RECENT DEVELOPMENTS IN AUSTRALIAN OCCUPATIONAL NOISE POLICY

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[Note: Statements of official policy are indicated as such. Opinions expressed are those of the writer.]

ABSTRACT: This paper outlines some recent developments in Australian occupational noise policy as indicated in publications of the National Occupational Health and Safety Commission and Australian occupational noise regulations. There has been a gradual change in emphasis over the last twenty years from hearing conservation programs, aimed primarily at protecting exposed workers from hazardous noise, to systematic noise management programs, aimed primarily at achieving reductions in workplace noise.

1. INTRODUCTION

It is a little over 20 years since the National Health and Medical Research Council (NHMRC) first published its Model Regulations for Hearing Conservation [1]. Although the Regulations were purely advisory in nature, their publication prompted the development of actual hearing conservation regulations in the States and Territories over the following decade.

Responsibility for setting occupational health standards passed from the NHMRC to the National Occupational Health and Safety Commission when the Commission was established in 1985.

Occupational noise was one of the Commission's early priorities and it commenced a review of the matter in 1986. A discussion paper canvassing options for a national exposure standard for occupational noise and seeking comment on a draft code of practice for noise management at work was released in 1989. Following analysis of public comment on the discussion paper and extensive consultation with governments, employer and union bodies, the Commission formally declared the *National Standard for Occupational Noise in 1992 and the National Code of Practice for Noise Management and Protection of Hearing at Work in 1993.*

The *Standard and Code* were published in booklet form [2] by Worksafe Australia, the operating arm of the National Occupational Health and Safety Commission, in September 1993.

Like the original NHMRC Model Regulations, *National Standards and National Codes of Practice* declared by the National Commission are advisory documents. Their application in any particular jurisdiction is the prerogative of that jurisdiction. So far, two State and the two Territory governments have incorporated the National Standard in regulations and other jurisdictions are considering the matter (see Table 1 for further details).

Table 1. Adoption of the National Noise Standard and Code in Australian jurisdictions at December, 1994.

Jurisdiction	Current Regulations* (see note below)	Adopted National Exposure Standard?	Adopted National Code of Practice?	Comments
ACT	*Inspection of Machinery Regulations*	Yes	Yes	Current Regulations to be replaced with regulations based on National Code.
COMMON-WEALTH (apply only to C'wealth	Under development	Expected	Expected	Regulations expected 1995
NSW	*Factories (Health and Safety—Hearing Conservation) Regulation, 1979*	Under considera-tion	Under consideration	
NT	*Work Health (Occupational Health and Safety) Regulations 1992*	Yes	Yes	
QLD	*Workplace Health and Safety Regulation 1989, Part 30—Noise*	Yes	The Queensland *Code of Practice for Noise Management at Work* is broadly similar to the *National Code*.	Qld *Code* has additional requirements at lower noise levels
SA	*Occupational Health, Safety and Welfare (Industrial Safety) Regulations 1987*	Under considera-tion	Under consideration	Revised Regula-tions expected 1995
TAS	*Industrial Safety, Health and Welfare (Administrative and General) Regulations*	Under considera-tion	Under consideration	
VIC	*Occupational Health and Safety (Noise) Regulations 1992*	Yes	Victorian *Code of Practice for Noise* pre-dates *National Code* and is broadly similar.	Full control hier-archy including engineering con-trols from July 1997
WA	*Occupational Health, Safety and Welfare Regulations 1988*	Under considera-tion	WA *Code of Practice for Noise Control in the Workplace* pre-dates *National Code* and is broadly similar.	

Note: Some jurisdictions have additional noise-related regulations for particular industrial sectors, such as mining and construction.

2. THE NATIONAL STANDARD AND CODE

The National Standard for Occupational Noise is brief and similar in form to other exposure standards for atmospheric contaminants declared by the National Commission. As notified in the Commonwealth Gazette of 26 May, 1993:

"The national standard for exposure to noise in the occupational environment is an eight-hour equivalent continuous A-weighted sound pressure level, $L_{Aeq,8h}$, of 85 dB(A). For peak noise, the national standard is a peak noise level, L_{peak}, of 140 dB(lin)."

"The exposure to noise is taken to be that measured at the employee's ear position without taking into account any protection which may be afforded by personal hearing protectors."

Accompanying interpretation clauses state that $L_{Aeq,8h}$ must be measured in accordance with Australian Standard 1269 and that instruments used to measure L_{peak} must meet the relevant requirements of AS 1259.1.

The statement that noise exposure is to be measured without taking account of hearing protectors makes explicit what is implicit in the procedures specified in AS 1269 for measuring the values of $L_{Aeq,8h}$ and L_{peak}. That is, it makes it clear that the exposure standard refers to the noise in the working environment to which people are exposed, not to the noise 'in the ear' or 'under a hearing protector'. As this is an occasional source of misunderstanding it is useful to have it clarified from the outset.

The *National Code of Practice* outlines acceptable standards of management practice for preventing exposures to noise above the exposure standard and for minimising risks arising from such exposures where it is impracticable to prevent them. The *Code* is discussed in more detail below.

During 1993 an attempt was made by Worksafe staff, in consultation with Commission members, to produce model noise regulations, based on the *National Code of Practice,* which could be used verbatim in all Australian jurisdictions. This attempt was abandoned when it became clear that differences between the enabling Acts and the preferred form of regulations in different jurisdictions would make it virtually impossible for all jurisdictions to agree on the exact wording of model regulations.

The Commission then sought to reach agreement on at least the basic principles for noise regulations. Again in consultation with Commission members, Worksafe staff produced a draft statement of *Common Essential Requirements for Occupational Noise (CERs),* derived from the *National Code of Practice.* The Commission formally considered the CERs at its quarterly meeting in March, 1994, and noted that they were "the basis upon which the States and Territories are implementing the *National Standard for Occupational Noise".*

The CERs, which summarise the key principles of the National Standard and the National Code, are reproduced

COMMON ESSENTIAL REQUIREMENTS FOR OCCUPATIONAL NOISE

1. Without limiting the employer's general duty to protect the health and safety of employees at work, an employer shall, as far as practicable, provide and maintain workplaces, plant and systems of work so that the noise to which an employee is exposed at a workplace does not exceed the exposure standard.

2. An employer at a workplace where the noise to which an employee is exposed exceeds, or is likely to exceed, the exposure standard, shall:

2.1 implement engineering noise controls as far as practicable, to reduce the noise to which the employee is exposed; and

2.2 if the engineering noise controls implemented under 2.1 do not reduce the noise to which the employee is exposed to a level that does not exceed the exposure standard, implement administrative noise controls as far as practicable, to reduce the noise to which the employee is exposed; and

2.3 if engineering noise controls or administrative noise controls implemented under 2.1 and 2.2 do not reduce the noise to which the employee is exposed to a level that does not exceed the exposure standard, and in any case while such controls are being implemented, provide to the employee an appropriate personal hearing protector:

(a) that meets the requirements of Australian Standard 1270 *AcousticsHearing Protectors;* and

(b) that has been selected according to the procedures specified in Australian Standard 1269 *Acoustics Hearing Conservation.*

3. An employer at a workplace where an employee is exposed to noise that exceeds, or is likely to exceed, the exposure standard, shall:

3.1 ensure as far as practicable that administrative and engineering noise control measures are properly implemented and maintained; and

3.2 ensure as far as practicable that personal hearing protectors are properly used, maintained and stored.

4. Employees shall, as far as they are capable:

4.1 comply with noise control measures required by 2.1 and 2.2; and

4.2 use personal hearing protectors required by 2.3.

5. Designers, manufacturers, importers and suppliers of plant that may be used in workplaces and that may emit hazardous noise shall ensure that the plant is designed and constructed so that noise emitted is at the lowest level practicable.

6. Manufacturers, importers and suppliers of plant that may be used in workplaces and that may emit hazardous noise shall, as far as practicable, provide to employers appropriate and adequate information about the noise emitted by the plant and about ways to keep the noise at the lowest level practicable.

below. In view of the drive in Australia towards national uniformity in occupational health and safety regulations, the CERs may be taken to indicate the general direction of occupational noise regulations in Australia.

Employers have a general duty under occupational health and safety law to take reasonable care to avoid exposing employees to unnecessary risks to their health and safety. Clause 1 of the *CERs* expresses a limited aspect of this duty in relation to risks arising from exposure to noise, requiring an employer to aim for workplace noise conditions in which employees are at least not exposed to noise above the exposure standard.

Clause 1, like most other clauses in the *CERs,* is qualified by 'as far as practicable'. The requirement is not to do the impossible, simply the practicable. This opening clause is also a useful reminder to anticipate noise problems when new workplaces or work processes are designed and whenever new plant and machinery are purchased. This connects with responsibilities placed on plant manufacturers and suppliers under Clause 5 to control the noise emission of plant they supply to industry.

Clause 2 and its subsections say what has to be done in situations where employees are already exposed to noise above the exposure standard. The essence of Clause 2 is the requirement to implement the standard 'hierarchy of controls': engineering controls, administrative controls and personal protection, in that order of preference.

Engineering controls and administrative controls are the only ways to reduce 'the noise to which an employee is exposed'. Typically, engineering controls do so by reducing sound pressure level, administrative controls by reducing exposure duration. Reduction of the $L_{Aeq,8h}$ value of the noise to which an employee is exposed is achievable by reduction of sound pressure level, exposure duration, or both. Reduction of L_{peak} is achievable only by reduction of sound pressure level.

Technically speaking, hearing protectors do not 'reduce the noise to which a person is exposed'. By definition, as noted above, the noise to which a person is exposed is the noise in the environment external to any hearing protectors that may be worn and thus cannot be reduced by them. However, hearing protectors are an acceptableæindeed requiredæform of risk control if the noise to which people are exposed still exceeds the exposure standard after all practicable engineering and administrative controls have been implemented (hearing protectors are also required, of course, while the controls are being implemented).

Hearing protectors must be provided in accordance with Australian Standards 1269 and 1270. These standards are referenced to require that the protectors are selected and fitted following standardised procedures (AS 1269), and that they satisfy basic requirements of construction and robustness and have had that their sound attenuation determined according to a standard method (AS 1270).

Clauses 3 and 4 of the *CERs* require the employer to maintain any noise controls installed and to maintain hearing protectors. Employees have complementary duties to use noise controls and personal protectors.

Clause 5 places responsibilities on designers, manufactures, importers and suppliers to ensure plant is designed and constructed so that its noise emission is as low as practicable when properly installed and used.

Clause 6 requires manufacturers, importers and suppliers to provide information about the noise emission of their products, an important step aimed at facilitating the wider adoption of 'buy quiet' programs.

Duties similar to those in Clauses 5 and 6 are now in place in several Australian jurisdictions. They are important because they seek to reduce the flow of noisy equipment into workplaces, in the long run a more fundamental and economical solution to the problems of excessive workplace noise than post-installation retrofitting. In addition, these duties give purchasers the right to expect equipment designers and suppliers to minimise noise emission and to provide noise emission details of their products.

Duties on plant designers and manufacturers are a logical step in the move from an emphasis on protecting exposed individuals from hazardous noise—the conventional 'hearing conservation' approach—to proactive noise management directed towards the achievement, so far as practicable, of an environment free of hazardous noise. While employers are ultimately responsible for controlling noise in working environments under their control, their job will be made much easier in future if equipment designers and manufacturers take their share of responsibility for the noise emitted by products they place on the market.

3. DETAILS OF THE NATIONAL CODE

The *National Code of Practice for Noise Management and Protection of Hearing at Work* deals with many other points not covered explicitly in the CERs:

◆ consultation

The *Code* encourages maximum consultation and cooperation between employers, employees and health and safety representatives in implementing the principles of the *Code.*

◆ noise control planning

Refers to the development of specific noise control policies and plans for the organisation, including coverage of the following issues:

- noise goals for existing work areas
- design goals for new work areas
- selection and purchase of quiet plant
- noise controls in temporary work areas
- implications for contractors
- funding for the noise control program
- periodical review of the noise control program.

◆ information and training

The *Code* advocates the provision of information and training for:

- employees at risk
- their managers and supervisors
- health and safety committees and representatives
- staff responsible for designing work systems and for purchasing potentially noisy plant and hearing protectors,

about:

- the range of health effects of noise
- social handicaps of hearing disabilities
- exposures to noise in their workplace
- general nature of noise control measures
- specific noise control measures where they work
- the organisation's noise control policy and action plan
- arrangements for reporting defects likely to cause excessive noise
- when and how to use and care for personal hearing protectors
- statutory responsibilities of employers and employees.

◆ noise assessments

The *Code* provides general guidance on how to carry out a noise assessment in areas where employees may be exposed to noise exceeding the *National Standard.*

It recommends that the assessment should be reviewed every five years, or earlier where there is any change to plant, the building, working arrangements or workload.

On technical issues of noise measurement and evaluation, this section of the *Code* generally summarises material in AS 1269 and AS 2659.

◆ audiometric testing

The *Code* makes the points that the monitoring of employees' hearing is not in itself a preventive mechanism and that it is relevant only in the context of a comprehensive noise management program. It thus takes a more cautious view of the benefits of audiometry than some of the previous hearing conservation regulations in Australia, reflecting, in my opinion, a more realistic appraisal of the unreliability of audiometric measurement and its lack of sensitivity and specificity as an indicator of program failure.

Nonetheless the position taken in the *Code* is that audiometry 'should be available to any employee likely to be regularly exposed to noise in excess of the national standard'. It is up to the employee to decide whether or not they want to take part.

The technical details and procedures for conducting audiometry and assessing the results follow AS 1269 and guidelines produced by the National Acoustic Laboratories [3].

Results of audiometry are to be given to employees within two months of testing, together with a written explanation of what they mean. To preserve confidentiality, individual results are to be released to other parties only on the written authority of the employee concerned.

Unidentifiable individual results and group data are to be accessible by the employer and the relevant authority.

4. CONCLUSION

The *National Code of Practice for Noise Management and Protection of Hearing at Work,* the Western Australian (4) and Victorian (5) codes of practice which preceded and influenced it, and more recent regulations and codes, devote significantly more attention to the practical details of noise control planning and management than the generation of hearing conservation regulations they are now replacing. This trend is also evident in Worksafe's *Noise Management at Work* information resources [6]. It reflects a paradigm shift, to use a hackneyed but still useful expression, from narrowly-focused hearing conservation to comprehensive noise management.

A major reason for this shift is the mounting evidence that personal hearing protection programs are of limited effectiveness. The intrinsic efficacy of ear plugs and ear muffs falls short of 100% because the anatomy of some wearers is such that it is difficult or impossible for them to achieve an effective acoustical seal. This is especially a problem with earplugs. However, even devices with acceptable efficacy in laboratory tests have limited effectiveness in actual conditions of use. Wearers do not always take the trouble to fit protectors correctly every time they use them, again a significant problem with earplugs. Ensuring that hearing protectors are cared for properly and serviced regularly is also a problem. But the overriding difficulty is that it is virtually impossible to get everyone to wear protectors correctly and consistently every time they should—and in some cases even to get people to wear them at all. The result is that people continue to lose hearing even though conventional hearing conservation programs (i.e. education, personal protection and audiometry) are in place.

REFERENCES

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