Safety Matters @Work
Workers Compensation Board of PEI

Developing a Hearing Conservation Program

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INTRODUCTION

This guide is intended to help Prince Edward Island employers and workers understand the requirements and benefits of establishing a hearing conservation program. Noise is a very serious and common hazard in many workplaces. Part 8 of the General Regulations requires a hearing conservation program whenever workers are exposed to noise at the workplace in excess of any noise exposure limit.

This guide provides information in a summarized format. Therefore, it may not address all workplace health and safety legislation. Always refer to the *Occupational Health and Safety Act* General Regulations for specific requirements that apply to your workplace.

Legislation regulating hearing protection in PEI workplaces references both the related Canadian Standards Association (CSA) Standards and American National Standards Institute (ANSI). This includes:

- CSA Standard Z107.56-18, “Measurement of noise exposure”
- CSA Standard Z94.2-14, “Hearing protection devices– Performance, selection, care and use”
- ANSI Standard S1.25-1991, Specification for Personal Noise Dosimeters

CSA allows free (viewable only) access to standards referenced in the regulations. Although registration with "CSA Communities" is required to view the standards, you are under no obligation to purchase anything. Users can register for a username through CSA Group’s online Communities of Interest (COI) platform.

Additional information on hearing related topics, such as audiometric testing, standards and occupational exposure limits, can be found in the Guide to Audiometric Testing for PEI Workplaces, the Canadian Standards Association (CSA) and through resources available from the Canadian Centre for Occupational Health and Safety.

For additional support, contact the Occupational Health and Safety Division of the Workers Compensation Board by calling toll free 1-800-237-5049 or 902-368-5680. For additional resources, visit our website at wcb.pe.ca or download our Guide to OHS Legislation App.

HEARING CONSERVATION PROGRAMS

If you're an employer, and people are exposed to hazardous noise levels in your workplace, you are responsible for protecting their hearing. A prevention program is required to reduce or eliminate the risk of occupational noise-induced hearing loss. The program should be specific to each workplace and must be developed and implemented in accordance with Part 8 of the General Regulations.

As part of your program, you will educate workers about noise hazards and how to control them. In addition, the program will provide details on how to properly use and maintain personal protective equipment and the importance of annual hearing tests for workers.

Your program must identify ways to protect workers from hearing loss. The Regulations require that the program include information on the following provisions:

- Measuring noise in the workplace
- Implementing noise controls
  - Engineered noise control
  - Hearing protection
  - Posting of noise hazard areas
- Providing education and training
- Annual hearing tests
- Annual program review process

MEASURING NOISE IN THE WORKPLACE

Developing a hearing conservation program begins by completing a hazard assessment to identify and measure the noise hazard(s) in the workplace. Check out the Guide to Performing a Hazard Assessment for more. Noise can be measured by completing a noise survey. Noise surveys must be performed in accordance with CSA Standard Z107.56-18, "Measurement of noise exposure." Using a sound level meter (SLM), a noise survey can take noise measurements in an isolated section of the workplace or the entire workplace as a whole. The survey must be conducted by a competent worker who has the ability to interpret the results for your workplace. The more measurements taken at the workplace, the more accurate the survey will be. To assist, sketch the layout of the workplace on a piece of paper and identify where the workers are located and/or any loud machinery.

Conducting a noise survey will:

- Identify significant sources of noise so you can prioritize which ones should be controlled first.
- Identify workers who require hearing protection, hearing testing, education and training.
- Determine which workplace areas should be designated as hazardous noise areas.

You can use *area noise measurements* or *spot measurements* to determine if a hearing conservation program is necessary. *Area noise measurements* measure the general noise levels in a work area. *Spot measurements* measure noise levels near a specific piece of equipment or during a specific work process.

Sound Level Meter

Personal exposure measurements measure individual worker's noise exposure. The most common instrument used to measure personal exposure is a dosimeter. This specialized sound level meter is intended to measure personal noise exposure over a period of time, such as an 8 hour workday. It's important to remember that area and spot measurements are not a substitute for personal exposure measurements because they do not incorporate information about the duration of exposure and may overestimate or underestimate a worker's noise exposure. This can lead to selecting the wrong hearing protection or excluding workers who should be included in the hearing conservation program.

There are a number of noise measuring instruments available. These instruments are designed for specific types of noise measurements. Proper operation and calibration of these instruments is vital to ensure accurate measurements and for the protection of workers. Instruments used must meet the requirements of ANSI Standard S1.25-1991, *Specification for Personal Noise Dosimeters.* It is best to follow the user's manual provided with the instrument to ensure proper use, care and maintenance. The table on the following page includes common noise measurement instruments including dosimeters, sound level meters (SLM) and integrating sound level meters (ISLM). This table will assist employers and workers in proper instrument selection.

A competent person is a person qualified to complete the work because of that person's knowledge, training and experience that ensures the health and safety of all in the workplace. This person is knowledgeable about the provisions of the *Act* and Regulations that apply to the assigned work, and about potential or actual danger to health and safety.

Instrument Selection for Noise Measurement

Type of Measurement	Appropriate Instruments (in order of preference)	Result	Notes
Personal Noise Exposure	1. Dosimeter	Dose or equivalent sound level	Worn by the worker and the most accurate for personal noise exposures.
	2. Integrating Sound Level Meter	Equivalent sound level dBA	Difficult to determine personal exposure on a mobile worker, unless work can be divided into defined activities.
	3. Sound Level Meter	dBA	Useful when work can be easily divided into defined activities and noise levels are relatively stable all the time. When noise levels vary, it is difficult to determine the average exposure.
Noise Survey	1. Sound Level Meter	dBA	To produce noise map of an area; take the measurements on a grid pattern.
	2. Integrating Sound Level Meter	Equivalent sound level dBA	For highly variable noise.
Area Noise Measurements/Spot Measurements	1. Sound Level Meter	dBA	Measurement should be taken 1-3 meters away from source.
	2. Integrating Sound Level Meter	Equivalent sound level dBA	Mostly useful if noise is highly variable; it can measure equivalent sound level over a short period of time (1 minute).

Canadian Centre for Occupational Health and Safety (CCOHS)

MEASURING NOISE EXPOSURE LEVELS

After identifying the source of the hazardous noise, the next step is to measure a worker's noise exposure levels. The risk of hearing loss depends on the noise level and duration of exposure. Noise measurements must include information about both. Noise levels may vary throughout the day. In these cases, it is important to measure noise using an ISLM that averages noise levels over time.

Occupational noise is always measured in decibels (dBA) using an A-weighting filter. Using this filter mimics the human ear, and how it responds to noise. It is the employer's responsibility to ensure that a worker's exposure to noise does not exceed any of the following noise exposure limits:

Maximum Allowable Exposure Times	
Duration of Exposure	*Noise Level (dBA)*
24 hours	80
16 hours	82
8 hours	85
4 hours	88
2 hours	91
1 hour	94
30 minutes	97
15 minutes	100
7.5 minutes	103
3.75 minutes	106
1.88 minutes	109
0.94 minutes	112
0	115 or greater

What does the table tell us?

If a worker was to work a standard 8 hour shift (duration of exposure) the noise level in the workplace must not exceed 85 dBA.

Noise Survey Records

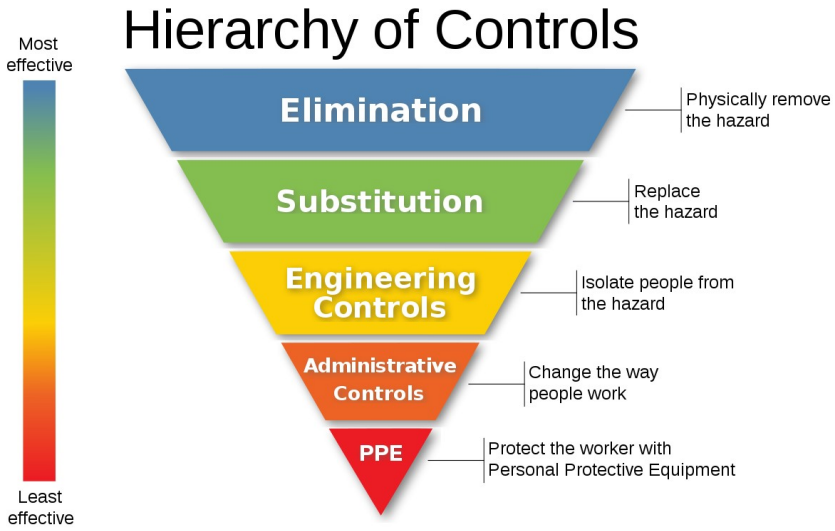
Document the results of the noise survey in a written report. The report can follow any format, but it should include the following information:

- A list of jobs where there is overexposure to noise
- Locations where signs will be posted which warn of high noise levels and the requirement for hearing protection
- A statement that the measurements were taken under typical noise conditions
- The dates of the measurements and the noise measuring equipment used
- If necessary, explanations to account for unusual or different noise levels resulting from changes in the daily work routine
- An explanation of the calculation method used if total daily noise exposures were calculated from partial noise exposures

NOISE CONTROL

Once the noise hazard has been identified and measured, the final step is to eliminate or control the noise. Completing a hazard assessment will help determine the best control measure for the noise hazard. Consider the hierarchy of controls as a means of determining how and when certain controls should be implemented.

As illustrated in the *Hierarchy of Controls*, the most effective way to control any workplace hazard, no matter the type, is through **elimination** or **substitution**. For example, consider the possibility of eliminating the noise-causing activities or substituting loud machinery for more quiet machinery. Personal protective equipment is considered to be the least effective control method and is the last line of defense. Often times, a combination of control methods are needed to protect workers from hazardous noise levels.



Engineering Controls

Engineering controls are installed at the source to eliminate noise or decrease noise to a safe level. When determining the best form of engineering controls, three elements must be considered:

- The source of the noise
- The noise path
- The noise receiver

The *source of the noise* is often times a machine, vibrating parts or noise as a result of aerodynamic pulsation.

Vibration-induced noises may include mechanical shocks such as hammering or vibration of ventilation ducts.

The *noise path* is the route the noise travels to reach worker's ears, often times through the air. The noise path can be controlled by enclosing the noise source or blocking the path using an acoustic barrier. Acoustic barriers are to be placed between the worker and the source of the sound. Partial enclosures are ideal because it still allows for proper operation, inspection and maintenance. The barriers are constructed of sound absorbing materials to reduce the level of noise.

For aerodynamic sources of noise, mufflers or silencers help reduce sound that travels through ductwork or pipes.

The *noise receiver* is often times the worker. To properly isolate from the noise, workers may have to complete their tasks in an enclosure or insolated room.

Aerodynamic sources of noise occur when air or fluid passes through pipes or fans, or when pressure drops in an air exchange system (fans, steam released through exhaust valves).

Administrative Controls

It is possible for hazardous noise to continue, even after implementing engineered controls to their fullest extent. When this happens, administrative controls are put into place to manage the worker's noise exposure.

Administrative controls may include:

- Reducing a worker's exposure time to hazardous noise
- Ensuring workers are aware of the risk of hazardous noise
- Providing training and education sessions for workers
- Posting warning signs in hazardous areas

Part 8 of the General Regulations, requires the use of signage in hazardous work areas. If it is not possible for an employer to reduce the noise exposure to or below any noise exposure limit, employers are responsible for posting warning signs in the hazardous areas. Signage notifies workers to wear their personal protective equipment because they are entering a work area where continuous or intermittent noise levels regularly exceed 85 dBA.

These control measures are very helpful in reducing noise exposure time and creating awareness to hazardous noise in the workplace, but they do have their limitations. It is important to remember that if the hazard has not been eliminated an exposure could still result in injury.

Personal Protective Equipment: Hearing Protection

Hearing protection is the last line of defense against hazardous noise. Workers are expected to wear hearing protection in hazardous areas and employers and supervisors should enforce any hearing conservation policies. All hearing protection worn must meet the requirements of CSA Standard Z94.2-14, "Hearing protection devices– Performance, selection, care and use."

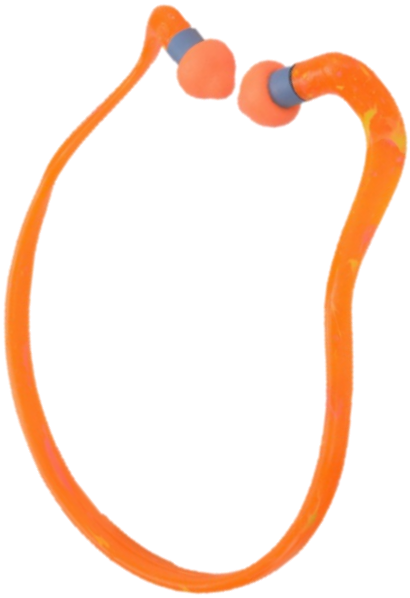
Proper individual fit and selection of hearing protection is important. When workers have comfortable and well-fitting hearing protection, they are likely to wear them in required areas and for their entire shift. Choosing the right protection for the job depends on a number of factors, including; acoustics, comfort, desired protection and suitability for both the environment and the worker.

Types of Hearing Protection

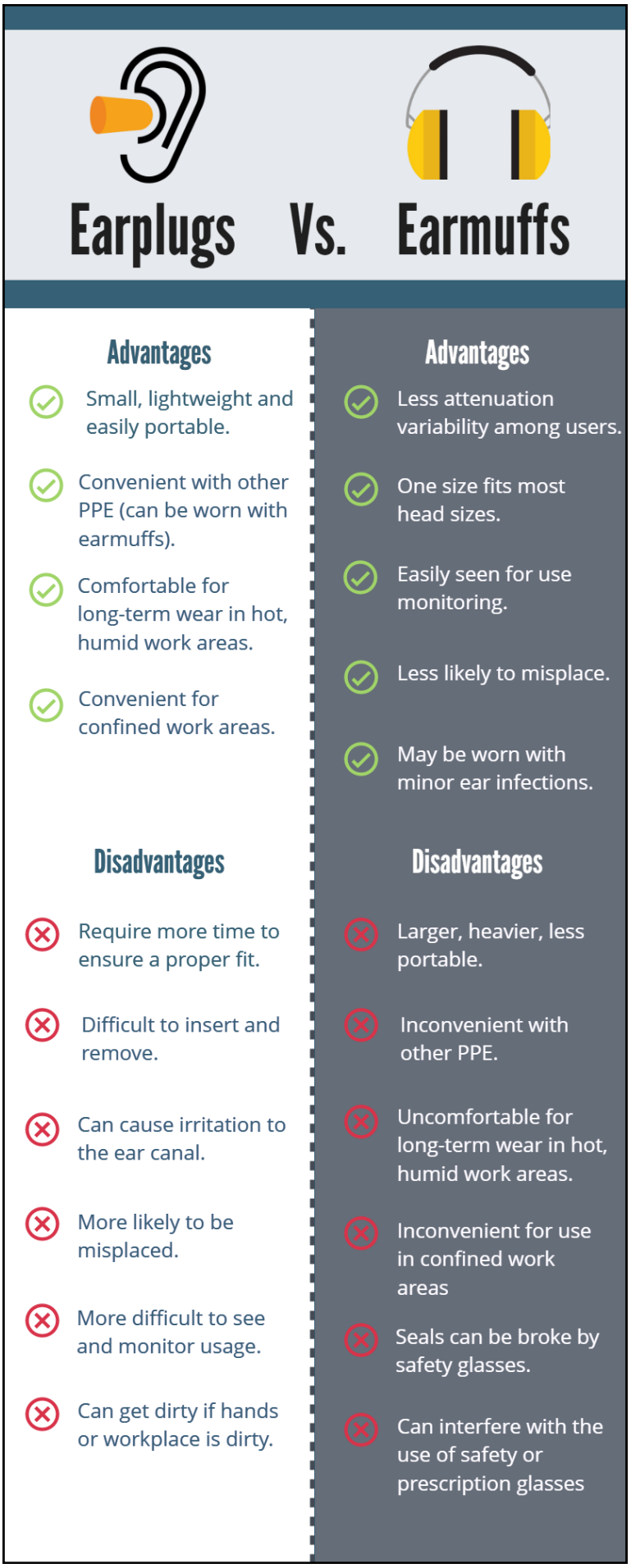
Proper use and care ensures that workers get the most out of their hearing protection. Hearing protection should be used, inspected, cleaned, and maintained according to the manufacturer's specifications.

The life expectancy of hearing protection depends on a number of factors, including how often they are worn, appropriate care, environmental (extreme climates) and working conditions.

Over time, they will become damaged and need to be replaced. It is important that workers know what to look for during their daily inspections. When earplugs become dirty, change in firmness, or do not return to their original size after use, they should be replaced. While inspecting earmuffs, look for broken or worn parts, or leaks or cracks in the cushioning.



Banded Hearing Protection



EDUCATION AND TRAINING

All education and training sessions should be led by a competent person and should explain the requirements and rationale behind the hearing conservation program. Records of any training and education sessions must be kept by the employer. Workers who are educated and made aware of the importance of hearing protection will be more likely to protect themselves.

Education sessions should occur at regular intervals, or when tasks, equipment or machinery change that affect noise exposure levels. If there are no changes in the workplace, sessions should be offered at least once every two years. Education may include:

- Effects of hazardous noise on hearing and risks associated with the noise levels at the workplace.
- Results of noise surveys and measurements in the workplace.
- Workplace policies on hazardous noise, including noise controls implemented and hearing conservation.
- The purpose of hearing protection devices, including when, where and how to wear them.
- Proper maintenance and inspection of noise control devices.
- Proper selection, fit, cleaning, handling and storage of hearing protection.
- Hearing legislative requirements.

Training should occur at least every year, and may include:

- Maintenance and inspection of noise control devices (mufflers and noise barriers).
- Training on proper cleaning, storage, fit and maintenance of hearing protection devices (ear plugs and earmuffs).
- Monitoring the performance of equipment and advising the safety committee, representative and/or the program administrator when any changes are identified.
- Support from management which is vital for the success of the program. Management must understand their role in encouraging safe work practices, following workplace policies and programs and complying with any occupational health and safety legislation.

Education is the knowledge and theory behind the hearing conservation program while training is the practical, hands on component of education. Both are significant pieces to an effective program.

ANNUAL HEARING TESTS

Under the General Regulations, employers must ensure that workers who are exposed to hazardous noise in the workplace complete a baseline audiometric test at the beginning of their employment. The test must be conducted within 6 months of the start of their employment, but preferably sooner. After the initial test has been conducted, workers must complete follow up testing once every 12 months. Audiometric testing must only be administered by an audiologist or another competent and certified person.

Audiometric technicians provide the following services:

- Performing the audiometric testing
- Collecting medical history from the worker; where necessary
- Interpreting test results
- Counseling workers on the state of their hearing, comparing it with previous tests whenever possible
- Maintaining records
- Advising workers on appropriate hearing protection

Annual audiometric testing is a significant piece of a workplace's hearing conservation program. Costs associated with hearing tests are the responsibility of the employer, if applicable. Audiometric testing can help determine if the correct control measures are being used in the workplace by comparing annual hearing results to baseline test results and noting any changes. When changes are detected, the workplace must update or implement new control measures to prevent any further damage to a worker's hearing.

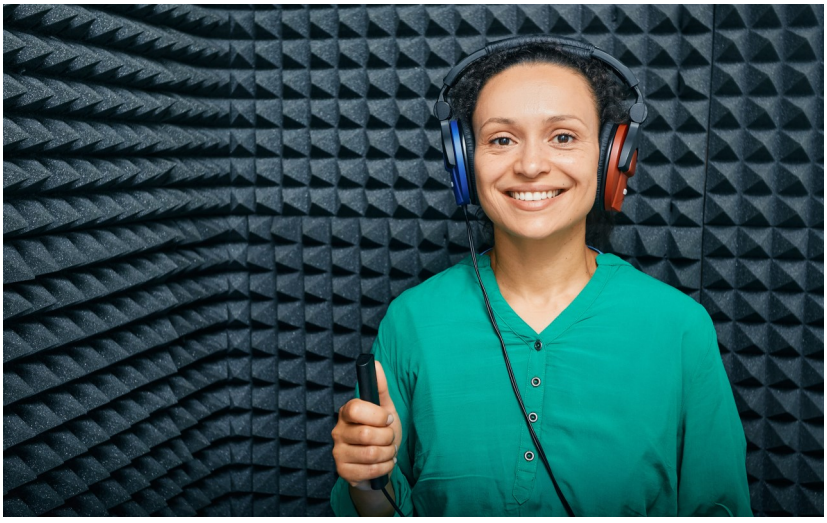
Audiometric testing should be conducted using an audiometer that meets the specifications of the ANSI Standard S3.6-2004.

The results of a worker's audiometric test will be classified as normal or abnormal. If a worker's results are normal, no further testing will be required until the next annual test.

Employers are responsible to report abnormal audiometric test results that may be a result of noise in the workplace to the Workers Compensation Board. Employers report this information by completing the Employer's Report—Form 7 and should also encourage workers to file a claim for compensation.

Record Keeping

The General Regulations require baseline and annual hearing test results to be kept as long as the worker is employed with the employer. Employers must also keep records of any education and training provided to workers. These records are to be kept confidential and not to be shared to anyone without written consent of the worker.



ANNUAL PROGRAM REVIEW

Hearing conservation programs must be reviewed annually by the program's administrator, in consultation with the safety committee or safety representative. Annual reviews are important as they ensure that the hearing conservation program is in compliance with regulations and standards essential to the health and safety of workers in the workplace.

Annual reviews identify hazards and bring any issues to the attention of the employer and ensure that the most effective controls are in place. Proper and continual program evaluation allows for ongoing improvements to the hearing conservation program.

A standard annual review consists of:

- Visual inspections of hearing protection, and other controls within the workplace
- Proper selection and use of hearing protection
- Discussions with workers and supervisors regarding the program
- Periodic noise level and noise exposure measurements
- Monitoring and reviewing of noise control measures
- Monitoring audiometric test results
- Updating education and training sessions

The workplace should ensure that the hearing conservation program is reviewed and modified, when necessary, to ensure there are no changes that could result in exposures to hazardous noise. Reviews must take place when new or updated equipment or machinery is installed, new procedures are introduced to the

Appendix A – Hearing Conservation Program Checklist

1. Noise measurement

- ☐ A walkthrough survey has been completed and identifies tasks/areas that challenge interpersonal communication*
- ☐ Worker noise exposure levels have been determined

* When shouting is required between workers at a distance of 1m or more, interpersonal communication is challenged.

2. Education and training

Training records must be kept by the employer. Workers should receive the following training;

- ☐ Effects of hazardous noise on hearing
- ☐ The purpose of hearing tests
- ☐ Results of noise surveys and measurements in the workplace
- ☐ Workplace Hazardous Noise Policy
- ☐ Proper inspection and maintenance requirements of noise control devices
- ☐ Proper fit, use, maintenance and storage of PPE
- ☐ Hearing legislation requirements

3. Noise control

- ☐ Options for engineering and administrative controls are implemented, where practicable
- ☐ Signage is posted to warn workers of hazardous noise and to enforce appropriate hearing protection
- ☐ Task duration is altered to reduced hazardous noise exposure, if possible

4. Hearing protection

- ☐ Employers must enforce hearing protection in hazardous noise areas
- ☐ Select hearing protection that is suitable for the job (See CSA Standard Z94.2-14)
- ☐ Workers are fitted and trained in the use and care of hearing protection
- ☐ Hearing protection is used, inspected, cleaned and maintained according to the manufacturer's specifications
- ☐ Damaged or worn hearing protection is replaced

5. Hearing tests

- ☐ Workers who are exposed to hazardous noise receive an initial hearing test
- ☐ Workers who are exposed to hazardous noise have hearing tests at least every 12 months
- ☐ Required hearing tests are administered by an audiologist OR a person certified to conduct audiometric testing
- ☐ Workers are counselled individually on the state of their hearing, comparing it with previous tests, if needed
- ☐ Employers are responsible for reporting abnormal audiometric test results that may be the result of noise in the workplace to the Workers Compensation Board
- ☐ Records of hearing tests are kept for the workers length of employment and will remain confidential, unless released with written permission or required by law

6. Annual program review

- ☐ Components of a hearing conservation program are reviewed annually in accordance with the Regulations or when new processes and equipment are introduced in the workplace
- ☐ The results of the annual review are shared with the safety committee or safety representative

Appendix B – Hearing Protection Poster

Appendix C – Hearing Loss Claims

HEARING LOSS

Information for Employers

Time is of the essence

When an accident occurs, a worker has six (6) months to file a claim with the WCB.

For occupational hearing loss, this time starts either:

- **the day a report from the employer or the health care provider is received by the WCB**
- **or the first day that a worker is unable to work due to occupational hearing loss.**

According to legislation, claims received after the six (6) month time limit cannot be processed

Reporting Occupational Hearing Loss

In the event that a worker reports occupational hearing loss to you, or if your Hearing Conservation Program reveals that a worker may have occupational hearing loss, you **must** submit an **Employer's Report (Form 7)** to the WCB.

Important

You **must** submit an **Employer's Report (Form 7)** regardless of whether or not your worker intends to file a claim, the same as reporting any other workplace accident.

Filing A Claim

To assist your worker in understanding the importance of filing a claim to the WCB in a timely manner, please provide the worker with the **Information for Workers** fact sheet.

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902-368-5680 or 1-800-237-5049