

APPENDIX F

Dunning Thornton Response to Waihi Pumphouse Response to Blasting Vibrations



**Dunning
Thornton**
consultants

Ref: 7993 L01
20 November 2018

Kathy Mason
Oceania Gold (New Zealand) Ltd

Dear Kathy

Waihi Pump House – Response to Blasting Vibrations

Further to our discussion and a subsequent call from John Heilig of Heilig & Partners Pty Ltd we have considered the likely effects on the Waihi Pump house resulting from vibration caused by mine blasting in the vicinity (~250m) of the Pump House structure.

John has advised that blasting may result in vibration at the site of the Pump House of the following nature:

Frequency	:	~20Hz
Acceleration	:	~100-150mill (0.1 – 0.15g)
Amplitude	:	~100 microns (0.1mm)

Prior to its relocation, circa 2006, the pump house was seismically strengthened with the design intent to meet the then current seismic code requirements. The seismic design was based on a lateral (seismic) load coefficient of 0.425g i.e. three times greater than that expected from blasting vibrations and more importantly with a vastly different amplitude of vibration.

At the high frequency of the expected blasting vibration, no overall structural response (resulting in movement or damage) is expected. For very weak, friable materials e.g. lightly cemented or compacted sand, some deterioration and/or dislodgement may typically be expected as a result of ongoing high frequency vibration. While the Pump House structure does not rely on such materials there may be some lodged in cracks or deposited on ledges. It's possible that the blasting may dislodge such materials however the extent of this is not likely to be more severe than may be experienced from normal weathering.

Having considered this we do not believe that monitoring, for the effects of blasting vibrations, of the magnitude and frequency described by John Heilig, is warranted.

We trust this provides the information you require.

Yours faithfully,

Adam Thornton
STRUCTURAL ENGINEER (*emeritus*)
Dunning Thornton Consultants
181120 AGC

