/Request	ECCC recommends that the Water Management Plans for Doris, Madrid, and Boston be updated such that they clearly describe all water management actions for all sources during all stages of the project, additional information required includes the following: - Maps depicting water sources and water management structures - Identifying the proposed sampling locations in the plan for Boston and Madrid - Clarify whether the plans refer only to existing Type B Licences for Madrid and Boston or if include all development as proposed in the Final Environmental Impact Statement (FEIS) and the Type A Water Licence application - Describe water management for each source during Construction, Operations, Closure, and post-closure - Identify contaminants of potential concern for each source - List parameters tested for at each water management source - Identify and describe treatment, where necessary - Identify environmental protection measures, standard mitigations, and contingency options

Review Comment Number: 7	
Subject/Topic	Boston Water and Waste Rock/Ore Management Plan
Reference to FEIS	Package 4-12 – Hope Bay Project Water and Ore/Waste Rock Management Plan for Boston Site -
Detailed Review Comment	The existing plan does not account for the proposed development of the Boston mine as outlined in the FEIS and instead only refers to management practices of the existing camp, roads, airstrip, and ore stockpiles. Additional information on the water and ore/waste rock management that will be required during Construction, Operations, Closure and post-closure of the Boston Mine is needed in order to assess potential effects and provide technical advice.
Recommendation/Request	ECCC recommends that TMAC update the Water and Ore/Waste Rock Management Plan for the Boston site to include information on management during Construction, Operations, Closure and post-closure of the proposed Boston Mine.

Review Comment Number: 8	
Subject/Topic	Water and Load Balance
Reference to FEIS	Package P5-4: Hope Bay Project – Water and Load Balance -
Detailed Review Comment	The body of the Water and Load Balance report focuses only on parameters with authorized limits under the *Metal Mining Effluent Regulations* (MMER). It is possible that there are other potential contaminants of concern present in the effluent which are not further discussed in the body of the report. The appendices to the Water and Load Balance include results of modelling for the full suite of parameters. The information presented in the appendices should be interpreted and discussed in the body of the report, including identification of any additional contaminants that may require treatment or additional management.
Recommendation/Request	ECCC recommends that TMAC include proposed discharge concentrations for the full suite of parameters modelled for the water and load balance. A discussion should be provided regarding the potential for impacts to aquatic life at end of pipe and in the receiving environment for parameters not authorized under MMER.

Review Comment Number: 9	
Subject/Topic	Boston Effluent Discharge
Reference to FEIS	Package P5-4: Hope Bay Project – Water and Load Balance - Section 7.1.3 – Boston Combined Discharge

Detailed Review Comment	Table 7-3 presents the Boston combined effluent base case and upper case water quality predictions, however, the only predicted concentrations presented in the table are for the post-closure phase of the project. In addition, only MMER parameters are discussed and compared to effluent quality criteria. Given the discharge from Boston will occur through life of mine into a freshwater environment, effluent quality predictions should be included for Operations and Closure for all modelled parameters, not just those with set limits under the MMER.
Recommendation/Request	ECCC recommends that TMAC provide effluent quality modelling for the Boston effluent discharge during Operations and Closure of the project. This should include all modelled parameters, not just those with set limits under the MMER.

Review Comment Number: 10	
Subject/Topic	Boston Combined Discharge Influent
Reference to FEIS	Package P5-4: Hope Bay Project – Water and Load Balance - Section 7.1.3 – Boston Combined Discharge
Detailed Review Comment	The Boston Effluent discharge is derived from 3 separate effluent streams which are then combined and discharged together into Aimaokatalok Lake. These effluent streams include the Contact Water Treatment Plant, Process Water Treatment Plant, and the Sewage Treatment Plant. Unlike the description of the arsenic treatment at the Marine Mixing Box (Figure 7-2), the predicted influent concentrations for contaminants of potential concern at each treatment station is not described. Influent and effluent quality should be provided for each effluent stream to indicate expected efficacy of the selected treatment options.
Recommendation/Request	ECCC recommend that TMAC provide influent and effluent concentrations for parameters of potential concern at the Contact Water Treatment Plant, the Process Water Treatment Plant, and the Sewage Treatment Plant.

Review Comment Number: 11	
Subject/Topic	Boston Tailings Management Area Runoff
Reference to FEIS	Package P5-4: Hope Bay Project – Water and Load Balance - Section 7.1.4 – Boston TMA Closure Runoff
Detailed Review Comment	The information presented for the Boston Tailings Management Area (TMA) runoff only includes water quality predictions related to post closure. No information is provided on the quality of the runoff from the TMA during Operations and Closure. In addition, TMAC states that during post-closure seepage and runoff from the TMA will enter

	Section 2b of Aimaokatalok Lake. The arsenic concentration in the runoff is modelled to be 0.081 mg/L, while the arsenic concentration in the seepage is modelled to be 3.8 mg/L. It is unclear what the arsenic concentration in this combined stream (runoff + seepage) will be.
Recommendation/Request	ECCC recommends that TMAC provide water quality modelling for the Boston Tailings Management Area during Operations and Closure. ECCC recommends that TMAC provide additional information on the total arsenic concentration expected in the combined runoff and seepage stream from the Tailings Management Area to Aimaokatalok Lake during post-closure.

Review Comment Number: 12	
Subject/Topic	Sensitivity Analysis
Reference to FEIS	Package P5-4: Hope Bay Project – Water and Load Balance - Section 8 – Sensitivity Analysis
Detailed Review Comment	All completed sensitivity analyses presented in the water and load balance relate to the Doris or Madrid Mine. These include changes to groundwater management (storage of groundwater in Doris TIA), Madrid Freshwater source (Windy or Patch Lake), and increased groundwater inflows into the Madrid Mine. No sensitivity analyses for implications to water management at Boston are presented for the proposed Boston Mine.
Recommendation/Request	ECCC recommends that TMAC provide a sensitivity analysis for implications to water management at the Boston Mine.

Review Comment Number: 13	
Subject/Topic	Boston Ore Processing
Reference to FEIS	Package P5-4: Hope Bay Project – Water and Load Balance - Section 2.1 – Processing Options - Section 9.0 – Conclusions
Detailed Review Comment	Two approaches for processing of Boston ore are presented in the water and load balance: 1. All Boston ore is processed at the Boston process plant. 2. A portion of ore from the Boston mine is processed at the Doris process plant and the remaining Boston ore is processed at the Boston concentrator. The report indicates that at the time of modelling, TMAC had yet to decide where the Boston ore was processed and therefore the model was set up to simultaneously process ore at both the Boston process plant and Doris process plant.

Recommendation/Request	ECCC recommends that TMAC clarify whether a decision has been made on where the Boston ore is to be processed and request the documents be updated to reflect this.

Review Comment Number: 14	
Subject/Topic	Nitrite – Boston Combined Effluent
Reference to FEIS	Package P5-4: Hope Bay Project – Water and Load Balance - Appendix C-1 (page C-1.6)
Detailed Review Comment	The concentration of nitrite (NO2-N) in treated combined effluent at Boston is modelled at concentrations up to 30 mg/L.
Recommendation/Request	ECCC recommends that TMAC confirm whether nitrite concentrations are accurate and if not, provide/update the document to reflect the modelled concentration of nitrite in treated effluent.

Review Comment Number: 15	
Subject/Topic	Aquatic Effects Monitoring Program Development
Reference to FEIS	Package P4-18 Hope Bay Project Aquatic Effects Monitoring Plan
Detailed Review Comment	ECCC has reviewed the proposed Madrid-Boston Aquatic Effects Monitoring Plan (AEMP) and has identified a number of aspects which require clarification. 1. The study design descriptions make reference to MMER-EEM monitoring and non-MMER-EEM monitoring. It is not clear why the programs are not fully integrated and described in this document for clarity and completeness. 2. Non-MMER-EEM monitoring is going to use a Before-After-Control-Impact (BACI) study design and proposes to monitor and evaluate only parameters which have CCME guidelines for potential effects. The full suite of parameters should be evaluated for water and sediments, with focus subsequently shifting to parameters of potential concern if warranted based on monitoring data. 3. The MMER-EEM sites in Aimaokatalok Lake are set up as a multiple gradient study design, but for water quality it is not clear how the statistical analysis will be done. It appears to be set up as a Before-After comparison, but the gradient design would be suited to regression or ANCOVA analysis. Sampling stations for 1a and 1b are 50 m from the discharge, and the next sample stations are 250m then 750 m and 1500m from the diffuser in two directions. Plume delineation modeling should be referenced to support that spacing. A continuum of sampling stations is needed along the exposure gradient, and it is not clear that sampling will be done sufficiently close to the discharge to

	characterize effects in the near field. In addition, the sediment and benthic samples to be collected from these sites are proposed to consist of a single grab sample (Section 3.2.4 Benthos) which will be used to evaluate potential changes in benthos. This sampling effort would not meet the guidance provided by the MMER-EEM program, nor would it be comparable to data collected previously or at other sites. 4. There are other details on monitoring and sampling methodology that raise questions. For example, ECCC has concerns with collection of three vs the recommended five sediment samples per station. Fish monitoring has been omitted from the AEMP and deferred to the MMER-EEM; this should be integrated and presented in both programs, as there may be different endpoints. 5. Monitoring results should be linked to a response framework which sets thresholds for change to trigger mitigation actions.
Recommendation/Request	ECCC recommends that: • TMAC further develop the details of the AEMP and include a Response Plan • Both the AEMP and MMER-EEM monitoring programs should be harmonized to the extent possible, and details provided on the MMER-EEM program. Where there is overlap between the two programs, data should be combined for presentation (e.g. water sample data for two seasons under the AEMP with the additional two sampling times under the EEM) and evaluation. This will improve the characterization of variability and increase the dataset used for statistical analysis. • For non-MMER-EEM monitoring, a full suite of parameters be evaluated for water and sediments, with the focus shifting to parameters of potential concern if warranted based on monitoring date. • For MMER-EEM Sites in Aimaokatalok Lake clarity around how statistical analysis will be undertaken should be included. It is recommended that a continuum of sampling stations is needed along the exposure gradient, and that sampling will be done sufficiently close to the discharge to characterize effects in the near field • Monitoring results be linked to a response framework which sets thresholds for change to trigger mitigation action.