



Safety and Risk  
Management

# Hearing Conservation Program

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## Table of Contents

Forward.....	1
Exposure Evaluation.....	1
Engineering Controls to Reduce Noise Exposure.....	2
Administrative Controls to Reduce Noise Exposure .....	2
Hearing Personal Protective Equipment (PPE) .....	2
Hearing Conservation Program Management.....	3
Safety Training .....	4
Recordkeeping .....	4
Hearing Testing .....	5
Standard Threshold Shift .....	6
Recording Hearing Loss on the OSHA 300 Log.....	6
Appendix A – Notification of Sound Survey.....	7
Appendix B – Notification of Quiet Period Prior to Baseline Hearing Test.....	8
Appendix C – Standard Threshold Shift Notification .....	9

## Forward

Under the current OSHA Standard for Occupational Noise Exposure (29 CFR 1910.95) all workers exposed to 85 decibels (dBA) measured as an 8-hour time weighted average (TWA) are to be included in a hearing conservation program. It is important to note that for work shifts in excess of 8 hours, the 85 dBA TWA is reduced. For example, exposures in excess of 83.4 dBA for a 10-hour work shift and exposures in excess of 82.1 dBA for a 12-hour work shift necessitate inclusion in a hearing conservation program. An effective hearing conservation program must include the following components:

- An assessment of noise exposure
- Annual audiometric tests of exposed workers
- Maintenance of noise and hearing data records
- Noise abatement and/or administrative controls
- Availability of hearing protectors
- Employee training and education

## Exposure Evaluation

An ongoing noise exposure evaluation program is required under the OSHA Standard for Occupational Noise Exposure (29 CFR 1910.95) when information indicates that any employee's exposure may equal or exceed the action level of 85 dBA for an 8 hour TWA. A complete sound survey is recommended at least every two years; however, monitoring must be repeated whenever a change in production, process, equipment, or control increases noise exposure to the extent that:

1. Additional employees may be exposed at or above the action level or
2. The attenuation provided by the hearing protectors being used by the employees may be rendered inadequate.

Several sound-measuring instruments are available to measure the noise levels in a workspace including, sound level meters, noise dosimeters, and octave band analyzers. In general, if you need to raise your voice to speak to someone 3 feet away, noise levels may be over 85 dBA. Another indication that noise may be a problem would be ringing in your ears or temporary hearing loss when you leave work.

Screening Apps are available to download and may be used as a noise indicator. The National Institute for Occupational Safety and Health (NIOSH) [Sound Level Meter App](#) is one such tool for a screening evaluation. Please contact Safety and Risk Management for an official noise evaluation if you suspect that noise levels exceed the action limit.

If the noise is evaluated at or above the action level (85 dBA TWA), then it is required that employers provide the following to affected employees:

- Annual hearing tests
- Annual hearing conservation training
- Hearing protection devices
- Posted OSHA Noise Standard (29 CFR 1910.95)

- Area signage indicated required use of hearing protection
- Notification of the results of the sound survey

If the Noise level exceeds 90 dBA, the OSHA Noise Standard requires that engineering and administrative control measures must be investigated, evaluated and where feasible, utilized to reduce employee exposures. It is important that any measure investigated, utilized, or evaluated to reduce the noise levels be documented.

### Engineering Controls to Reduce Noise Exposure

When eliminating or substituting the noise source by purchasing quieter equipment is not feasible, the following engineering controls should be initiated:

- Contact the equipment manufacturer for noise abatement suggestions
- Dampen or reduce surface vibration
- Install enclosures or sound insulation materials

### Administrative Controls to Reduce Noise Exposure

When engineering measures alone cannot reduce the noise below 90 dBA, administrative methods may be used to minimize employee exposure such as:

- Scheduling worker rotation from high noise levels to quiet areas
- Limiting the time for certain operations
- Increasing the distance between the employee and the noise source
- Relocation of job tasks which may be completed out of high noise areas
- Restricting access to work areas or operations

### Hearing Personal Protective Equipment (PPE)

As with all types of PPE, they are used as a last resort after elimination, substitution, engineering, and administrative controls have been investigated and implemented when possible. PPE must be provided and used to reduce sound levels below 85 dBA. It is also recommended to use hearing protectors while working in any noisy environment, even when the noise levels are below the action level.

The proper use of hearing protection will prevent many types of hearing loss. You must wear the required hearing protection properly and regularly to gain the benefits of the protection. If you have any problems with the fit of your hearing protectors, contact your supervisor or Safety & Risk Management.

The hearing protection used will depend on the operation, employee preference, and attenuation required. Various types of hearing protectors are available including:

- Disposable earplugs
- Reusable earplugs
- Earmuffs
- Custom hearing protection

## How to Properly Wear Hearing Protectors

It is an OSHA requirement that the employer ensure the proper initial fitting and that the employer provide training in the use and care of all hearing protection provided to employees.

To prevent hearing loss, hearing protectors must be worn correctly and taken care of per manufacturer recommendations. Keep ear plugs clean by washing them in warm soapy water and be sure they are completely dry before inserting in the ears. Inspect the hearing protection regularly. If it becomes damaged, hard, or worn out, replace immediately with a new pair.

Because everyone has different size ear canals, each person will be fitted by a competent person to ensure they receive the right size protector. Each employee will be instructed on how to put their personal hearing protectors in and will also be given the chance to practice. If there is a problem with the fit and comfort of your hearing protectors, the supervisor will provide a different type of protection.

## Care and Use of Hearing Protectors

The usable life of the hearing protector is dependent upon the care it is given. A sponge type hearing protector is disposable; however, if it is kept clean it may be used until it no longer expands. How long the hearing protection lasts is unique to each employee depending on the chemical make-up of their body. In general, the following guidelines apply:

- Sponge plugs: 1 or 2 days
- Custom plugs: 18-24 months
- Insert plugs: 4-6 months
- Muffs: Replace when worn out

**Putting in earplugs only involves two steps:** 1) Put your left arm over your head and with your left hand pull up on your right ear. 2) with your right hand insert the ear plug into the right ear. Switch hands and insert the other plug into the left ear in the same manner.

## Hearing Conservation Program Management

The Safety & Risk Management (SRM) office administers the Hearing Conservation Program for the University. All employees who are exposed to a noise level at or above 85 dBA will be enrolled in the program and will have their hearing checked annually.

It is the responsibility of Safety and Risk Management (SRM) to ensure that hearing tests are provided to employees and that the tests meet OSHA requirements. The following annual hearing test information will be kept confidential and documented by the SRM Office:

- current audiometer calibration check records;
- last audiometer check, both background noise levels; and
- current audiometer technician certification.

If a mobile vehicle used for testing cannot provide these records, then another testing center will be used.

## Safety Training

Hearing Conservation Training is required annually for all employees with noise exposures of 85 dBA TWA or greater. The goal of the training is to orient employees to the purpose of hearing protection, the use of hearing protection, and policy regarding the hearing conservation program.

The following topics will be included in the employee training of the hearing conservation program:

- The effects of noise on hearing. Hearing loss can take many years to occur, and the employee may not realize that gradual hearing loss is taking place. The loss occurs without any pain and cannot be corrected by any known medical or surgical treatment. A good rule of thumb to remember is that if you have to raise your voice at a distance of three feet, you are in an area with a possible hazardous noise level. Repeated unprotected noise exposure will cause permanent hearing loss. The hearing conservation program has been established to ensure that if you ever have a standard threshold shift, your noise exposure can be lessened by using engineering or administrative controls or more effective hearing protection. Thus, the noise problem can be controlled.
- The purpose of the annual hearing test and an explanation of the test procedures.
- The purpose of the annual hearing test is to monitor your hearing. Periodic audiometric testing provides an early warning of hearing disability. Factors such as noisy hobbies, ear infections, diseases of the ear, as well as general illness may also cause hearing loss. You will be notified of any changes in your hearing.
- The purpose of hearing protectors, instructions on selection, the advantages, disadvantages, fitting use and care.

## Recordkeeping

Records are an important part of an effective hearing conservation program. A number of documents are required to be maintained under the OSHA Noise Standard once the Action Level (85 dBA) has been initiated. Some of these records must be retained for specified periods of time as indicated below. It is also required that these records be provided upon request to employees, former employees, or representatives designated by the individual employee.

### **Records/Documentation Required by OSHA:**

- Sound survey of the location (retain at least two years)
- Employee notification on the results of the sound survey
- Posted OSHA Noise Standard. It is an OSHA requirement that the OSHA Noise Standard be PERMANENTLY posted in a central location.
- Hearing Testing (retain for at least the duration of employment) to include annual and baseline testing results
- Audiogram Evaluation Requirements - Standard Threshold Shift Requirements and Physician review
- Hearing protection equipment available
- Hearing conservation training

- Audiometer - acoustic calibration check, exhaustive calibration check, biological calibration check, and self-listening check
- Booth background noise (if testing is done on site)
- Recording hearing loss on the OSHA 300 log

### **Employee Notification on the Results of the Sound Survey**

Employees must be notified of the results of the sound survey and notification documentation must be maintained. The Notification of Sound Survey is provided in [Appendix A](#). It is recommended that the results of the sound survey be posted in a central location. Keep records for two years.

### **Hearing Testing**

The two types of hearing tests include 1) Annual hearing tests and 2) Baseline hearing tests.

Annual hearing testing is required for employees with 85 dBA TWA or higher noise exposures. Testing can be done anytime during the day.

Baseline hearing testing is performed when an employee is initially hired. The baseline test is extremely important because it is the reference against which future audiograms are compared to determine the extent to which an employee's hearing is deteriorating. OSHA states that the baseline test must be done within 6 months of beginning employment. If a mobile testing van is used, the baseline is required within one year of an employee's first exposure at or above the action level (85 dBA). However, the employee must wear protection for any period exceeding six months until the baseline is obtained. North Carolina Worker's Compensation Law has a 90-working day grace period. If the baseline test is performed before the grace period is reached, then the employer may be liable only for subsequent hearing loss.

### **Prior to Baseline Testing**

It is required that the baseline audiogram be preceded by at least 14 hours without exposure to workplace noise. Time that hearing protection is worn may be included as part of the 14 hours without exposure to noise. The employee must also avoid non-occupational noise exposure during the 14 hours prior to the audiometric test. Documentation for this notification will be provided to the employee by Safety & Risk Management prior to testing. The Notification of Quiet Period Prior to Baseline Hearing Test is provided in [Appendix B](#).

A retest audiogram can be conducted to verify or confirm a hearing threshold result. Times when a retest may be needed:

- If an employee has suffered a Standard Threshold Shift, the employer may obtain a retest within 30 days and use the results of the retest as the annual audiogram.
- The Audiologist or Physician can request a retest to confirm test results.
- When problems are suspected by the test administrator.

## Audiometer Testing

The following must be documented:

- Acoustic Calibration Check (must be performed annually)
- Exhaustive Calibration Check (at least every two years)
- Biological Calibration Check (each day prior to testing)
- Self-Listening Check (each day prior to audiometric testing)

The following must be documented for the booth:

- Noise levels inside the booth must be checked with the ventilation fan on and off, each time the booth location or environment changes.
- With no change in the environment or location, it is recommended that the background noise levels be checked every three years.

## Standard Threshold Shift

A Standard Threshold Shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 or more dBA at 2000, 3000, and 4000 Hz. If a Standard Threshold Shift occurs, the employee must be informed in writing within 21 days of the determination. The Standard Threshold Shift Notification is provided in [Appendix C](#). Employees will be trained in using hearing protectors and in care of the hearing protectors. If the employee is already using hearing protectors, then they will be retrained and refitted. If necessary, hearing protectors will be changed to a different type.

## Recording Hearing Loss on the OSHA 300 Log

It is required that some types of hearing loss and/or tinnitus be recorded on the Occupational Illness or Injury form. Hearing loss is recorded under illness from repeated trauma.

A Standard Threshold Shift (STS) of 25 dBA must be entered on OSHA Form 300 within 6 days. The STA is cumulative, so if an employee suffers a 10 dBA shift this year and a 15 dBA the next year, the STS of 25 dBA would be listed on next year's OSHA 300 log.



## Appendix A – Notification of Sound Survey

This notification is to inform you that a Noise Exposure Evaluation was conducted in the workplace and the following results obtained:

Evaluation Location: \_\_\_\_\_ Date: \_\_\_\_\_

Survey Instrument Used: \_\_\_\_\_

Noise Survey Result: \_\_\_\_\_

\_\_\_\_ The survey results are below the OSHA Action Level (85 dBA). Hearing protection devices are recommended when working with noisy equipment.

\_\_\_\_ The survey results are at or above the OSHA Action Level. Employees working in this area will be enrolled in the Hearing Conservation Program at Western Carolina University. Wearing hearing protectors is mandatory in this work area.

Department: \_\_\_\_\_ Supervisor Name: \_\_\_\_\_

Safety & Risk Management

Safety Officer Signature \_\_\_\_\_ Date: \_\_\_\_\_

## Appendix B – Notification of Quiet Period Prior to Baseline Hearing Test

The OSHA Noise Standard (29 CFR 1910.95) requires that you be free from high noise exposure for 14 hours before your baseline hearing test.

You should avoid the following types of noise 14 hours prior to the hearing test:

- Workplace noise
- Lawn mowers
- Leaf blowers
- Weed trimmers
- Chain saws
- Power tools
- Small engines
- Car races
- Snow mobiles
- Small airplanes
- Power boats
- All firearms (hunting, target shooting, skeet shooting)
- Loud music (concerts, headset radio, radio/stereos)

Please wear hearing protection until your baseline hearing test is completed to minimize noise exposure on and off the job.

I have been notified of the need to avoid occupational and non-occupational noise prior to my test.

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Date

Return this signed form to the Safety and Risk Management Office ([safety@wcu.edu](mailto:safety@wcu.edu)) or intercampus mail (Facilities Management – Safety Office)

## Appendix C – Standard Threshold Shift Notification

I have been notified of a Standard Threshold Shift on my last annual hearing test. As a result, I was fitted/refitted with the following hearing protector(s) and received instructions in the proper way to wear and care for this protector.

I have completed the Hearing Conservation Training Program at Western Carolina University and I understand that wearing hearing protectors is mandatory in the area where I work. I have received my hearing protectors and understand that additional hearing protectors are available when needed. The following topics were included in training:

1. The effects of noise on hearing.
2. The purpose of the annual hearing test.
3. The purpose of wearing protectors and types of hearing protectors available as well as their proper fit and care.

Employee Signature \_\_\_\_\_ Date \_\_\_\_\_

Department: \_\_\_\_\_ Supervisor Name: \_\_\_\_\_

Supervisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please return this signed form to the Safety & Risk Management Office ([safety@wcu.edu](mailto:safety@wcu.edu)) or intercampus mail (Facilities Management – Safety Office).