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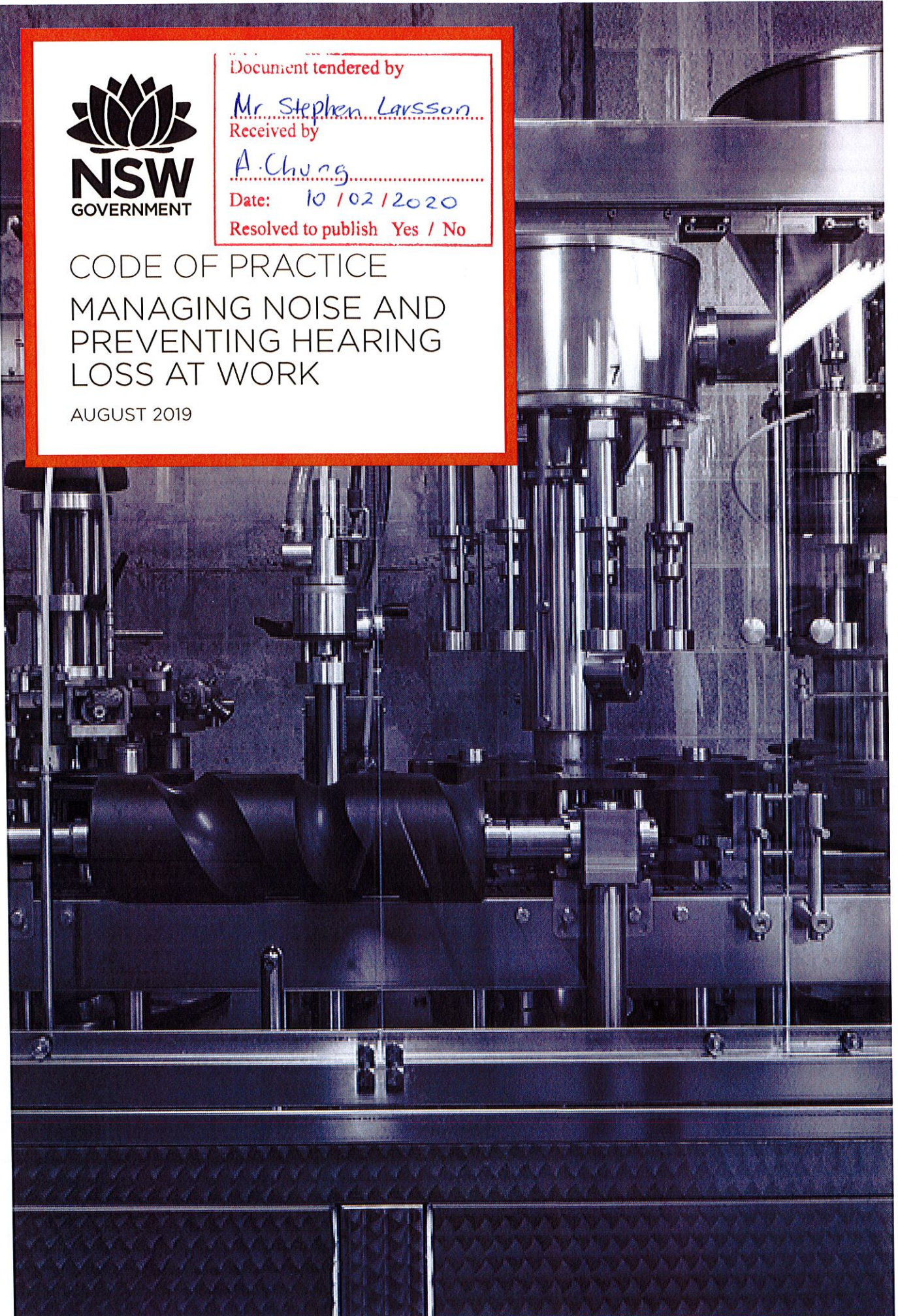
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# CODE OF PRACTICE MANAGING NOISE AND PREVENTING HEARING LOSS AT WORK

AUGUST 2019





NSW note: This code is based on a national model code of practice developed by Safe Work Australia under the harmonisation of national work health and safety legislation and has been approved under section 274 of the NSW *Work Health and Safety Act 2011*. Notice of that approval was published in the NSW Government Gazette referring to this code of practice as *Managing noise and preventing hearing loss at work* (page 7194) on Friday 16 December 2011. This code of practice commenced on 1 January 2012.

Subsequent amendments under section 274 of the NSW *Work Health and Safety Act 2011* have been published and commenced as detailed in the list of amendments contained in this code.



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# 5. Controlling the risks

## 5.1. Hierarchy of control measures

The WHS Regulation requires duty holders to work through the hierarchy of control measures when managing certain risks; however, the hierarchy can be applied to any risk. The hierarchy ranks control measures from the highest level of protection and reliability to the lowest. Further guidance on the risk management process and the hierarchy of control measures is in the Code of Practice: *How to manage work health and safety risks*.

### Eliminating the risk

As the person conducting the business or undertaking (PCBU), you must always aim to **eliminate the risk**. The most effective control measure is to eliminate the source of noise completely, for example by ceasing to use a noisy machine, changing the way work is carried out so hazardous noise is not produced, or by not introducing the hazard into the workplace.

If eliminating the hazards and associated risks is not reasonably practicable, you must minimise the risk by one or more of the following:

- **Substitution**—minimise the risk by substituting or replacing a hazard or hazardous work practice with something that gives rise to a lesser risk. For example, substitute plant or processes that are quieter, replace ototoxic substances with other less harmful products
- **Isolation**—minimise the risk by isolating or separating the hazard or hazardous work practice from any person exposed to it. For example:
  - isolating the source of noise from people by using distance, barriers, enclosures and sound-absorbing surfaces
  - building enclosures or soundproof covers around noise sources
  - using barriers or screens to block the direct path of sound
  - locating noise sources further away from workers (see Figure 1), and
  - using remote controls to operate noisy plant from a distance.
- **Engineering controls**—engineering controls are physical control measures to minimise risk. For example, modify plant and processes to reduce the noise.

If risk remains, it must be minimised by implementing **administrative controls**, so far as is reasonably practicable. Any remaining risk must be minimised with suitable **personal protective equipment (PPE)**.

Administrative control measures and PPE do not control the hazard at the source. They rely on human behaviour and supervision and used on their own tend to be the least effective in minimising risks.

## Substituting plant or processes to reduce noise

### Buy 'quiet'

One of the most cost-effective and long-term ways of reducing noise at work is to introduce a purchasing and hiring policy to choose the quietest plant for the job. This can be done by obtaining information on noise emission from the manufacturer, importer or supplier of plant and comparing it to determine the quietest plant. For example, data on sound power level or sound pressure level at the operator position.



Figure 1 shows measurements of sound spreading in an open space away from a reflecting surface. The sound level is reduced by about 6 dB for each doubling of the distance from the source. If a small sound source produces a sound level of 90 dB(A) at a distance of one metre, the sound level at two metres distance is 84 dB(A), and at four metres is 78 dB(A), etc. Sound is reduced less when spreading inside an enclosed space.

## Using engineering controls

A good understanding of the operation of the plant or process is necessary when considering ways of minimising noise at its source.

Examples of engineering control measures include:

- eliminating impacts between hard objects or surfaces through cushioning or separation
- minimising the drop height of objects or the angle that they fall onto hard surfaces
- using absorbent lining on surfaces to cushion the fall or impact of objects
- fitting exhaust mufflers on internal combustion engines
- fitting silencers to compressed air exhausts and blowing nozzles
- ensuring gears mesh together better
- fixing damping materials (such as rubber) or stiffening to panels to reduce vibration
- fitting sound-absorbing materials to hard reflective surfaces
- changing fan speeds or the speeds of particular components
- changing the material the equipment or its parts are made of (for example change metal components to plastic components)
- selecting tyre types that are suitable for the ground surface or terrain, and
- installing vibration-minimising seats on mobile plant.

Further information on using engineering controls is at Appendix F—Engineering control measures.

## Maintenance of plant

It is essential that you maintain plant and equipment regularly as it will deteriorate with age and can become noisier. Check for changes in noise levels—badly worn bearings and gears, poor lubrication, blunt blades, loose parts, unbalanced rotating parts and steam or air leaks all create noise that can be reduced with good maintenance. Engineering controls such as vibration mountings, impact absorbers, gaskets, seals, silencers, barriers and other equipment should be regularly inspected and maintained.

Where relevant, regularly inspect and maintain workplace roadways, vehicle suspensions and tyres to reduce exposure to whole body vibration (WBV).

## Using administrative controls

Administrative noise control measures reduce the amount of noise to which a person is exposed by reducing the time they are exposed to it. Examples include:

- organising schedules so that noisy work is done when only a few workers are present
- notifying workers and others in advance of noisy work so they can limit their exposure to it
- keeping workers out of noisy areas if their work does not require them to be there
- providing quiet areas for rest breaks for workers exposed to noisy work
- using job rotation to limit the time workers spend in noisy areas by moving them to quiet work before their daily noise exposure levels exceed the exposure standard.

If you rely on administrative controls, you should conduct regular checks to ensure that they are being complied with.





PCBUs and other users. This can help in determining whether any improvements can be made.

If problems are found, go back through the risk management steps, review your information and make further decisions about risk control.

An occupational noise management plan may help implement the chosen noise control measures effectively. It should identify what action needs to be taken, who will be responsible for taking the action and by when.

The plan should be based on the results of any noise assessment and should also include:

- measuring noise levels to confirm that control measures are achieving expected attenuation
- specifications for purchasing or hiring plant
- a description of any training and supervision that may be needed
- control measures for temporary work areas and situations, and
- timeframes for reviewing noise assessments and control measures.

## 5.3. Personal protective equipment (PPE)

### WHS Regulation clause 44

#### Provision to workers and use of personal protective equipment

If PPE is to be used at the workplace, as the PCBU you must ensure, so far as is reasonably practicable, the equipment is selected to minimise risks to health and safety, including by ensuring that the equipment is:

- suitable for the nature of the work and any hazard associated with the work
- suitable size and fit and reasonably comfortable for the worker who is to use or wear it, and
- maintained, repaired and replaced so that it continues to minimise risk to the worker who uses it, including by ensuring that the equipment is clean and hygienic, and in good working order.

If you direct the carrying out of work, you must provide the worker with information, training and instruction in the proper use and wearing of PPE, and the storage and maintenance of PPE.

A worker must, so far as reasonably able, use or wear the PPE in accordance with any information, training or reasonable instruction and must not intentionally misuse or damage the equipment.

Personal hearing protectors, such as ear-muffs or earplugs, should be used in the following circumstances:

- when the risks arising from exposure to noise cannot be eliminated or minimised by other more effective control measures
- as an interim measure until other control measures are implemented, and
- where extra protection is needed above what has been achieved using other noise control measures.

If the use of personal hearing protectors is necessary, it is important that the hearing protectors are worn throughout the period of exposure to noise. Removing personal hearing protectors for even short periods significantly reduces the effective attenuation (noise reduction) and might provide inadequate protection. For example, a worker wearing a hearing protector for a full eight-hour day will receive the 30 dB maximum protection level.

