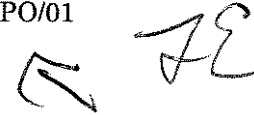


July 23, 1996

File: 14745-40/MTPO/01

To: T. Eaton



**Re: Mt. Polley Tailings Dam**

Technical concerns are:

**Starter Dam**

1. Weak foundation soils:
  - a) Character, strength, extent, location
2. Dam toe stability from:
  - a) uplift pressures related to artesian water or impoundment water
  - b) weak foundation soils
  - c) effects of potential instability of seepage collection pond from piping or uplift pressures
  - d) static liquefaction of some foundation soils
3. Dam foundation:
  - a) pore pressures
  - b) consolidation or failure behavior of 2 weak soil layers
  - c) foundation drainage for deeper soils
4. Foundation drains:
  - a) access for clean out
  - b) independence drainage for flow monitoring

**Upstream Portion of Dam**

1. Consolidation or displacement of pluviated tailings for stability of upper lifts.  
Tailings are 78% <200 mesh
2. Upstream plumbing system:
  - a) complexity: 60+ risers
  - b) extent: 6-10 km of lateral drains and pipes
  - c) potential for undetected or undetectable damage: all pipes covered and leaks or breaks may not be found or blockable
  - d) flow capacity: not stated
  - e) effects of blocked flow on phreatic levels and therefore upstream stability
  - f) cleanout difficulties
  - g) consolidation effects of tailings and transition to abutment damaging drainage system
  - h) inability to monitor flows from small controlled areas, only large parts of dam face.
3. Dam stability upstream and downstream if have elevated phreatic surface.
4. Centre line design cost comparison and stability.
5. Lack of cycloned and spigotted sand sizes for dam support and tailings beach drainage.

### **Tailings Line**

1. Adequate capacity of sumps for tailings spills at line wear locations.
2. Pipe trench depth and potential for any spilled tailings flowing down to anchor then being diverted out of trench.
3. Pressure testing.
4. Leak detection during operations.

George S. Headley, P. Eng.  
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