



CLIENT: Dalradian Gold Ltd.

PROJECT: Curraghinalt Gold Mine Project.

Vibration Impact Assessment.

Addendum.

Prepared by: AONA Environmental Consulting Ltd.

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1 Introduction

AONA Environmental Consulting Ltd. was commissioned by SRK (UK) Consulting Ltd. (SRK) on behalf of Dalradian Gold Ltd. (DGL) to complete an addendum to the Vibration Impact Assessment to the Environmental Impact Assessment (EIA) for the proposed Curraghinalt Project in County Tyrone, Northern Ireland.

2 Legislation & Standards

2.1 Relevant Planning Policy, Standards and Guidelines Applicable to the Vibration Impact Assessment

The policy documents, standards, and guidelines relevant to the vibration impact assessment are as follows;

- British Standard 5228-2:2009+A1: 2014 Noise and Vibration Control on Construction and Open Sites Part 2: Vibration
- British Standard 6472-1: 2008: Guide to Evaluation of Exposure to Vibration in Buildings. Vibration Sources Other than Blasting
- British Standard 6472-2: 2008: Guide to Evaluation of Human Exposure to Vibration in Buildings Part 2: Blast induced Vibration
- British Standard 7385: Evaluation and measurement for vibration in buildings. Part 1: Guide for measurement of vibration and evaluation of their effects on buildings. 1990.
- British Standard 7385: Evaluation and measurement for vibration in buildings. Part 2: Guide for damage levels from ground borne vibration. 1993.

New Vibration and Blasting Guidance NI 2018

The Quarry Products Association Northern Ireland (QPANI) has worked with the Chartered Institute of Environmental Health, Local Councils, HSE NI and Department of Infrastructure to update the 1995 version of the NI Blasting Guidance.

The previous guidance published in September 1995, recommended a ground vibration limit of 10 mm/s, and air overpressure limit of 128 dB and a minimum separation distance of 100m. The reference to '*a minimum separation distance of 100m*' refers to distance from face blasting at quarries.

The proposed '*Framework Planning Conditions*' regarding Blasting Controls in the New Vibration and Blasting Guidance NI 2018 remain unchanged from the 1995 guidance.

Since the publication of the the 1995 version of the NI Blasting Guidance, the following British Standards have been published;

- British Standard 5228-2:2009+A1: 2014 Noise and Vibration Control on Construction and Open Sites Part 2: Vibration
- British Standard 6472-1: 2008: Guide to Evaluation of Exposure to Vibration in Buildings. Vibration Sources Other than Blasting
- British Standard 6472-2: 2008: Guide to Evaluation of Human Exposure to Vibration in Buildings Part 2: Blast induced Vibration

Therefore, these British Standards were considered in the approach to the vibration impact assessment.

BS6472-2: 2008 states that '*the generally accepted maximum satisfactory magnitude for residential premises is a PPV of 6.0 mm/s. However, when 6.0 mm/s is considered to be too restrictive a value between 6.0 mm/s and 10.0 mm/s could be used at a 90% Confidence Level*'. BS6472-2: 2008 is based on an assumed frequency of blasting of 3 times per day and suggests that lower vibration limits may be required where frequency of blasting is increased.

3 Impact Assessment

3.1 Construction Vibration

Construction vibration impact for the project remain unchanged from the 2017 Vibration Impact Assessment as outlined in Section 5.1 Construction Vibration of the 2017 Vibration Impact Assessment.

3.2 Operation Vibration

The Vibration Impact Assessment in the 2017 Vibration Impact Assessment stated the following;

- Best management practice for vibration impact abatement will be implemented to minimise vibration impacts.
- Continuous monitoring of vibration in proximity to the nearest residential properties will ensure that the recommended vibration thresholds of 6.0 mm/s will not be exceeded.
- Maximum instantaneous vibration level recordings will be undertaken during each blast.
- Daily monitoring of the maximum instantaneous vibration level recordings during each blast will allow for the progress of the mine to be monitored closely.

- If maximum instantaneous vibration levels are found to be in excess of the existing exploration planning condition limit of 6 mm/s then amendments to control the impact of the blasts can be instigated and enacted.

Therefore, the Vibration and Blasting Guidance NI 2018 will not impact on the 2017 Vibration Impact Assessment.

4 Mitigation Measures

The proposed Construction and Operational Mitigation Measures outlined in Section 6 of the Vibration Impact Assessment for the project remain unchanged from the 2017 Vibration Impact Assessment.

5 Residual Impacts

5.1 SUMMARY OF IMPACT ASSESSMENT

As outlined in the 2017 Vibration Impact Assessment, no significant residual adverse vibration impacts will occur during operation of the Curraghinalt Project. Continuous monitoring of vibration in proximity to the nearest residential properties will ensure that the recommended vibration thresholds and the relevant Planning Condition vibration limits are not exceeded.