

Noise surveys
Department of Labour expectations for noise measurement and
exposure assessment

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ABSTRACT

Noise induced hearing loss is a problem in New Zealand workplaces. An integral part of noise management and development of hearing conservation programmes is the measurement and assessment of noise exposure, and audiometry. The consultants who carry out these assessments are therefore key players in helping manage the problem of noise induced hearing loss in New Zealand workplaces.

INTRODUCTION

2007 data from ACC indicates the total cost of noise induced hearing loss to New Zealand exceeds \$40 million per year and about 4000 new hearing loss related claims are made annually (ACC 2007). It can be assumed a large contributor to these statistics is noise induced hearing loss caused by exposure to workplace noise.

An essential part of managing workplace noise is the assessment of a workers exposure to noise, and assessment of hearing threshold (audiometry). These assessments are usually carried out by occupational health or hygiene consultants and must be undertaken in accordance with New Zealand legislation and Standards.

This paper is aimed at highlighting aspects of the legislation and Standards that must be applied to the measurement of noise, assessment of noise exposure and audiometry.

NOISE MEASUREMENT AND LEGISLATION

Employers have duties under Sections 6 to 13 of the Health and Safety in Employment Act (1992) in regards to noise.

In addition, Regulation 11(1) of the Health and Safety in Employment Regulations (1995), places a duty on the employer to take all practicable steps to ensure that no employee is exposed to noise above an $L_{Aeq,8h}$ of 85 dB(A) and a peak noise level of 140 dB.

Regulation 11(2) of those Regulations requires that noise be measured and assessed as follows:

1. The noise exposure level, $L_{Aeq,8h}$ is normalised to an 8 hour day;
2. $L_{Aeq,8h}$ noise exposure must be measured and assessed in accordance with AS 1269-1989 'Acoustic – Hearing Conservation' (note 1) ;
3. Peak noise levels must be measured with a noise meter as specified in AS 1259.1-1990 (note 2).

(Note 1: Superseded by AS/NZS 1269.0:2005).

(Note 2: Superseded by AS IEC 61672.1 & AS IEC 61672.2 2004).

It follows that for an employer to meet their duties, they must take all practicable steps to ensure that the requirements of Regulation 11(2) are followed by the consultant (if the consultants work is being done to assess compliance with the Act).

Thus employers who have little/no understanding of the intricacies of the relevant New Zealand Standards, or of noise monitoring methodology are relying on the consultant to be measuring and assessing in line with Regulation 11(2).

I think it would be fair to say that employers are assuming consultants are abiding by any relevant legislative requirements. In other words, an employer who is proactively (or forceably) seeking to assess the noise hazard as a part of taking all practicable steps to ensure the safety of employees is relying on the information provided by their consultant to be accurate and in accordance with New Zealand law.

TOOLS FOR THE CONSULTANT – THE APPROVED CODE OF PRACTICE

AS 1269-1989 has been superseded by AS/NZS 2169 Part 0 (Occupational noise management – Overview and general requirements). This document refers to 2169: parts 1 to 4 which cover respectively:

1. Measurement and assessment of noise immision and exposure (Part 1);
2. Noise control management (Part 2);
3. Hearing protector program (Part 3);
4. Audiometry assessment (Part 4).

As Part 0 refers to the other Parts of the Standard, the requirements for noise measurement and audiometry therefore go well beyond the three points listed in Regulation 11(2).

Five (plus) Standards may seem like a lot of information for a consultant to get their head around, however a good summary of the relevant Standards is provided by the Department of Labour Approved Code of Practice (ACOP) for the Management of Noise.

The ACOP is a statement of preferred work practices and arrangements in workplaces where noise is a significant hazard. The principal objective of the Code is to reduce the incidence and severity of hearing loss resulting from excessive noise exposure.

Although a Code of Practice is not enforceable, a Court may have regard to it in relation to compliance with the relevant sections of the Health and Safety in Employment Act. This means that if an employer in an industry or using a process to which an approved code applies can show compliance with that code in all matters it covers, a Court may consider this to be compliance with the provisions of the Act to which the code relates.

THE ACOP - KEY ELEMENTS FOR CONSULTANTS

Some of the key elements of the ACOP that consultants need to be aware of are listed in Table 1 below.

Table 1: Key elements of the ACOP

Section of ACOP	Key elements for consultants carrying out : noise measurements; exposure assessment; audiometry.
Section 4 Detailed assessments	<ul style="list-style-type: none"> • Measurement methods to be in accordance with 2169 Part 1 • Type 1 or 2 meter to be used • Adjustment of results for extended workshifts (as per Part 9.4 of 2169 Part 1)
Section 5 Control	<ul style="list-style-type: none"> • Guidance in accordance with 2169 Part 2
Section 6 Hearing protectors	<ul style="list-style-type: none"> • Requirements for hearing protector program in accordance with 2169 Part 3 • Selection of hearing protectors is based on $L_{Aeq,8h}$ (i.e. not one off noise emission levels at a fixed point in the workplace) • Octave band method must be used to determine hearing protection for noise exposure greater than 110 dBA L_{eq}.
Appendix E Audiometry	<ul style="list-style-type: none"> • Audiometric testing carried out in accordance with 2169 Part 4 • Background noise levels in the testing room must be measured and recorded at the specified frequencies and must be below the levels given in the table in appendix E of the ACOP and Table D1 of 2169 Part 4

COMPETENCY

Appendix B of the ACOP lists the training and knowledge requirements of any person performing noise assessments and audiometry. AS/NZS 2169 Part 1 and 4 also list competency requirements for these people. These competency requirements are quite extensive and require thorough understanding of: hearing, hearing loss, physics of sound, correct use and calibration of instrumentation; relevant Standards and legislation etc.

More than just being a preference, competency in the relevant areas is a requirement of the Standards and as such is to be taken seriously by consultants, employers and health and safety inspectors.

A consultant must consider what questions clients are seeking answers to. Often they will be: “Is noise a hazard in my workplace? Is it a significant hazard? Has serious harm occurred? How do I manage the hazard? What hearing protection is required? Am I meeting my duties under the Act in regards to noise?”

In response, a consultant must ask two very important questions before embarking on work for the client: “Have I the competencies to answer these questions? Have I the right equipment to answer these questions”?

CONCLUSIONS

An essential part of hearing conservation programmes is the measurement and assessment of noise exposure, and audiometry.

Consultants are therefore a key player in the management of noise hazards in New Zealand workplaces.

Providing monitoring results and assessments of sufficient technical quality is vital in enabling employers to meet their duties under the Health and Safety in employment Act to ensure safety of employees.

References

- ACC Noise Induced Hearing Loss (NIHL) (2007). <http://www.acc.co.nz/injury-prevention/safer-industries/noise-induced-hearing-loss/index.htm>
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Biography – Philippa Gibson

Philippa works for the Department of Labour as an occupational hygienist, health and safety inspector, and HSNO enforcement officer. She is recognised by the American Board of Industrial Hygiene (ABIH) as a Certified Industrial Hygienist (CIH). Prior to working for the DOL she was a consultant occupational hygienist with Paragon Health and Safety Limited and ESR.