Vibration Management Plan - Favona/Trio 2019

WAI-200-PLN-003

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Area:	Underground/Surface
Site:	Waihi

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OCEANAGOLD WAIHI

VIBRATION MANAGEMENT PLAN – FAVONA/TRIO

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1 PLAN OBJECTIVE

The objectives of this Vibration Management Plan (Plan) are to detail the methods to be used by OceanaGold New Zealand (OGNZL) to:

- comply with the relevant conditions of the Hauraki District Council (HDC) Land Use Consents 85.050.326E (Favona Underground Mine) and RC-15774 (Trio Underground Mine);
- liaise with the community and respond to complaints and concerns as they arise; and
- avoid or mitigate unreasonable noise as required by s16 of the Resource Management Act.

1.1 Vibration Plan Arrangement

This Plan is the 2019 review of the 2012 Vibration Management Plan that amalgamated the Martha Mine Stability Cut Back, the Favona and Trio Underground Mine Mines. While the 2012 review identified the similarities between the plans for the various mines and amalgamated them into one document, this Plan now disregards the Martha Pit activities as they are considered in the Vibration Management Plan - Correnso/Martha (2019) that was prepared as a requirement for the exercise of the Project Martha consent. At least 30 working days prior to the first pit blast the vibration matters for blasting in the Pit will be incorporated into the Correnso/Martha vibration management plan for consideration and certification by Hauraki District Council.

Project Martha has both underground and open pit mining components, with the underground component similar enough to the Correnso operation in terms of management and monitoring to allow incorporation of the Project Martha operations into the existing Correnso Vibration Management Plan. The Favona and Trio Operations are now sufficiently disparate to the other Waihi mines that this Plan has been drawn up specifically for these two mines.

This Plan contains separate sections where the Favona Mine and Trio Mine are unique, particularly in consenting (Section 1.2.2) and mitigation (Section 5.1). Other sections have been amalgamated where management of the operations are not differentiated.

1.2 Background

1.2.1 Favona

The Favona Underground Mine is located under rural land to the east of Waihi, in the vicinity of the existing processing plant. Waikato Regional Council (WRC) Resource Consents for Favona were granted in May 2004, and the HDC Land Use Consent (LUC) in August 2004.

Blasting is required for development of access drives and to free ore for removal from stopes. This blasting (particularly stope blasts) regularly causes vibration that is felt by neighbouring residents. HDC LUC 85.050.32.6E (LUC Favona) includes specific consents related to permissible vibration levels, with limits set to ensure residents experience minimal disturbance.

Initial work on the Favona Project began in November 2004 with the development of an Exploration Decline to access the Favona orebody. The Favona Underground Mine consents were activated in 2007 prior to stope development and the mining of ore. In 2009, additional development accessed the nearby Moonlight orebody (still within the Favona consent boundary), with mining of this orebody throughout 2010 and 2011.

Production within Favona went into abeyance in 2013 with the completed extraction of the main ore bodies. In recent years, the opportunity to re-enter Favona and undertake remnant mining has been investigated and is underway.

1.2.2 Trio

The Trio Underground Mine is located under Union Hill, between the Martha Pit and the existing processing plant. WRC Resource Consents for Trio were granted in November 2010, and the HDC LUC in July 2011.

Like Favona, blasting at Trio is required for development of access drives and to free ore for removal from stopes. Vibrations from this blasting is felt by neighbouring residents, and the HDC LUC RC-15774 (LUC Trio) includes specific conditions related to permissible vibration levels to mitigate negative experiences.

Access to the Trio orebody began in 2010 with the development of a decline and incline from the existing Favona decline, initially under the Favona consents then under the Trio Development Consents as the access crossed out of the Favona consent boundary. The Trio Underground Mine consents were activated in 2012 prior to stope development and the mining of ore.

Like Favona, mining in Trio also went into abeyance with the completed extraction of the main available ore bodies. The last production blasts from the first round of mining were completed in early 2016.

It was recognised early that there were opportunities to mine deeper in Trio, but the viability of such mining was limited by the feasibility of lowering the water table in the operation. This limitation was removed with the subsequent mining of the nearby Correnso Mine to deeper levels. Because Correnso and Trio are hydraulically linked, this has resulted in Trio being dewatered to lower levels and development is under way to explore the lower ore bodies with the intent for production mining in late 2019.

2 LEGAL REQUIREMENTS

The conditions of LUC Favona and LUC Trio relating to vibration from blasting are included in this management plan as Appendices A and B. In summary these conditions require OGNZL to comply with the following:

- 95% level of confidence to achieve permitted vibration levels (LUC Trio 8);
- conditions relating to blasting times, durations and permitted vibration levels (LUC Favona 12, LUC Trio 9);
- Favona Mine blast events must not coincide with Martha Mine blast events (LUC Favona 13, LUC Trio 10));
- impulsive vibration from all blast events to be monitored (LUC Favona 15, LUC Trio 11(a));
- monitoring system to be automated to allow for immediate analysis (LUC Favona 16, LUC Trio 11(b));
- monitoring to be conducted by suitably trained personnel, using equipment compliant with current AS/NZ standards (LUC Favona 17, LUC Trio 11(c));
- the establishment of monitoring locations (LUC Favona 18, LUC Trio 11(d & g);
- structural condition surveys to be completed (LUC Favona 19, LUC Trio 11(e));
- a roving monitor to record vibrations at complainant locations (LUC Favona 20, LUC Trio 11(f));
- complete records to be kept of each blast event (LUC Favona 21, LUC Trio 11(h));
- blasting and material storage and handling to be carried out so as to ensure the safety of persons and compliance with the relevant legislation (LUC Favona 22, LUC Trio 12);
- a Vibration Management Plan to be submitted for written approval by the Manager – Planning and Environmental Services prior to commencement of mining (LUC Favona 23, LUC Trio 13;
- blasting requires the written approval of the Favona Mine Manager (LUC Favona 24(a), LUC Trio 14(a));
- mitigating actions are required in the event of vibration standards being exceeded (LUC Favona v24(b), LUC Trio 14(b));
- report to be provided to Council where measured vibration exceeds specified maximum limits (LUC Favona 24(c), LUC Trio 14(c));
- six monthly summary report to be provided to Council (LUC Favona 24(d), LUC Trio 14(d));
- monitoring records, reports and complaint schedules to be stored and maintained in a systematic manner (LUC Favona 24(e), LUC Trio 14(e));
- establishment of a Heritage Items Monitoring Plan, with identified requirements in response to vibration related effects (LUC Trio 19 - 21) – *this is a separate specific document.*
- the appointment and notification of a Company Liaison Officer (LUC Favona 40 and 41, LUC Trio 25); and
- a Standard Operating Procedure for Complaints (LUC Favona 42, LUC Trio 26).

3 MANAGEMENT

3.1 Blasting Times, Frequencies, and Duration

Although blasting is permitted to occur at any time during any specified period, limits are placed on the number of blast events that may take place during that period as well as the level of vibration that may be generated by any blast event (Section 3.2).

Limitations have been placed on the duration of blasts, with different durations depending on the type of blasts (or combination thereof):

- production blasts (which are generally larger) are restricted to not more than 6 seconds;
- development blasts are restricted to not more than 12 seconds;

- a combination of production and development blasts restricted to not more than 18 seconds.

Blast durations for each blast are documented and recorded in the Blasthub database (Section 4). The overall waveform from each monitor triggered by each blast event is also recorded, which enables verification of overall blast duration. Monitors for Underground Operations are set to 18 seconds to capture the full duration of permitted blast events. In the event that a monitor is triggered twice in succession in relation to a blast event (indicating a vibration event greater than 18 seconds), the waveforms can be reviewed to determine whether the event was solely blast-related or influenced by extraneous vibrations.

3.2 Vibration Limits

The following table summarises the relevant vibration levels. Appendices A and B should be referred to for further detail.

Table 1: Blast number and vibration limits

Time	Maximum number of blast events per period	Maximum ground vibration level (instantaneous vector sum of velocity components) (95% design)
Monday to Saturday (0700 to 2100)	4	6.0 mm/s
Monday to Saturday (2100 to 0700 the following day)	4	1.0 mm/s
Sundays & Public Holidays (0700 to 2100)	4	1.0 mm/s
Sundays & Public Holidays (2100 to 0700 the following day)	4	1.0 mm/s

3.3 Mining Methods

Underground mining is undertaken using a Modified Avoca method. In Modified Avoca, the stopes are mined and filled in sequence from the bottom up. Access from the decline to the ore body is developed at several points and at levels vertically separated by about 15m.

Development drives are formed within the ore body along the line of strike from the access. The floor of the upper drive is drilled, charged and fired - the broken ore between the levels falls to the lower level from where it is mucked out using manned or remote loaders. Once the broken ore is removed, backfill will be tipped from the upper drive to support the stope walls and creating a working floor for the level above to be extracted from.

Other techniques may be employed from time to time depending on the orientation of the ore block and the presence of existing mining. All techniques employed will involve backfilling once the ore has been extracted.

3.4 Management of Effects

3.4.1 Vibration

Underground development blasting at Waihi since early 2005 and production blasting since 2007 has provided an excellent base of experience for vibration management. Blast design is strongly based on the results of earlier blasts in similar areas, utilising a conservative approach to avoid exceedances. Compliance with consent conditions since production blasting began is evidence of the effectiveness of this progressive management.

The two types of blasting are subject to general protocols.

Production Blasts

- All stopes are fired within 6mm/s consent limit periods, usually during the day-time meal-break.
- A Maximum Instantaneous Charge (MIC) is selected, based on experience, which will achieve an acceptably low level of vibration but also maximises the efficiency of the blast. At the bottom of the mine 50kgs MIC is common practice whilst at the top of the mine 10kgs may be required to maintain vibration under the consent limit of 6mm/s.

- IKON detonators are used to give flexibility of timing so that deck charging can routinely be used to maintain compliance with vibration limits.
- The above routine protocols have come about after extensive modelling and trial blasting; there is a check process for each stope blast design. If there is a need to increase the size of patterns above and beyond standard practice, blast plans are sent to Heilig and Partners Pty Ltd for review.

Development Blasts

- Generally, for development there are no more than 4 holes on one delay.
- Each and every face is monitored through Blasthub. If monitoring is starting to show elevated vibration (>0.9mm/s at compliance stations) future blasts in the heading are scheduled for 6mm/s vibration limit periods until the vibration levels trend back down.
- Note: Stripping blasts (which are less confined than normal development blasts) are scheduled during 6mm/s vibration limit periods as stripping has repeatedly returned elevated vibration results.

Irrespective of blast type, OGNZL has procedures that utilise the blast design for management of the blasting process; from marking up a heading face, for drilling through to production charging and firing, then re-entry after firing and managing misfires.

Results from blast monitoring are automatically loaded onto Blasthub from the vibration monitoring network, along with manual loading of details of the blast design and plan. Heilig and Partners Pty Ltd compares the corresponding plans/results and provides an external review, developing recommendations when necessary for on-going blasting plans and procedures to ensure compliance (with a safety margin).

3.4.2 Sound Pressure (Noise)

Blast noise from underground is only an issue when development is being undertaken near a portal; when there is a direct access for the air blast to reach open air. This may happen at times when new declines are developed to provide alternate access to the underground. During such periods, specific measures are undertaken to mitigate noise propagation, including (but not limited to): reducing charge weights, placing large machinery or shields near the decline entrance, and firing during the day. Noise monitoring is also undertaken at the portal and afield to assess any effects.

Some noise is occasionally audible at residences from blasting within the mine proper. Investigation of this indicates that it occurs through ‘regeneration’ of sound from ground vibrations (often via walls and floors of buildings) and is not direct sound pressure. While occasionally distinctly audible, the volume of this noise is low.

3.4.3 Air Emissions

While the underground operations have the potential to generate air emissions like Martha Mine, the underground has the advantage of controlled, constrained air flows and a designed discharge system in the form of the underground vent system. Air emissions during and after blasting were monitored in 2007 (Watercare Services Ltd, September 2009), with results showing emissions are within Workplace Exposure Standards.

4 MONITORING

The Blasthub vibration monitoring system (VMS) has been utilised as the blast vibration monitoring system at Waihi since January 2005 (HDC approval reference 64.601.001 dated 8/3/05). The system provides real-time, web-based monitoring that is accessible to both HDC and OGNZL and includes automatic email notification of blast events that trigger two or more monitors. The VMS will continue in operation throughout underground mining operations.

The VMS provides real-time monitoring and recording. Results are accessible for review on an internet web-site (http://OceanaGold-waihi.blasthub.com). Access to the web-site is controlled by the OGNZL HSE Manager with permission for review provided to HDC staff and OGNZL users. A schematic of the VMS is shown in Figure 1.

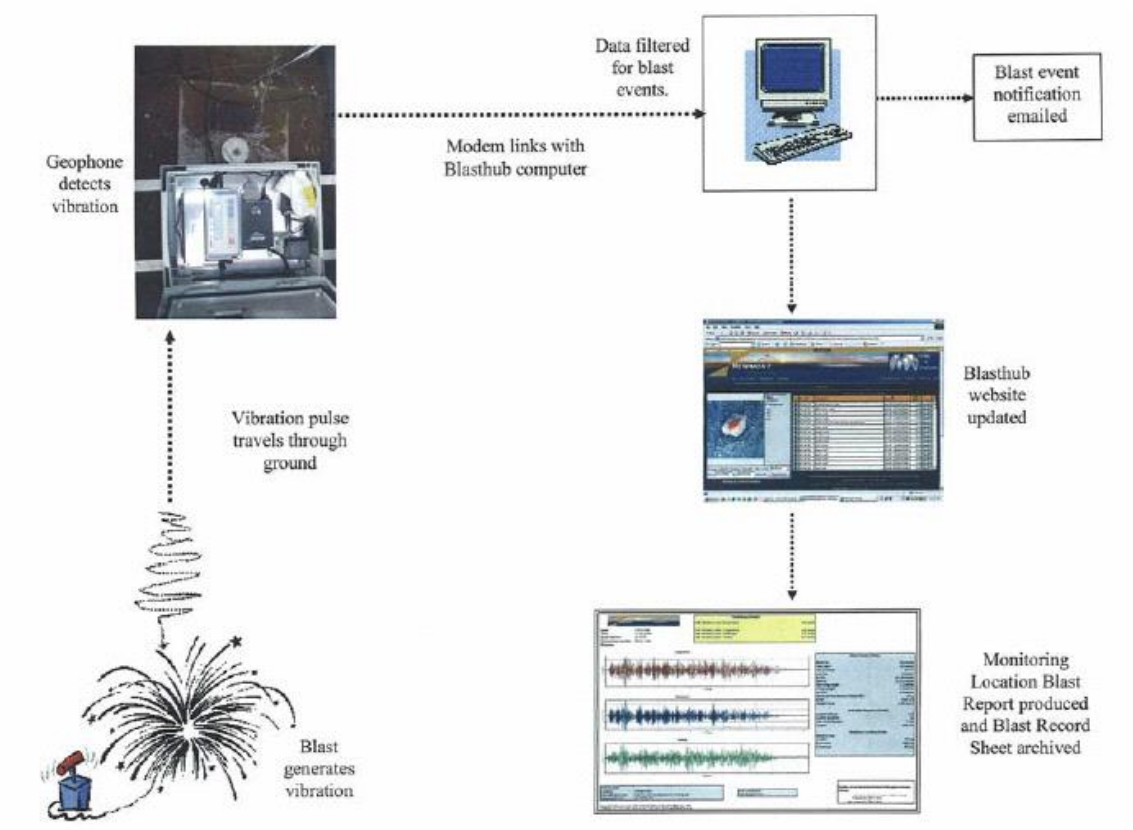


Figure 1: Schematic of Vibration Monitoring System (VMS)

Each VMS monitor has four recording channels. An external geophone (transducer) monitors vibration in three directions (Transverse, Vertical & Longitudinal particle velocities). Ground vibrations generated by a blast are detected by the geophone generating a variable voltage trace. From this data a Peak Particle Velocity (PPV) is generated.

In addition to the permanent monitoring stations, OGNZL deploys roving monitors in response to community concerns and to ensure that there are no anomalous responses in areas between or beyond the permanent vibration monitoring network.

The monitors have vibration trigger levels & pre-set recording period (see Table 1). After recording an event a monitor will automatically dial the Blasthub computer to download the data. In addition, each monitor has a “dial home” schedule for administrative checks. Downloaded data is interrogated by Heilig & Partners Pty. Ltd. to classify blast events from erroneous events (activities such as vehicles, farm stock, seismic events, etc.). Blast Location Monitoring Reports (summarising results & displaying vibration traces) are generated and incorporated into the Blasthub database.

Table 2: VMS Monitor Configurations

Location	Monitor Co-ordinates	Recording Period	Threshold	Operating Schedule	Dial Home Times
Boyd Road	N:643053 E:397165 RL:1119	18 seconds	0.75mm/s	Continuous	8:00, 15:00, 20:00
Moore Street	N:642909 E:396840 RL:1116	18 seconds	0.75mm/s	Continuous	8:10, 15:10, 20:10
Clarke Street	N:642315 E:396624 RL:1094	18 seconds	0.75mm/s	Continuous	8:15
Coreshed	N:642908 E:396398	18 seconds	0.75mm/s	Continuous	8:30, 15:30, 20:30

	RL:1121				
Scout Hall	N:642533 E:396185 RL:1113	18 seconds	0.75mm/s	Continuous	8:35, 15:35, 20:35
Trio Vent Shaft	N:642772 E:396516 RL:1143	18 seconds	0.75mm/s	Continuous	8:40, 15:40, 20:40

Provided the vibration level triggers the minimum number of units, the Blasthub system automatically sends a notification email to key HDC & OGNZL personnel. Blast Records are linked to the relevant Blasthub records (along with complaint records if received).

4.1 Roving Monitor

Under the conditions of consents OGNZL must have a vibration monitoring unit available for use as a roving monitor. The objectives for the roving monitor(s) are;

1. To address residents' concerns about vibration effects and to assist understanding what they are experiencing (see LUC Favona c20 and LUC Trio c11(f)).
2. To assess and confirm compliance with the consent vibration and duration limits.
3. The check for anomalous vibration behaviour.
4. To provide additional detail on blast design and behaviour (often when deployed in close proximity to blasts).

To achieve objectives 1 to 3, the roving monitor(s) will be deployed in response to a series of complaints from a single residence or area, and/or when requested by a resident. A roving monitor need not be deployed in response to a single complaint, nor when complaints are received following a single blast event that generates a relatively high level of vibration. A roving monitor will only be deployed where its installation is approved by the resident.

Internal monitoring to improve knowledge on blast behaviour and design (objective 4) occurs on an "as required" basis, typically at the request of the mining engineering personnel.

4.1.1 Roving Monitor Procedure

Achieving objectives 1 to 3 of roving monitoring requires a unit to be set at a site of interest for a period of time sufficient to enable vibration results at that site to be compared with results from the permanent vibration monitors and the expected levels of vibration (based on the relevant scale-distance equation and the separation between the site and the locations of the blasts). Recognising the limited number of roving monitors, responding to complaints and monitoring requests may have to be scheduled.

Typically, a roving monitor programme at a property would follow the following sequence until resolved:

1. OGNZL will undertake monitoring upon receipt of a series of complaints from a resident, when the resident requests monitoring, and when a roving monitor is available. Initially, monitoring will be undertaken with the geophone on spikes, in natural ground where practical, and at a specific location on the property agreed to between the resident and monitoring personnel. After monitoring for typically 2 weeks or 20 blast events (whichever completes first), the data will be analysed (including a comparison with compliance monitors) and reported to HDC with a recommendation.

    a. Normal configuration settings for residential monitoring are to set the units in 'histogram mode' rather than one of the 'waveform' modes which have higher monitor memory demand. This means that not only can smaller vibrations be determined; the units can be left for longer durations before they reach capacity (this means less disruption to the residents).

2. If warranted (in discussion with HDC), OGNZL will subsequently continue monitoring (this time, with the geophone on a concrete block) for a further 4 weeks or 50 events (whichever completes first). The data will be analysed (utilising a protocol agreed between Blastechnology and Heilig & Partners, June 2018) and reported to HDC, along with a recommendation.
3. If the subsequent data indicates sufficiently anomalous data to question the existing compliance network, a range of mitigation and redress measures will be considered in consultation with HDC:

- Relocation of a nearby compliance monitor to a location more representative of the vicinity.
- An additional compliance monitor.
- Either of the above may require additional roving monitoring to determine an even more representative or acceptable location; the site of the initial monitoring may be improved upon, a permanent monitor may be unacceptable to the resident, or practical considerations (e.g. traffic interference) may require a more pragmatic location.
- OGNZL may negotiate with the resident to reach a written agreement whereby vibration effects are not to be taken into account for monitoring and compliance purposes.
- OGNZL may negotiate to purchase the property, which would render the compliance standards not applicable as it would be a company-owned property.
- In addition to this, the AEP program (Section 7.1) has the capability to adjust AEP assessments (from an agreed start date) for the affected property to more accurately reflect the anomalous vibrations determined for the property.

4. All roving blast-monitoring data in response to residents' complaints will be reported to HDC for their consideration as part of the monitoring programme above, along with being held on OGNZL's computer network. Roving data will continue to be included in the three-monthly summary reports submitted to HDC, with private data redacted (copies are available on their web-site: http://www.hauraki-dc.govt.nz/).

4.2 Geophones

Figure 2 shows the location of the vibration monitors (geophones) associated with the Favona and Trio Operations. These locations were established by agreement with the HDC.

Figure 2. Geophone locations.

Geophones are bolted to a concrete block set in the ground at each site. The site is secured by a protective box (with fencing if necessary) to prevent vandalism. Within the protective box is housed an "Instantel MiniMate Plus" seismograph and a computer modem. Each monitoring station calls the Blasthub computer at predetermined schedules to conduct administrative checks and after being triggered by an event.

4.3 Microphone

A microphone can be used at any of the monitoring sites or via a roving monitor to measure overpressure from air blasts. When deployed, the microphone is located at least 3.5m away from reflective surfaces to ensure representative monitoring.

4.4 Geophone & Microphone (Sound) Calibration

The seismographs, geophones and microphones undergo annual calibration by an independently certified company. The preferred supplier is Saros Group Pty. Ltd., contact:

3/11 Parkview St, Milton, Queensland, 4064, Australia. Tel: 00 61 7 3367 3400, Web: www.saros.com.au.

Original calibration certificates are kept in the Calibration Certificates folder in the Environmental Department. Copies are kept electronically on the Blasthub database accessible via the internet.

Calibration certificates required for geophones and microphones (currently included with geophone certificate) contain the following information:

- Report number
- Make & Model of instrument
- Monitor serial number
- Geophone serial number
- Microphone serial number (if present)
- Calibration date
- Method reference in accordance with ISO/IEC 17025 (1999) & management ISO 9002:1994 accredited
- Test equipment references
- Compliance with relevant standard (Australian national standards of measurements)
- Endorsement certification or logo by accrediting organisation
- Signature of person performing calibration and date of service.

5 MITIGATION

Development blasting for underground operations have been undertaken since early 2005, and production blasting since 2007. The years of blasting have provided an extensive base of experience with vibration management, such that vibration levels are able to be accurately predicted during normal conditions.

Whenever production blasting is initiated in a new area, the first blasts are designed very conservatively and take into consideration the geographical location, geological factors of the ground and the vibration results from nearby production areas. Based on the results of the initial blasts, charging parameters may be altered for subsequent blasts to increase efficiencies whilst still maintaining vibration compliance.

All blasts are designed by production engineers and are reviewed and approved by a senior Technical Services staff member. This review includes checks on the maximum instantaneous charge, timing and sequencing, and takes into account the results of previous firings in the same area.

OGNZL has also modified Blasthub to enable blast vibration history to be reviewed by level and location to inform subsequent blast designs. This process will continue throughout the life of mine.

5.1 Trio Mitigation

Mitigation measures for Trio are based on the same 'monitor and response' process as Favona, but it is recognised that blasting activities for Trio Operations are closer to Waihi residents than most of Favona blasting. Because of this, additional safeguards and responses to blast results have been incorporated through agreement with HDC.

Blast Design Documentation

If requested by HDC, OGNZL will provide a copy of the blast design documentation relating to a blast or series of blasts. Such documentation shall include relevant blast design parameters, raw data of all blasts over the time period used in determining the statistical parameters for the design and the statistical basis upon which the 95% design confidence level is achieved and other data that HDC may specify.

Trigger Level 1

When vibration levels from any two of three successive production blasts within any Confined Production Area[1] exceed 4.5mm/sec, a review of the blast design will be undertaken by Heilig and Partners. While this

[1] Confined Production Area is defined as being "a stope or series of adjacent stopes which have similar sensitivity to receivers in respect to vibration"

review is undertaken, mitigation measures for further production blasting in that Confined Production Area will be implemented. HDC will be advised of the implemented mitigation measures and, when available, of the results of the review. The mitigation measures shall have regard to the appropriate mitigation options listed in condition 14b) of the Trio Land Use Consent.

The objective of the blast design review is to ensure that appropriate measures are taken to minimise vibration from succeeding production blasts in the area concerned and avoid exceeding the maximum vibration levels (condition 9 of the Trio Land Use Consent) at the 95% design confidence level. The outcomes of the review will be used to design subsequent production blasts in the area concerned.

A copy of the review documentation including the Blast Design Documentation shall be provided to HDC upon request.

Trigger Level 2

When any single blast exceeds 6.00mm/s a review of the blast design will be undertaken by Heilig and Partners. While this review is undertaken mitigation measures for further production blasting in that Confined Production Area will be implemented. HDC will be advised of the implemented mitigation measures and, when they are available, of the results of the review. The mitigation measures shall have regard to the appropriate mitigation options listed in condition 14b) of the Trio Land Use Consent. The results of the review shall be reported to HDC within five days of the exceedance of the trigger level, as required by condition 14c) of the Trio Land Use Consent.

The objective of the blast design review is to ensure that appropriate measures are taken to minimise vibration from succeeding production blasts in the area concerned and avoid exceeding the maximum vibration levels (condition 9 of the Trio Land Use Consent) at the 95% design confidence level. The outcomes of the review will be used to design subsequent production blasts in the area concerned.

A copy of the review documentation including the Blast Design Documentation shall be provided to HDC upon request.

Trigger Level 3

If any single blast measures 8mm/s or more, prior to firing another blast in that Confined Production Area, OGNZL will immediately undertake an initial review to determine if the design parameters for that blast were properly implemented and also to determine if the vibration level was a result of operator error. The results of the initial review shall be provided to HDC within 24 hours of the trigger level exceedance, and no further blasting in that Confined Production Area shall occur until the report is provided to HDC.

If the initial review determines that the cause of the trigger level 3 exceedance is failure to properly implement the design or is due to some other operator error, then appropriate measures will be taken immediately to ensure that the subsequent blasts comply with the appropriate design parameters.

If the initial review determines that the actual blast practice complied with the appropriate blast design parameters, OGNZL will immediately;

- commission Heilig and Partners a undertake a detailed review of the blast design; and
- in the meantime, implement such additional mitigation measures as necessary to ensure any subsequent blasts in that Confined Production Area comply with the 6mm/s consent limit.

HDC will be advised of the results of the initial review and of any additional mitigation measures implemented for subsequent blasts in that Confined Production Area. The mitigation measures shall have regard to the appropriate mitigation options listed in condition 14b) of the Trio Land Use Consent.

Where the initial review indicates the need for a detailed design review by Heilig and Partners, the results of the detailed review will be reported to HDC within five days of the exceedance of the trigger level, as required by condition 14c) of the Trio Land Use Consent.

The objective of the blast design review is to ensure that appropriate measures are taken to minimise vibration from succeeding production blasts in the area concerned and avoid exceeding the maximum vibration levels (condition 9 of the Trio Land Use Consent) at the 95% design confidence level. The outcomes of the review will be used to design subsequent production blasts in the area concerned.

A copy of the review documentation including the Blast Design Documentation shall be provided to the Council upon request.

6 REPORTING

Records of all vibration monitoring are maintained and can be provided to HDC on request. In the event of an exceedance or other consent breach, OGNZL prepares a specific report to HDC. This report contains the details of the event, along with the outcome of an investigation and mitigation measures to avoid a recurrence.

OGNZL provides a summary report to the Council at the end of each calendar quarter for all the Waihi operations. This report provides information on blasting undertaken, vibration and overpressure levels recorded, compliance and exceedance data, and any complaints received. These quarterly reports effectively comply with the requirement to report Favona and Trio vibration performance six-monthly (LUC Favona 24(d) and LUC Trio 14(d)).

The Company Liaison Officer (CLO) provides Council with six-monthly reports documenting any complaints (including those relating to vibration) and mitigation action taken.

7 COMMUNITY LIAISON

In accordance with conditions (LUC Favona (40-41), and LUC Trio (25)), OGNZL maintains the position of CLO to liaise between the consent holder, the community and the Council. The CLO has sufficient delegated power to be able to deal immediately with complaints received and is required to investigate those complaints as soon as possible after receipt.

The contact free-phone number for the CLO is notified in local newspapers as a foot-note in every community update (normally fortnightly). The current CLO and contact details are:

CLO - Donna Fisher DDI: 07 863-9827 Mobile: 027 279-9739

0800 OceanaGold (0800 639 6668)

The blasting programme is publicly notified in newspapers circulating in the area prior to any blasting taking place and at regular intervals not exceeding six (6) months thereafter. Changes to the blasting programme are publicly notified in newspapers circulating in the area at least three (3) days prior to implementation.

The CLO also ensures that the blasting programme and changes to the blasting programme are provided to all residents in the immediate area surrounding the blasting areas who in the opinion of the CLO are likely to experience the effects of blasting and vibration. The notification time periods specified above apply to this practice.

A range of communication and engagement strategies are used for different stakeholder groups as appropriate including:

- a regular fortnightly update in the local newspaper, with priority given to potentially affected residents who will receive update information ahead of the general community;
- press releases in local newspapers in response to media requests or project milestones;
- public notice boards erected at viewing areas to provide project information;
- OGNZL maintains a phone list of nearby residents who are contacted prior to each production blast.

7.1 Amenity Effect Programme

In addition to on-going community liaison and complaints management, OGNZL has developed the Amenity Effect Programme (AEP) and has been implementing this as part of its ongoing liaison and consultation programme with the local community.

The consent limits that have been set for Favona and Trio are designed to, and do, avoid nuisance effects for most of the Waihi community for most of the time. OGNZL complies with these limits most of the time but some people living close to the mines may consider they experience some reduction in amenity due to increased levels of noise, vibration and possibly dust. Thus, while the Waihi community broadly shares the economic and social benefits of OGNZL's mining operations, a relatively small proportion of the town's population may consider it bears some disadvantages from the operations.

The programme is an agreement between OGNZL and residents who may perceive some effect on amenity on a more-than intermittent basis as a result of mining activity. The property owners or occupiers within an area defined by OGNZL will receive payments despite the operations being conducted within consent compliance limits.

The partnership aims to:

- Acknowledge some people consider their amenity is affected by blast vibration, dust or noise effects;
- Provide an incentive for owners/occupiers to maintain the property ownership/occupation status quo to the maximum extent practicable;
- Provide an incentive for OGNZL to strive to minimise operational effects on the local community;
- Establish an agreed formula for calculating a purchase price for properties that the owner wishes to sell or that OGNZL wishes to buy; and
- Ensure cost-effectiveness for OGNZL and enable or enhance existing and future land access.

8 COMPLAINT RESPONSE

The OGNZL Standard Operating Procedure WAI-800-PRO-007 Managing Public Complaints (refer Appendix C) will be used for any complaints received from the community.

9 TRAINING

All management, staff and contractors who work on site take part in induction training before commencing work on the project. In addition to the site health and safety training, the induction aims at raising general awareness of individual responsibilities for managing and reporting environmental and community effects. Reporting procedures and accountabilities to departmental managers and environmental staff are outlined, and all inductees are provided with a site contact list.

Responsibility for staff environmental awareness and training rests with the HSE Manager or delegated representative. Environmental personnel undertake vibration monitoring and maintain monitoring infrastructure, with training, support and guidance provided by John Heilig of Heilig and Partners Pty Ltd.

10 VIBRATION MANAGEMENT PLAN REVIEW

This Plan may be updated as necessary and modifications to the document may be required as operations proceed. In the event that additional mitigation actions are required to reduce vibration effects, the agreed actions will be implemented by OGNZL as soon as practicable and this Plan may be required to be modified to reflect changes.

11 REFERENCES

OceanaGold Waihi Gold Ltd, October 2009: Air Quality Management Plan (Martha & Favona Mines). Unpublished report.

Watercare Services Limited, September 2009: OceanaGold Waihi Gold, Particulate, Carbon Monoxide and Oxides of Nitrogen Emission Testing, August 2007, AMENDED. Unpublished report for OceanaGold Waihi Gold.

Blastechnology and Heilig & Partners Pty Ltd, June 2018. Recommendations in Relation to Roving Vibration Monitor Data at Waihi. Report to HDC and OceanaGold NZ Ltd.

APPENDIX A – Vibration Conditions - Land Use Consent No. 85.050.326E (Favona)

Blasting and Vibration

Ground Vibration

11. The activity shall comply with Rule 9.4.3 of the Operative Hauraki District Plan including Standard 9.4.3.3A – Continuous Vibration and Standard 9.4.3.3B – Impulsive Vibration from Blasting as amended by Condition 12 below.

(NOTE: The magnitudes of vibrations from Favona Underground Mine Project activities may be increased by the concurrent Favona Exploration Decline Project and Martha Mine activities. In terms of the Operative Hauraki District Plan, Rule 9.4.2, vibrations from sources other than the Favona Underground Mine Project activities are background vibrations and are additive to vibrations from the Favona Underground Mine Project.)

Impulsive Vibration from Blasting

12. The activity shall comply with the following standard.

Time	Maximum number of blast events per period	Maximum ground vibration level (instantaneous vector sum of velocity components) (95% design)
Monday to Saturday (0700 to 2100)	4	6.0 mm/s
Monday to Saturday (2100 to 0700 the following day)	4	1.0 mm/s
Sundays & Public Holidays (0700 to 2100)	4	1.0 mm/s
Sundays & Public Holidays (2100 to 0700 the following day)	4	1.0 mm/s

Blast Event Duration:

Blast events involving:

- Production blasts only shall have a duration not more than 6 seconds;
- Development blasts only shall have a duration not more than 12 seconds;
- A combination of production and development blasts shall have a duration not more than 18 seconds.

(Note: Blast events of longer than the periods specified above are not permitted.)

A 'Blast Event' is defined as;

> "An individual or number of linked individual blasts of not more than the total duration periods specified above."

The maximum number of blast events does not include blast events necessary for safety and minor maintenance purposes.

The maximum ground vibration (instantaneous vector sum of velocity components) of 1.0mm/s shall apply to all maintenance blast events during the periods that this standard applies, as specified above.

13. The consent holder shall ensure that blast events at the Favona Mine shall not coincide with blast events at the Martha Mine.

14. Deleted

Monitoring

15. Impulsive vibration from all events shall be monitored.

16. The monitoring system shall be automated to allow for the immediate analysis of each blast event.

17. Suitably trained personnel shall conduct monitoring. Equipment used for monitoring, equipment calibration and vibration measurement procedures shall comply with the current Australian Standard AS2187.2 (or equivalent international standards) and equipment manufacturers' recommendations.

18. Monitoring locations shall be at the three (3) locations shown on Plate C – Amended (dated 20 November 2003) prepared by Heilig & Partners PTY Ltd, appended to this consent as **Attachment B**.

    The monitoring position shall be the point at or within the residence boundary nearest the project area. The monitoring position shall not be on or inside a building or other structure.

19. Before blasting starts, and provided the property owner consents, the consent holder shall complete a structural condition survey for each of the 3 properties selected for monitoring. The survey shall be carried out by an independent structural engineer suitably qualified and experienced in domestic building design and construction. The survey report shall include a visual inspection and video record of all existing built surfaces and defects including concrete access-ways.

20. A roving monitor shall be deployed to record vibrations at locations the subject of complaints

21. A complete record of each blast event shall be maintained. The record shall include:

    a) Types of measurement instrument used
    b) Time and duration of blast event
    c) Location of blasts
    d) Locations of monitoring positions
    e) Distances for the blasts to the monitoring position and nearest residence
    f) Distance from monitoring position to nearest residence
    g) Measured vibration levels
    h) Total amount of explosive used
    i) Delay sequence of the blast event
    j) Maximum instantaneous charge
    k) Volume of rock blasted
    l) Complaints (including the nature of effects for example rattling window, was the complainant awoken) and whether the Vibration Mitigation Action Process has been undertaken.
    m) Advice as to whether the blast was a safety or minor maintenance blast.
    n) Design criteria not covered in items a) to m) above.

Health and Safety

22. All blasting and material storage and handling shall be carried out so as to ensure the safety of persons in the Favona Project Area and adjacent area. The Health and Safety in Employment Act, 1992, the Health and Safety in Employment (Mining Underground) Regulations, 1999 shall be complied with.

    The consent holder shall notify the Health and Safety Inspector of the blasting procedures to be employed and of any changes to the procedures.

Vibration Management Plan

23. The consent holder shall, at least 1 month prior to commencement of mining, but not until the results of blasting and community consultation associated with the Favona Exploration Decline Project and any consequential review of the consent conditions for the Favona Underground Mine Project have been completed, submit a vibration management plan for written approval by

the Manager – Planning and Environmental Services. The objective of the plan is to provide generic detail on how vibration consent condition compliance will be achieved for the duration of the Favona Underground Project. The plan shall include a blasting programme that sets out in general terms the numbers, times (generally around shift changeovers), duration of blast events, and steps to minimise the duration of blast events, records to be kept and mitigation actions to be implemented in the event of non-compliance.

Management and Reporting

24. a) No blasting operations shall be carried out without the written approval of the Favona Mine Manager. Before blasting commences the Favona Mine Manager shall ensure that the operations will not cause danger, damage and undue discomfort to any person nor danger and damage to property.

b) In the event that blast monitoring shows that the vibration standards have been exceeded, the consent holder shall implement mitigation actions to ensure compliance. Possible mitigation actions include:

i) Limiting the rate of excavation advance
ii) Reducing the blast hold diameter
iii) Reducing the weight of explosives in the blast hole
iv) Using alternative explosive types
v) Using electronic delays to adjust sequencing
vi) Decking
vii) Changing the blast pattern
viii) Drilling and blasting in two passes
ix) Changing the method of mining

c) The consent holder shall provide a report to Council for each blast event where the measured vibration exceeds the specified maximum limits. The reports shall be submitted within five (5) days after the blast event and include the records listed in Condition21 above and mitigation actions taken to limit subsequent blast vibrations to the maximum limits or less.

d) The consent holder shall provide a summary report to Council at six (6) monthly intervals after commencement of this consent. The report shall include the following:

i) Confirmation of actions taken during the previous reporting period
ii) All vibration related complaints received during the current reporting period and mitigation actions taken by the consent holder
iii) Results of vibration monitoring.

Community Liaison

Liaison Officer

40. Prior to the exercising of the consent, the consent holder shall appoint a person (the 'Liaison Officer') and any replacement person subject to the approval of the Hauraki District Council and the Waikato Regional Council (the 'Councils') to liaise between the consent holder, the community and the Councils as set out in **Attachment C** to this consent. The Liaison Officer shall have sufficient delegated power to be able to deal immediately with complaints received and shall be required to investigate those complaints as soon as possible after receipt. A Liaison Officer shall be appointed for the duration of this project.

41. The name of the Liaison Officer together with the contact phone numbers for that person shall be publicly notified in local newspapers by the consent holder prior to the exercising of this consent and at least once a year thereafter.

Complaints Procedure

42. The Standard Operating Procedure for Complaints and as amended by the Vibration Mitigation Action Process shall be used for any complaints received from the community.

APPENDIX B – Vibration Conditions - Land Use Consent RC-15774 (Trio)

Blasting and Vibration

8. Ground Vibration

All blasts will be designed at a 95% level of confidence to achieve the vibration levels specified in Condition 9.

9. Impulsive Vibration from Blasting

The activity shall comply with the following standard as measured at the boundary of any residentially zoned site or the notional boundary of any occupied rural dwelling not owned by the consent holder (or related company) or not subject to an agreement with the consent holder (or related company).

In the event that a property is sold and is not subject to an agreement between the consent holder (or related company) and the purchaser or related company, or in the event that there is no longer an agreement between the consent holder and the landowner, the measurement of vibration shall revert to being measured at the boundary of the residentially zoned site or the notional boundary of the occupied rural dwelling.

Time	Maximum number of blast events per period[1]	Maximum ground vibration level (instantaneous vector sum of velocity components - 95% design)
Monday to Saturday (0700 to 2100)	4	6.0 mm/s
Monday to Saturday (2100 to 0700 the following day)	4	1.0 mm/s
Sundays & Public Holidays (0700 to 2100)	4	1.0 mm/s
Sundays & Public Holidays (2100 to 0700)	4	1.0 mm/s

[1] Note: The Period means the four durations referred to in the column headed "Time"

Blast events involving:

- Production blasts shall have a duration not more than 6 seconds;
- Development blasts shall have a duration not more than 12 seconds; and
- A combination of production and development blasts shall have a duration not more than 18 seconds.

(Note: Blast events of longer than the periods specified above are not permitted.)

A 'Blast Event' is defined as;

"An individual or number of linked individual blasts of not more than the total duration periods specified above."

The maximum number of blast events does not include blast events necessary for safety and minor maintenance purposes.

The maximum ground vibration (instantaneous vector sum of velocity components) of 1.0mm/s shall apply to all maintenance blast events during the periods that this standard applies, as specified above.

10. The consent holder shall ensure that blast events at the Favona Mine shall not coincide with blast events at the Martha Mine.

11. Blasting and Vibration Monitoring and Reporting

a) Impulsive vibration from all events shall be monitored

b) The monitoring system shall be automated to allow for the immediate analysis of each blast event.

c) Suitably trained personnel shall conduct monitoring. Equipment used for monitoring, equipment calibration and vibration measurement procedures shall comply with the current Australian Standard AS2187.2 (or equivalent international standards) and equipment manufacturers' recommendations.

d) Unless otherwise confirmed in the Vibration Management Plan (Condition 13) monitoring locations shall be those shown in Figure 5 of the report prepared by Heilig & Partners Pty Ltd being Appendix 5 of the application AEE. The monitoring position shall be as close as practicable to a point on or within the residence boundary nearest the project area. The monitoring position shall not be on or inside a building or structure.

e) Before blasting starts, and provided the property owner consents, the consent holder shall complete a structural condition survey for each of the properties selected for monitoring. Further, structural condition survey s on this same basis shall be undertaken on all properties not owned by the consent holder and which are located within the 5 mm/s vibration contour shown on Plate No E dated 21 November 2010 prepared by Heilig & Partners (Appendix C. Evidence by John Heilig) and include in Attachment 1 of this consent. The survey shall be carried out by an independent structural engineer suitably qualified and experienced in domestic building design and construction. The survey report shall include a visual inspection and video record of all existing built surfaces and defects including concrete access-ways.

f) A roving monitor shall be deployed to record vibrations at locations the subject of complaints

g) In addition to the monitoring locations as specified in Condition 11d, an additional monitoring location shall be established to determine the levels of vibration at the Cyanide Tanks and Ore Kilns on Union Hill. The final position(s) are to be confirmed in the Vibration Management Plan (Condition 13). Any subsequent proposed change in monitoring location shall require a revision to the Vibration Management Plan. The revised Plan shall be submitted for written approval by the Council's Manager – Planning and Environmental Services as set out in Condition 13 for relocation.

h) A complete record of each blast event shall be maintained. The record shall include:

(i) Types of measurement instrument used
(ii) Time and duration of blast event
(iii) Location of blasts
(iv) Locations of monitoring positions
(v) Distances for the blasts to the monitoring position and nearest residence
(vi) Distance from monitoring position to nearest residence
(vii) Measured vibration levels
(viii) Total amount of explosive used
(ix) Delay sequence of the blast event
(x) Maximum instantaneous charge
(xi) Volume of rock blasted
(xii) Complaints (including the nature of effects, for example rattling window, was the complainant awoken) and whether the Vibration Mitigation Action Process has been undertaken.
(xiii) Advice as to whether the blast was a safety or minor maintenance blast.
(xiv) Design criteria not covered in items i) to xii) above.

12. Health and Safety

All blasting and material storage and handling shall be carried out so as to ensure the safety of persons in the Trio Project Area and adjacent area. The Health and Safety in Employment Act 1992 the Health and Safety in Employment (Mining Underground) Regulations 1999 shall be complied with.

The consent holder shall notify the Health and Safety Inspector of the blasting procedures to be employed and of any changes to the procedures.

13. Vibration Management Plan

The consent holder shall, at least 1 month prior to commencement of mining, submit a Vibration Management Plan for written approval by the Council's Manager – Planning and Environmental Services. The objective of the Plan is to provide detail on how vibration consent condition compliance will be achieved for the duration of the Trio Underground Mine Project. The Plan shall include a blasting programme that sets out in general terms the numbers, times (generally around shift changeovers), duration of blast events, coordination of development and production blasts into one blast event and steps to minimise the duration of blast events, records to be kept (including blast design data), blast design review procedures, procedures to be adopted where vibration levels approach the maximum permitted levels and mitigation actions to be implemented in the event of non-compliance. The mitigation actions shall include procedures to repair any damage to structures identified as having resulted from activities at the Trio Underground Mine. The Plan shall also confirm the permanent monitoring locations to be established in accordance with Conditions 11d) and 11g).

14. Management and Reporting

a) No blasting operations shall be carried out without the written approval of the Trio Mine Manager. Before blasting commences the Trio Mine Manager shall ensure that the operations will not cause danger, damage and undue discomfort to any person nor danger and damage to property.

b) In the event that blast monitoring shows that the vibration standards have been exceeded, the consent holder shall implement mitigation actions to ensure compliance. Possible mitigation actions include:

(i) Limiting the rate of excavation advance
(ii) Reducing the blast hole diameter
(iii) Reducing the weight of explosive in the blast hole
(iv) Using alternative explosive types
(v) Using electronic delays to adjust sequencing
(vi) Decking
(vii) Changing the blast pattern
(viii) Drilling and blasting in two passes
(ix) Changing the method of mining

c) The consent holder shall provide a report to Hauraki District Council for each blast event where the measured vibration exceeds the specified maximum limits. The reports shall be submitted within five (5) days after the blast event and include the records listed in Condition 11h) above and mitigation actions taken to limit subsequent blast vibrations to the maximum limits or less.

d) The consent holder shall provide a summary report to Council at six (6) monthly intervals after commencement of this consent. The report shall include the following:

(i) Confirmation of actions taken during the previous reporting period
(ii) All vibration related complaints received during the current reporting period and mitigation actions taken by the consent holder
(iii) Results of vibration monitoring.

e) Monitoring records, reports and complaint schedules shall be stored and maintained in a systematic manner. Storage shall be secure and maintained for 12 months after completion of all blasting at the underground mine. Records shall be available for perusal by the Health and Safety Inspector, Council and their representatives.

Liaison Officer

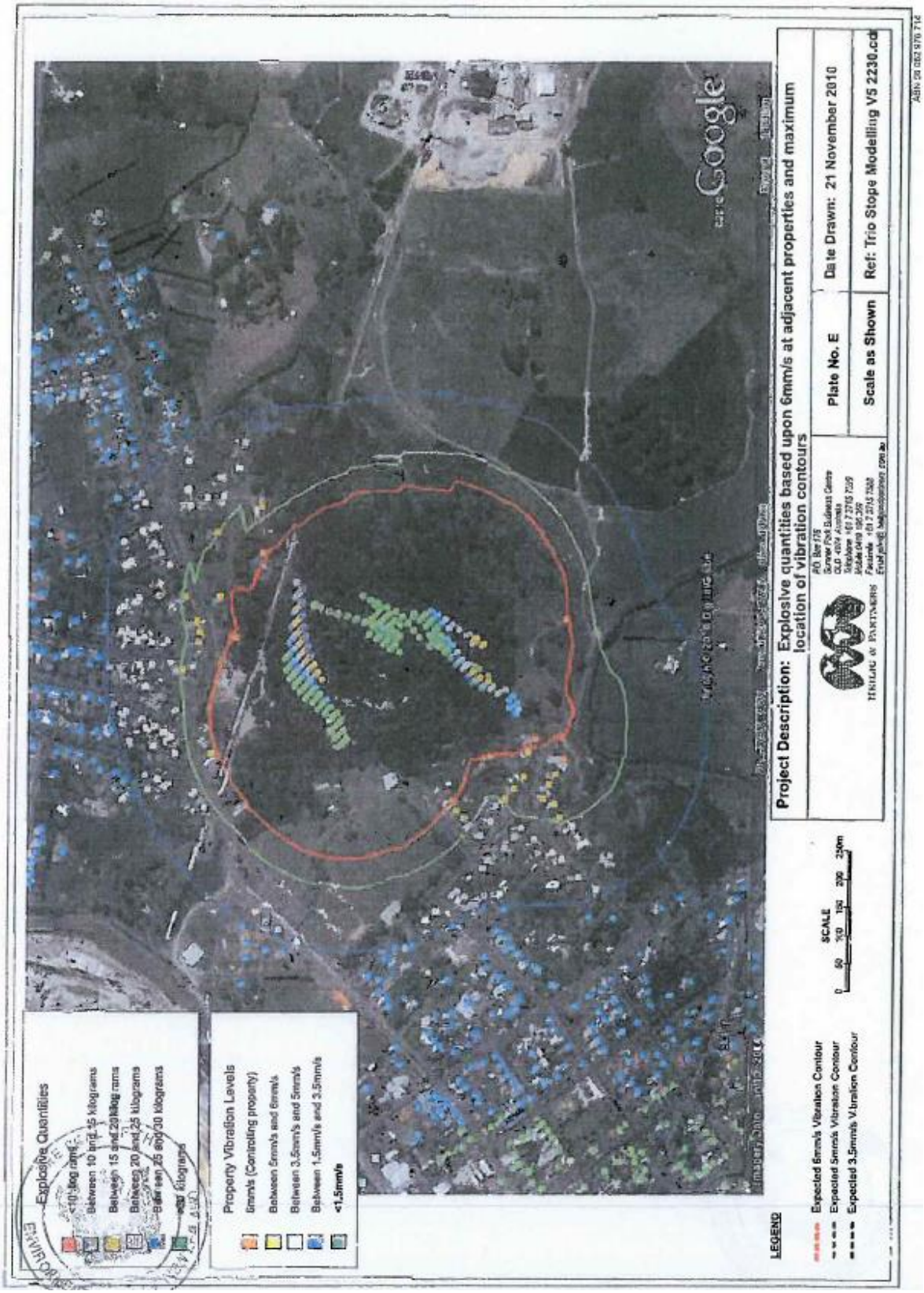
25. At least 1 month prior to the exercising this consent, the consent holder shall appoint a person (the 'Liaison Officer') and any replacement person subject to the approval of the Hauraki District Council and the Waikato Regional Council (the 'Councils') to liaise between the consent holder, the community and the Councils. The Liaison Officer shall have sufficient delegated power to be able to deal immediately with complaints received and shall be required to investigate those complaints as soon as possible after receipt. The Liaison Officer shall be appointed for the duration of this project.

Complaints Procedure

26. The Standard Operating Procedure for Complaints (attached as Attachment 2 to this consent) shall be used for any complaints received from the community.

ATTACHMENT 1

Pate No E – Heilig & Partners
As referenced in Condition 11e)



APPENDIX C – OGNZL SOP WAI-800-PRO-007 Managing Public Complaints

Standard Operating Procedure

Managing Public Complaints

WAI-800-PRO-007

This is no longer a controlled document once printed.
This document must not be released outside of the company without permission of the Departmental Manager.

Area:	**Social Development & Community**
Site:	**Waihi**

	Position/Title	**Name**	**Date**
Authored By:	Community Support Officer	Gael Hurley	07 April 2016
Reviewed By:	Community Support Coordinator	Kyle Welten	12 March 2019
Approved By:	Senior Community Advisor	Kit Wilson	12 March 2019

	Document Name	**Document Reference**
Reference Documents		

Document Issuance and Revision History

Procedure Name: **Managing Public Complaints**

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Revision No.	Revision Date	Section	Page	Description of Issuance or Revision	Effective Date
1	March 2019			Title updates and addition of Martha Drill Drive Project and Project Martha information	March 2019

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1 PURPOSE

- To ensure public complaints are managed in a sensitive, timely and consistent manner and to identify corrective actions where appropriate
- To ensure compliance with Martha Mine Extended Project Resource Consents and Conditions, Hauraki District Council 3.4(a)(g), Waikato Regional Council 13.0 Schedule 1, 7.0, and Mining Licence (ML 32 2388).
- To ensure compliance with Correnso Underground Mine Conditions of Consent 80-83.
- To ensure compliance with Slevin Underground Project Area (SUPA) Conditions of Consent 41-45.
- To ensure compliance with Martha Drill Drives Project Conditions of Consent 35-36.
- To ensure compliance with Project Martha Conditions of Consent, Schedule One 3-4.

2 SCOPE

- This procedure relates to all staff at the OceanaGold New Zealand Ltd (OGNZL) Waihi site including the Company Liaison Officer (CLO), the Community Engagement Officer (CEO) and other members of the External Affairs and Gatehouse Security staff who provide on-call cover for the CLO and are in the position to receive complaints from members of the public.
- A complaint is defined as: An expression of discontent, damage, discomfort, annoyance etc. of an individual or group of people directly or indirectly caused by OGNZL Waihi activities.
- It is important to capture other feedback from the community that is not classified as a complaint. Some people wish to inform OGNZL Waihi of its perceived activities and/or effects and this should be encouraged. Feedback can provide forewarning of aspects that may become issues and / or complaints. This information is to be recorded and monitored in the same manner as complaints.

3 RESPONSIBILITIES

Role	Responsibilities
General Manager	• Ensure the Management of Public Complaints is undertaken to ensure compliance with Hauraki District Council & Waikato Regional Council consents and Mining Licence conditions relating to complaints management • Provide sufficient resources to ensure conformance with the requirements of this SOP • Ensure delegation of authority to the CLO to ensure conformance with this SOP including the authority to request the immediate implementation of the noise and/or vibration mitigation process, to stop an activity or item of plant if, in the opinion of the CLO having followed the procedure set out below, such action is required in response to the complaint • Participate in daily review of complaints received • Participate in management reviews to review complaint trends
Senior Community Advisor	• Ensure the Management of Public Complaints is undertaken as required by relevant Hauraki District Council & Waikato Regional Council consent conditions and Mining Licence conditions. • Provide support for the CLO, the CEA and other Community staff in the management of complaints • Participate in daily review of complaints received • Participate in management reviews to review complaint trends • Interviewed on the local radio (Gold FM) (usually about once a fortnight) on current issues including information on how people may contact the company
Site Services Manager	• Provide support to the complaints management procedure as required particularly with regard to investigation of complaints relating to perceived property damage

Role	Responsibilities
Company Liaison Officer (CLO)	• Ensure the Management of Public Complaints is undertaken to ensure compliance with Hauraki District Council & Waikato Regional Council consents and Mining Licence conditions relating to complaints management • Ensure CLO contact details are published regularly in local media • Ensure the Community Engagement line is staffed at all times • Ensure complaints received are logged in the daily report and the complaints database • Ensure six-monthly reports are submitted to Hauraki District Council and Waikato Regional Council
Community Engagement Officer (CEO)	• Provide support to the CLO to ensure compliance with Hauraki District Council and Waikato Regional Council consents and Mining Licence conditions relating to complaints management including assisting with providing cover for the Community Engagement line, receiving and logging complaints in the daily report, ensuring the complaints data base is kept up to date
External Affairs Team	• Provide support to the complaints management procedure by carrying out rostered on call duties as required
Baxter Road Gatehouse Security Staff	• Provide support to the complaints management procedure by staffing the 0800 WAIHIGOLD Community Engagement Line outside normal office hours and at other times as may be determined.
Senior Environmental Advisor	• Support the complaints management procedure by providing monitoring results as requested
Environmental Technician	• Carry out noise monitoring as requested in response to a noise complaint
Employee	• Ensure general awareness of the complaint management procedure

4 PROCEDURES

4.1 Publication of Complaint Management Procedures

- OGNZL Waihi has developed a complaint management procedure that is communicated to the community in a number of ways as follows:
    1. The website www.waihigold.co.nz includes instructions on lodging a complaint with the Company Liaison Officer or delegate.
    2. The Waihi Leader Update that is published once a month includes contact details for the Community Engagement Line.
    3. All communication provided to residents through mail-drops or door-knocking includes contact details for the Community Engagement Line.

The Senior Community Advisor is interviewed on the local radio (Gold FM) once a month on current issues including information on how people may contact the company.

4.2 Complaints Overview

- 0800 WAIHIGOLD is a 24/7 staffed telephone line to enable members of the public to notify the company when mining activity is perceived to cause disturbance.
- This immediacy of reporting enables OGNZL Waihi to modify its activity to minimise disturbance. For an event that has occurred, such as a blast, the reporting assists with the planning for future activity. Often an exceedance determines when this takes place however investigation can happen when other trends are identified.
- Complainants should be encouraged to report promptly following a disturbance to allow immediate follow-up to occur or, where this is not possible, provide information for the planning of future mine-related activity. (Multiple historical complaints are addressed in 4.3).
- Anonymous complaints will not be deemed complaints. Complainants who wish to remain anonymous will be advised that their personal details can remain confidential (i.e. known only to the

External Affairs department). If they still wish to remain anonymous the matter will be logged as a concern and not responded to.

4.3 Receiving & Responding to Complaints

- The CLO is the first point of contact for any member of the public (stakeholder) making a complaint.
- CLO contact details are made available as follows: Waihi Leader Update (every month), on the www.waihigold.co.nz website and in consultation material.
- Complaints are received via the company community engagement phone. Any calls received at reception through the main switchboard will be transferred to the Community Engagement phone line (0800 WAIHIGOLD).
- The CLO or delegate will attend the 0800 WAIHIGOLD Community Engagement Line during normal office hours.
- Complaints received via the 0800 WAIHIGOLD Community Engagement Line outside normal office hours will divert to a recorded message which will advise the caller to leave a message for non-urgent issues which can be attended to next business day. For any issue requiring an immediate response the call will be answered by Gatehouse Security staff. (See 4.4)
- Complaints received through HDC and WRC are also logged.
- If contractors or staff receive a complaint from a stakeholder, the complainant should be advised to contact the CLO or delegate on the free phone number 0800 WAIHIGOLD / 0800 9244444. This requirement is communicated to all OGNZL Waihi employees and contractors during the General Site Induction.
- If security staff at the Baxter Road gatehouse receives a complaint during normal office hours the complainant should be advised to contact the CLO or delegate on 0800 WAIHIGOLD.
- Complainants must be treated politely and with sensitivity.
- If a complainant becomes abusive about an issue the CLO or delegate should politely bring the conversation to an end and advise the caller that they will phone them back in a specified time (e.g. half an hour or the next day) to allow them time to regain their composure. If abusive behavior continues the complainant will be advised in writing that in future they will need to lodge any complaints with HDC as we will no longer respond to their calls. The caller's name will be added to a 'caution' list for internal purposes – which will also be communicated to Hauraki District Council's Manager of Planning & Environmental Services.
- Multiple historical complaints will be logged if they have occurred during the current calendar month. It is difficult to add new complaints after the end of month reporting deadline and does not assist OGNZL Waihi to minimise its perceived disturbance within the community. Complaints that relate to events prior to the current calendar month will be logged as a concern and not responded to.
- All complaints are recorded on the Complaints form (WAI-800-FOR-001-0).
- The form prompts the CLO or delegate to record necessary information (such as the cause of the complaint and any mitigating actions that were taken to address the issues identified) as per the consent condition and Mining Licence conditions. It is important to get as much information as possible to enable an effective investigation to occur.
- In the event a complaint is received that is found not to be related to OGNZL Waihi activities, the details will be captured and reported at the daily meeting. Despite the complaint not being attributable to OGNZL Waihi activities it will be documented as a complaint with an explanation outlining investigation findings.
- Thank the complainant and ask them if they would like to be advised of any monitoring results.
- If the complainant does want to be informed of monitoring results indicate that they will be notified as soon as the complaint has been investigated and notified of what action will be/has been taken (if any). Issues that could seriously affect the running of the operation are reported to the General Manager or his designate.

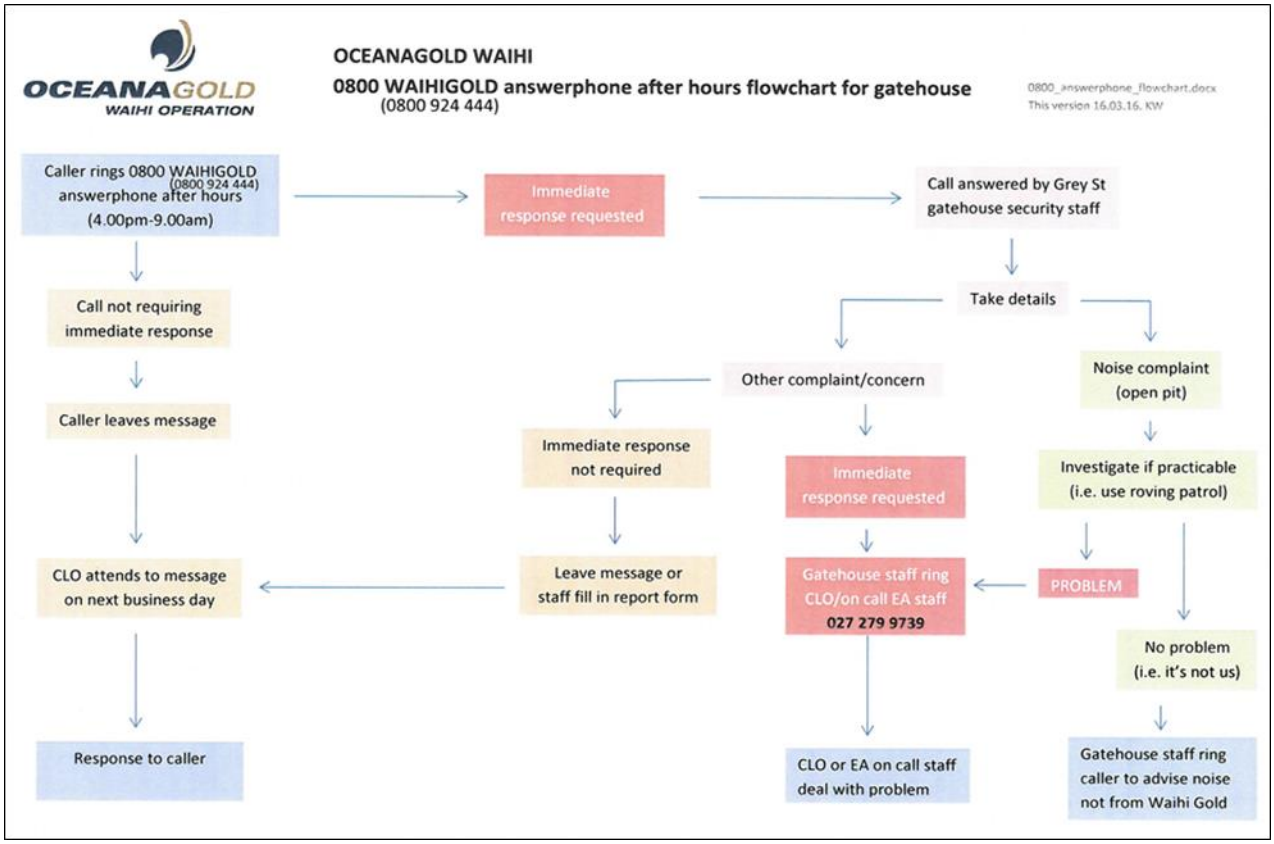
4.4 0800 WAIHIGOLD Calls Received Outside Normal Hours

- Outside normal office hours callers to 0800 WAIHIGOLD will receive a recorded message:
- Welcome to the Waihi Gold Community Engagement Line. This phone is attended 9 am to 4 pm each weekday. If you are calling outside these hours please leave a message. A staff member will get back to you on the next working day. If you are calling about an issue which requires an immediate response such as a noise complaint please press 1.
- Caller leaves a message and issue is dealt with by the CLO or delegate next business day as per 4.6.
- 'Press 1' connects the caller to Gatehouse Security.
- Roving guard will investigate noise source.

- If the call is genuine and requires an immediate response (e.g noise issue related to exploration drill rig) Security staff ring CLO or External Affairs staff member on call.
- If call does not require an immediate response security staff log call and hand details to CLO or delegate to be dealt with next business day.

4.5 0800 WAIHIGOLD Calls Received by Gatehouse Security

- Noise complaints received by Gatehouse Security Guards should be investigated as soon as practicable by the roving guard.
- If it is found that the source of the noise is from OGNZL Waihi's operations the complaint must be referred immediately to the CLO or EA staff member on call.
- Noise complaints that are not related to OGNZL Waihi operations should be logged and details forwarded to the CLO or delegate who will attend to the complaint the next business day.
- Complaints regarding any other issues should be logged and details forwarded to the CLO or delegate who will attend to the complaint the next business day.
- All complaints are recorded on the Complaints form (WAI-800-FOR-001-0).
- The form prompts the recording of necessary information as per the resource consent and Mining Licence conditions. It is important to get as much information as possible to enable an effective investigation to occur.
- Complainants must be treated politely and with sensitivity.
- If a complainant becomes abusive about an issue, suggest they ring back later.
- At the conclusion of the call thank the complainant and ask them if they would like to be advised of any monitoring results.
- Prank or malicious calls should be ignored. Hang up immediately.
- The CLO or designate will meet with new Gatehouse Security staff to advise of the most effective ways of dealing with complaints and address any issues staff may have.
- Specific details of complaints received must not be discussed with anyone outside of the OGNZL Waihi Community Department.
- The steps outlined in the flowchart below must be followed for complaints received by gatehouse staff.



4.7 Investigation & Action

- The complaint will be investigated and an action or response decided upon.

4.8 Noise

- Noise complaints are followed up immediately if reasonable to do so (within an hour of the complaint being received or at the same time the next day).
- The Senior Community Advisor and/or Environmental Technician is informed and a decision is made to measure the noise if practicable (e.g noise monitoring may not be practicable if the wind speed is greater than 5.0m/sec).

4.9 Vibration

- Vibration complaints are checked by accessing Blast Hub
- Exceedances are required to be investigated in more detail and a response from the mining department recorded as to what mitigation action is planned. Maximum permitted levels are:
    - Martha: 5 mm/s for 95% of the monitored events;
    - Correnso, SUPA, MDDP, and Martha Underground: The peak particle velocity (vector sum) shall be no more than:
        - i) For development blasts
            - 5mm/s for 95% of the monitored events
            - 2mm/s on average
        - ii) For production blasts
            - 5mm/s for 95% of the monitored events
            - 3mm/s on average

- A written explanation of vibration results above these standards is provided to HDC by the Mining Manager.

4.9 Non-amenity Complaints

- Complaints other than those relating to noise or vibration are investigated by the relevant department depending on the issue.
- Part of the investigation could include a visit to the complainant to discuss the problem, especially if the effect they are feeling is temporary; or if requested, a meeting could be arranged between the complainant and the General Manager, or relevant departmental Manager.
- OGNZL Waihi staff should never visit a complainant alone, both for personal safety and for verification of discussions. In the event a staff member feels uncomfortable due to intimidating behaviour they should remove themselves from that environment immediately. The incident will be reported to their manager and a decision will be made on whether the complainant is added to the ‘caution’ list. The complainant will be advised in writing that their behaviour was felt to be inappropriate. If the complainant must be visited in future EA staff will be accompanied by appropriate persons (e.g. manager, security).
- Complaints received about OGNZL Waihi staff behaviour will be referred to the Human Resources Manager for investigation. If a complaint is received about contractor behaviour the appropriate manager will be included in any investigation.
- The CLO or the Community Engagement Officer should be present at any meeting that relates to community complaints.
- It is important to record on the form the decision for internal corrective or preventive action and the response made to the complainant.
- Follow-up may be required to determine if an action was effective. This will depend on the issue and agreed time-frame to carry out the action.
- All actions relating to complaints are managed through the complaints database system.

4.10 Complaint Resolution

- First Order: It is anticipated that complainants will contact the CLO in the first instance. If, for any reason, they are dissatisfied with the response by the CLO. The CLO and/or General Manager (or delegate) may meet with the complainant to discuss the complaint and ways in which the issue can be resolved

- Second Order: If the complainant chooses to escalate the complaint they may then contact the Manager Planning and Environmental Services or any other Officer of either the Hauraki District Council or the Waikato Regional Council to provide independent mediation.
- Third Order: If the complainant believes the matter is still unresolved they should be directed to the district court, where a decision will be binding on both parties.
- Complaints relating to amenity effects such as noise or vibration will be logged and monitored. If the noise or vibration level is found to be in compliance with consent and Mining Licence conditions the complainant will be advised, and the complaint will be considered to be resolved.
- If a noise complaint is monitored and the noise level found to be out of compliance with consent conditions the complainant will be advised of the noise level and the procedure outlined in the Noise Mitigation Plan will be followed to bring the operation back into compliance. Noise monitoring will continue and once compliance has been achieved the complainant will be advised and the complaint will be considered to be resolved.
- In the event that a blast causes a vibration exceedance the relevant OGNZL Waihi Manager is required to provide a written explanation to Hauraki District Council outlining the cause of the exceedance and how this could be avoided in future. The complainant will be advised of this and the complaint will be considered to be resolved.
- The management of complaints relating to non-amenity issues such as perceived property damage or inappropriate staff or contractor behavior will follow a similar process. Mitigating or investigation actions will be discussed with the complainant. Once these actions have been addressed the outcomes will be communicated to the complainant. If they do not wish to escalate the complaint it will be considered to be resolved.
- OGNZL staff who have authority to resolve complaints are primarily the Company Liaison Officer and the Community Engagement Officer.
- All additional External Affairs personnel will have delegated authority when they are in possession of the Community Engagement phone while on-call or providing cover for staff absences.
- Any member of the site management team has authority to resolve complaints in consultation with the External Affairs team.
- The site will be advised that complaints have been closed out through the daily meeting with the site management team.

4.11 Complaints Database and InForm

- Once the complaints form is completed the information is entered into the Complaints Database for reporting and analysis purposes at a later date. The complaints form is available from the database managed by the CLO and is included in this SOP as an appendix.
- Complaint records are also entered into the InForm database.
- It is important that records are complete, accurate, and brief where possible (details are still available on the hardcopy). The complaints form should be filled out to capture as much relevant information as possible.
- The majority of complaints received by OGNZL Waihi relate to amenity issues that are dealt with immediately such as noise and vibration and corrective actions are not generated.
- Where a complaint cannot be resolved immediately, such as issues relating to property, corrective actions will be entered into InForm for tracking as well as the Complaints Database for reporting purposes.

4.12 Reporting

- Complaints are communicated by the Senior Community Advisor (or delegate) at the daily production meeting, as well as the site weekly and monthly reports.
- Complaint trends are presented and reviewed by the site management team at management reviews.
- The CLO is required to provide six-monthly reports with regard to the Martha and Correnso operations to Hauraki District Council and Waikato Regional Council that include the following information:
    - all complaints received during the previous six-month period;
    - action taken by the consent and Mining Licence holder and the resolutions if any;
    - other matters of concern raised by the community;
    - any mediation entered into by the consent and Mining Licence holder and others with respect to operational matters and the outcome (unless parties have agreed to keep such matters confidential).

5 REFERENCES & APPENDICES

Item	Title	Location
Plan	Martha Mine Noise Mitigation Plan	Sharepoint
Form	Complaints & Concerns Form	Sharepoint
	Hauraki District Council Land Use Consents Extended Project	Sharepoint
	Waikato Regional Council Consents Extended Project	Sharepoint
	Trio Underground Mine Consents	Sharepoint
	Favona Underground Mine Consents	Sharepoint
	Correnso Underground Mine Consents	Sharepoint
	SUPA Underground Mine Consents	Sharepoint
	Mining Licence (ML 32 2388)	Sharepoint

6 DOCUMENT CONTROL

Author	Reviewer	Change	Date
G Hurley	A Durie	Updated to reflect current situation, including resolution of complaints, dealing with abusive complainants, ensuring personal safety.	6 Sept 13
K Wilson	A Durie	Change to procedure regarding answering of Community Engagement Line	July 2014
D. Crawford	K.Watson	Update procedure to include SUPA.	November 2016
K. Welten	K. Wilson	Updated procedure to include Project Martha.	March 2019