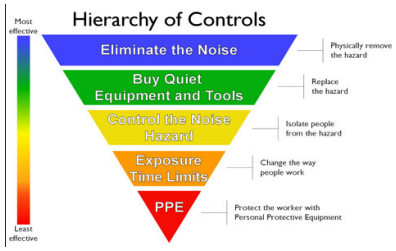
Noise Management

HSEQ Management System Procedure

What this procedure describes

How to manage the risks associated with hazardous or excess noise and prevent hearing loss at TasNetworks.



Why it is required

- To manage the risk of exposure to hazardous or excess noise at TasNetworks.
- TasNetworks is required to manage the risks associated with workplace and environmental noise in accordance with Work Health and Safety Legislation, and the Code of Practice - Managing Noise and Preventing Hearing Loss at Work.
- To describe actions to be taken to avoid environmental noise, or if there is a complaint or observation regarding a possible excessive environmental noise problem. Environmental noise needs to be managed in accordance with Environmental Management and Pollution Control Legislation - Miscellaneous Noise Regulation.
- The procedure supports TasNetworks goal of Zero Harm.

Who it applies to and when

Everyone working for or on behalf of TasNetworks.

Authorisation

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Authorised by	HSETC Group Leader
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1. How can Noise Cause Harm?

Hearing loss can occur when someone is exposed to noise over time or it can occur suddenly if they are exposed to a very loud impact or explosive sound. When hair cells in the inner ear are destroyed, hearing loss can be permanent. Susceptibility to hearing damage and noise sensitivity varies among individuals, and exposure standards are set on the general population.

The WHS Regulations set the exposure standard for noise at an LAeq,8h of 85 dB(A) and a peak noise level at 140 dB(C), which protects most but not all people. Therefore, workplace noise should be kept lower than exposure standards for noise as far as reasonably practicable.

Examples of Equivalent Noise Exposures
LAeq,8h = 85 dB(A)

Noise Level dB(A)	Exposure Time	Example noise
60	24 hours	Normal conversation
80	16 hours	Kerbside heavy traffic
85	8 hours	Front-end loader
100	15 minutes	Sheet metal workshop
110	Around 1 minute	Chainsaw
140	Less than 1 second	Gun shot

2. Identifying Noise

Workers who are likely to be exposed to hazardous noise are required to wear hearing protection when operating or working near:

- Pole staking equipment
- Chainsaws
- Mobile plant fitted with warning devices (for example, reversing alarm)
- Transportable generator sets, rattle-guns and impact guns
- Other equipment of a similar nature that generates hazardous noise

Hazardous noise must be identified by consulting workers, inspecting the workplace and reviewing information, such as:

- Information provided by manufacturers and suppliers about plant and equipment
- Measuring the noise
- Information about noise in the electrical industry (for example, Energy Networks Association), and Workers compensation claims for hearing loss

Noise must be identified in consultation with workers and their health and safety representatives. The checklist at Appendix A is to be used to identify hazardous noise.

Where it is not simple to assess noise (for example, by checking the manufacturer's specifications for a rattle-gun) a competent person will need to assess exposure. A competent person will be required to measure noise where levels change over time or where people are exposed to more than one source of noise.

3. Hierarchy of Controls

Level 1	**Eliminate** the source of noise	Cease using noisy equipment
Level 2	**Substituting** plant or processes to reduce noise ('Buy Quiet')	Substitute with plant or processes that are quieter.
	Change the way you do the job	A different way of doing the job may provide the same result with a lot less noise. e.g. changing a rattle gun for a hydraulic torque gun to remove impact noise.
	Isolate the source of noise	Isolate the source of noise from people by using distance, barriers, enclosures and sound-absorbing surfaces.
	Reduce the source of noise using **engineering** controls.	Controlling noise by servicing plant (e.g. winches) and, where possible, using mufflers and sound absorption.
Level 3	Reduce exposure to noise using **administrative** actions.	Organising schedules so that noisy work is done when only a few workers are present, limiting how long people are exposed to noise and notifying people. Areas should be sign-posted as hearing protector areas and the boundaries of these areas should be clearly defined.
	Use **personal protective equipment (hearing protection).**	Wear ear-plugs or ear-muffs. Using plugs and muffs together increases hearing protection.

The effectiveness of control measures should be regularly discussed with workers and Health and Safety Representatives, for instance, at Health Safety Committees.

Warning signals

Workers must be able to hear warning signals above any other noise at the workplace. Warning signals need to be higher (at least 65 dB(A) and more than 15 dB(A)) greater than the background/ambient noise level at any position in the signal reception area. This is because evacuation alarms or mobile plant need to be heard above background/ambient noise. More detailed guidance on assessing the audibility of warning signals is available by speaking with a HSE Adviser.

4. Other Causes of Hearing Loss

Acoustic shock

Acoustic incidents are any sudden, unexpected loud noises, including crackles, hisses, whistles, shrieks or high-pitched noises. The noises can be from faulty or damaged equipment or broadband interference when using a
nalogue telephone systems. Acoustic shock can occur for example in the office, call centre and field-based environments.

TasNetworks manages the risk of acoustic shock in areas of high call volumes, for example, in the call centre and revenue and credit service areas. TasNetworks has a number of sound shields installed to limit the total volume of sound to protect against acoustic shock. As an additional control measure, workers may be provided with headsets with acoustic shock protection devices, where required and authorised by a Leader.

If an acoustic shock occurs, remove the headset immediately, then report the incident to the supervisor and SAP. Where symptoms are persistent or severe, refer the worker to a general practitioner and/or an audiologist for assessment and treatment of possible injury.

Ototoxic substances

Exposure to some chemicals can result in hearing loss. These chemicals are known as ototoxic substances. Hearing loss is more likely to occur if a worker is exposed to both noise and ototoxic substances than if exposure is just to noise or ototoxic substances alone.

There are a small number of ototoxic chemicals that workers can be exposed to, which are present in some solvents, older light fittings and some cable joining activities. Solvents can be found at the oil facility and smaller amounts can be found in depots. Metals such as arsenic, lead and manganese may be found around TasNetworks truck wash sites.

Appendix B contains a list of ototoxic chemicals that need to be managed in accordance with relevant safety data sheets. Other control measures such as isolation and local ventilation should be implemented to eliminate or reduce chemical exposures. Personal protective equipment should be used to prevent skin absorption and inhalation when other controls are insufficient.

5. Noise Pollution and Environmental Harm

Construction, operation and maintenance of Assets

In addition to being a risk to TasNetworks workers, noise during construction, operation and maintenance of TasNetworks assets can impact on the general publics' enjoyment of the environment. Excessive noise may be considered noise pollution (environmental harm) which is an offence under Environmental Management and Pollution Control Legislation and may result in an infringement notice or fine. When planning the installation of a new asset the impact of noise during construction and operation must be considered when designing and siting the asset. In order to reduce the risk of causing noise pollution, maintenance work should be performed in accordance with the Environmental Management and Pollution Control (Miscellaneous Noise) Regulations.

TasNetworks HSE Advisors test and investigate that the noise generated from substations are in accordance with the Environment Protection Policy (Noise).

Maximum allowable noise levels for vehicles, machinery and equipment
TasNetworks HSE Advisors can test and investigate noise to ensure that they are within the permissible noise emission levels (as per the Environmental Regulations);

- Motor vehicles (Schedule 1), which includes cars and trucks,
- Mobile machinery (Schedule 2), which includes cranes and excavators,
- Forklift trucks (Schedule 3),
- Portable apparatus (Schedule 4), which includes power tools, compressors, AC & DC Generators and cement mixers, and
- Chainsaws (Schedule 6).

Regular maintenance of vehicles, machinery and equipment helps reduce the risk of exceeding the noise levels.

Hours of operation
In addition to noise levels, the Regulations also set acceptable hours of operations (Schedule 7). The hours are designed to minimise the impact on residence. Monday to Friday the permissible hours are between 7 am and 6 pm. The times vary on Saturday and Sunday depending upon the vehicle, machinery or equipment.

Emergency work
In an emergency situation, and in accordance with the Regulations (s.27), TasNetworks does not need to comply with the noise levels or hours of operation specified in order to operate and maintain the electricity network (essential service).

Permit
If it is necessary to use equipment or machinery that exceeds the maximum allowable noise levels or to perform work outside the acceptable hours of operation, and it is not an emergency situation, a permit from the Director of the Environment Protection Authority may be required. Please contact a HSE Advisor for assistance in obtaining this Permit.

6. Noise Complaints

A noise problem may be reported by a member of the public (including customers) or by a worker. A HSE Advisor should be consulted regarding public and customer complaints relating to noise pollution.

Workers raising a noise issue can do so by recording the issue through SAP in accordance with the Incident and Issue Management Procedure. These should be directed to a HSE Advisor.

Managing complaints
The HSEQ team can assist in managing complaints by:

- Arranging for noise measurements to be taken by a suitably qualified contractor
- Arranging for hearing measurements to be taken by a medical practitioner
- Identifying and suggesting solutions to managing noise in accordance with the hierarchy of controls.

Do you have a good idea about how to control a noise risk? Let your team leader know. Team leaders should forward ideas they have implemented successfully that may also help other areas of TasNetworks to a HSE advisor.

7. Responsibilities

7.1 TasNetworks

Must manage the risk of hearing loss associated with noise at the workplace, including:

- ensuring workers are not exposed to noise that exceeds the exposure standard
- where required, ensuring hearing protection is provided that is suitable for the work being performed and the worker using it
- ensure necessary information, training and instruction is provided (for example, how to wear hearing protection correctly, keep them clean and maintained to specs)
- ensure audiometric testing is provided to workers who are required to wear hearing protection where the noise exceeds the exposure standard
- ensure control measures are reviewed and revised (for example, PPE, training, etc.) in accordance with the HSE Risk Management procedure
- Must manage the risk of environmental noise, including noise that is generated during construction work and the operation and maintenance of assets

7.2 Officers

Officers, such as company directors, have a duty to exercise due diligence under WHS Legislation. This includes taking reasonable steps to ensure that TasNetworks has and uses appropriate resources and processes to manage noise risk.

7.3 Leaders and Supervisors

- Need to ensure that workers commencing a role that requires hearing protection to manage noise exceeding the exposure standard undergo audiometric testing within three months of commencing that role. Where this is not covered during a pre-employment medical assessment, contact your Team Leader
- Need to consult workers and their health and safety representatives when identifying, assessing, controlling and reviewing the risk of noise in accordance with TasNetworks Consultation and Communications Procedure
- Intervene to stop behaviours or actions that may result in a noise incident occurring
- Need to regularly check control measures that are being used by their team are suitable, at the highest level of control possible and being used correctly. This includes checking work procedures are being followed, workers are trained and competent to use and maintain PPE, and tools and equipment are fit for work
- Provide hearing protection that complies with the PPE Procedure

- Contact your Team Leader to obtain a permit to use excessively noisy equipment or machinery outside the acceptable hours of operation (excluding an emergency situation)
- To manage acoustic shock, managers and supervisors need to give prompt attention to damaged equipment and network faults. They also need to advise workers on ways to avoid acoustic shock during induction of new workers
- Provide signage where the work area cannot be maintained below the occupational exposure standard

Consult a member of the Health Safety Environment and Quality Team:

- when you are unsure of how to control a risk associated with noise
- if unsure whether a noise is exceeding the exposure standard and it has not been addressed in this procedure, and
- if any control measures need to be improved or revised

7.4 Contractors

Need to meet or exceed the requirements described within this procedure.

7.5 Workers

- Report concerns about exposure to noise or issues with hearing protection to your Team Leader or Supervisor
- Must comply with any reasonable instruction. Only using the approved PPE that is provided to you for the duration of noise exposure and taking care of that equipment
- Intervene to stop behaviours or actions that may result in a hazardous noise incident occurring
- Inspect hearing protection before each use and maintain them in a good, clean condition
- Organise for damaged equipment to be replaced. Use disposable hearing protection once only

7.6 Purchasers of plant and equipment

Ensure that plant and equipment is designed and manufactured so that its noise emission is as low as reasonably practicable.

7.7 Designers and installers

- Designers must provide information about the noise emission values of plant and any conditions necessary for minimising the risk of hearing loss
- Plant and structures must be installed according to the designer's specifications
- Provide signage where noise levels are higher than the occupational exposure limit
- Consult with a HSE Advisor if noise impacts on the community are possible

7.8 People and Performance Team

- Where required, audiometric testing must be provided within three months of a new worker commencing work
- Ensure regular follow-up tests are carried out at least every two years

- Provide the results of audiometric testing to workers with a written explanation of the meaning and implications from the testing provider

7.9 Health Safety Environment and Quality Team Members

- In consultation with affected workers, must approve for use personal hearing protectors that meet the requirement of AS/NZS 1270 Acoustics – Hearing protectors. Protection must be suited to the environment and tasks being performed
- Facilitate instruction and training on noise control measures during the induction-training program (including how to select, fit, wear, maintain, store and replace damaged hearing protectors)
- Investigate noise complaints

7.10 People performing audiometric testing

Qualified audiometric practitioners must assess hearing levels in accordance with AS/NZS 1269.4:2005 - Occupational Noise Management - Auditory Assessment. A noise assessment should be done in accordance with:

- AS/NZS 1269.1 Measurement and Assessment of Noise Emission and Exposure
- The assessment requirements provided in the Code of Practice: Managing Noise and Preventing Hearing Loss at Work
- Must provide noise reports of assessments to TasNetworks detailing the scope and method of assessment along with results and comparison with current accepted standards

How everyone contributes to managing health safety and environmental matters in general is provided in TasNetworks Responsibilities procedure.

8. Glossary

Audiometric Testing is testing and measurement of the hearing threshold levels of each ear of a person by means of pure tone air conduction threshold tests.

Competent Person is one who has accurately calibrated noise measuring instruments (such as an audiologist) and, through training and experience:

- Understands what is required by WHS Legislation for noise
- Knows how to check the performance of the instruments
- Knows how to take the measurements properly
- Can interpret the results of the noise measurements

Decibel (dB) is the unit for measuring sound levels.

Environmental noise is that composite of sounds arising from any internal or external sources individually and in combination, which, by its very nature, effects human beings to any degree. This noise may affect other than TasNetworks personnel, and may give rise to a complaint and/or offence.

Exposure standard for noise is defined in the WHS Regulations as an LAeq,8h of 85 dB(A) or an LC, peak of 140 dB(C). There are two parts to the exposure standard for noise because

noise can either cause gradual hearing loss over a period of time or be so loud that it causes immediate hearing loss.

Frequency An attribute of sound expressed in hertz (cycles per second). Audible sound has a conventional frequency range of between 20 and 20,000 Hertz.

Hazardous noise in relation to hearing loss means noise that exceeds the exposure standard for noise in the workplace.

Hierarchy of Control: A method of controlling risks from the highest level of protection and reliability to the lowest. WHS Legislation requires TasNetworks to work through this hierarchy to choose the control that most effectively eliminates or minimises the risk in the circumstances. From the highest level of protection, the hierarchy is elimination, substitution, isolation, engineering controls, administration controls and personal protective equipment.

HSR: A person elected in accordance with WHS Legislation to represent workers in a workgroup on work health and safety and environmental matters.

LAeq, 8h means the eight hour equivalent continuous A-weighted sound pressure level in decibels, referenced to 20 micropascals, determined in accordance with AS/NZS 1269.1. This is related to the total amount of noise energy a person is exposed to in the course of their working day. It takes account of both the noise level and the length of time the person is exposed to it. An unacceptable risk of hearing loss occurs at LAeq,8h values above 85 dB(A).

LC, peak means the C-weighted peak sound pressure level in decibels, referenced to 20 micropascals, determined in accordance with Australian Standards. It usually relates to loud, sudden noises such as a gunshot or hammering. LC, peak values above 140 dB(C) can cause immediate damage to hearing.

Neighbourhood: The area surrounding the work site.

Ototoxic chemicals: All chemicals that may affect the structures and/or the function of the inner ear (auditory plus vestibular apparatus) and the connected neural pathways can be considered ototoxic. (See Appendix B for a list of common ototoxic chemicals).

Site: The area under the control of the person, company, or organisation carrying out the works or responsible for an operation that may create environmental noise.

Tone: An attribute of sound that relates to the frequency.

Volume: Sound pressure level measured in decibels [dB(A)].

Worker: A worker is someone who carries out work for TasNetworks. It includes employees, outworkers, apprentices, trainees, students gaining work experience, volunteers, contractors or subcontractors and their employees.

9. Reference documents

The following documents were reviewed as part of developing this procedure:

Legislation

- Work Health and Safety Act and Regulations Tasmania
- Environmental Management and Pollution Control Act and Regulations Tasmania
- Environmental Management and Pollution Control Miscellaneous Noise Regulation Tasmania
- Environmental Protection Policy (Noise) Tasmania (also known as EPP)

Codes of Practice, Industry Codes, etc.

- Code of Practice – Managing Noise and Preventing Hearing Loss at Work WorkSafe Tasmania

TasNetworks Documents

- Responsibilities Procedure
- Consultation and Communication Procedure
- Personal Protective Equipment (PPE) Procedure

Records

- Audiometric testing results (must be secured as confidential information)
- Hazardous noise risk assessments

Other Documents/Resources

- AS/NZS 1269.1 Measurement and Assessment of Noise Emission and Exposure
- AS/NZS 1269.4 Occupational Noise Management - Auditory Assessment
- AS/NZS 1270 Acoustics – Hearing protectors
- EPP Noise Measurement Procedures Manual

Appendix A: Hazardous Noise Identification Checklist

Description of work location:_____

Activities at work location:_____

Assessed by:_____

Date:_____

Answering 'Yes' to any of the following questions indicates the need to carry out a noise assessment if exposure to the noise cannot be immediately controlled.

Hazardous Noise Identification Questions	**Yes**	**No**
1. Is a raised voice needed to communicate with someone about one metre away?	☐	☐
2. Do your workers notice a reduction in hearing over the course of the day? (This may only become noticeable after work, for example, needing to turn up the radio on the way home)	☐	☐
3. Are your workers using noisy powered tools or machinery?	☐	☐
4. Are there noises due to impacts (such as hammering, pneumatic impact tools) or explosive sources (such as explosive powered tools, detonators)?	☐	☐
5. Are personal hearing protectors used for some work?	☐	☐
6. Do your workers complain that there is too much noise or that they can't clearly hear instructions or warning signals?	☐	☐
7. Do your workers experience ringing in the ears or a noise sounding different in each ear?	☐	☐
8. Do any long-term workers appear to be hard of hearing?	☐	☐
9. Have there been any workers' compensation claims for noise-induced hearing loss?	☐	☐
10. Does any equipment have manufacturer's information (including labels) indicating noise levels equal or greater than any of the following: (a) 80 dB(A) LAeq,T (T= time period over which noise is measured)? (b) 130 dB(C) peak noise level? (c) 88 dB(A) sound power level?	☐ ☐ ☐	☐ ☐ ☐
11. Do the results of audiometry tests indicate that past or present workers have hearing loss?	☐	☐
12. Are any workers exposed to noise **and** ototoxins in the workplace?	☐	☐
13. Are any workers exposed to noise and hand-arm vibration? * *Safe Work Australia research states that there is a link between hand-arm vibration (e.g. from using chainsaws, drills, grinders, etc.) and hearing loss.	☐	☐

Answering 'yes' to any of the above questions means it is likely that workers are being exposed to hazardous noise. If you are unsure about the level of exposure or how to eliminate or minimise the risks effectively, contact a member of the HSEQ Team.

Appendix B: Ototoxic Chemicals

Some common ototoxic chemicals	
Type	**Name**
Solvents	Butanol
	Carbon disulphide
	Ethanol
	Ethyl benzene
	n-heptane
	n-hexane
	Perchloroethylene
	Solvent mixtures and fuels Stoddard solvent (white spirits)
	Styrene
	Toluene
	Trichloroethylene
	Xylenes
Metals	Arsenic
	Lead
	Manganese
	Mercury
	Organic tin
Others	Acrylonitrile
	Carbon monoxide
	Hydrogen cyanide
	Organophosphates
	Paraquat

Additional information about ototoxic chemicals and managing associated risk to hearing loss may be found at the following links:

https://www.commerce.wa.gov.au/worksafe/ototoxic-chemicals-chemicals-result-hearing-loss

https://www.commerce.wa.gov.au/publications/protect-your-hearing-chemicals-can-damage-hearing