



## Memorandum

Date: July 4, 2005  
 To: Les Galbraith  
 From: Mark Burke  
 Re: **Mount Polley PAG waste rock storage**

Our Ref: VA101-00001/10.A01  
 Cont.#: V5-0702

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The waste rock in the South East pit at Mount Polley has been determined to be Potentially Acid Generating (PAG). This memo addresses the storage of 2.5 million tonnes of PAG waste rock. Before the most economic method of storage of this material can be determined it is necessary to answer the following questions through lab testing:

1. What are the acid generation potential, neutralization potential and trace element contents?
2. What are the important weathering processes? Is dissolution a concern? Will acid generation and primary metal release occur entirely from sulphide oxidation?
3. How long will it take for ARD and other important hydrological or weathering events to occur?

Acid generation occurs when minerals containing sulphide and elemental sulphur are exposed to the weathering effects of oxygen and water. Acidity is generated from the oxidation of sulphur and the precipitation of ferric iron.

Underwater storage is generally the most effective means of preventing Acid Rock Drainage (ARD) and reducing metal leaching. The waste rock must be flooded prior to significant acid weathering otherwise dissolution will occur. The storage location must remain permanently flooded and geotechnically stable.

### Storage options:

#### **Option 1:** Storage of PAG fill in Dam (Above and adjacent to CBL layer in stage 4 construction)

The PAG fill can be used in the construction of the upstream Zone U of the tailings dam for Stage 4 construction. 2.5 million tonnes of material is far greater than the quantities required for stage 4 construction. An overbuild is necessary if all of the material is to be used in the tailings storage facility and remain submerged permanently. All of the PAG waste rock (2.5 million tonnes) can be used in the stage 4 construction program if the Zone U is built 46 meter wide and 7 meters high, or 56 meters wide and 8 meters high, or 66 meters wide and 5 meters high, or 70 meters wider than specified on each embankment. The quantities are summarized in table 1. This is a very large overbuild and this option would remove a significant amount of tailings storage capacity. In other words, stage 5 construction would have to begin approximately 5 months ahead of schedule.

#### **Option 2:** Storage of a portion of the PAG waste rock west of the TSF.

A possible mitigation strategy could be to store a portion of the PAG waste rock in an area that will be eventually flooded by the tailings facility. This can only an option if testing proves the rock will not begin to react prior to flooding.

**Table 1**  
**Mount Polley Mining Corporation**  
**Overbuild Required for PAG Disposal in Stage 4 Construction**  
**(Tonnes)**

C:\Documents and Settings\mbrurke\Desktop\[PAG rock volumes.xls]Sheet1

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	<b>6m</b>	<b>16 m</b>	<b>26 m</b>	<b>36 m</b>	<b>46 m</b>	<b>56 m</b>	<b>66 m</b>	<b>76 m</b>
<b>948 m</b>	373100	675100	977100	1279100	1581100	1883100	2185100	<b>2487100</b>
<b>949 m</b>	441050	818550	1196050	1573550	1951050	2328550	<b>2706050</b>	3083550
<b>950 m</b>	509000	962000	1415000	1868000	2321000	<b>2774000</b>	3227000	3680000
<b>951 m</b>	576950	1105450	1633950	2162450	<b>2690950</b>	3219450	3747950	4276450

Note: The x axis indicates width at the crest of the tailings storage facility. The y axis indicates the elevation of the crest. This table assumes the fill is 2 tones/m<sup>3</sup>