

INFORMATION SHEET



NOISE

KCGM is a unique mining operation as it is situated so close to a large community. Management of environmental impacts is at the forefront of our operational decisions to ensure we remain a good neighbour to the residents of Kalgoorlie-Boulder.

Noise is generated by a number of sources within a mining operation. Sources can include drilling, blasting, rock breaking, conveyors and haul trucks. Depending on the source, noise may be continuous, like from haul trucks, or a sudden noise, such as blasting.

HOW DOES KCGM MANAGE NOISE?

KCGM manages its operations in compliance with noise level standards set in the Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval. The KCGM Noise and Vibration Monitoring and Management Programme (NVMMP) was developed to minimise the potential impacts of noise and blasting from mining operations on residents of Kalgoorlie-Boulder.

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.

Compliance noise monitoring is undertaken quarterly by an independent consultant at five locations to confirm that our operations are compliant with 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 KCGM operations.

Blast monitoring is undertaken for each blast at permanent monitoring sites located in Kalgoorlie-Boulder. These monitors measure noise (called overpressure) and vibration levels from each blast to determine compliance with set limits and standards.

KCGM submits routine monitoring reports to the Department of Environment Regulation (DER). Results from compliance noise monitoring are available to the public on a quarterly basis via an advertisement in the Kalgoorlie Miner, and on the KCGM website. Continuous noise monitoring data, which is updated every 15 minutes, is also available on the KCGM website.

WHY DO THE OPERATIONS SEEM NOISIER FROM TIME TO TIME?

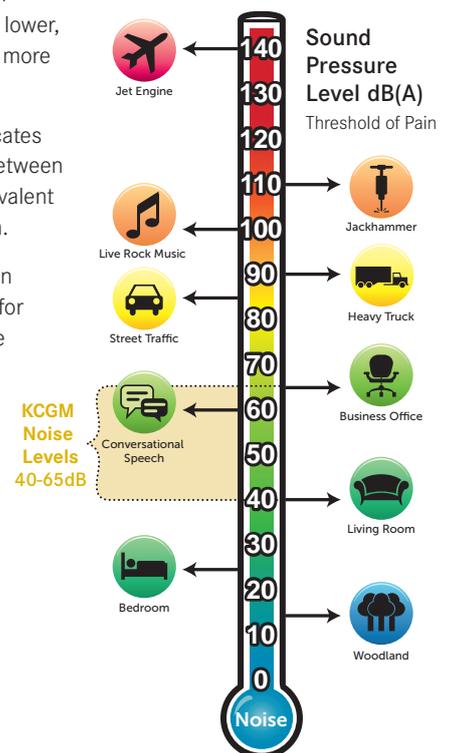
Many factors can affect the level of noise received at a particular location. Noise propagation is complex and is influenced by distance, wind, temperature, cloud cover, topography and structures such as barriers and buildings.

Noise (unwanted sound) is basically a sound wave distributed from a source. Generally, noise levels decrease as the distance increases away from the source. However, sound propagation can be altered by weather conditions, and may result in varying noise levels at the same location. For example, cloud cover tends to bend sound waves downwards, toward the ground, and increase noise levels.

Haul truck operations are generally constant and fluctuations in noise levels are often the result of environmental factors such as weather conditions, external to the KCGM operations. 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, truck noise may become more obvious.

Ongoing monitoring indicates KCGM noise levels are between 40 and 65 decibels, equivalent to conversational speech.

Weather conditions are an important consideration for the management of noise (overpressure) from blasting. For this reason, whenever possible, blasts are fired when weather conditions are such that the impact of overpressure is minimised.





FIMISTON OPEN PIT NOISE MONITORING NETWORK

Coordinate System: Oroya East
 0 0.25 0.5 1 Kilometres

WHAT IS KCGM DOING TO REDUCE NOISE FROM ITS OPERATIONS?

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 (Super Pit) and the community. The noise bund is visible from the Goldfields Highway and has been rehabilitated with topsoil and local plant species.

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, these activities are time-restricted. Additionally, open pit blasting is only carried out in daylight hours and KCGM takes every reasonable effort not to blast on Sundays.



Figure 1: Sea containers create a noise barrier around a drill rig

Design of Blasts

KCGM production blasts are designed to minimise overpressure and 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 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 overpressure, dust, vibration and fly rock.

Noise Barriers

Due to KCGM’s close proximity to residential properties, some form of noise control is applicable to many KCGM exploration drilling operations. The equipment used in the current drilling programme has been modified to run quietly, using noise barriers around the engines, pumps and other moving parts. To minimise noise, drill areas are situated as far from residents as possible and in some cases, sea containers (purchased specifically for this purpose) are used to form a noise barrier around a drill rig.

Broadband Reversing Alarms

At KCGM, mobile equipment upgrades have 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.

Research and Development Projects

Where possible, KCGM has removed sources of noise or engineered ways of muffling machinery to minimise impacts on our neighbours. Noise assessment and modelling work identifies haul trucks as the primary source of noise from KCGM’s operations. In 2012, KCGM entered into a 3 year partnership with the University of Western Australia to undertake a research project to identify further haul truck noise reduction opportunities.

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



Figure 2: 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