



Hearing Conservation Program

Power and Water Corporate Procedure

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1 Purpose

1.1 The purpose of this procedure is to ensure that all PWC Business Unit staff, contractors, and visitors understand their responsibilities in Hearing Conservation.

2 Scope

The scope of this procedure is assist managers to determine areas where noise exposure is above the recommendations of the National Standard, to ensure the appropriate controls are put in place in order to reduce noise induced hearing loss for all staff, contractors and visitors to Power Water Corporation workplaces.

3 References

- 3.1 National Standard for Occupational Noise [NOHSC:1007(2000)]
- 3.2 AS/NZS 1269 Occupational Noise Management Part 0 Overview and general requirements
- 3.3 AS/NZS 1269 Occupational Noise Management Part 1 Measurement and assessment of noise immission and exposure
- 3.4 AS/NZS 1269 Occupational Noise Management Part 2 Noise control management
- 3.5 AS/NZS 1269 Occupational Noise Management Part 3 Hearing protector program
- 3.6 National Code of Practice for Noise Management and Protection of Hearing at Work [NOHSC: 2009(2004)]

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- 3.7 National Occupational Health and Safety Commission - Control Guide Management of Noise at Work
- 3.8 Work Health Act 2006
- 3.9 Work Health (Occupational Health and Safety) Regulations 2006

4 Roles and Responsibilities

Role / Title	Responsibility
Managing Director	<ul style="list-style-type: none"> • Ensures that the safe work systems for the protection of personnel from noise are implemented and maintained within all Business Units.
General Managers	<ul style="list-style-type: none"> • Ensures that information, instruction, training and supervision of all personnel is provided, to enable them to perform their work in such a way that they are not exposed to the hazards of noise in the workplace. • Ensure that there is a system in place that all plant / equipment and workplaces are tested for noise levels and that regular maintenance and inspection is conducted with all appropriate controls in place.
Managers	<ul style="list-style-type: none"> • Ensure all supervisors are aware of designated noise areas or plant/equipment and their responsibilities. • Ensure all personnel are informed, trained and given instruction in relation to noise. • Ensure all designated noise areas and plant/equipment are clearly discernible with appropriate signage.
Supervisors / Coordinators	<ul style="list-style-type: none"> • Ensure signage in designated noise areas or for plant / equipment is well defined, legible and not obstructed. • Ensure all staff, contractors and visitors are aware of any procedures or requirements to wear hearing protection. • Ensure hearing protection is worn, inspected regularly and replaced as required.
Designated Contract Officers	<ul style="list-style-type: none"> • Ensure that all work conducted in or near designated noise areas has been identified and controlled for the contract prior to work commencing. • Ensure all contractors are responsible for and comply with this procedure. • Ensure contractors are fully trained and are aware of their roles and responsibilities when working in designated noise areas or on noisy plant and equipment. • Ensure all hearing protection used by contractors is in a serviceable condition by inspecting prior to the task commencing.

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<p>Employees, Contractors and Visitors</p>	<ul style="list-style-type: none"> • Ensure compliance with signage in designated noise areas. • Ensure compliance with any procedures or requirements to wear hearing protection. • Inspect, maintain and/or replace hearing protection regularly, and wear in accordance with procedures and manufacturers instructions. • Visitors are to be made aware that all reasonable directions given must be followed • Report all incidents of exposure to noise levels exceeding the action level.
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5 Definitions

Where terms or words are not included in the definitions section, refer to Power and Water's Glossary for clarification. The glossary is available on Power and Water's intranet.

WORD	Definition
ACTION LEVEL	When the noise level exceeds the National Standard Exposure Level an action should be taken to protect hearing.
ACTION ZONE	A designated area where noise reaches the Action Level .
AMBIENT NOISE	The total of all noise in the environment, other than the noise from the source of interest. This term is used interchangeably with background noise.
ATTENUATION	The reduction of sound intensity by various means (e.g. by the use of various hearing protection devices).
AUDIOGRAM	A graph showing individual hearing acuity as a function of frequency.
AUDIOMETER	An instrument for measuring individual hearing acuity.
A-WEIGHTED SOUND LEVEL	A measure of sound pressure level designed to reflect the acuity of the human ear, which does not respond equally to all frequencies. The resultant sound level is said to be A-weighted, and the units are dB(A) . The A-weighted sound level is also called the noise level
DECIBEL	A unit of sound pressure level, abbreviated dB.
dB(A)	Unit of sound level. The weighted sound pressure level by the use of the "A" weighted metering characteristic in Specifications for Sound Level Meter.
dB(C)	The "C" weighting provides a fairly flat frequency response with only slight attenuation of the very high and very low frequencies. "C" weighting is intended to represent how the ear perceives sound at high decibel levels.

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NATIONAL STANDARD EXPOSURE LEVEL	The National Standard Exposure Level of $L_{Aeq,8h}$ 85dB(A), or L_{peak} 140dB(C) which are the maximum acceptable exposures for noise in the workplace.
FREQUENCY	The number of times per second that the sine wave of sound repeats itself, or that the sine wave of a vibrating object repeats itself. Now expressed in hertz (Hz) , formerly in cycles per second (cps).
HEARING PROTECTOR	Any device or pair of devices worn by a person or inserted in the ears to protect the persons hearing.
HEARING LEVEL	A measured threshold of hearing at a specified frequency , expressed in decibels relative to a specified standard of normal hearing. The deviation in decibels of an individual's threshold from the zero reference of the audiometer.
HEARING LOSS	A term denoting an impairment of auditory acuity. The amount of hearing impairment, in decibels, measured as a set of hearing threshold levels at specified frequencies.
HERTZ (Hz)	Unit of measurement of frequency , numerically equal to cycles per second.
IMPACT SOUND	The sound produced by the collision of two solid objects. Typical sources are footsteps, dropped objects, hammering, jackhammer etc.
IMPULSIVE NOISE	<ol style="list-style-type: none">1. Either a single sound pressure peak or multiple sound pressure peaks spaced at least by 200 millisecond pauses.2. A sharp sound pressure peak occurring in a short interval of time.
$L_{Aeq,8h}$	Means that steady noise, which would, in the course of an eight-hour period, cause the same A-weighted sound energy as that due to the actual noise over an actual working day.
$L_{C,peak}$	This is the peak level of the sound pressure wave with no time constant applied. For noise at work measurements the peak level should be C weighted.
NOISE	Unwanted sound. Any sound not occurring in the natural environment, such as sounds emanating from aircraft, turbines, chainsaws, highways, industrial, commercial and/or residential sources. An erratic, intermittent, or statistically random oscillation.

6 Prescribed National Standard Exposure Level for Noise

6.1 National Standard

Each Business Unit shall adopt the National Standard for an [exposure level](#) for noise.

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7 Noise Survey

Each Business Unit shall conduct a screening survey of all areas and workplaces that are likely to exceed the prescribed exposure level resulting in designated [Action Zones](#). The purpose of this survey is to identify and confirm noise hazards where personnel may be exposed to an action level. This includes mobile plant and equipment that may also expose members of the public to an action level.

7.1 Noise Report

Where it has been identified that an employee is likely to be receiving a noise dose greater than the prescribed exposure level, the Business Unit shall prepare a Noise Report. This report shall be compiled in accordance with approved procedures through the use of approved sound measurement equipment and by authorised personnel trained in the use of the noise measurement equipment. DCIS OHS can provide this service. PWC Business Units shall arrange and bear the costs of surveys and reports.

7.2 Additional Noise Assessment

Each Business Unit shall cause an additional noise assessment to be prepared when:

- a. a previously identified area is likely to have experienced an increase of 5dB(A) or more in the peak noise level or that to which the employees are exposed; or
- b. 5 years has elapsed since the last report and an employee remains likely to be receiving a noise dose exceeding the prescribed exposure level.

7.3 Control Measures

In any location identified as an action zone, or where an Action Level has been identified, the Business Unit shall reduce the exposure as far as practicable, through the accepted hierarchy of control. All control measures should be reviewed regularly for maintenance and/or upgrade.

- 7.3.1 elimination – of noise sources where possible;
- 7.3.2 substitution – of plant or equipment with new and quieter models;
- 7.3.3 engineering noise control such as the fitting of noise absorbing baffles, acoustic tiles, plant exhaust mufflers, isolation mounts etc;
- 7.3.4 administrative controls – such as management of time exposed, organising scheduled work so that noisy work is carried out when fewer personnel are about, early notification of noisy works, limiting exposure times provision of training and information, displaying safety warning signs regarding the wearing of personal hearing protection, regular inspection and maintenance etc; and
- 7.3.5 PPE - providing appropriately selected and maintained personal hearing protection.

7.4 Audiometric Testing

Each Business Unit shall authorise audiometric testing of all employees who are likely to be exposed to a level of noise exceeding the exposure level. An audiometric test shall be carried out in an approved facility and conducted by authorised personnel. The Business Unit Manager will be notified of results by a pass or fail to enable the appropriate actions to be taken to minimise further loss of hearing.

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The results and information derived from the test shall not be communicated to any other person, other than at the written request of the employee tested, or the appropriate Staff Services. All results are to be treated as Medical in Confidence.

7.4.1 Existing Employees

Baseline audiometric testing for existing employees currently exposed to an action level shall be commenced as soon as practicable. Employees not employed to work in such areas may apply to their Business Unit Manager for inclusion in the testing program. Applications will be assessed on risk of exposure to a noise hazard.

7.4.2 Redeployment of Employees and Baseline Audiogram for New Employees

Prior to commencement of duties, testing shall occur for any employee that is likely to be exposed to an action level to determine a base-line audiogram. Any existing staff member being redeployed to a position exposing them to such levels shall also be tested.

7.4.3 Arranging the Test

Each Business Unit will arrange and bear the costs for testing of staff involved in the program. The person responsible for completion of this (Supervisor/Manager) shall assess the likelihood of the employee's exposure to a noise hazard and subsequent recommendation for testing.

7.4.4 Follow-Up Tests

Follow-up tests for all employees enrolled in the program will be conducted on an annual basis. Where exposure to high levels of noise exceeding 100dB(A) occurs, the testing should be 6 monthly or as determined by the testing authority.

7.4.5 Cease Employment

All staff enrolled in the program shall have a final audiometric test at the cease of employment with the Business Unit. It shall be the responsibility of the immediate supervisor to ensure this final test is conducted. As for medical records, audiograms are to be kept for a period of 30 years after ceasing employment

7.5 Training Program

The Business Unit shall provide an instructional and training program for employees that are exposed to an action level covering the following topics:

7.5.1 Training - General Information

- a. Power and Water and/or Business Unit Noise Management Procedure;
- b. legal responsibilities (Duty of Care);
- c. the hearing process;
- d. the harmful effects of noise;
- e. how to decrease the risks of hearing loss;
- f. noise characteristics and measurement;
- g. audiometric testing; and
- h. incident reporting.

7.5.2 Training - Noise Control

- a. detection and reporting of potential hazards relating to noise;

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- b. elimination of noise where possible;
- c. management of noise exposure;
- d. maintenance of noise control equipment;
- e. time restrictions;
- f. restricted/alternative operating times; and
- g. quieter working techniques and practices;

7.5.3 Training - Personal Hearing Protection

- a. requirement for hearing protection;
- b. assessment of appropriate personal hearing protection with regards to;
 - i) type of noise;
 - ii) most suitable protector for the individual;
 - iii) workplace location and type of tasks;
 - iii) environmental conditions (indoors/outdoors);
- c. inspection, fitting and use of personal hearing protection; and
- d. maintenance and storage of personal hearing protection.

7.6 Noise Hazard Register

Each Business Unit shall develop and maintain a register to record:

- 1. all noise reports prepared for the Business Unit;
- 2. results of screening surveys and noise reports;
- 3. action taken, or to be taken, in reducing noise levels in identified areas;
- 4. all employees likely to be exposed to an action level and/or enrolled in the program;
- 5. staff who have had an audiometric test and when next due; and
- 7. staff who have attended the Hearing Conservation Training Program.

7.7 Basic Noise Control

Each Business Unit shall ensure where practicable, that noise levels emanating from all workplaces are maintained at an acceptable level and is performed within acceptable hours of work to reduce the impact on the general public.

7.7.1 Noise Transmission to Adjacent Areas – “Buy Quiet”

Power and Water Business Units, contractors and installers at all Business Unit workplaces must recognise their responsibilities in the purchase and installation of plant and equipment in relation to the impact on the noise that may be generated. They shall (where appropriate):

- 1. request from the manufacturers all relevant noise test data not supplied with the plant or equipment;
- 2. assess or request assessment of whether a noise hazard is likely to exist as a result of use or operation of the plant;

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3. ensure that all plant and equipment is delivered complete with noise reducing equipment (mufflers, baffles, acoustic tiles etc);
4. arrange for noise testing of plant or equipment for which no manufacturer's data is available, where it is suspected that the use or operation of the plant may result in a noise hazard; and
5. provide all relevant information regarding noise emission levels where such noise may give rise to a noise hazard.

7.8 Contractor (Internal or External)

The contractor shall be notified in writing through the Contract Officer within the Business Unit, of the following requirements in relation to noise:

1. follow specific instructions provided by the manufacturer, importer or supplier for the erection or installation of all plant and equipment;
2. consider factors which may increase the risk of a noise hazard, such as:
 - a. location of plant to workstations;
 - b. possibility of transmitting vibrations; and
 - c. possibility of airborne, duct borne or fluid borne noise being transmitted to other areas outside of the workplace;
3. advise the contract officer as appropriate that in their opinion the specified location or method of installation/erection is such that it may give rise to a noise hazard.

8 The Use of Hearing Protection

8.1 Users of hearing protectors shall take reasonable care to:

1. ensure that they clearly understand the information, instruction and training provided by the Business Unit as to when, where and how the personal hearing protectors are to be worn;
2. check for the presence of safety warning signs requiring the wearing of hearing protectors;
3. keep hearing protectors readily available at the workplace;
4. take an adequate supply of hearing protectors if moving outside the usual workplace;
5. ensure that hearing protectors fit properly and are worn every time they are required;
6. maintain hearing protectors in a clean, serviceable condition or request replacement as necessary; and
7. store hearing protectors appropriately when not in use.

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8.2 Misuse or Damage to Equipment

Under Regulation 74 (1) (b) users shall take care not to misuse or damage any equipment provided in the interests of reducing noise in the workplace. If PPE is wilfully damaged appropriate disciplinary action may be taken.

8.3 Reporting Hazards

All personnel shall report promptly to their supervisor any situation in the workplace, which they believe, may constitute a noise hazard.