



OceanaGold New Zealand Ltd  
Second Quarter Summary Report 2020  
Vibration Levels in Waihi



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## Summary

- Results from the Blasthub vibration monitoring system for the second quarter 2020 are reported for Favona, Trio, Correnso and SUPA Underground Mines and Project Martha. Stope blasting was carried out in relation to Correnso/SUPA, with development 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 for development blasting. Although no results recorded above the 95-percentile standard of 5mm/s, the production 95-percentile rose above 5mm/s due to the three blasts above 5mm/s in the first quarter not being offset by sufficient minor blasts in the rolling six-month period; this anomaly was investigated and reported to Hauraki District Council.
- Compliance for Project Martha blasting was achieved during the quarter; no production mining was carried out and only 22 of the 112 development blast events during the period triggered compliance monitors (maximum vibration 1.2mm/s).
- Seven vibration-related complaints were received during the reporting period, down from the 41 received in the previous quarter. The number of complainants also decreased; 6 during the quarter cf. 21 in the previous period. These decreases were considered due to no mining activity during the Covid-19 lockdown and the low number of production blasts since then.
- The total number of blasts (610) was down on the previous quarter (709) as was the number of blast events (116, cf. 171 in the previous quarter). This was primarily due to the cessation of Trio blasting and the impact of the Covid-19 lockdown on Martha development blasting.

## 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).
- 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 Performance

“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.

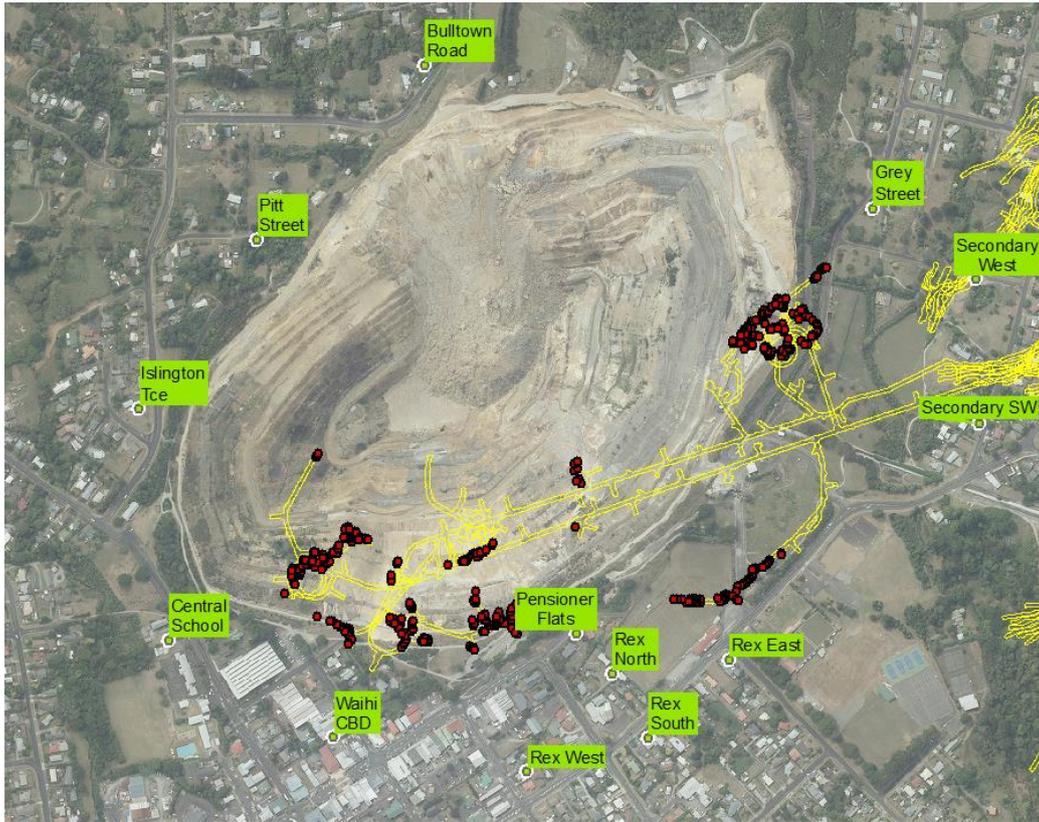


Figure 1 VMS Monitor & Blast Locations – Project Martha

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.

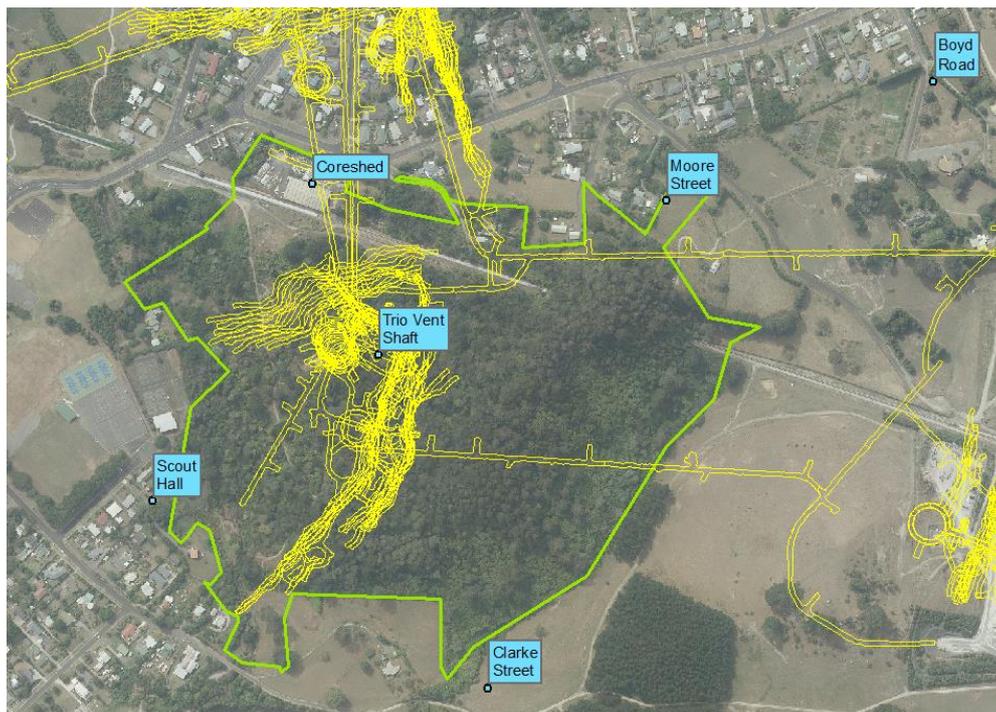
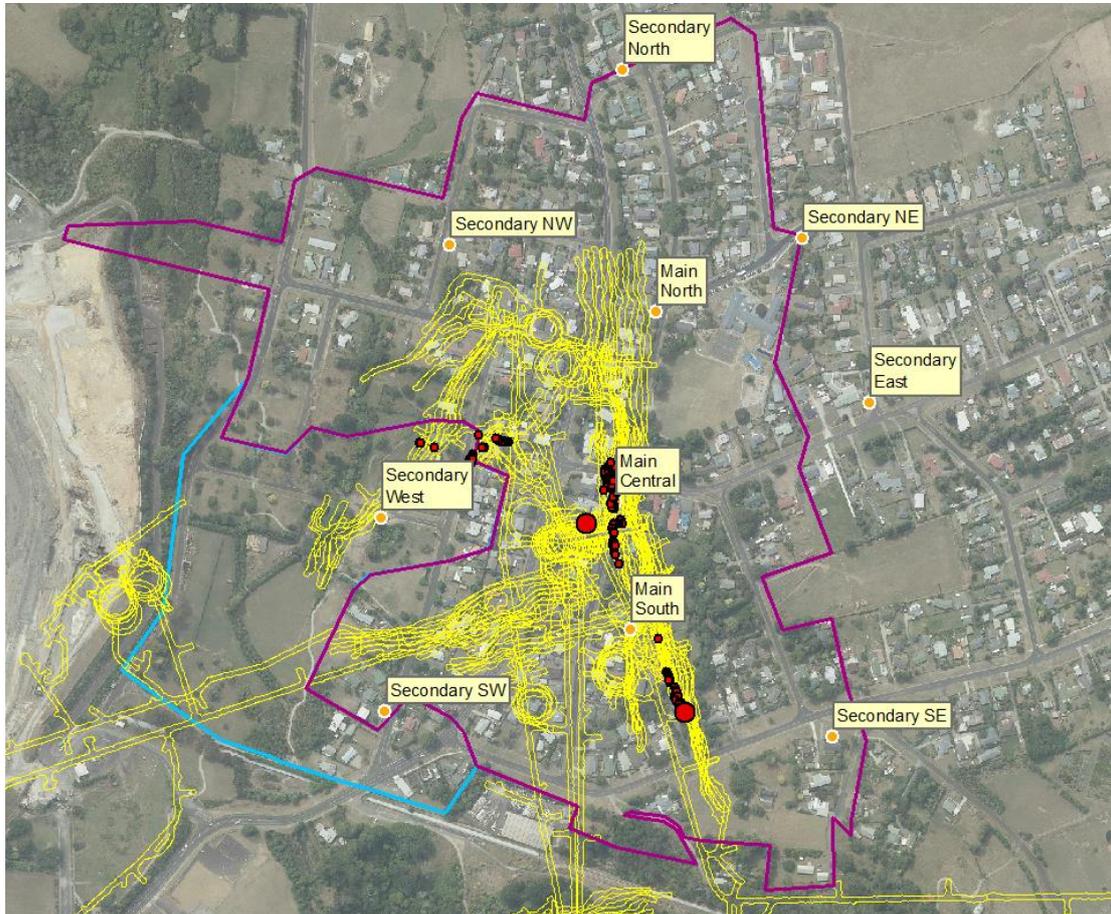


Figure 2 VMS Monitor Locations – Underground Operations (Trio)

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 (>7kg MIC)*

### 3. Calibration

Calibration of monitoring equipment, including the roving monitors, was completed in November 2019 and June 2020. 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

112 blast events occurred in Martha Underground during the reporting period. Of the 453 blasts during the period:

- 447 were development blasts within normal blasting windows,
- 5 maintenance/safety blasts were fired (only 2 were fired outside normal blasting windows), and
- 1 development blast was notified in the database as 1 minute before 0700, but there was no triggered monitor result to indicate whether the actual firing was before or after 0700.

Project Martha Development:

- Compliance monitors were triggered 22 times during the quarter (maximum vibration 1.2mm/s).

- The highest six-month average<sup>1</sup> for development blasting at a compliance monitor was assessed as 0.56mm/s at Waihi CBD, below the consent limit average of 2mm/s.
- The development six month rolling 95 percentile<sup>1</sup> for all locations was assessed as 0.96mm/s, below the 5mm/s limit.
- No compliance monitors were triggered by the maintenance/safety blasts.

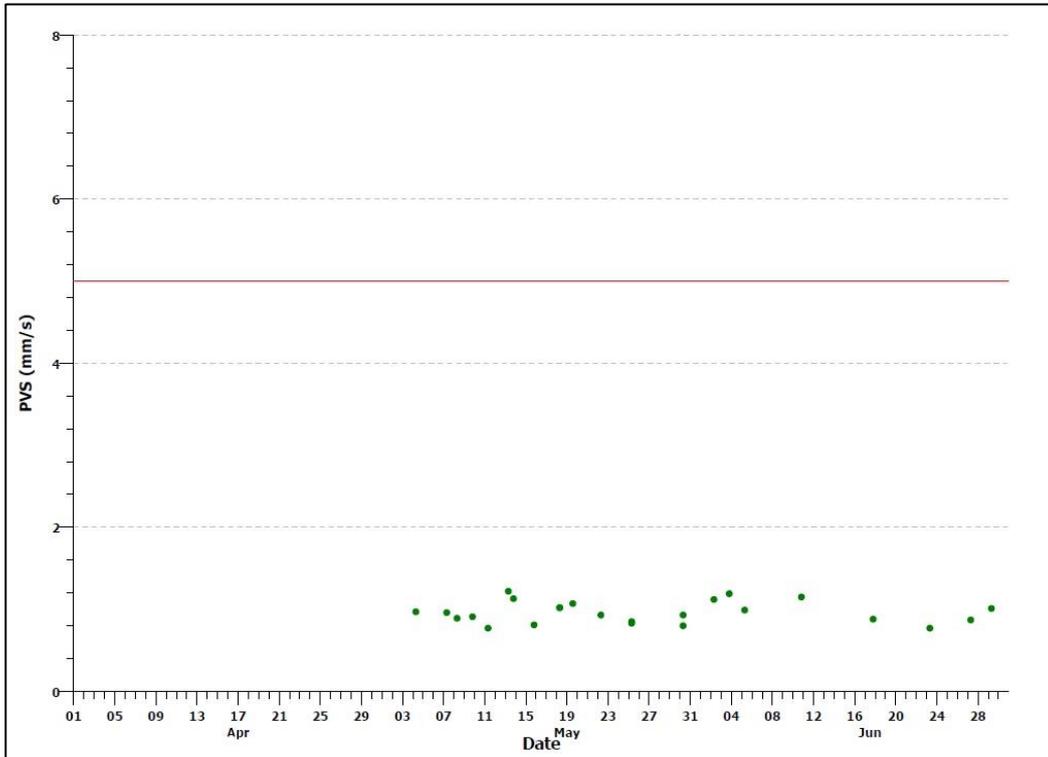


Figure 3: Maximum Peak Vibration Levels – Martha Underground Operations

#### 4.2 Underground (Favona & Trio) Operations

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

#### 4.3 Correnso and SUPA

During the reporting period, 92 blast events (cf. 83 in the previous quarter) occurred in the Correnso and SUPA projects. 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 4 below.

Development:

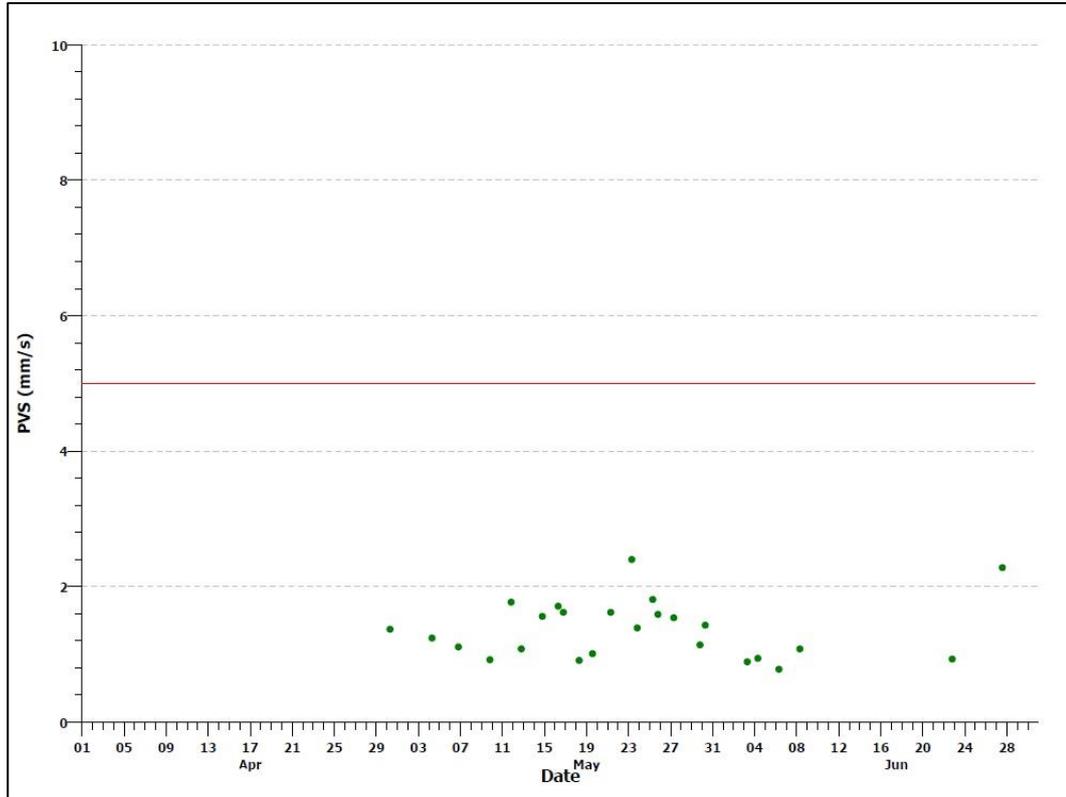
- The highest six-month average<sup>1</sup> for development blasting at a compliance monitor was 0.81mm/s at Main Central, below the consent limit average of 2mm/s.
- The development six month rolling 95 percentile<sup>1</sup> for all locations was 1.59mm/s, below the 5mm/s limit.

Production:

- No blasts exceeded the 5mm/s level at a compliance monitor during the quarter.
- The highest six-month average<sup>1</sup> for production blasting at a compliance monitor was 2.32mm/s at Main Central, below the consent limit average of 3mm/s.
- The production six month rolling 95 percentile<sup>1</sup> for all locations was 5.21mm/s, above the 5mm/s limit, despite the highest recorded vibration during the period being only 2.4mm/s. This technical non-compliance relates to an unforeseen consequence of the three blasts greater than 5mm/s in January

<sup>1</sup> Data is presented as at the end of the quarter

and February 2020 not being offset by the normal low-level blasts (due to the Covid-19 shutdown, the cessation of normal stope blasting, and the less frequent narrow vein stope blasts).



**Figure 5: Maximum Peak Vibration Levels – Correnso/SUPA Operations**

### 5. Blasting

The 116 blast events during the period was significantly lower that the 171 events in the previous quarter (Table 1). This was primarily due to the cessation of Trio blasting and the Covid-19 lockdown. Despite the Covid-19 lockdown, Correnso blast events remained consistent, although there was an increased focus in development blasts with the narrow vein development.

**Table 1: Quarterly blast events**

Operation	4 <sup>th</sup> Quarter 2019	1 <sup>st</sup> Quarter 2020	2 <sup>nd</sup> Quarter 2020
Martha Underground	154 (98 independent)	156	112
Underground (Trio)	20 (12 Independent)	12 (3 Independent)	0
Correnso/SUPA	94	83 (12 Independent)	92 (4 Independent)
<b>Total</b>	<b>204</b>	<b>171</b>	<b>116</b>

\* 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 610 blasts in the reporting period, down from the 709 in the previous quarter (Figure 6). The decrease was due primarily to the Covid-19 lockdown and the impact on Martha development blasting.

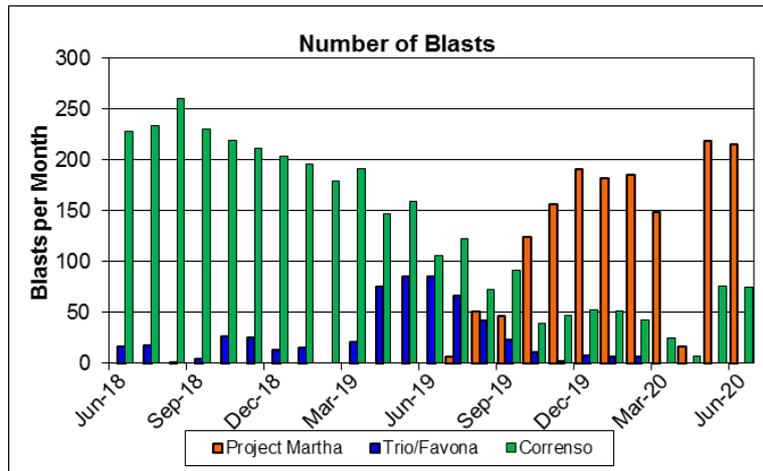


Figure 6: Number of Blasts (all operations)

### 6. Complaints

Seven vibration-related complaints were received during the reporting period, down from the 41 received in the previous quarter (Figures 7 & 8). The number of complainants also decreased; 6 during the quarter cf. 21 in the previous period. These decreases were considered due to no mining activity during the Covid-19 lockdown and the low number of production blasts since then. Table 2 provides a summary of the complaints received during the quarter.

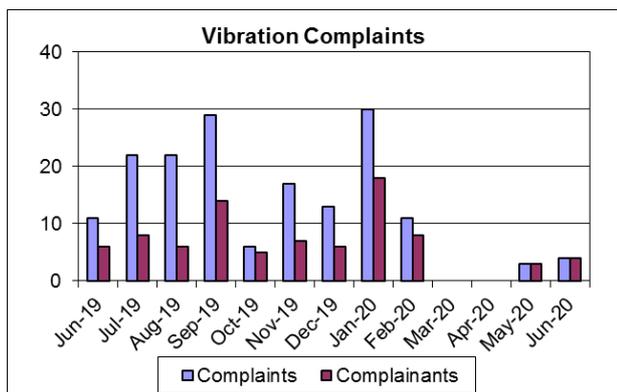


Figure 7: Number of Complaints & Complainants

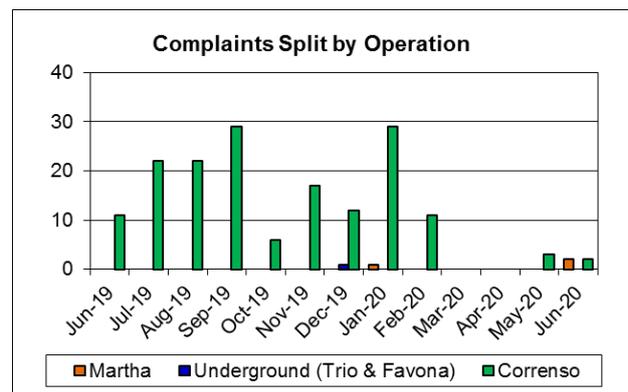


Figure 8: Complaints by Operation

Table 2: Summary of vibration complaints registered by OceanaGold

Date	Address	Nearest Monitor		Highest Blasthub Reading (mm/s)	Site
		Location	Reading (mm/s)		
4-May-20	Cuba St		n/a	n/a	No blast Covid-19
4-May-20	Wenlock St		n/a	n/a	No blast Covid-19
31-May-20	Kenny St		n/a	n/a	No blast
11-Jun-20	Clarke St	Rex East	1.2	1.2	Martha Underground
25-Jun-20	Clarke St	Rex East	0.0	0.0	Martha Underground
27-Jun-20	Gladstone Rd	Main South	1.9	2.3	Main Central
27-Jun-20	Kenny St	Main Central	2.3	2.3	Main Central

### 7. Vibration and Complaint Management

No roving monitoring was required during the period. General complaint management continues to be managed through the External Affairs Department with technical advice provided by Environmental and Mining staff (supported by consultant input when required).