



NORTH CAROLINA Office of  
*State Human Resources*

## OFFICE OF STATE HUMAN RESOURCES

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**SUBJECT:** Hearing Conservation Program

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**RELATED LEGISLATION:**

North Carolina Occupational Safety and Health Standards for General Industry, 29 CFR 1910.95.

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### **I. Program Statement**

Under the current OSHA Standard for Occupational Noise Exposure (29 CFR 1910.95) all workers exposed to 85 dBA 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 is defined to include:

- a) An assessment of noise exposure
- b) Annual audiometric tests of exposed workers
- c) Maintenance of noise and hearing data records
- d) Noise abatement and/or administrative controls
- e) Availability of hearing protectors
- f) Employee training and education

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### **II. Purpose and Scope**

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 an 8-hour Time-Weighted Average of 85 dBA. Monitoring shall 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.” A complete sound survey of the plant is recommended at least every two years.

After determining the noise level, and if it is 85 dBA TWA, then it is required that employers provide to the employees the following:

- a) Annual hearing tests
- b) Annual hearing conservation training
- c) Hearing protection (optional or mandatory)
- d) Post the OSHA Noise Standard (29 CFR 1910.95)
- e) 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.

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### **III. Engineering Measures to Reduce Noise**

- Contact with the manufacturer for noise abatement suggestions
- The purchase of quieter equipment or routine maintenance to reduce noise levels
- Reduction of noise level at the source
  - a) Substitution of materials (i.e., plastic for metal)
  - b) Dampening or reducing surface vibration
  - c) Increasing the distance between the employee and the noise source
  - d) Enclosures or sound insulation material
  - e) Relocation of job tasks which may be completed out of high noise areas

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### **IV. Administrative Measures to Reduce Noise**

When engineering measures alone cannot reduce the noise below 90 dBA, administrative methods may be used to minimize employee exposure such as worker rotation from high noise levels to quiet areas.

## **V. Managing the Hearing Conservation Program**

All employees who are exposed to a noise level of 85 dBA or above will be in the hearing conservation program and have their hearing checked annually by an outside vendor. All results of the hearing tests will be kept in the Safety or HR office.

It is the responsibility of Safety or HR office to ensure that contractors provide hearing tests to employees and that the tests meet OSHA requirements. It will be the responsibility of the Safety Division or HR office to obtain and file the following documentation ANNUALLY from the contractor providing the hearing tests:

1. current audiometer calibration check records;
2. last audiometer check, both background noise levels; and
3. current audiometer technician certification. (If a mobile vehicle used for testing cannot provide these records, then another testing center will be used.)

The Safety Division or HR office will provide a file for the audiograms which is separate from other medical or personnel files. These files will be kept confidential.

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## **VI. 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 plant policy regarding the hearing conservation program.

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

- 1) 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 a 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 problem can be controlled.
- 2) 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. All employees' hearing will be checked upon employment and once a year thereafter. You will be notified of any changes in your hearing. You can not "fail" the test and you will not lose your job due to the results of the test.

- 3) The purpose of hearing protectors, instructions on selection, the advantages, disadvantages, fitting use and care.
  - The proper use of hearing protection will prevent many types of hearing loss. You must wear the required hearing protection properly and regularly to reap the benefits of the protection. If you have any problems with the fit of your hearing protectors, contact your supervisor or safety leader.

### **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.

Employee hearing protection training is required:

1. Annually during Hearing Conservation Training
2. Each time an employee shows a Standard Threshold Shift change in hearing.

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

Due to the fact that 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 in front of the Hearing Conservationist. Two different types of hearing protectors will be provided to employees. If there is a problem with the fit and comfort of your hearing protectors, your supervisor or safety leader can provide you with a different type of protection.

### **How Long Will My Hearing Protection Last?**

Sponge plugs: 1 or 2 days

Custom plugs: 18-24 months

Insert plugs: 4-6 months

Muffs: Replace when worn out

The life of the hearing protector is dependent upon the care it is given. A sponge type hearing protector is disposable. However, as long as it is 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.

## PUTTING IN EARPLUGS ONLY INVOLVES TWO STEPS

### FIRST

Put your left arm over your head and with your left hand pull up on your right ear.



### SECOND

With your right hand insert the ear plug. Switch hands and insert the other plug in the same manner.



Remember, both plugs must be worn for complete protection

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## VII. Recordkeeping

Records are an important part of any effective hearing conservation program. The information contained in these records reflects the quality and effectiveness of the plant hearing conservation program.

A number of documents are required to be maintained under the OSHA Noise Standard once the "Action Level" had been initiated. Some of these records must be retained for specified periods as shown in the following table. It is also required that these records be provided, upon request, to employees, former employees, representatives designated by the individual employee and the Assistant Secretary of Labor.

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

1. Sound Survey (retain at least two years)
2. Employee notification on the results of the sound survey
3. Posted OSHA Noise Standard
4. Hearing Testing (retain for at least the duration of employment)
  - Annual
  - Baseline
5. Audiogram Evaluation Requirements
  - Standard Threshold Shift Requirements
  - Physician review
6. Hearing Protection
7. Hearing Conservation Training
8. Audiometer
  - acoustic calibration check
  - exhaustive calibration check
  - biological calibration check
  - self-listening check
9. Booth (if testing is done on site)
  - background noise
10. 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. Whether written or verbal notification is used, documentation must be maintained. It is recommended that the results of the survey be posted in a central location. Keep records for two years.

### **Posted OSHA Noise Standard**

It is an OSHA requirement that the OSHA Noise Standard be PERMANENTLY posted in a central location.

## **Hearing Testing**

The two types of hearing tests are: (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 done 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 says a baseline test must be done within 6 months of beginning employment. If a mobile van is used, the baseline is required within one year of an employee's first exposure at or above the "Action Level". 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 a company gives the baseline before the grace period is up then the company may be liable only for subsequent hearing loss.) 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 employer shall also notify the employee that they need to avoid non-occupational noise exposure during the 14 hours' prior the audiometric test. Documentation of this notification is strongly recommended.

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

1. 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.
2. The Audiologist or Physician can request a retest to confirm test results.
3. When problems are suspected by the test administrator.

## NOTIFICATION OF “QUIET PERIOD” PRIOR TO BASELINE HEARING TEST

It is an OSHA Noise Standard requirement that you be free from high noise exposure for 14 hours before your baseline test.

You should avoid the following types of noise 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



## **VIII. Training**

It is required that all employees with noise exposure of 85 dBA TWA or greater be included in hearing conservation training annually. Documentation of this training should be maintained.

### AUDIOMETER

If testing is done on site by our company nurse or hearing conservationist, then the following checks must be made:

1. Acoustic Calibration Check annually
2. Exhaustive Calibration Check at least every two years
3. Biological Calibration Check each day prior to testing
4. Self-Listening Check each day prior to audiometric testing.

### BOOTH

If testing is done on site by our company nurse or hearing conservationist, then the following must be done:

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

### 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. Record hearing loss on the illness side under repeated trauma. Log on the Form 300 within 6 days a Standard Threshold Shift of 25 dBA for North Carolina. This is cumulative which means that if an employee suffers a 10 dBA shift this year and a 15 dBA next year, the STS of 25 dBA would be listed on next year's OSHA 300 log.

## 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 has occurred, the employee must be informed in writing within 21 days of the determination. Employees will be trained in using hearing protectors, and in care of the hearing protectors. If the employee is already using hearing protectors, they will have to be retrained and refitted. If necessary, hearing protectors can be changed to a different type.

### EXAMPLE OF A STANDARD THRESHOLD SHIFT AT 2000, 3000, and 4000 Hz

COMPANY				PLANT								NAME								Noise Level (TWA)
ABC Government				Plant 1								John Brown								
SOCIAL SECURITY NO.				BIRTH DATE				SEX				HIRE DATE				EMPLOYEE NO.				
000-01-0000				1/12/50				M				5/7/75								
TEST NO	DATE			EXAM TYPE	RIGHT EAR								LEFT EAR							
	YR	MO	DAY		500	1000	2000	3000	4000	5000	6000	500	1000	2000	3000	4000	5000	6000		
1	77	04	15	0	10	10	35	35	75	85	NR	5	15/10	35	45	55	70	85	0.85	
2	89	04	01	2	10	15	40	40	80	85	NR	10	5/10	45	65	70	75	85	0.87	
3	90	04	05	2	5	25	50	45	80	NR	NR	15	15/20	55	85	NR	NR	NR	0.88	

STANDARD THRESHOLD SHIFT NOTIFICATION

I have been notified of a Standard Threshold Shift on my last annual hearing test. As a result of my Standard Threshold Shift, I was fitted/refitted with \_\_\_\_\_ hearing protectors and received instructions in the proper way to wear and care for this protector. I understand that the use of this hearing protection is mandatory.

Signature \_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_  
Company Name

I have been through the Hearing Conservation Training Program at \_\_\_\_\_ and I understand that wearing hearing protectors is mandatory in designated areas of the plant. In the area where I work, hearing protection is mandatory. I have received my hearing protectors and realize that additional hearing protectors are available in/at \_\_\_\_\_. 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 \_\_\_\_\_