INFORMATION SHEET

NOISE

The Fimiston Gold Mine Operations are unique, in the sense that they are situated directly adjacent to the City of Kalgoorlie-Boulder. Management of environmental impacts, such as noise, is essential to protect the social surroundings and the amenity of our community.

Kalgoorlie Consolidated Gold Mines (KCGM) recognises that our operations generate noise and we are committed to minimising noise emissions as far as practicable to ensure we remain a good neighbour to the residents of Kalgoorlie-Boulder.

The Fimiston Gold Mine Operations generally operate 24 hours a day, seven days a week. The main sources of noise are haul trucks, reserving alarms, track noise from dozers, excavators, shovels, blasting, noise from Ore and Waste Rock Handling (e.g. loading into trucks) and conveyors.

WHAT IS NOISE?

Noise consists of sounds that travel through the air as a series of waves, which are measured in decibels (dB).

Noise is also characterised according to loudness (amplitude) and pitch (frequency). These components can make noise less noticeable, for example the sound of an air conditioner; or more annoying, such as impulsive sounds like vehicle horns.

We experience a range of noises in everyday life, and these noises affect everyone differently. How people perceive and tolerate noise can be highly varied. What may be considered annoying for one person, may not be by another.

HOW IS MINING NOISE REGULATED?

In Western Australia, noise emissions are regulated through the Environmental Protection Act 1986. KCGM has been granted approved under Regulation 17 of the Environmental Protection (Noise) Regulations 1997 to emit noise in compliance with varied noise level standards as set in the Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2006.

WHY DO THE OPERATIONS SEEM NOISIER FROM TIME TO TIME?

Noise is greatly influenced by weather conditions, particularly temperature, wind speed and direction. All of these elements affect the way that noise travels through the air and is experienced by people nearby.

The open pit operations are generally constant and fluctuations in noise levels are often the result of environmental factors such as weather conditions. For example, cloud cover tends to bend sound waves downwards, toward the ground, which increases the noise level heard by people during these conditions.

Background noise levels from traffic or other sources also change depending on the time of the day. When background, or ambient, noise levels are lower, noise emission from the Fimiston Operations may become more obvious.

WHAT IS KCGM DOING TO REDUCE NOISE FROM ITS OPERATIONS?

The KCGM Noise and Vibration Monitoring and Management Programme (NVMMP) was developed to minimise the potential impacts from mining operations on the Kalgoorlie-Boulder community. Some of the key measures which have been implemented include:

Construction of the Environmental Noise Bund

Prior to the commencement of KCGM operations, noise modelling indicated that an earthen bund between the Fimiston Operations and Kalgoorlie-Boulder would significantly reduce noise levels. Built from waste rock, the bund is approximately 15m in height and creates a wall between the Fimiston Open Pit and the community. The noise bund is visible from the Goldfields Highway and has been rehabilitated with local plant species.

Figure 1: The Super Pit is surrounded by a noise bund; this boundary line outlines the section between the Super Pit and the City of Kalgoorlie-Boulder

Restricted Hours of Operation

Activities such as rock breaking can have a startling effect and be more obvious to residents when carried out at the surface. Where appropriate, certain activities when undertaken at the surface are restricted to daytime only hours of operation. A key management feature of open pit mining is restricting the use of shovel operations until a depth of 20 m below surface. Additionally, open pit blasting is only carried out in daylight hours and KCGM takes every reasonable effort not to blast on Sundays.

Design of Blasts

Production blasts within the Fimiston Open Pit are designed to minimise noise (airblast) and vibration. The blasts carried out by KCGM are much smaller than those undertaken by remote mine sites, using less than ten percent of the amount of explosives used in standard production blasting. KCGM uses stemming to control the force of the blast; directing energy into the rock rather than into the air. These measures increase the time and cost of production and processing but have proven to allow more efficient blasting using less explosives and minimising noise, dust, vibration and fly rock.

Weather conditions are an important consideration for the management of airblast from blasting. For example, cloud cover can amplify the sound of blasting, and can also create an echo effect. Therefore, blasts are fired when weather conditions are such that the impact of airblast is minimised.

Noise Barriers

Exploration is an important aspect of a mining operation to ensure to continued growth and life of mine. Exploration drilling is usually undertaken outside of the Fimiston Operations and hence it is not protected by the Environmental Noise Bund. To minimise noise, drill areas are situated as far from residents as possible and in some cases, sea containers are used to form a noise barrier around a drill rig. KCGM send notifications to nearby residents and businesses of any proposed drill plans to ensure they are well informed.

Broadband Reversing Alarms

At KCGM, mobile equipment has been fitted with broadband (white sound) reversing alarms to eliminate noise generated from standard reversing alarm sounds . White sound dissipates quickly which means the sound of the alarm is limited to the hazard zone. The alarm sound is also gentler on the ears of vehicle operators and surrounding workers.

HOW DOES KCGM MONITOR NOISE?

KCGM undertakes three different types of monitoring to determine the noise levels from its operation including:

Continuous noise monitoring

Has been undertaken in Kalgoorlie-Boulder since 1993. These monitors measure noise levels from the KCGM operations, along with other local noise sources such as traffic, dogs, planes, music and people. This data is a useful long term comparison of noise levels over time. In 2011, KCGM implemented a real-time noise monitor located near Holmes St in South Kalgoorlie. The data recorded at this location are made publicly available on our website.

Compliance noise monitoring

Is undertaken quarterly by an independent consultant at five reference locations to confirm that our operations are compliant with the approved noise levels. Compliance monitoring is performed in the evening or at night. These times have the lowest approved noise levels and have been identified as the periods when residents are most likely to be affected by noise from the Fimiston Operations. Results of the Compliance Noise Monitoring are made publically available on our website.

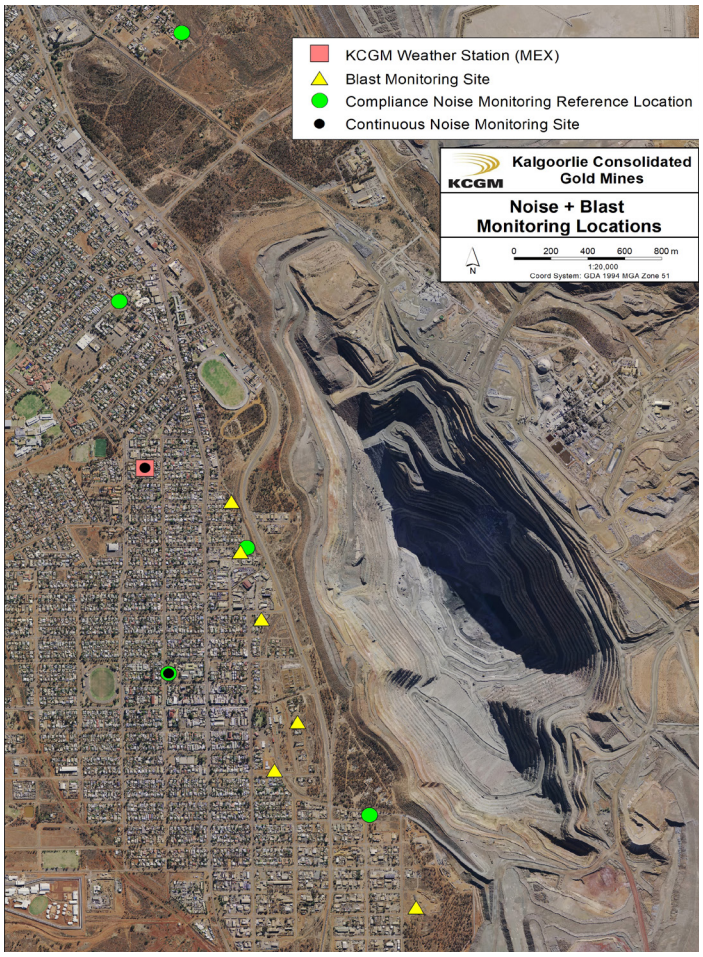


Figure 2: Fimiston Open Pit Noise Monitoring Network

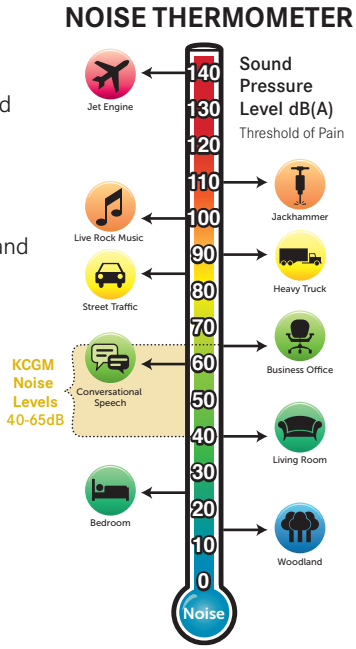
Blast monitoring

Is undertaken for each blast at six permanent monitoring sites. These monitors measure noise (airblast) and vibration levels from each blast to determine compliance.

KCGM submits routine monitoring reports to the Department of Water and Environmental Regulation (DWER).

KCGM's Noise Levels

Long-term monitoring indicates KCGM noise levels, when received at locations within the City of Kalgoorlie-Boulder, are between 40 and 65 decibels, which is equivalent to conversational speech.



FURTHER INFORMATION

Information on KCGM's noise management 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.