



January 24, 2000

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*File  
sent out via  
fax only*

MP00109

Mr. Ken Brouwer  
Knight Piesold Ltd.  
750 West Pender Street  
Vancouver, BC V6C 2T8

Dear Mr. Brouwer:

**RE: MOUNT POLLEY TAILINGS DAM CYCLONE SAND DAM PROPOSAL**

The report Report on Cycloned Sand Construction of Stage 3 and On-going Stages of the Tailings Storage Facility Vol I and II by Knight Piesold Ltd. dated December 13, 1999 was reviewed.

The following aspects require more detailed information or discussions in our meeting planned for Jan 26, 2000. I anticipate that they would be the starting point for our discussions. This is a challenging design change and operating / construction project.

**Operations**

- Operations manual content
- Personnel training
- Supervision training and experience in similar operations
- Management and technical control and communications

**Construction Methodology**

- Detailed discussion of proposed method
- Detailed discussion of alternative more efficient or expedient cycloning construction methods and limitations due to stability concerns

**Design**

- Cyclone sand downstream toe and finger underdrain design configuration, spacing, capacity, redundancy, piping and blockage risks
- Other vertical drainage
- Upstream drainage system design configuration, capacity, piping and blockage risks
- Containment berms or sumps for drainage and tailings failures, especially below Main Embankment

**Stability Analysis**

- Downstream cyclone sand stability during cycloning construction
- Downstream cyclone sand phreatic surface location during cycloning downstream and upstream
- Evaluation of cyclone sand piping potential and behavior
- Evaluation of cyclone sand static/dynamic liquefaction potential
- Sensitivity to phreatic surface, particle size gradation effects, permeability
- Effective stress

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## Risk Assessment

- Risk minimization
- Detailed discussion of medium and high risk potential problems
- Vertical drainage
- Detailed risk assessment of operating problems and construction methodology with monitoring or operational controls and contingency controls in event of failures
  - liquefaction
  - piping
  - erosion from what ever sources including line flushing
  - operator error
  - production decisions
- use of sensitivity analysis to set piezometric trigger levels for phreatic surface in active cycloning construction

## Monitoring and Operational Controls

- detailed discussion of operation control measurements of cycloned tailings sand
- detailed discussion of operation control monitoring systems of cycloned tailings especially for phreatic surface eg piezometers, observational information and stability

I will contact you tomorrow if you have any questions regarding the above.

Yours sincerely;



George S. Headley, P. Eng.  
Senior Geotechnical Engineer

cc: D. Parsons, MPMC  
T. Eaton  
E. Beswick/D. Morgan MEM, Prince George