Loud or hazardous noise

NSW RESOURCES REGULATOR

January 2018

NSW mining and extractives industry

What is loud or hazardous noise?	Why is it a health hazard?	What are the exposure monitoring requirements for the health hazard?	What are the health monitoring requirements for the health hazard?
In regards to hearing loss, this refers to noise that exceeds the exposure standard in the workplace.	Loud noise can cause irreversible damage to a worker's hearing, as the cochlear (part of the inner ear) has tiny, 'hair like' cells called stereo cilia (vital for the transmission of sound energy) that are damaged or immediately destroyed by exposure to frequent and/or loud noise. These 'hair like' cells do not regenerate.	As a reasonable first step, a PCBU should establish what areas in the workplace are likely to be producing hazardous noise levels. Consult with workers (try asking; do you ever experience ringing or reduced hearing after working in any part of the workplace?) [1] can often assist in quickly and simply identifying areas of concern that may be **at, or above** the prescribed exposure standard. To **accurately** confirm noise levels in the workplace, noise measurements (by use of noise meters) would be required. The following levels are legislated exposure standards [2] at which permanent damage to a person's hearing can occur; **$L_{Aeq,8h}$ of 85 dB(A) –** sustained, unprotected exposure to this level, averaged over a typical eight hour working shift [3], or **$L_{C,peak}$ of 140 dB(C)** – any unprotected, exposure to this noise level 'peak'.	While good practice recommends audiometric testing of person within three months of commencing, and every two years thereafter or until exposure to hazardous levels ceases, there is currently an exemption order to this requirement[4].

[1] A 'rule of thumb' suggests that difficulty in hearing a conversation at 1m indicates a background noise level in excess of 85+ dB (A). For accurate measurements a noise meter would be required.
[2] Work Health and Safety Regulation 2017 (WHS Regs 2017); part 4.1 cl56 (1).
[3] For exposures over longer working hours an added calculation needs to occur – See appendix.
[4] Note that clause 58(2) of the WHS Regs 2017 requires audiometric testing to be conducted at these intervals workers who are frequently required to use personal protective equipment (PPE) in workplaces with noise levels that exceed the 'exposure standard for noise'. An exemption from compliance with that provision is in place until 31st December 2018 to give PCBUs an appropriate time frame to prepare for implementing this requirement. You can check the SafeWork NSW website to confirm if a further exemption has been issued.

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		Once accurate noise levels have been identified and confirmed, a PCBU needs to determine the exposure levels of workers. This is most easily achieved by fitting workers most 'at risk', with noise dosimeters. These simple devices will track noise levels of workers wearing them and establish the total noise exposure. These measurements should be conducted by a competent person. **NOTE**: The nature of sound is such that for every 3dB increase, the exposure time before the occurrence of damage, is halved. So at 91 dB a person will exceed safe exposure level in 2 hours (85 dB= 8hrs, 88 dB= 4hrs, 91 dB= 2hrs, and so on).	

Controls – Loud or hazardous noise

Eliminating the source of hazardous noise must always be explored as a first option. If not reasonably practicable then controls that act on the source of hazardous noise are the next most effective option. Beyond this, training, signs (exclusion zones) and hearing protection should be used. These latter two control types work best in conjunction with the aforementioned control types. Some examples of control types could include (but are not limited to):

- → **ELIMINATION** – Purchase plant and machinery that operates below the exposure limit ('buy quiet' program).
- → **SUBSTITUTION** – Change the process/task method (e.g. reduce speed of motor or fans).

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- → **ISOLATATION** – Isolate noise source from workers (e.g. reposition noisy fans, motors). This could include enclosing noise sources in sound-shielded containers or areas.
- → **ENGINEERING** – Reduce hopper drops lengths, use baffles to diffuse sound, reduce 'elbows' and 'turns' in noisy venting or pipework.
- → **ADMINISTRATION** – limit access to reduce exposure. Monitor workers and rotate workers out of noisy areas well before exposure limits are reached (should be combined with higher controls).
- → **PPE** – Ensure strict compliance to the use and understanding of hearing protection (should be combined with higher controls).

What are the legislative obligations with regards to health records?

This is the same for all health hazards with long onset periods and should be kept for a minimum of 30 years.