

INFORMATION SHEET



BLASTING

KCGM's close proximity to the community, coupled with mining amongst historical workings, has shaped the production blasting methods used. Production blasting at KCGM is carefully managed to minimise potential impacts on the residents of Kalgoorlie-Boulder.

KCGM mines and processes low grade remnant deposits left behind by historical mining activities, requiring movement of large quantities of ore. In order to break and loosen rock into manageable sizes for extraction, transportation and processing, it must be blasted.

WHY DO BLASTS OCCUR AT DIFFERENT TIMES OF THE DAY?

To minimise the impact of dust generated by surface blasting, blasts are scheduled according to guidelines prescribed in the KCGM Fimiston Air Quality Management Plan. This Plan ensures weather conditions such as wind direction and speed are considered before a surface blast goes ahead. Where possible, KCGM blasts at 1pm or 5pm, but this can be weather dependent based on the location of the blast. Blasts may be scheduled with "one hour" notice when favourable weather is predicted to allow for safety preparations ahead of the blast.

While every effort is made to notify the public of blast times, unexpected changes in weather and wind direction may cause surface blasts to be cancelled or rescheduled at the last moment.

HOW CAN I VIEW A BLAST?

The majority of blasts undertaken at the Fimiston Open Pit (Super Pit) are visible from the KCGM Super Pit Lookout, open daily from 7am to 7pm. The Lookout is located at the top of Outram Street in Boulder and blast times are updated daily.

WHY DO SOME BLASTS APPEAR LARGER THAN OTHERS?

While blasting has been occurring at the Fimiston Open Pit for more than 20 years, varying conditions can change how blast vibrations are felt. When a new area of the open pit is mined and there is more activity near the surface, vibrations or overpressure (blasting force) may be more

noticeable. Atmospheric conditions, changes to blasting times or even changes to a person's normal routine can also magnify the perceived effects of blasting.

The vibrations generated vary depending on the type of blasting performed. The type of blasting is determined by factors such as location, ore body, presence of historical workings or other geological structures. In addition to ensuring safety around historic workings, blasting methods must also take into consideration the potential for fly rock, vibration, overpressure, dust and the desired rock size.

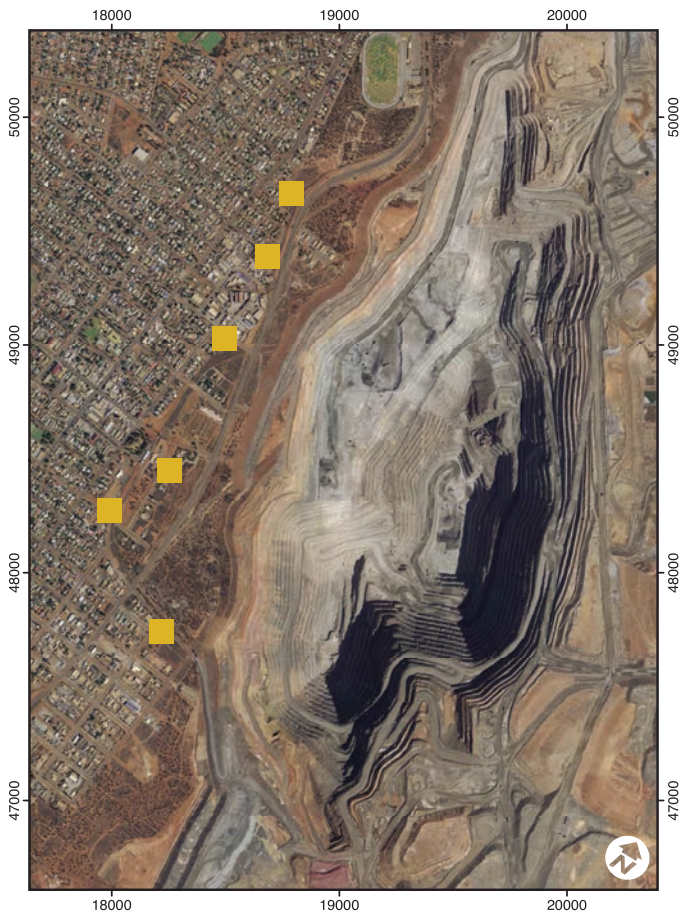
Each type of blast can feel quite different on the surface. For example some blasts generate weaker vibrations, but go for longer (10-15 seconds), while others produce stronger vibrations which last only a few seconds.

| Blast Type | Purpose | Likely Vibrations |
|------------------|---|---|
| Production Blast | Main blasts so shovels can load into haul trucks | Vibrations may be noticeable to nearby residents and last 2-3 seconds |
| Trim Blast | Blasts that maintain pit wall control | Very little vibration |
| Pit-edge Blast | A blast at the edge of a bench | Very little vibration, but can generate dust |
| Panel Blast | A blast that is done in a number of successive panels to reduce vibration | Smaller vibrations but can last for 10-15 seconds |
| Pre-split blast | A single row of smaller holes to manage pit wall location | Very little vibration |

HOW DOES KCGM MONITOR BLASTING IMPACTS?

Blasts at KCGM are managed in accordance with limits and standards which ensure impacts on the community are minimised. Permanent blast monitoring for the Super Pit was established in 1993 as part of the KCGM Noise and Vibration Management Programme.

Ground vibration and overpressure are monitored using a network of monitors between the Super Pit and Kalgoorlie-Boulder, and monitors around Mt Charlotte. The monitors are checked daily and calibrated



FIMISTON OPEN PIT BLAST MONITORING NETWORK

Coordinate System: Oroya East
 0 0.15 0.3 0.6 Kilometres

annually to ensure accuracy. KCGM submits regular monitoring reports to the Department of Environment Regulation (DER).

WHAT IS KCGM DOING TO REDUCE BLAST VIBRATIONS?

KCGM production blasts are designed using delayed detonation sequencing and stemming. Where possible, special explosives and detonators are used to minimise blast vibration. The blasts carried out at KCGM are much smaller than those undertaken by remote mine sites, using less than ten percent of the amount of explosive used in standard production blasting. These measures significantly increase the time and cost of production and processing, but have proven to allow more efficient blasting using less explosives and minimising overpressure, dust, vibration and fly rock.



KCGM restricts the hours of blasting to minimise disturbance. Blasting is only carried out during daylight hours, and KCGM takes every reasonable effort not to blast on Sundays.

HOW IS BLASTING DIFFERENT AT MT CHARLOTTE?

Mt Charlotte has been continuously mined since 1963. The area uses “remnant mining” which extracts lower-grade ore which remains after the higher grade ore has been removed. As this method requires much smaller amounts of ore to be mined, smaller blasts are undertaken. However, the smaller blasts need to be conducted more frequently to maintain production levels. Blasting at Mt Charlotte is conducted most weekdays, and where a blast is likely to be felt at the surface, nearby residents are notified by a letter drop. Other potential impacts such as dust, overpressure and flyrock are not major factors in underground blasts.

WHAT IS THE DIFFERENCE BETWEEN VIBRATION AND SEISMICITY?

Seismicity is a form of vibration in the ground, typically due to movement of major rock structures deep underground. The Kalgoorlie-Boulder region has a long history of seismic vibrations (earth tremors).

Seismic vibrations often feel similar to blast vibrations, however the two have significant differences. Seismic vibrations usually originate from different locations, are of different frequencies, and generally do not occur at the same time. Vibration monitors are designed to detect the differences, and identify the source locations of both seismic and blasting vibrations. KCGM maintains an independent seismic monitoring system each for Mt Charlotte and the Super Pit. For more information about seismic events, please visit Geoscience Australia: www.ga.gov.au.

FURTHER INFORMATION

Information on KCGM’s management of blasting vibration is available by contacting the KCGM Public Interaction Line on 9022 1100 (available 24hrs a day, seven days a week), or visiting the website www.superpit.com.au.

