



## Mines Safety Bulletin No. 169

**Subject:** Managing noise-induced hearing loss (NIHL) in the Western Australian mining industry

**Date:** 21 January 2020

### Background

Most mining operations have noise control programs in place. However, it is Mines Safety's experience that the primary focus for preventing noise-induced hearing loss (NIHL) is usually to provide hearing protective devices (HPD) rather than reducing noise emissions by higher level controls such as substituting equipment for a quieter version, or installing an engineered noise enclosure. Data collected by the Department clearly shows that the use of HPD is often not a reliable control due to incorrect fitting, or failure to use the devices when in a high noise area.

Persons at risk of NIHL and high noise emitting equipment are identified in the site's noise survey. A noise survey report and noise control plan are requirements of the Mines Safety and Inspection Regulations 1995 (MSIR).

The MSIR require engineering controls to be implemented if a person is likely to be exposed to noise levels (without the effects of HDP) above 85dB(A) or peak noise above 140dB(lin).

If it can be demonstrated that engineering controls are not practicable, then exposure times must be reduced. If these controls are still not adequate, further controls in the form of mandatory instruction and training, signage, and the supply and maintenance of hearing protective devices is required. An employer is required to verify that the controls are effective in preventing exposure to the hazard.

In addition, the *Workers' Compensation and Injury Management Act 1981 (WCIM Act)* requires employers to conduct baseline hearing tests for all workers who are likely to receive a personal (8hr equivalent) dose exceeding 90dB(A). This must be completed within twelve months of commencing employment.

Under the *WCIM Act*, workers who have had a baseline hearing test may request, by writing to their employer, subsequent tests. Testing can not be requested more frequently than annually. This testing is at the employer's expense.

The results of these tests are to be submitted to WorkCover WA for assessment and archiving.

These requirements complement MSIR r. 3.27 which requires employers to conduct health assessments (e.g. a hearing test), if an adverse health effect may be related to exposure to an agent (e.g. noise).

Employers are encouraged to conduct regular audiometric testing as a means of demonstrating the effectiveness of implemented noise controls and, if necessary, intervene at the early signs of hearing loss before it becomes a debilitating condition.

## Summary of hazard

Exposure to prolonged or excessive noise has been proven to cause permanent hearing loss and tinnitus (a high pitched ringing in the ears). Both conditions are debilitating with serious impacts on the health and quality of life of affected persons and their families. A range of other issues are also associated with exposure to excessive noise. These include stress, high blood pressure, poor concentration, productivity loss, communication difficulties and cardiovascular disease.

## Contributory factors

Contributory factors for NIHL include:

- prolonged exposure to high levels of noise, especially noise levels above an  $L_{Aeq(8hr)}$  of 85dB
- peak noise levels greater than 140 dB<sub>(lin)</sub> as a result of impact noise or blasting
- a number of common workplace chemicals and some medicines can exacerbate the effects of NIHL. These are referred to as ototoxic substances and include toluene (paint thinners) and carbon monoxide (smoking and engine exhaust gases)
- over-reliance on hearing protection in the absence of higher level controls, as indicated by data submitted to the Department
- ineffective use of personal hearing protection, specifically inconsistent use of and ill fitting hearing protection, resulting in inadequate protection
- inadequate training on the impact of NIHL to workers, resulting in a lack of competence in reducing the risk of exposure to excessive levels of noise
- safe work procedures not followed and adherence to safety signage not enforced
- regular hearing testing not conducted, resulting in intervention strategies not being conducted until after significant, permanent damage is done
- effectiveness of controls not being validated by regular monitoring.

## Actions required

Where it is not practicable to eliminate high noise levels, controls are required to reduce each person's exposure to no more than an  $L_{Aeq(8hr)}$  of 85dB. This could include:

- reducing the length of time a person is exposed to high levels of noise
- substituting equipment or processes with ones that are quieter
- isolating the source of noise from people by using distance, barriers, enclosures and sound-absorbing surfaces
- modifying plant and processes to reduce the level of noise using engineering controls
- using job rotation where practical and alternate noisy tasks with quieter ones
- ensuring personal hearing protectors are used when required
- ensuring fit testing is undertaken for persons who are required to wear personal hearing protectors
- providing appropriate information, instruction and training about risks to hearing, steps to be taken to reduce these risks, and the use and maintenance of personal hearing protectors
- monitoring controls to ensure they are working properly

- conducting regular hearing tests to detect early stages of hearing loss in order to reduce ongoing excessive exposures.

## Further information

- Australian Standard AS/NZS 1269 SET:2005 Occupational Noise Management Set
- Department of Mines, Industry Regulation and Safety

Management of noise in Western Australian mining operations

[dmp.wa.gov.au/Documents/Safety/MSH\\_G\\_ManagementNoiseWAMiningOperations.pdf](http://dmp.wa.gov.au/Documents/Safety/MSH_G_ManagementNoiseWAMiningOperations.pdf)

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[www.dmp.wa.gov.au/Documents/Safety/MSH\\_SB\\_153.pdf](http://www.dmp.wa.gov.au/Documents/Safety/MSH_SB_153.pdf)

Ototoxic chemicals - chemicals that result in hearing loss

[www.commerce.wa.gov.au/worksafe/ototoxic-chemicals-chemicals-result-hearing-loss](http://www.commerce.wa.gov.au/worksafe/ototoxic-chemicals-chemicals-result-hearing-loss)

- WorkCover WA

Noise induced hearing loss

[www.workcover.wa.gov.au/workers/understanding-your-rights-obligations-entitlements/hearing-loss/](http://www.workcover.wa.gov.au/workers/understanding-your-rights-obligations-entitlements/hearing-loss/)

This Mines Safety Bulletin was approved for release by the State Mining Engineer on 21 January 2020