



2016 AWARDS FOR ENGINEERING EXCELLENCE

Award of Merit

Quesnel Lake Observations and Modelling



Consultant

Fast + Epp

Owner

Imperial Metals Ltd.

Client

Mount Polley Mining Corporation /
Imperial Metals Ltd.

Category

Soft Engineering

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Subsequent to an August 4, 2014 failure of the Tailings Storage Facility at the Mount Polley Mine, particulate material entered Quesnel Lake. At the project outset, the potential human and ecological health impacts of the fine-grained suspended material were largely unknown, and there was no information on the fate of coarser material underwater and area impacted.

Tetra Tech performed both field measurements and numerical analyses to develop a predictive model that would evaluate the fate of particulate material in Quesnel Lake and the turbidity resulting from that material.

Tetra Tech assessed the overall volume balance of the failure event, giving consideration to all available sources of data, with a focus on Quesnel Lake. Tetra Tech provided a synthesis of these data and presented a narrative and quantitative interpretation of the movement and fate of the displaced materials. Tetra Tech's analysis of bathymetric and geophysical data resulted in a "from the lake up" volume estimate which independently confirmed "from the mine down" approaches of MPMC and other team members.

By applying sophisticated survey equipment and a comprehensive three-dimensional hydrodynamic model, Tetra Tech was able to reconstruct the sequence of events that occurred as the released material entered Quesnel Lake. Tetra Tech provided predictions of turbidity levels in Quesnel Lake and River in mid-October 2014, less than two months after starting work. The predictions extended to the end of 2015 and, verified as observations continued, accurately indicated the timing and magnitude of turbidity levels in the lake and river.