



OceanaGold New Zealand Ltd
Third Quarter Summary Report 2021
Vibration Levels in Waihi

Contents

Summary	1
1. Introduction.....	1
2. Equipment Performance	1
3. Calibration	4
4. Compliance Assessment	4
4.1 Project Martha	4
4.2 Underground (Favona & Trio) Operations.....	5
4.3 Correnso and SUPA	5
5. Blasting.....	6
6. Complaints.....	7
7. Vibration and Complaint Management	7

Summary

- Results from the Blasthub vibration monitoring system for the third quarter 2021 are reported for the Favona, Trio, Correnso and SUPA Underground Mines and Project Martha. Continued stope and development blasting was reduced in relation to Correnso/SUPA, with development and production blasting continuing in the Martha Underground component of Project Martha. Mining in Favona and Trio has ceased.
- Compliance for Correnso/SUPA development and production blasting, as defined by the consents, was achieved for the average limits and the 95-percentile. Of the 71 blast events, 48 of these triggered compliance monitors (maximum vibration 4.61 mm/s)
- Compliance for Project Martha blasting was achieved during the quarter. Martha Underground is currently in the development phase, however limited stopes were extracted as opportunities arose. Of the 106 blast events during the period, 94 triggered compliance monitors (maximum vibration 6.11mm/s).
- 13 vibration-related complaints were received during the reporting period, down from the 27 received in the previous quarter. The number of complainants also decreased; 13 during the quarter cf. 23 in the previous period.
- The total number of blasts (833) was slightly lower than the previous quarter (925) as was the number of blast events (115, cf. 153 in the previous quarter).

1. Introduction

This report documents vibration measurements and assessments to meet the requirements of:

- a) Hauraki District Council (HDC) LUC No. 97/98-105 (Condition 3.11) for the extended Martha Mine Project.
- b) HDC Land Use Consent 85.050.326E (Condition 24) for the Favona Underground Mine.
- c) HDC Land Use Consent RC - 15774 (Condition 9) for the Trio Underground Mine Project.
- d) HDC Land Use Consent RC – 202.2012 (Condition 22 (f)) for the Correnso Underground Mine.
- e) HDC Land Use Consent RC – 202.2016 (Condition 14 (f)) for the Slevin Underground Mine (SUPA).
- f) HDC Land Use Consent RC – 202.2017 (Condition 18 (f)) for the Martha Drill Drive Project (MDDP), Condition 18 (f) for MDDP has been assumed by Project Martha below (g).
- g) HDC Land Use Consent LUC 202.2018.857.1 (Condition 53) for Project Martha.

As agreed between OceanaGold and HDC these reports summarise vibration results and general performance of the monitoring system over calendar quarters rather than the dates set out in the consents.

2. Equipment

“Blasthub”, the vibration monitoring system, has been used for reporting purposes, providing real-time monitoring, recording and review of results on a website. Access to the website is controlled, with permissions for review provided to HDC staff and OceanaGold users. The system is set with trigger levels between 0.40 and 0.75 mm/s for Martha and Underground operations.

The Project Martha vibration monitoring network comprises 13 monitors (some shared with the Correnso network). These all have a trigger limit currently set at 0.75 mm/s. Any blasts fired during the period (highlighted in red) and the monitor locations are shown in Figure 1.



Figure 1. Vibration Monitor & Blast Locations – Project Martha

Note: Larger icons indicate >7 kg MIC

The Trio Underground Operations have five compliance monitoring locations situated at Boyd Rd, Moore St, Clarke St, the Coreshed (Barry Rd) and the Scout Hall (Baker St). In addition to these, one other monitoring location is located near the Trio vent shaft (Trio VS). As there is currently no mining being undertaken in the Trio Project area, vibration monitors are not installed at these locations, but the infrastructure remains so monitors can be reinstalled should work in the Trio area recommence. Monitoring locations are shown in Figure 2.

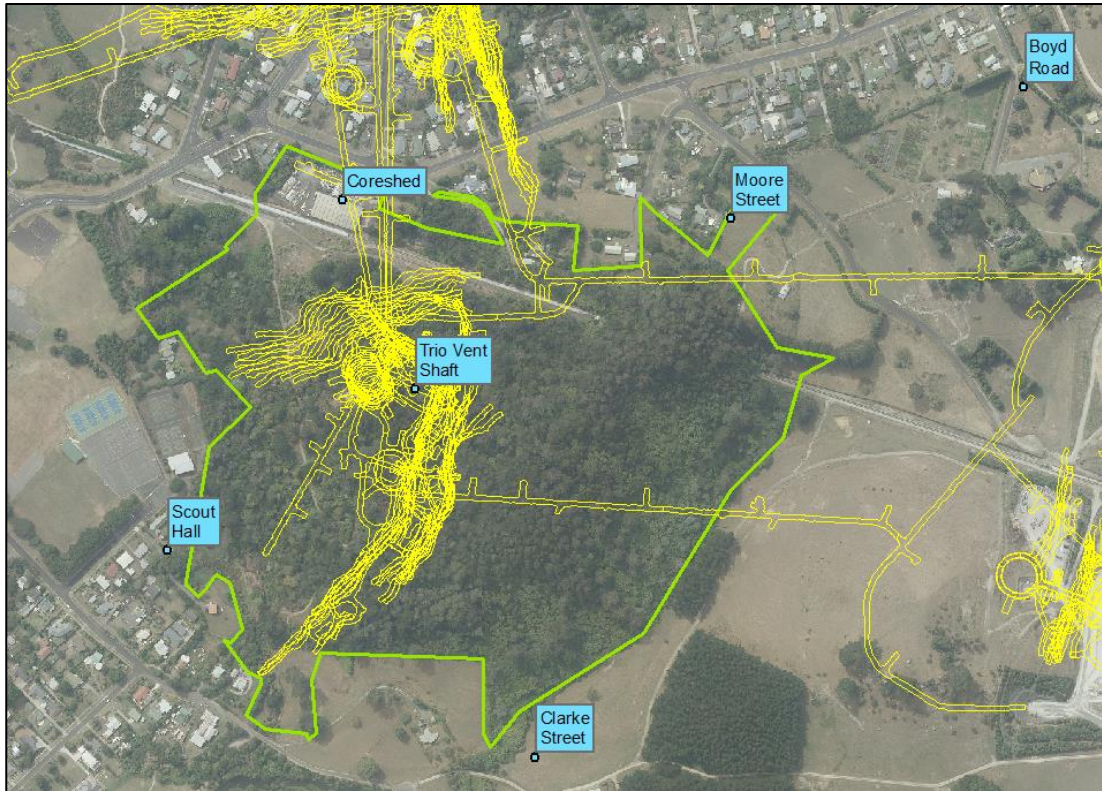


Figure 2. Vibration Monitor Locations – Underground Operations (Trio)

The Correnso Underground monitoring network comprises 10 permanent vibration monitors. These all have a trigger limit currently set at 0.75 mm/s. The blasts fired during the period (highlighted in red) and monitor locations are shown in Figure 3. SUPA utilises the same compliance monitors as Correnso, with the data incorporated into a shared database.

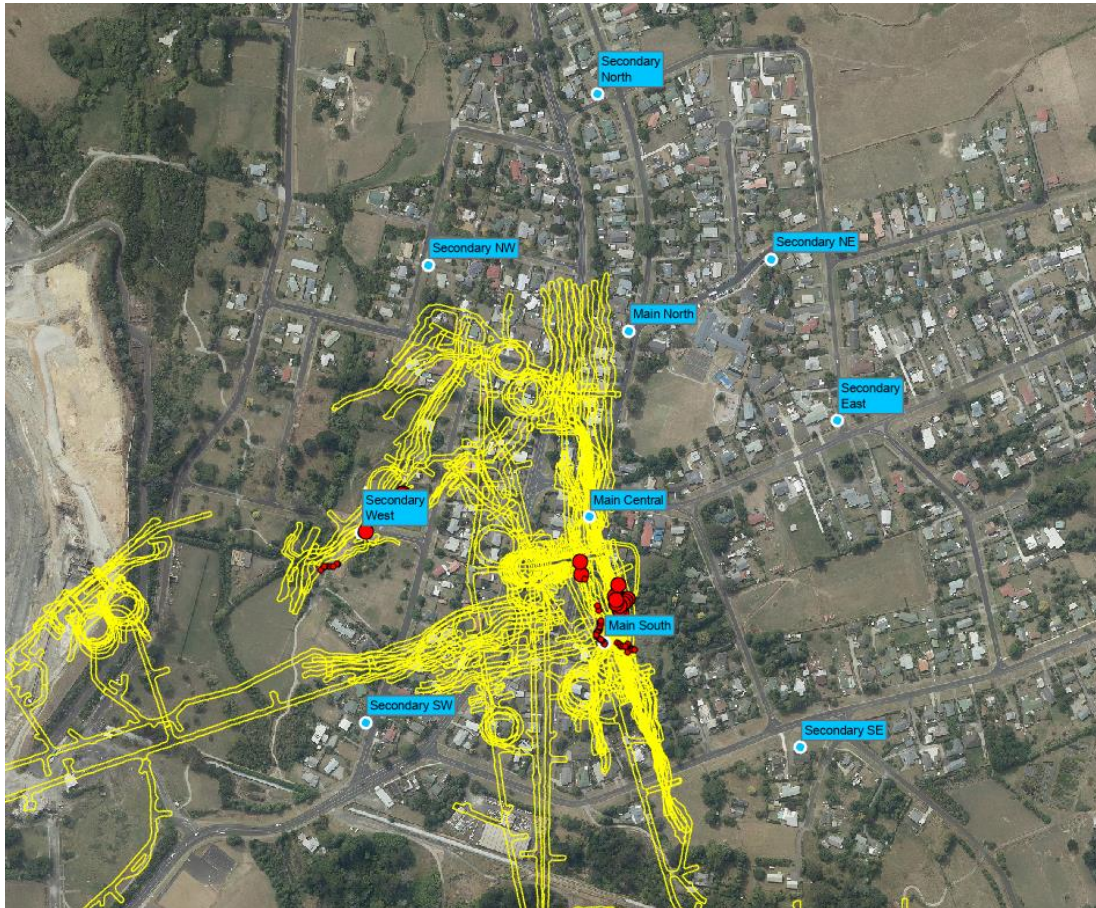


Figure 3. Vibration Monitor & Blast Locations – Correnso, SUPA Operations

Note: Larger icons indicate Production Blasts (>7 kg MIC)

3. Calibration

Calibration of monitoring equipment, including the roving monitors, is completed on a quarterly rotation to allow enough coverage of vibration monitoring while calibrations take place. Calibrations were completed in October 2020 and February 2021. Calibration certificates can be viewed on Blasthub; refer to the monitoring results during those periods. The calibrations were undertaken by the Saros Group Pty Ltd in Queensland and conducted in accordance with AS/NZS ISO9000-2000 and AS ISO/IEC17025-2005 quality standards.

4. Compliance Assessment

4.1 Project Martha

106 blast events occurred in Martha Underground during the reporting period (cf. 133 in the previous quarter) with 94 triggering compliance monitors.

Of the 757 individual blasts during the period:

- 741 were development blasts
- 16 were stope blasts.

The peak vibration levels for Martha Underground Operations during the quarter are shown in Figure 4 below.

Development:

- The highest six-month average¹ for development blasting at a compliance monitor was assessed as 1.25 mm/s at Pensioner Flats, below the consent limit average of 2mm/s.
- The development six month rolling 95 percentile¹ for all locations was assessed as 2.65 mm/s, below the 5mm/s limit.

¹ Data is presented as at the end of the quarter

- Two Martha Underground blast events with vibration above 5 mm/s were recorded during the period. Both were development blasts. The first, on 26 July, caused vibration above 5 mm/s to be recorded at one compliance monitor (6.1 mm/s at Pensioner Flats). The second, on 10 August, also caused vibration above 5 mm/s to be recorded at one compliance monitor (5.7 mm/s at Central School). 95 percentile vibration levels for development following these high-level blasts were 2.60 mm/s and 2.62 mm/s respectively and therefore did not cause non-compliance with the 5 mm/s 95 percentile limit.

Production:

- Limited stope blasting in Martha Underground commenced during the period.
- As less than 100 production blasts have occurred in Martha Underground to date, the 95 percentile 5 mm/s limit does not yet apply. Instead, no more than 1 in 20 consecutive production blasts may be greater than 5 mm/s.
- No production blasts recorded vibration levels greater than 5 mm/s in the quarter and therefore compliance with the 5 mm/s limit was achieved.

No maintenance/safety blasts returned vibration levels above 1mm/s and no blasts exceeded the blast duration limits in Martha Underground during the period.

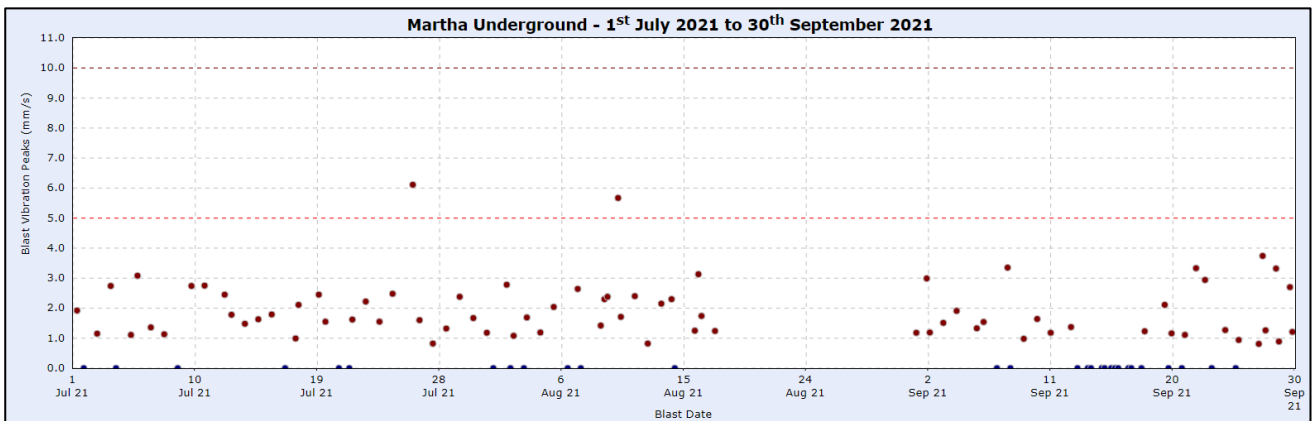


Figure 4. Maximum Peak Vibration Levels – Martha Underground Operations

4.2 Underground (Favona & Trio) Operations

Current mining plans for Trio were exhausted in the first quarter of 2020, and no blasting occurred during the reporting period. Likewise, no blasting was undertaken within Favona.

4.3 Correnso and SUPA

During the reporting period, 71 blast events (cf. 70) in the previous quarter) occurred in the Correnso and SUPA projects. Of the 71 blast events, 48 of these triggered compliance monitors (maximum vibration 4.61 mm/s). The blast locations are presented in Figure 3 above, with the relative locations indicated for development and production blasting. The peak vibration levels for the period are shown in Figure 5 below.

Development:

- The highest six-month average¹ for development blasting at a compliance monitor was 0.71mm/s at Main Central, below the consent limit average of 2mm/s.
- The development six month rolling 95 percentile¹ for all locations was 1.06mm/s, below the 5mm/s limit.

Production:

- No blasts exceeded the 5mm/s level at a compliance monitor during the quarter. Note that one Martha Underground blast recorded vibration levels above 5 mm/s on a vibration monitor shared between the Correnso and Martha Underground monitoring network and can be seen on Figure 5
- The highest six-month average¹ for production blasting at a compliance monitor was 1.06mm/s at Main Central, below the consent limit average of 3mm/s.

- The production six month rolling 95 percentile¹ for all locations was 4.34mm/s, below the 5mm/s limit.

No blasts exceeded the blasting duration limits during the period.

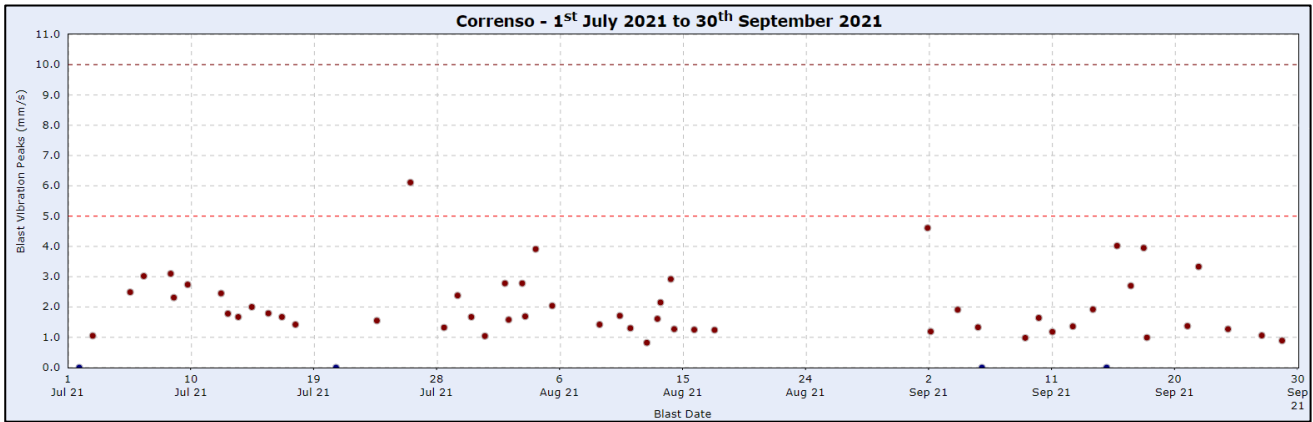


Figure 5. Maximum Peak Vibration Levels – Correnso/SUPA Operations

5. Blasting

The 115 blast events during the period was a reduction from the 153 events in the previous quarter (Table 1). The mine’s focus continues to be towards establishing the operations for full production.

Table 1: Quarterly blast events

Operation	1 st Quarter 2021	2 nd Quarter 2021	3 rd Quarter 2021
Martha Underground	163	133	106
Underground (Trio)	0	0	0
Correnso/SUPA	102 (20 independent)	70 (20 independent)	71 (9 independent)
Total	183*	153*	115*

*Some blasts occurred simultaneously with blasting in other operational areas and did not contribute to the total number of blast events. Trio and Correnso events only contribute to the total when they are independent of Martha Underground.

Multiple blasts may be fired during the one blast event. There were 833 blasts initiated within 115 blast events during the reporting period (Figure 6). This is a slight decrease compared to the previous quarter and is in part due to the Covid-19 Level 4 lockdown which stopped operations for two weeks in August 2021.

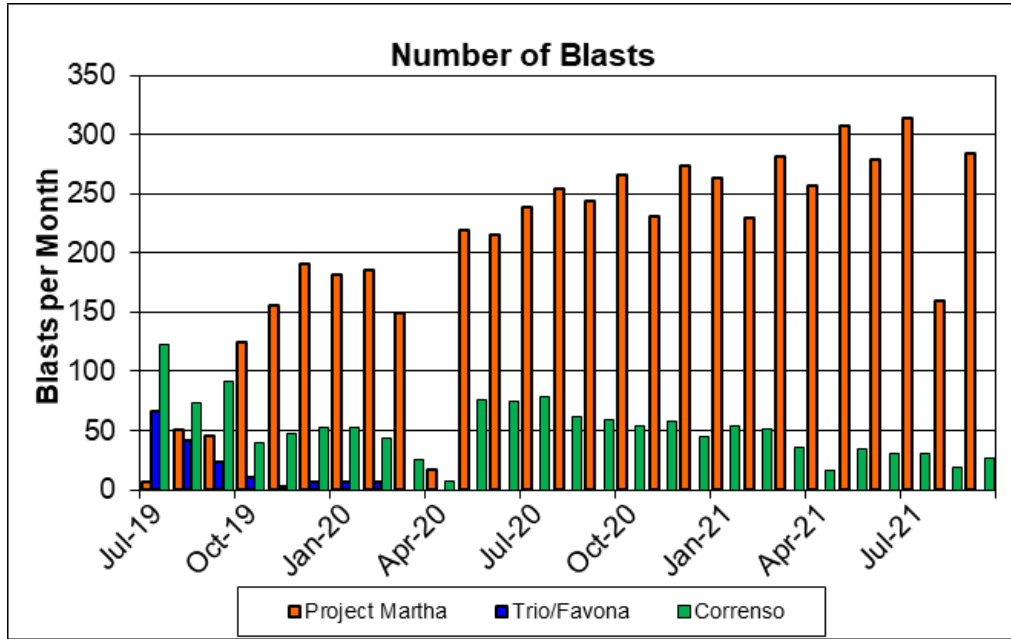


Figure 6. Number of Blasts (all operations)

6. Complaints

13 vibration-related complaints were received during the reporting period, down from the 27 received in the previous quarter (Figures 7 & 8). The number of complainants also decreased; 13 during the quarter cf. 23 in the previous period. Table 2 provides a summary of the complaints received during the quarter.

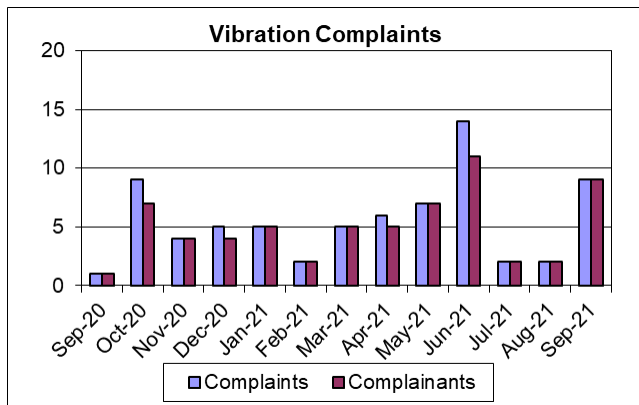


Figure 7. Number of Complaints & Complainants

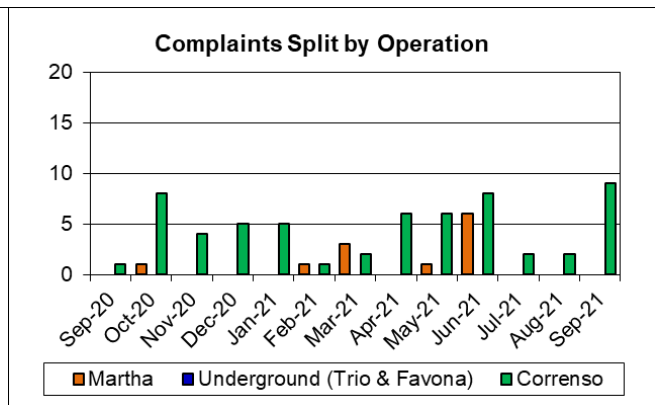


Figure 8. Complaints by Operation

Table 2: Summary of vibration complaints registered by OceanaGold

Date	Address	Nearest Monitor	Highest Blast	Site
6-Jul-21	Gladstone Rd	Main Central	3.0	Main Central
6-Jul-21	Kenny St	Main Central	3.0	Main Central
4-Aug-21	Barry Rd	Main South	2.7	Main Central
5-Aug-21	Smith St	Secondary SE	2.0	Main Central
2-Sep-21	Barry Rd	Secondary SE	1.4	Main Central
2-Sep-21	Stafford St	Secondary SE	1.4	Main Central
2-Sep-21	Wenlock St	Secondary NE	2.1	Main Central
2-Sep-21	Stafford St	Secondary East	2.0	Main Central
2-Sep-21	Gladstone Rd	Main North	3.4	Main Central

2-Sep-21	Grey St	Main South	3.9	4.6	Main Central
16-Sep-21	Gladstone Rd	Main South	3.8	4.0	Main Central
16-Sep-21	Stafford St	Secondary SE	0.9	4.0	Main Central
17-Sep-21	Smith St	Secondary NE	1.9	4.0	Main Central

7. Vibration and Complaint Management

One roving monitor was deployed during the period. The roving vibration monitor did not return any anomalous results compared to nearby monitors. General complaint management continues to be managed through External Affairs and Social Performance with technical advice provided by Environmental and Mining staff (supported by consultant input when required).

No other mitigation actions were required in relation to vibration management during the period.