



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

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Summary

- Results from the Blasthub vibration monitoring system for the second 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 70 blast events, 30 of these triggered compliance monitors (maximum vibration 4.71 mm/s)
- Compliance for Project Martha blasting was achieved during the quarter; limited stopes were extracted as the opportunities arose during the development phase, and only 94 of the 133 blast events during the period triggered compliance monitors (maximum vibration 8.01mm/s).
- 27 vibration-related complaints were received during the reporting period, up from the 12 received in the previous quarter. The number of complainants also increased; 23 during the quarter cf. 12 in the previous period. These increases were due to the production blast which exceeded 5mm/s during the period.
- The total number of blasts (925) was comparable to the previous quarter (932) as was the number of blast events (153, cf. 183 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.

In terms of vibration monitoring, the Project Martha 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. VMS Monitor & Blast Locations – Project Martha

Note: Larger icons indicate >7 kg MIC

The Trio Underground Operations have five compliance monitors situated at Boyd Rd, Moore St, Clarke St, the Coreshed (Barry Rd) and the Scout Hall (Baker St). In addition to these, one other monitor is located near the Trio vent shaft (Trio VS). This monitor acts as an ‘indicator’ for Blasthub, which allows correlation with the other monitors to report the compliance monitoring results directly onto Blasthub. No blasts were fired during the period; monitor locations are shown in Figure 2.

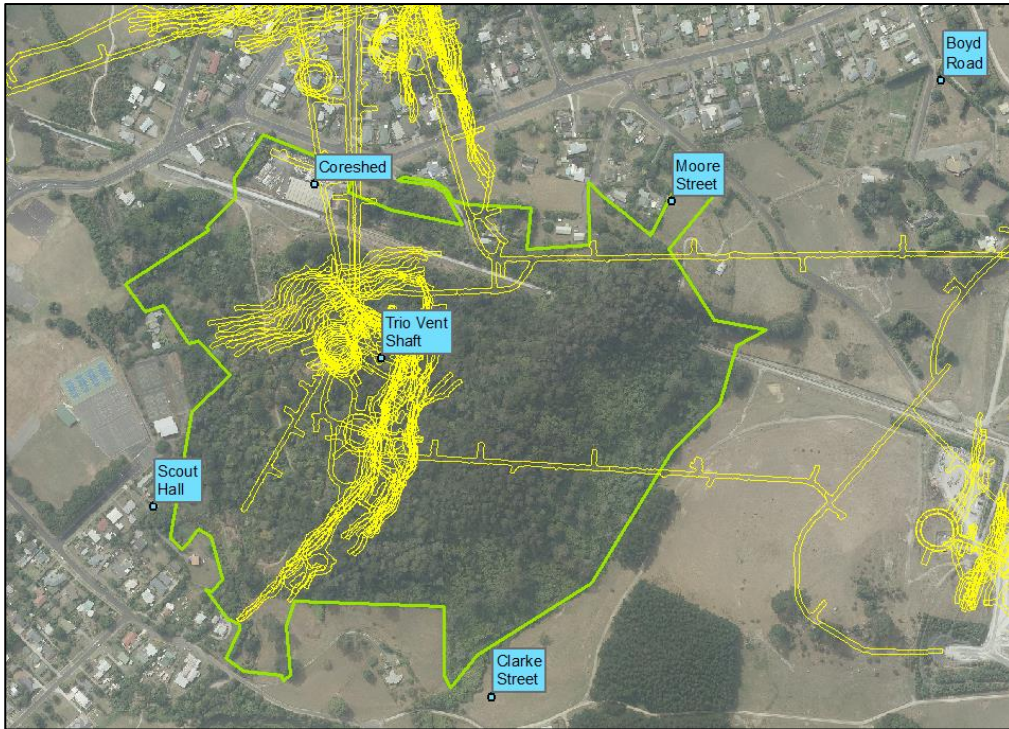


Figure 2. VMS Monitor Locations – Underground Operations (Trio)

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.

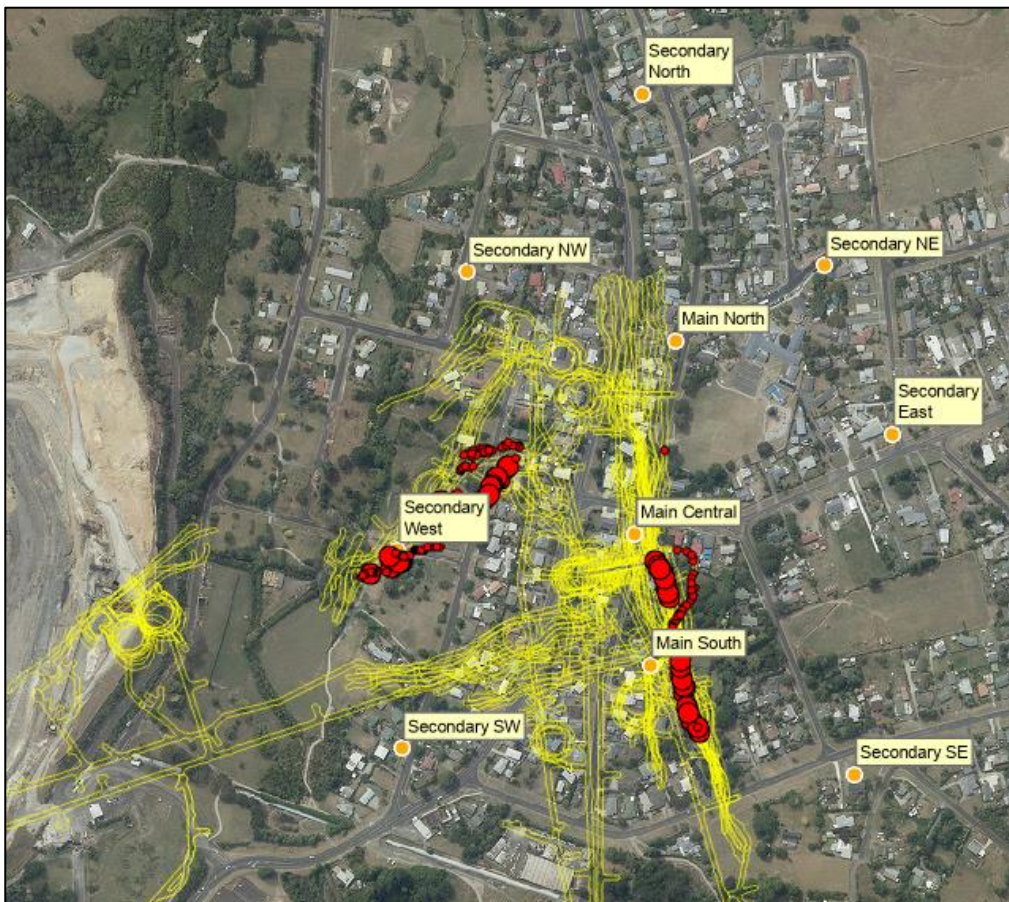


Figure 3. VMS Monitor & Blast Locations – Correnso, SUPA Operations

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

133 blast events occurred in Martha Underground during the reporting period (cf. 163 in the previous quarter) with 94 triggering compliance monitors.

Of the 844 individual blasts during the period:

- 831 were development blasts.
- Limited stopes were extracted (10 production blasts) during the development phase and were undertaken as opportunities arose.
- 3 maintenance/safety blasts were fired (1 of which were fired outside normal blasting windows).

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

- The highest six-month average¹ for development blasting at a compliance monitor was assessed as 1.01mm/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 2.19mm/s, below the 5mm/s limit.
- One production blast caused vibration to be recorded in excess of 5mm/s at two compliance monitors (8.01mm/s and 7.3mm/s at Rex West and Pensioner Flats, respectively). There have been insufficient production blasts (<100) to determine an average or 95 percentile vibration level as defined by the consent condition. As this result is the first to exceed 5mm/s, it is compliant.
- No maintenance/safety blasts returned vibration levels above 1mm/s.

¹ Data is presented as at the end of the quarter

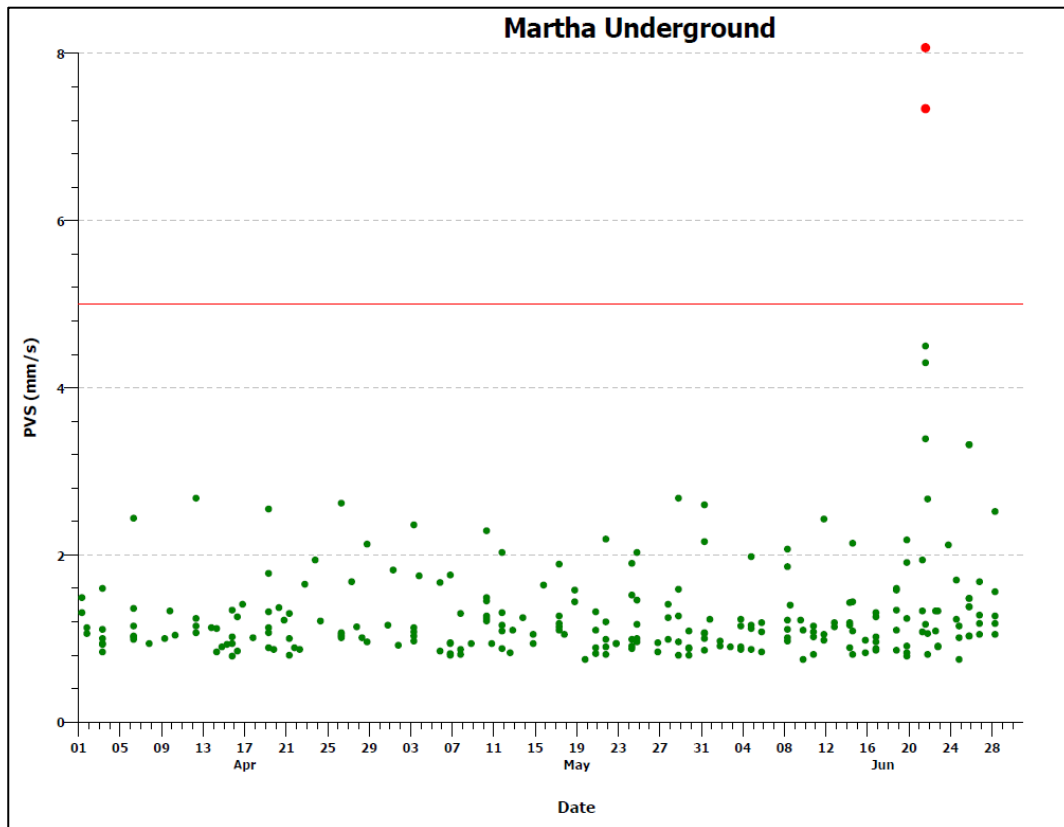


Figure 4. Maximum Peak Vibration Levels – Martha Underground Operations

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, 70 blast events (cf. 102 in the previous quarter) occurred in the Correnso and SUPA projects. Of the 70 blast events, 30 of these triggered compliance monitors (maximum vibration 4.71 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.
- The highest six-month average¹ for production blasting at a compliance monitor was 1.73mm/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.

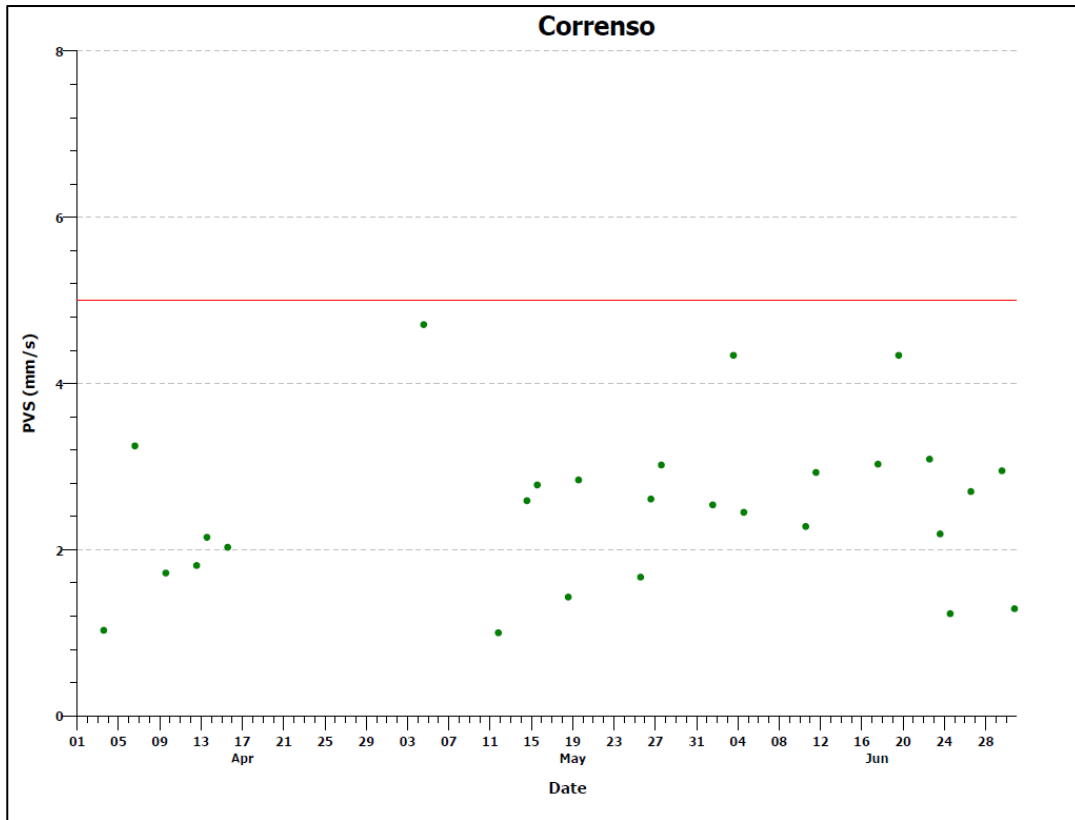


Figure 5. Maximum Peak Vibration Levels – Correnso/SUPA Operations

5. Blasting

The 153 blast events during the period was a reduction to the 183 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	4 th Quarter 2020	1 st Quarter 2021	2 nd Quarter 2021
Martha Underground	165	163	133
Underground (Trio)	0	0	0
Correnso/SUPA	117 (28 Independent)	102 (20 Independent)	70 (20 Independent)
Total	193	183	153

* 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 925 blasts initiated within 153 blast events during the reporting period (Figure 6). This is a similar result to the number of blasts in the previous quarter (932), and shows consistency across the operation.

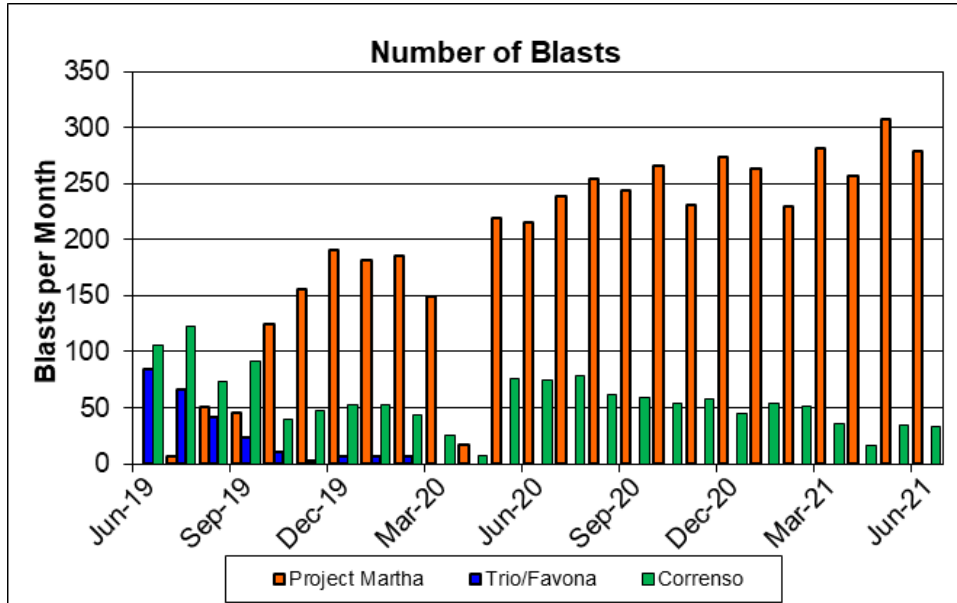


Figure 6. Number of Blasts (all operations)

6. Complaints

27 vibration-related complaints were received during the reporting period, up from the 12 received in the previous quarter (Figures 7 & 8). The number of complainants also increased; 23 during the quarter cf. 12 in the previous period. These increases were due to the production blast which exceeded 5mm/s during the period. Table 2 provides a summary of the complaints received during the quarter.

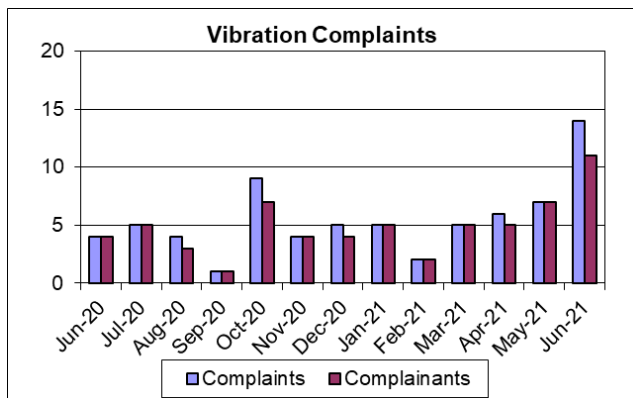


Figure 7. Number of Complaints & Complainants

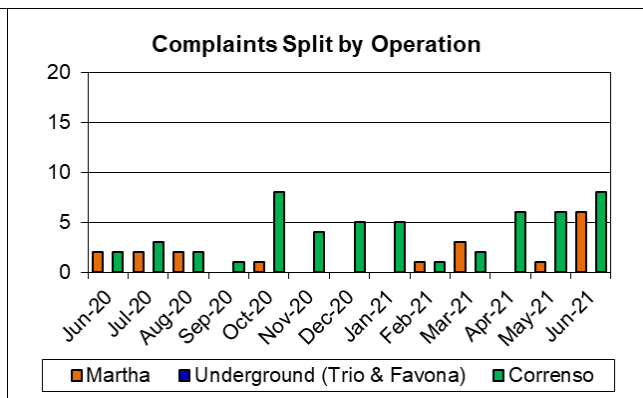


Figure 8. Complaints by Operation

Table 2: Summary of vibration complaints registered by OceanaGold

Date	Address	Nearest Monitor		Highest Blasthub Reading (mm/s)	Site
		Location	Reading (mm/s)		
9-Apr-21	Cuba St	Main South	1.72	1.72	Correnso
13-Apr-21	Kenny St	Secondary West	1.97	1.97	Correnso
14-Apr-21	Dobson St	Secondary West	1.97	1.97	Correnso
15-Apr-21	Barry Rd	Secondary SE	1.19	2.00	Correnso
15-Apr-21	Kenny St	Main Central	1.98	2.00	Correnso
15-Apr-21	Barry Rd	Secondary SE	1.19	2.00	Correnso
4-May-21	Kenny St	Main Central	4.71	4.71	Correnso
5-May-21	Gladstone Rd	Secondary North	0.85	4.71	Correnso
14-May-21	Cuba St	Secondary East	1.86	2.59	Correnso
14-May-21	Barry Rd	Secondary SE	1.34	2.59	Correnso
14-May-21	Stafford St	Secondary SE	1.34	2.59	Correnso
15-May-21	Barry Rd	Secondary SE	1.34	2.59	Correnso
24-May-21	Phillips Lane	Rex East	0.81	2.19	Project Martha
1-Jun-21	Stafford St	Secondary East	1.55	2.55	Correnso
1-Jun-21	Gladstone Rd	Main South	2.29	2.29	Correnso
3-Jun-21	Gladstone Rd	Main North	1.25	4.34	Correnso
10-Jun-21	Stafford St	Main South	2.28	2.28	Correnso
11-Jun-21	Stafford St	Secondary SE	1.26	2.29	Correnso
11-Jun-21	Barry Rd	Secondary SE	1.26	2.93	Correnso
11-Jun-21	Barry Rd	Secondary SE	0.00	2.93	Correnso
21-Jun-21	Kenny St	Rex West	8.07	8.07	Project Martha
21-Jun-21	Baker St	Rex East	3.39	8.07	Project Martha
21-Jun-21	Clarke St	Rex East	3.39	8.07	Project Martha
21-Jun-21	Gilmour St	Rex West	8.07	8.07	Project Martha
21-Jun-21	Phillips Lane	Rex South	4.30	8.07	Project Martha
21-Jun-21	Johnston St	Rex West	8.07	8.07	Project Martha
29-Jun-21	Stafford St	Secondary East	0.96	2.95	Correnso

7. Vibration and Complaint Management

No roving monitoring was required during the period. 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).