McPhillamys Gold Project

#12 Noise and vibration impacts

Understanding noise impacts

In order to understand what the noise impacts might be, independent noise specialists conducted baseline noise assessments around the site, with a particular focus on nearby residences.

Noise modelling was then carried out to assess the potential noise impacts associated with the mine development at nearby residences.

Predicting future noise levels

The modelling involves taking the baseline noise data (that is the existing noise levels in the area) and then adding the information for project activities and equipment which will add to local noise levels: such as site activities, plant and equipment operation, ground type, shielding barriers and buildings and weather information.

Based on predicted levels, a number of changes were made to the project design, in order to reduce the noise impacts for neighbours.

The results

The McPhillamys Project Environmental Impact Statement has identified a number of houses in Kings Plains which will experience some noise impacts during construction and operations.

Modelling shows that during the first six months of construction, noise levels are predicted to exceed the relevant noise criteria at one property only.

During the first few years of mining operations, noise levels will temporarily exceed the relevant operational noise criteria at 15 properties.

Some will experience impacts which require Regis to provide mitigation measures to lessen the impact for residents.

Regis is continuing to meet with these neighbours and landholders to discuss the ways in which noise impacts can be managed. Individual plans will be developed with property owners to mitigate the impacts.

Double glazing, insulation and air-conditioning are examples of ways that houses can be modified to lessen noise impacts.

How we deal with noise and vibration impacts

The processing plant and mine infrastructure areas are located as far from as many residences as possible and will be screened by existing landforms.

During Years 1 to 4, a pit amenity bund and the southern amenity bund (on the southern face of the waste rock emplacement) will be constructed.

An amenity bund is a specially constructed embankment used to either screen a site from view, or reduce noise emissions.

The McPhillamys amenity bunds will form noise and visual barriers between the mine development and the Kings Plains settlement.

Construction of these bunds will not occur during weather conditions which might worsen the noise impacts.

Noise suppression devices will be installed on some of the mobile equipment and the primary crusher will be enclosed. Waste rock will be dumped behind noise barriers where possible.

Noise management and mitigation measures during construction will be detailed in the Construction Environmental Management Plan (CEMP) which will be prepared for the mine development.

Monitoring noise

Regis will install a noise monitoring system to measure and report noise levels.

This will enable proactive management of operations to ensure that the relevant noise criteria are met.

A noise management plan (NMP) will also be prepared for both the construction and operational phases of the project.

Vibration levels

There are a number of ways to limit vibrations from the site, including limiting the size of each blast.

No exceedances of air blast overpressure and ground vibration criteria are predicted to occur at nearby residences or heritage areas.

Understanding noise

Noise impacts can depend on a number of things, including:

- the actual noise level;
- its frequency (eg high pitched or not); and
- how it is perceived by the person affected.

Some people have more sensitive hearing than others so it can vary from person to person. What one person considers audible or loud may not be the same as the next person.

Measuring noise

Noise is measured in decibels: the higher the decibel, the louder the noise. The chart below shows the level of decibels for common types of noise.

Where to go for more information

For more information on noise, how it is measured, managed and monitored, visit the NSW Environment Protection Authority (EPA) website: https://www.epa.nsw.gov.au/your-environment/noise

How loud is that? Common sounds and noise levels

Below:
The table below shows some common sounds and their typical noise levels. Source: Table 2A Noise and Vibration Impact Assessment Report. Muller Acoustic Consulting. McPhillamys Gold Project EIS Appendix L.

140 dBA	Threshold of pain
130 dBA	Jet engine
120 dBA	Hydraulic hammer
110 dBA	Chainsaw
100 dBA	Industrial workshop
90 dBA	Lawnmower (operator position)
80 dBA	Heavy traffic (footpath)
70 dBA	Elevated speech
60 dBA	Typical conversation
40 dBA	Ambient suburban environment
30 dBA	Ambient rural environment
20 dBA	Inside bedroom—windows closed
0 dBA	Threshold of hearing

McPhillamys operations will generally be in this range for the properties closest to the mine.