

IR Reference #	Link to EA Topic/ Previous IRs	Reference to EIS Guidelines	Reference to EIS	Summary of Comment/Rationale	Information Request
T(3)-08	Water Quality T(2)-17	10.2.3.1, 10.9.4, 13.1.2	EIS Subsections 5.1.2, 5.2.1.3, 5.2.3  Hydrogeology TSD Parts A and B  Site Water Quality TSD Parts A and B, Subsections 2.2, 4.5, 4.5.1  Conceptual Closure and Rehabilitation Plan TSD Parts A and B  EIS Appendix 1.IV	<p>The T(2)-17 response does not provide information to assess the potential adverse effects of seepage from the tailings management facility (TMF) on particular receiving water bodies that are frequented by fish, including but not necessarily limited to Lizard Lake and Sawbill Bay. Instead CMC's response outlines a perspective on the potential impacts of seepage to aquatic life in the Marmion basin. By focusing on the entire basin, rather than individual water bodies within the basin, the approach fails to predict whether seepage may affect any particular water body.</p> <p>According to subsection 10.2.3.1 of the EIS Guidelines, <i>the EIS shall ... provide results of the hydrogeological assessment that determines: groundwater seepage location, rates, seepage quality, and direction into or from the open pits, mine rock stockpiles and other stockpiles, TIA facilities, primary sedimentation pond and process water pond, and from the pits during future overflow.</i> Clarity on seepage is required to understand the flow regime, including whether the seepage flow through the base of the TMF and/or through the TMF dam potentially will enter any receiving water body frequented by fish.</p> <p>Also, Subsection 13.1.2 of the EIS Guidelines requires the EIS to include a description of the follow-up program to evaluate the predictions of effects and the effectiveness of the proposed mitigation.</p> <p>T(2)-17 is re-submitted, with minor changes in items 1 and 3, to request the information needed by the Agency to assess the adverse environmental effects of seepage losses from the TMF, the magnitude and geographic extent (direction and distance), of any seepage that may discharge into any receiving water body frequented by fish, and the effectiveness of the proposed mitigation measures. Discussion on the potential adverse effects and their significance linked to the findings should also be provided.</p> <p>This information is required in order for the Agency to provide a recommendation to the federal Minister of Environment and Climate Change on whether the Project is likely to cause significant adverse environmental effects.</p>	<p><i>The response to T(2)-17 of Information Request #2 does not meet the expectations of the Agency and federal reviewers. Therefore, we are repeating the request and have synthesized it to provide additional clarity.</i></p> <ol style="list-style-type: none"> <li>1. Drill additional boreholes to obtain borehole and stratigraphic logs to characterize the permeability of the base of the entire TMF. Perform additional single-well response tests and consider performing a pump test to better characterize hydraulic conductivity values and isotropy/anisotropy. Develop a plan for the additional boreholes and stratigraphic logs in discussion with relevant government agencies to ensure adequate characterization of baseline conditions within the proposed TMF footprint.</li> <li>2. If the results indicate that the base of the TMF is permeable (as compared to thick sequences of laterally continuous clay), provide responses to and action on questions 3-7.</li> <li>3. Drill additional monitoring wells to obtain sufficient information to determine the groundwater flow paths and the fate of chemical constituents in the TMF seepage water. Develop a plan for the additional monitoring wells in discussion with relevant government departments to ensure baseline information is gathered in regions where units with higher hydraulic conductivities are found within the proposed TMF footprint.</li> <li>4. Using the data from the additional monitoring wells, model the entire TMF using the 3D numerical groundwater model.</li> <li>5. Re-run the 3D model based on the following:             <ol style="list-style-type: none"> <li>a) perform a more robust calibration using additional monitoring well data;</li> <li>b) presenting a detailed conceptual model using visual depictions to describe the baseline hydrogeological conditions;</li> <li>c) model all project phases including baseline, operations phase, closure (decommissioning), and post-closure (abandonment);</li> <li>d) as described in 2., include information from the additional boreholes and stratigraphic logs for the entire TMF to determine if the overburden is isotropic or anisotropic, based on the absence or presence of laterally continuous horizontally bedded sedimentary deposits, and to determine if the assumption <math>K_{horizontal}:K_{vertical} = 1:0.1</math> is valid. If it is not, update the model assumption for isotropy/anisotropy. The installation of additional monitoring wells and hydraulic testing will also help better define the <math>K_{horizontal}:K_{vertical}</math> relationship; and</li> <li>e) provide a sensitivity analysis for the model that considers possible extremes in such parameters as recharge and hydraulic conductivity.</li> </ol> </li> <li>6. Provide the methodology, analysis and model results.</li> <li>7. Based on the results from question 1-6 above, provide a detailed description of the mitigation measures proposed to intercept seepage and contingency plans in the event</li> </ol>

					<p>seepage beneath the TMF would be greater than predicted.</p> <p>8. Describe the residual effects on water quality; the significance of those residual effects based on the Agency’s methodology for assessing significance (including the criteria of magnitude, geographic extent, duration, frequency, reversibility, ecological/social/cultural context); and the follow-up program, including any monitoring measures, which will be implemented to evaluate the predictions of effects and the effectiveness of the proposed mitigation.</p> <p><b>Response :</b></p> <p>See attached Memorandum: Federal Information Request T(3)-08 - Compiled Response Documents and Relevant Communications.</p>
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