

We welcome your feedback about vibration



Do you wish to make a complaint or voice a concern about vibration as an aspect of Newmont Waihi Gold's Martha or Favona mining operations?

Initially please refer to our information sheet entitled [How do I register . general.pdf](#)

How do I register a complaint or concern about Newmont's operations in Waihi?

This will provide general information about the steps you can take and the process we follow when we receive complaints or concerns.

For further information **specific to vibration** complaints or concerns please read this information sheet. It also describes how Newmont Waihi Gold (NWG) monitors and measures blasting vibration and provides some general background material.

We welcome your feedback

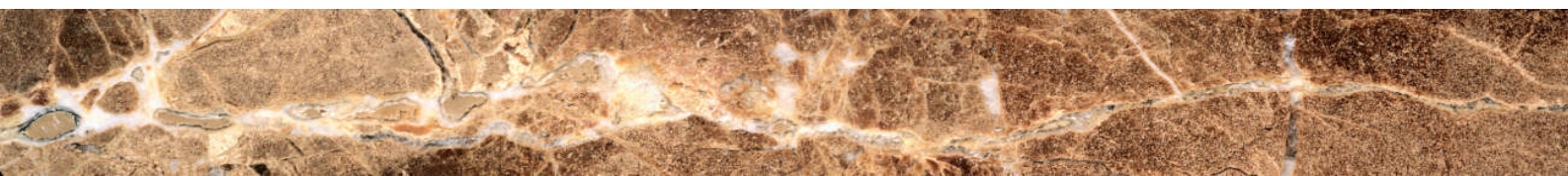
Even when vibration levels are complying with consent conditions they are sometimes still unacceptable for some residents. We need you to let us know about your concerns so we can assess whether there is anything we can do to lessen the effects. We welcome your feedback.

We are only a phone call away. Please phone our community engagement line immediately if you are concerned about a vibration effect. We will log your call and record as much relevant information as we can from you at the time.

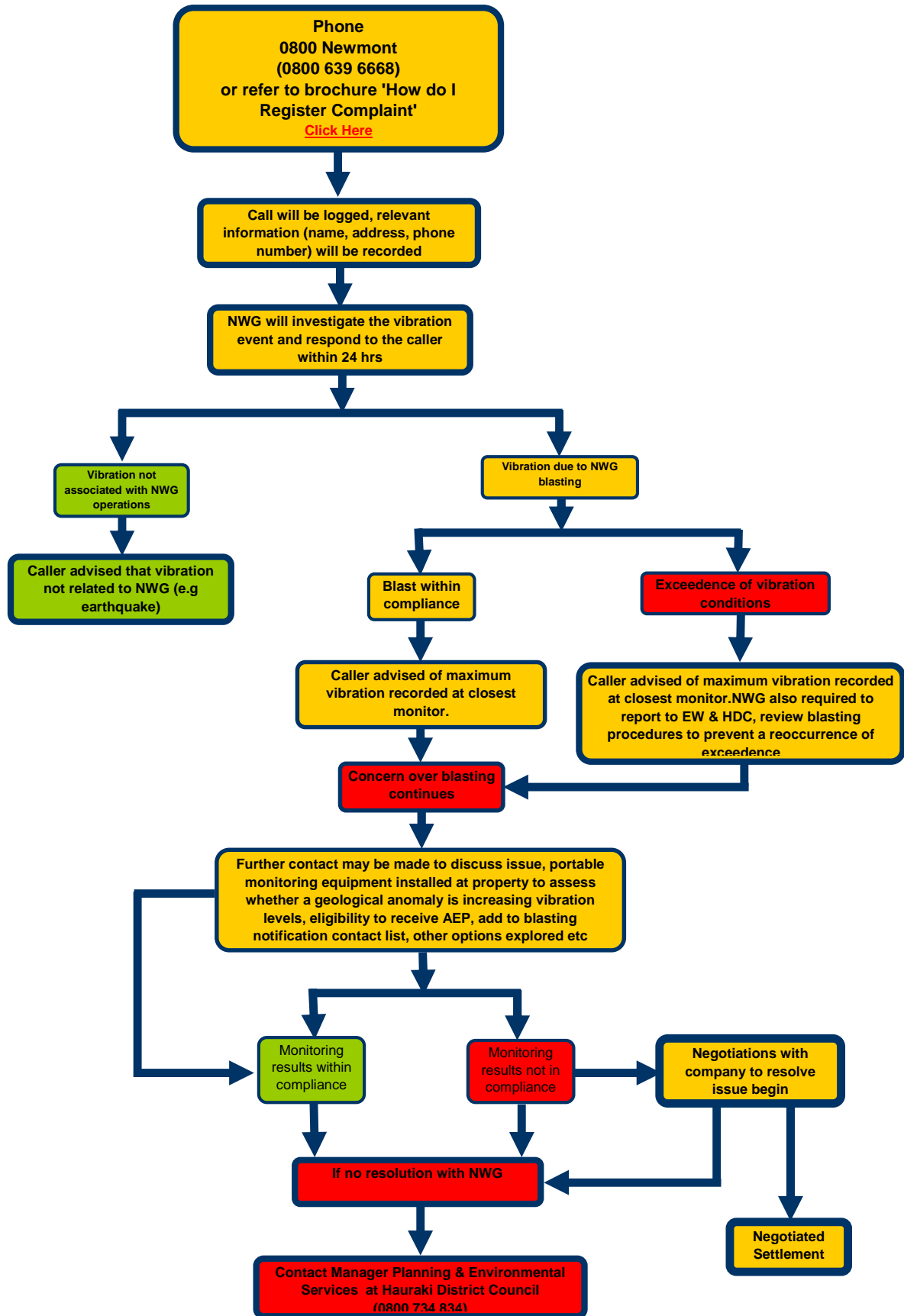
We have a vibration monitoring system known as *BlastHub*. This records and supplies data about every blast event. We will correlate the information you give us along with the *BlastHub* data and we will try to return your call within 24 hours to discuss with you the steps to be taken. Our internal actions and our response to you will be recorded.

If vibration continues to be of concern you can request monitoring be carried out at your property to establish whether you are eligible to join the Amenity Effect Programme (AEP). A portable monitor will be installed at your property for a period of time to collect and record data, including vibration levels from other sources. This will tell us whether mining activity is causing the vibration you are experiencing or whether it is due to another cause such as traffic. Please see further information about the AEP in this information sheet.

Some residents who experience effects from blasting prefer to know blast times in advance. As we don't always blast at the same time - and some days we don't blast at all - we can phone you daily or send a text message to inform you if you wish.



Vibration Complaint Procedure



The Amenity Effect Programme (AEP)

NWG operates under very stringent conditions relating to vibration under its mining licence and resource consents and our compliance rate is high. The consent limits are designed to avoid nuisance for most of the Waihi community most of the time. However, we recognise that some people living close to the Martha open pit or Favona underground operation may still experience annoyance due to vibration, even though the mine is complying with the conditions of the licence and consents.

NWG recognises that compliance with consents bears no relevance for people if vibrations due to mining activities are annoying them at their residence. To address this, NWG developed the AEP to establish agreements between the company and residents living close to the Martha or Favona operations.

Participants who live within defined areas receive an initial one-off payment and a payment for each occasion a vibration effect over a set level occurs at their property. The set level is well below consent compliance limits. The payments are made every six months and are based on actual effects measured by NWG's monitoring equipment during the previous six months.

BRANZ surveys

NWG acknowledges that human sensitivity to vibration differs from person to person and vibration levels experienced within a building can be greatly influenced by its construction, building materials, ground conditions and many other factors.

The Building Research Association of New Zealand (BRANZ) is an independent and impartial research, testing, consulting and information company that carries out engineer's surveys on private dwellings. In some circumstances NWG may offer you the option of a BRANZ survey to assess your home and identify base line data to use as a benchmark.

What if there is no resolution? What is the next step?

The regulatory authority responsible for blasting and vibration matters is Hauraki District Council (HDC). The HDC Manager of Planning and Environmental Services is the person to contact if you are not satisfied with the actions of NWG to work towards resolving your grievance.

The CLO and/or senior management personnel may meet with you and HDC to discuss the issue and how it may be resolved. If the parties cannot agree on a resolution, the matter will be referred to mediation.

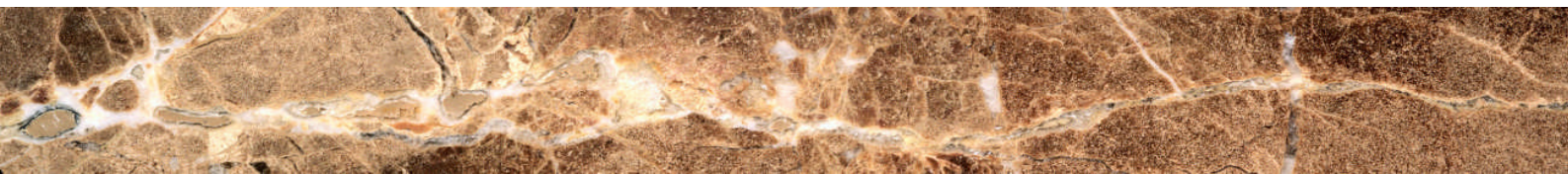
It is the function and responsibility of HDC's Manager, Planning and Environmental Services to facilitate the appointment of a mediator, venue and time agreeable to both parties.

Vibration monitoring in Waihi

NWG uses *BlastHub* to manage vibration monitoring and blast design at the Martha and Favona operations. *BlastHub* is a state-of-the-art data management system that records and maintains accurate information from several individual vibration monitoring stations, each with its own processor and recording capabilities.

Monitoring stations are active 24 hours a day. When vibration levels exceed a set level the monitors are triggered. This is linked to a central computer at the NWG office which downloads and stores data from each blast event. This computer is in turn linked to a database computer in Brisbane where the information is stored and analysed by specialist consultants.

Blast results are sent via email to relevant staff at HDC and various users at NWG as well as the vibration consultants. Data is processed and made available on the *BlastHub* web site, accessible to



authorised users via a password. Quarterly summary reports are submitted to HDC in accordance with consent conditions. A demonstration sample of *BlastHub* can be accessed via the web site www.blasthub.com. Exceedences are required to be investigated in more detail and a response from the mining department recorded as to what mitigation action is planned. A written explanation is then provided to HDC.

Regular reports to HDC are available on request.

NWG's blast management practices are acknowledged as being among the most progressive and socially responsible in the world.

Background information about vibration

At Martha open pit and Favona underground mines most of the rock to be excavated is extremely hard, requiring the use of explosives to break it into sizes that can be dug and transported. The blasts cause vibrations that travel through the ground away from the blast, like ripples when a stone is thrown into a pond.

The amount of vibration is measured in millimetres of movement per second (mm/s). The maximum blast vibration levels permitted at Martha (5mm/s) and Favona (6mm/s) are specified in the consent conditions. The consent limits are as low as any known international blast vibration standards and lower than most. As a comparison, the New Zealand building code standard is up to 21mm/s.

Fixed monitoring stations are located at strategic sites. Mobile vibration monitors are also used to collect additional data at residents' properties. Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source.

Humans are sensitive to vibration and can detect levels as low as 0.15mm/s, although it is difficult to distinguish between different intensities. How they notice and respond to vibration varies greatly from person to person. In general humans are most sensitive to low-frequency vibration. Unlike earthquakes, which produce vibration at very low frequencies and have a high potential for structural damage, most construction and blasting vibration is in the mid to upper-frequency range and therefore has a lower potential for structural damage.

Levels set by the consent conditions acknowledge degrees of personal comfort and are set well below the levels known to cause either superficial damage, such as cracking of plaster, or structural damage to any of the building elements. The following table describes a sample range of activities and the vibration levels they can produce:

Activity	Vibration Level (mm/s) **
Nail hammering	Up to 100
Walking	Up to 40
Shutting door	Up to 30
Sliding door	Up to 10
Compliance Levels for Blast Vibration	
Martha Mine open pit compliance	Up to 5
Favona Underground compliance (day)	Up to 6
Favona Underground compliance (night)	Up to 1

** Vibration levels are measured as peak-particle-velocity (ppv)

According to the US Department of Transport standards, construction vibration levels would need to be above 12mm/s before they have the potential to cause architectural damage to normal dwellings. British standards suggest 8mm/s as the base line figure.

**NWG community engagement line is attended 24 hours a day, seven days a week.
Call 0800 NEWMONT (0800 639 6668)**

Newmont Waihi Gold has further information sheets available that outline some issues, explain how we manage them and suggest steps that may lead to resolving them. To access these information sheets, [click here](#) or phone 0800 NEWMONT (0800 639 6668) to arrange for a copy to be sent to you.

