



Date: September 30, 2015

To: Richard Tremblay, General Manager  
Gibraltar Mines Ltd.

Cc: Diane Howe, Deputy Chief Inspector, Reclamation and Permitting, MEM  
Heather Narynski, A/ Manager, Geotechnical Engineering, MEM

Re: **Review of Letter of Assurance Submission from June 30, 2015**

The Ministry of Energy and Mines (MEM) has engaged a consulting firm to evaluate the consistency and compliance of your letter of assurance in response to the Chief Inspector's orders issued on February 3, 2015. This review has determined that your submission satisfies the requirements of the order.

Below is a summary of the assessment made by your Qualified Professional Engineer (QPE) with associated plans/schedule to address the gaps identified:

### **Cycloned Sand Dam (CSD)**

#### Status of Foundation Condition

*"Similar foundation conditions do not exist beneath the CSD. A glaciolacustrine silt layer was found, but it is much deeper and stiffer than the upper glaciolacustrine unit found at Mount Polley." However, "A gap in the historical information shows there is no information available for CSD foundation conditions below 10 m of depth in two areas."*

The mine has committed to:

- *"Despite the fact that stability analysis indicates if a layer did exist it would likely not pose a problem, a drill program is being planned this year (2015) that will drill down to bedrock and obtain the necessary foundation condition information."*

#### Status of Filter Adequacy

*"The as-built gradations of the cycloned sand and the sand and gravel filter are in accordance with design."*

### **North Earthfill Dam (NED)**

#### **Status of Foundation Condition**

*“Similar foundation conditions do not exist beneath the NED. A clay layer was found, but it did not have a laminated structure and was much stiffer than the upper glaciolacustrine unit found at Mount Polley.”*

#### **Status of Filter Adequacy**

*“The as-built gradations of the fine-grained and the sand and gravel filter are in accordance with design.”*

### **East Saddle Dam (ESD)**

#### **Status of Foundation Condition**

*“Similar foundation conditions do not exist beneath the ESD. Site investigations comprised of borehole, test pits, excavation mapping, and laboratory testing show the ESD foundation to be sandy clay till with trace to some gravel (glacial till), low plastic, moist, massive, typically firm to stiff, overlying bedrock.”*

#### **Status of Filter Adequacy**

*“The ESD embankment and drain design satisfy the filter requirements outlined in the US Army Corps of Engineers. Annual construction reports indicate acceptable material gradations.”*

### **All TSF Dams**

*“The TSF stores about 37 Mm<sup>3</sup> of excess water. The TSF is designed to store the 30 day Probable Maximum Flood (PMF). Gibraltar can transfer approximately 20,000 USGPM to Granite Pit via the reclaim water system if required during an emergency. Gibraltar is working with its EOR to develop an adaptive management plan to optimize performance and aid in decision making.”*

MEM supports the proposed plan of action. Please ensure that all work as outlined above is completed within the specified timeframe. MEM will be following-up in spring 2016 to obtain a status update with respect to the work completed and commitments made.

The orders issued on February 3, 2015 have been requested to provide assurance the conditions at the Mount Polley dam do not exist in other facilities. Please ensure that you are meeting your other ongoing requirements to ensure Tailings Storage Facility safety with respect to the following:

- Satisfying any outstanding orders from previous Ministry inspection reports.
- Satisfying any outstanding recommendations from previous Dam Safety Inspections (DSI) or Dam Safety Reviews (DSR).

The 2014 Dam Safety Inspection (Klohn Crippen Berger, November 26, 2014) highlighted the following action items with respect to CSD sinkholes:

*“Continue weekly visual monitoring of the lower downstream slope for cracks, slumping and the like. Document and quantify any defects by survey. Continue repairing cracks and sinkholes, as required after consultation with KCB, by infilling to design geometry with tailings sand (priority #2).”*

- Please provide an update on the status of the above 2014 recommendations which were planned to be carried out 6 month following the DSI by September 30, 2015.

It is expected that you will ensure dam safety management is continuously reviewed, improved and refined throughout the life of mine.

Thank you for your submission to the orders of February 3, 2015.

Sincerely,

A handwritten signature in black ink, appearing to read 'Al Hoffman', written over a horizontal line.

*Al Hoffman, P. Eng.  
Chief Inspector of Mines  
Ministry of Energy and Mines*