



## **APPENDIX D**

Water Quality Letter

## Covernote: Environmental Update

for OceanaGold (New Zealand) Limited

### Mining Vibration Assessment – Deepdell North Stage III Project Macraes New Zealand – response to queries

26 March 2020

Here is my response to the queries raised from a council review of my Deepdell Report, requested in email on 14/02/2020. The numbering matches those in the query.

I believe I have understood the detail of the queries and the responses are appropriate

**h I confirm** that the previous report referenced is the document titled ‘Technical Report January 2018b Mining Vibration Assessment – Deepdell North Stage III Project Macraes New Zealand’ ... and that the mining vibration assessment of this report is still valid for the Deepdell north stage III project

**i the vibration formula constant employed has been adapted based on actual monitoring results from the Deepdell project** The vibration predictions were calculated using the AS/New Zealand 2187.2 Standard formula, using a ‘K’ value of 1450 which is a suitable value for the type of blasting to be employed and is about double the number back calculated from the historical records where the ‘K’ ranged from ~550 to ~850

**j RPPV refers to RESULTANT peak particle velocity** which is the resultant value taken from the accumulation of the vertical radial, and transverse individual planes. This is the most common reference applied to vibration limits and upon which the AS/NZ Standards are based.

**k AS/NZ2187.2 recognizes a wide range of potential K values** because of the wide range of geological formations world-wide. There will not be huge differences in the geology surrounding the Macraes pits so that will not have a major effect on the ‘K’ value as previously established. The ‘K’ value also depends on the nature of the type of blast design. Blasting at the various Macraes openpits will be of a similar design configuration and comparable in the effective ‘K’ parameter for vibrations.

**l Actual Airblast / overpressure readings at the existing Macraes goldmine operations** have never exceeded the 115 dBL level according to historic data, and in fact were rarely over 100dBL. This is in fact not surprising since many airblast predictive formulae are based on typical hard rock, opencut, operations with substantial bench heights and free-faces which are susceptible to airblast generation. The style of mass, paddock blasting employed at OceanaGold is of a different nature and the airblast levels will be less than the common formulae predict, as evidenced by the historical readings.



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