



Vibration Summary Report

Second Quarter 2022

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Summary

- Results from the Blasthub vibration monitoring system for the second quarter of 2022 are reported for the Favona, Trio, Correnso, SUPA and Project Martha Underground Mines.
- Development and production blasting continued in the Martha Underground component of Project Martha. There were no blasts in Correnso. Mining in Favona and Trio has ceased.
- Compliance for Correnso blasting was achieved during the quarter.
- Compliance for Project Martha/SUPA blasting was achieved during the quarter. The maximum vibration recorded during the quarter was 4.12 mm/s.
- Seven vibration-related complaints were received during the reporting period, down from the 16 received in the previous quarter. The number of complainants also decreased; seven during the quarter cf. 10 in the previous period.
- The total number of blasts (948) was higher than the previous quarter (818). The number of blast events increased slightly since the previous quarter (161, 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 12 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. SUPA utilises some monitors from the Correnso network and some from the Project Martha network, with the data incorporated into a database shared with Project Martha.

The Pensioner Flats monitor was relocated during the quarter following anomalous results being recorded at the previous monitoring location. The new monitoring location commenced monitoring on 01 April 2022. Results recorded prior to this date have been removed from compliance calculations and have been replaced with results from the monitor with the next highest results.

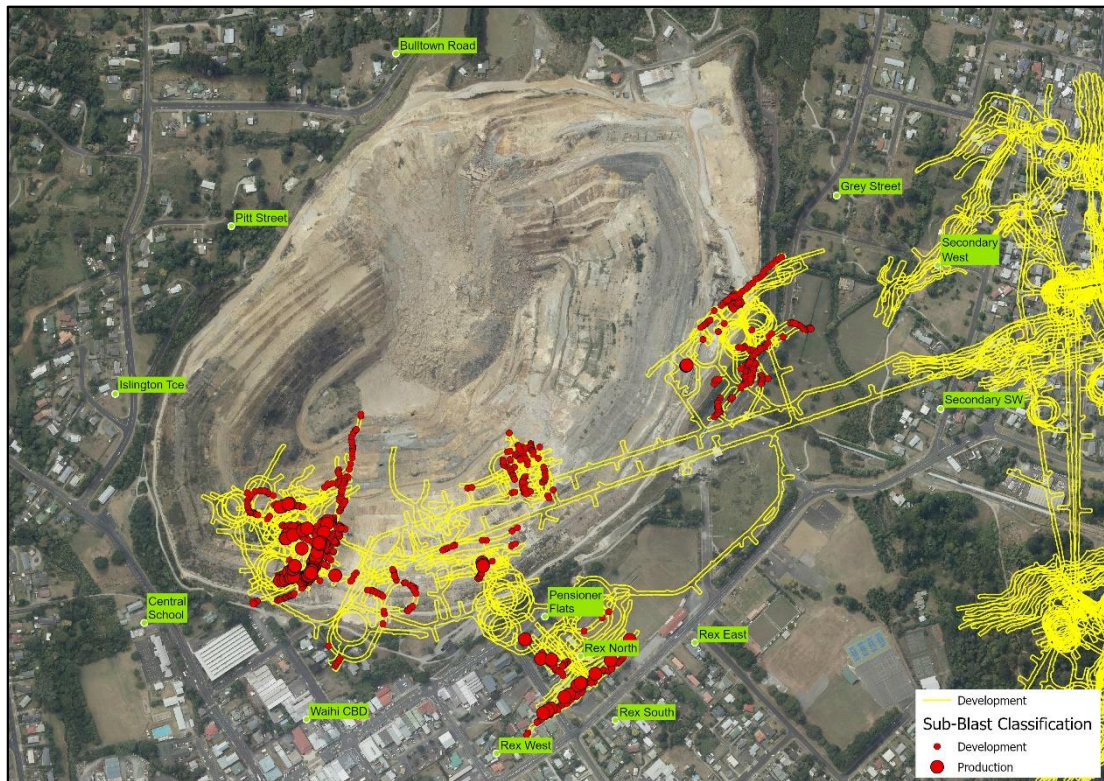


Figure 1. Vibration Monitor & Blast Locations – Project Martha, SUPA

Note: Larger icons indicate production blasts

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.

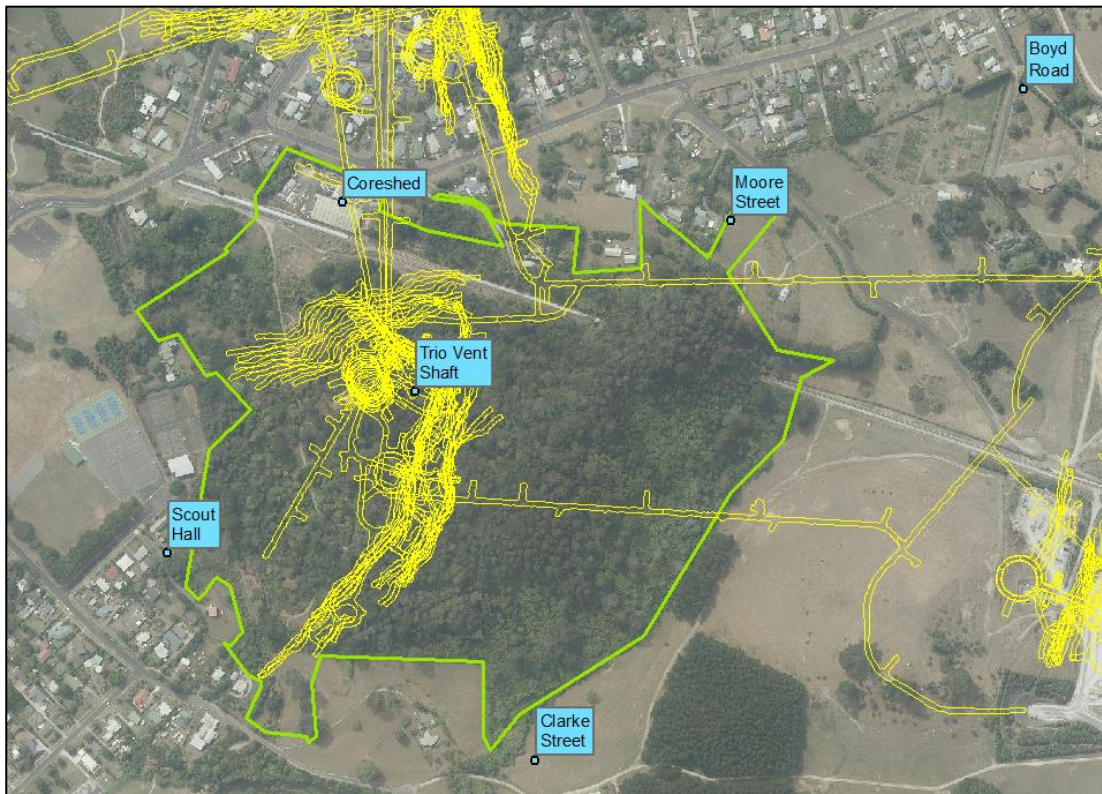


Figure 2. Vibration Monitor Locations – Underground Operations (Trio)

The Correnso Underground monitoring network comprises 10 permanent vibration monitors. These all have a trigger limit currently set at 0.75 mm/s. Monitor locations are shown in Figure 3. There were no blasts within the Correnso Project area during quarter 2 of 2022.

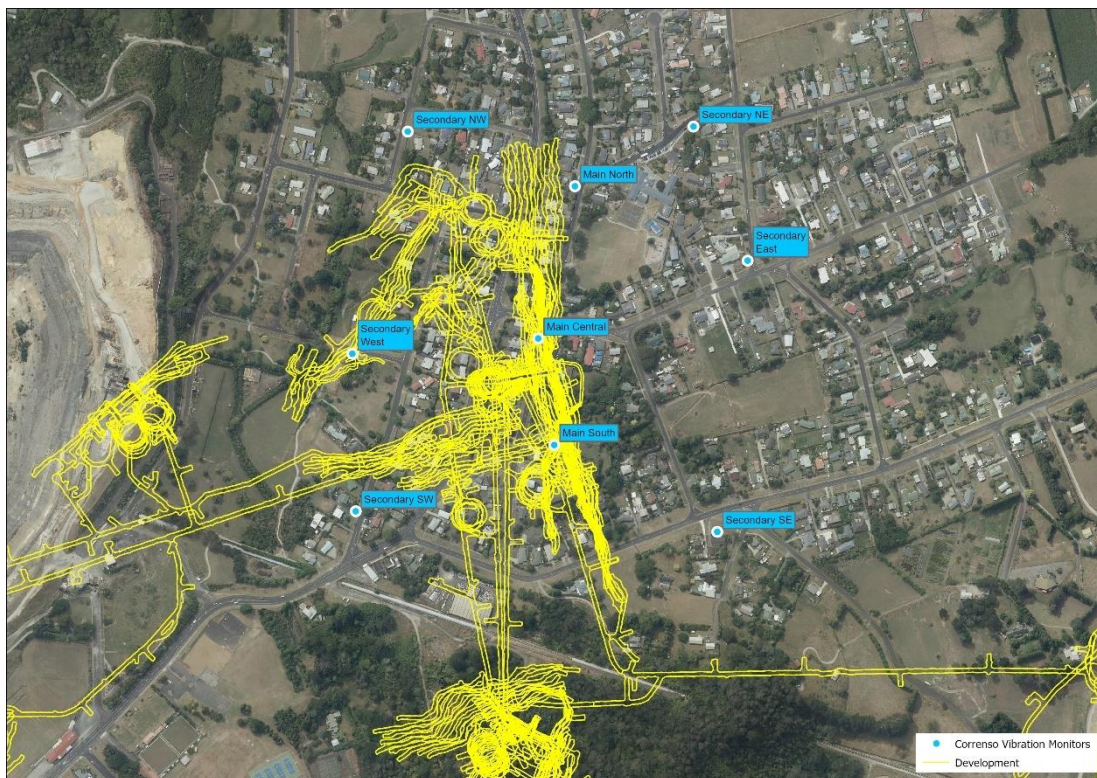


Figure 3. Vibration Monitor Locations – Correnso

3. Calibration

Calibration of monitoring equipment, including the roving monitors, is completed on a six-monthly rotation to allow enough coverage of vibration monitoring while calibrations take place. Due to Covid-19 border restrictions, some calibrations were delayed during 2021. Calibrations were completed throughout quarter four of 2021 to get the network up to date with calibration following the delays. A six-monthly calibration run is planned for Q3 of 2022. 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

Table 1 sets out the consented compliance limits for blast magnitude (peak particle velocity - vector sum) for Correnso and Project Martha, and the corresponding vibration results, reported as of the last day of the quarter (30 June 2022). Compliance with all limits was met throughout the quarter.

Table 1. Compliance Assessment Table for Correnso and Project Martha Q2 2022

	Consented Compliance Limit	Q2 Results - Correnso	Q2 Results - Project Marta
Development 95%*	5 mm/s	1.08 mm/s	1.89 mm/s
Development Average*	2 mm/s	0.76 mm/s	0.78 mm/s
Production 95%*	5 mm/s	4.08 mm/s	4.85 mm/s
Production Average*	3 mm/s	2.11 mm/s	1.61 mm/s
Maintenance/Safety	1 mm/s	No blasts	No blasts

Note: Data is presented as at the end of the quarter

* six month rolling limit

4.1 Project Martha

161 blast events occurred in Martha Underground during the reporting period (cf. 153 in the previous quarter) with 103 triggering compliance monitors.

Of the 948 individual blasts during the period:

- 841 were development blasts
- 107 were production blasts

The peak vibration levels for Martha Underground Operations (both production and development) 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 0.78 mm/s Rex North, below the consent limit average of 2mm/s.
- The development six month rolling 95 percentile¹ for all locations was assessed as 1.89 mm/s, below the 5mm/s limit.
- No Martha Underground development blast events recorded vibration levels above 5 mm/s during the quarter

Production:

- The six-month average² for production blasting at a compliance monitor was assessed as 1.61 mm/s at Central School, below the consent limit average of 3 mm/s.
- The production six-month rolling 95 percentile¹ for all locations was assessed as 4.85 mm/s, below the 5mm/s limit.
- No Martha Underground production blast events recorded vibration levels above 5 mm/s during the period.

¹ Data is presented as at the end of the quarter

² Data is presented as at the end of the quarter

- The highest level of vibration recorded during the quarter for production blasting was 4.12 mm/s at the Pensioner Flats monitor on 21 May 2022.

No maintenance/safety blasts were required in Martha Underground during the period.

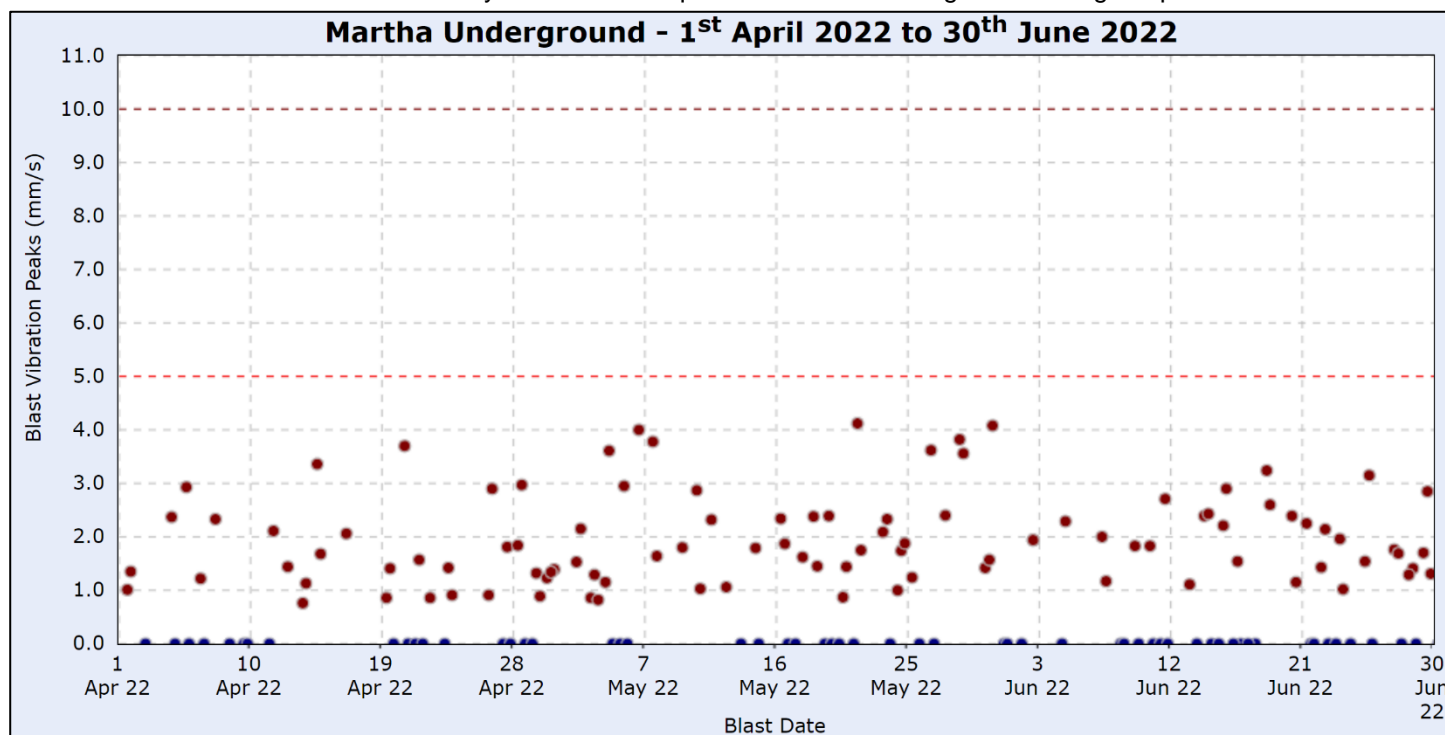


Figure 4. Maximum Peak Vibration Levels (Production and Development) – Martha Underground/SUPA Operations

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

No blasting was undertaken within the Correnso Project area during quarter 2 of 2022, however a compliance assessment based on rolling 6 month results as of 30 June 2022 have been include above in Table 1.

5. Blasting

The 161 blast events during the period was an increase in events from the previous quarter (Table 2). This reflects an increase in blasting in Martha Underground.

Table 2. Quarterly blast events

Operation	3 rd Quarter 2021	4 th Quarter 2021	1 st Quarter 2022	2 nd Quarter 2022
Martha Underground	106	160	109	161
Underground (Trio)	0	0	0	0
Correnso/SUPA	71 (9 independent)	27 (3 independent)	15 (1 independent)	0
Total	115*	163*	110*	161

Multiple blasts may be fired during the one blast event. There were 948 sub-blasts initiated within 161 blast events during the reporting period (Figure 6).

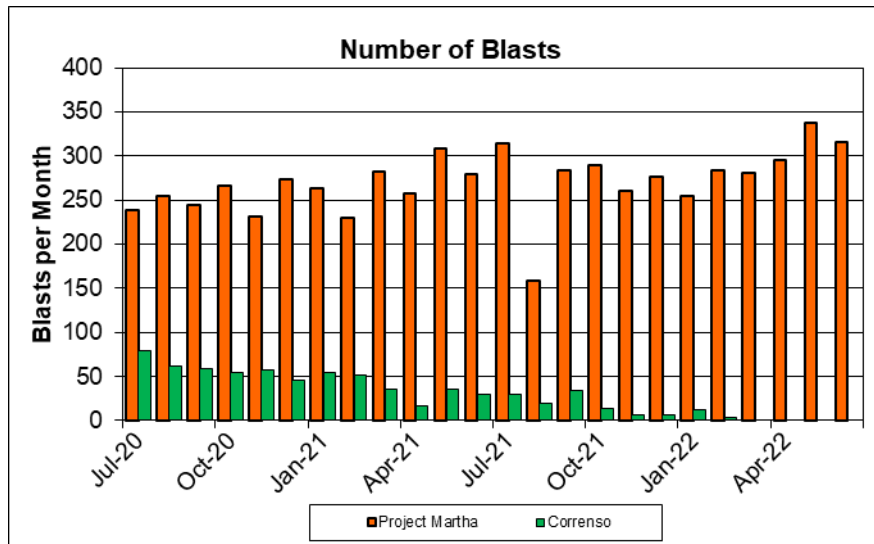


Figure 6. Number of Blasts (Project Martha and Correnso)

6. Complaints

Seven vibration-related complaints were received during the reporting period, down from 16 received in the previous quarter (Figures 7 & 8). The number of complainants also decreased; seven during the quarter cf. 10 in the previous period. Table 3 provides a summary of the complaints received during the quarter.

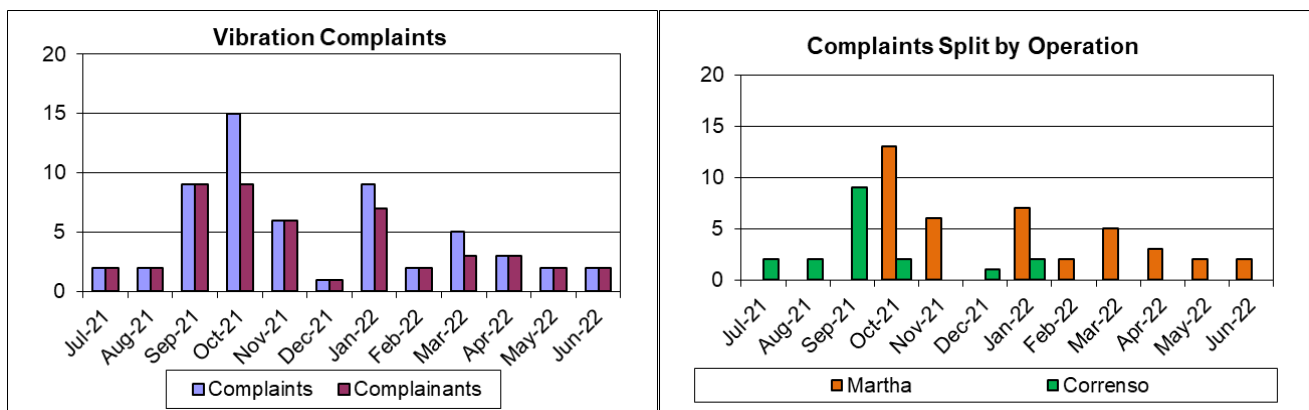


Figure 7. Number of Complaints & Complainants

Figure 8. Complaints by Operation

Table 3. Summary of vibration complaints registered by OceanaGold

Date	Location	Nearest Monitor	Vibration nearest caller (mm/s)	Maximum vibration (mm/s)	Monitor with Max Vibration
6-Apr-22	Union St	Rex East	1.2	1.2	Rex North
14-Apr-22	Mueller St	Rex West	1.9	3.4	Pensioner Flats
20-Apr-22	Clarke St	Rex East	2.4	2.4	Rex South
23-May-22	Mackay St	Central School	2.3	2.3	Central School
31-May-22	Kenny St	Rex North	2.0	4.1	Pensioner Flats
21-Jun-22	Elliott Street	Islington Tce	1.8	3.6	Central School
21-Jun-22	Cambridge Rd	Pitt St	1.0	3.6	Central School

7. Vibration and Complaint Management

7.1 Roving Monitoring

Roving monitoring was undertaken at one property at Johnston Street during the period. The monitoring was undertaken at the request of a resident who believed they were receiving elevated levels of vibration at their property. Roving monitoring was undertaken over the period from 28th of March to 11th of April and again from 29th of April to the 5th of May 2022. Twenty Martha Underground blast events were recorded at permanent monitoring locations during the monitoring period. The roving monitoring results were compared to four other nearby compliance monitors for these blasts: Rex North, Rex West, Rex South and Waihi CBD. Elevated vibration results were not evident at the Johnston Street property based on the blast events recorded during the roving monitoring period. Figure 9 shows the comparison of results.

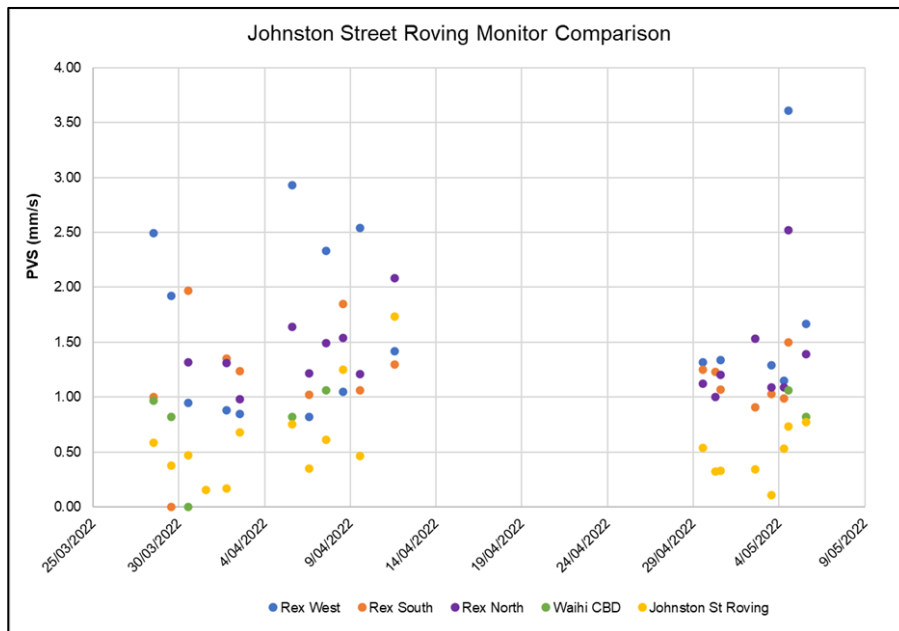


Figure 9: Johnston Street Roving Monitoring Results Comparison

7.2 Mitigation Actions

Mitigating actions were not required during the quarter.