



## OCCUPATIONAL NOISE EXPOSURE COMPLIANCE ASSISTANCE GUIDELINE

**GUIDELINE ONLY:** THIS OCCUPATIONAL NOISE EXPOSURE COMPLIANCE GUIDELINE IS INTENDED AS A GUIDE TO ASSIST EMPLOYERS IN DEVELOPING AN INITIAL OCCUPATIONAL NOISE EXPOSURE PROGRAM OR FOR EVALUATING AN EXISTING OCCUPATIONAL NOISE EXPOSURE PROGRAM. COMPLETE TEXT OF OCCUPATIONAL NOISE EXPOSURE STANDARD MUST BE CONSULTED FOR COMPLIANCE WITH THE RULE.

OBTAIN A COPY OF OCCUPATIONAL NOISE EXPOSURE STANDARD, 29 CFR 1910.95. READ/REVIEW.

The employer shall protect all workers from occupational noise exposure that exceeds an 8-hour time weighted average (TWA) of 90 decibels (dBA).

To protect workers the employer shall: (a) monitor noise exposure, (b) institute control measures, and (c) implement a hearing conservation program (HCP) when occupational noise exposure exceeds an 8-hour TWA of 85 dBA.

### MONITOR NOISE EXPOSURE

- Monitor noise to determine level of exposure to employees.
- Calibrate all sound measuring equipment before and after each use according to the manufacturer's instructions.
- Measure noise exposure levels with a dosimeter and/or a sound level measuring instrument with an A-weighting network.

### CONTROLS

The employer shall institute engineering and/or administrative controls whenever possible. If these controls fail to reduce employee noise exposures to an 8-hour TWA of 90 dBA or less, then the employer shall provide and enforce the use of hearing protectors that attenuate employee exposure to at least an 8-hour TWA of 90 dBA.

#### ENGINEERING CONTROLS

- Use technology to reduce noise levels.
- Keep machinery in good maintenance repair to reduce noise.
- Erect total or partial barriers to confine noise.

#### ADMINISTRATIVE CONTROLS

- Limit employees scheduled work time in a noisy area.
- Limit noisy operations and activities per shift.

#### PERSONAL PROTECTIVE EQUIPMENT

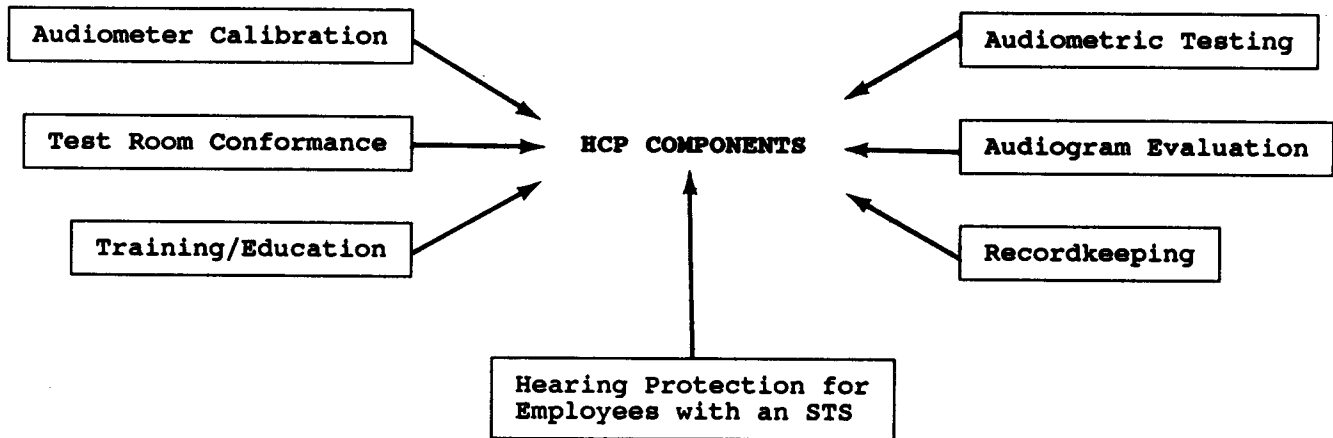
- Provide at no cost to the employee a selection of hearing protection appropriate for noise levels in the environment.
- Provide training on the selection, fitting, use, and care of hearing protectors.
- Ensure that protectors are worn.

### IMPLEMENT A HEARING CONSERVATION PROGRAM

To protect workers whose noise exposure equals or exceeds an 8-hour TWA of 85 dBA the employer shall implement a continuing, effective hearing conservation program (HCP).

#### MONITORING NOISE EXPOSURE

- Use only measuring instruments that meet the American National Standard Institute (ANSI) specifications.
- Use a sampling strategy that will pick up all continuous, intermittent, and impulsive sound levels from 80-130 dBA, and include all of these sound levels in the total noise measurement.
- Permit employees or their representatives to observe monitoring.
- Notify employees of noise exposure at or above 8-hour TWA of 85 dBA.



#### AUDIOMETER CALIBRATION

- Perform a biological calibration of the audiometer's functional operation by testing a person with known, stable hearing thresholds and listening to the audiometer's output to determine if there are distorted or unwanted sounds present.
- Acoustical calibration must be done at least annually and whenever a deviation of 10 dBA or greater is found during the biological check.
- An exhaustive calibration must be done at least every two years and whenever there is a 15 dBA change in the acoustic calibration of the audiometer.

#### TEST ROOM CONFORMANCE

- Audiometric tests shall be administered in a room meeting OSHA requirements for background noise levels (see appendix D in 29 Code of Federal Regulation (CFR) Part 1910.95).

#### AUDIOMETRIC TESTING

- Provide free of cost to employees with noise exposure equal to or above an 8 hour TWA of 85 dBA.
- Calibrate audiometer to meet ANSI standards.
- Use only a licensed or certified audiologist, otolaryngologist, other physician, or a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation or has demonstrated competence in performing audiometric testing.
- Precede baseline testing by at least 14 hours without workplace noise exposure.
- The use of hearing protectors during work hours may substitute for the 14 hour requirement.
- Establish a baseline within 6 months of first exposure or within one year if using a mobile van to test. Hearing protection must be worn from the sixth month until testing is performed.
- Obtain an audiogram annually from the baseline date.

#### AUDIOGRAM EVALUATION

- Compare subsequent audiograms to the baseline audiogram to determine if there is a change in hearing threshold of 10 dBA or greater in either ear at 2000, 3000, and 4000 Hertz (known as a standard threshold shift (STS)).
- Notify the employee in writing within 21 days if a determination of an STS is made.
- If an STS exists, the employer may retest the employee within 30 days and use the test results as the annual audiogram.

#### FOLLOW-UP OF EMPLOYEES WITH AN STS

- Employees not already using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.
- Employees already using hearing protectors shall be refitted and retrained in their use and provided with hearing protectors offering greater attenuation if necessary.
- The employee shall be referred for a clinical audiological evaluation or otological examination, as appropriate, if additional testing is necessary or if the employer suspects that a medical pathology of the ear is caused or is aggravated by the wearing of hearing protectors.
- The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protection is suspected.

## **TRAINING/EDUCATION**

- Implement a training and education program for those employees whose noise exposure equals or exceeds 85 dBA.
- Repeat training/education program annually for employees included in HCP.
- Include in the training program the effects of noise on hearing; the purpose of hearing protectors, their advantages and disadvantages; attenuation of various hearing protectors, and instructions on how to select, fit, use, and care for them; and the purpose of audiometric testing and an explanation of the testing procedure.

## **RECORDKEEPING**

- Audiometric test records shall include: name and job classification of employee, date of the test, examiner's name, date of the last acoustic or exhaustive calibration of the audiometer, and the employees' most recent noise exposure assessment.
- Retain audiometric test records for the duration of the affected employee's employment.
- Retain noise exposure measurement records for two years.
- Record and maintain test room background noise measurements.
- Provide access to audiometric test records and noise exposure measurement records upon request to the employee, former employees, employee's designated representative, or the Assistant Secretary of Labor for Occupational Safety and Health.

## **DEFINITIONS**

- ACOUSTICAL CALIBRATION.** A procedure by which an audiometer is checked to determine if it is producing the correct intensity level of pure tones, at specified frequencies, and that the signals are free from distortion and unwanted sounds.
- ANSI.** An abbreviation for the American National Standards Institute; a standards making body.
- ANNUAL AUDIOGRAM.** An audiogram performed yearly following a baseline audiogram.
- AUDIOLOGIST.** A professional specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.
- AUDIOMETER.** An electroacoustical generator of pure tones at selected hearing frequencies and of calibrated output used for the purpose of determining an individual's threshold of hearing.
- A-WEIGHTED SOUND LEVEL METER.** An instrument that measures sound pressure levels in decibels using an A-weighting network which attenuates low frequency sounds in a manner similar to the human ear.
- BASILINE AUDIOGRAM.** An audiogram against which future audiograms are compared.
- BIOLOGICAL CALIBRATION.** An audiometer calibration that tests the audiometer's output using an adult with known normal hearing who has not been exposed to noise and has no history of ear disease.
- CALIBRATE.** To check noise measurement equipment and audiometric testing equipment for accuracy and uniformity.
- dba.** An abbreviation for decibels measured with a sound level measuring instrument with an A-weighting network.
- DECIBEL (dB).** Unit of measurement of sound pressure level.
- EXHAUSTIVE CALIBRATION.** A procedure by which an audiometer is sent to a laboratory or manufacturer's factory for actual adjustments to conform to the ANSI S.3.6 Standard.
- HERTZ (Hz).** A unit of frequency; synonymous term for cycles per second.
- NOISE DOSIMETER.** An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.
- SOUND LEVEL METER.** An instrument for the measurement of sound level.
- TIME-WEIGHTED AVERAGE SOUND LEVEL.** That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

## INFORMATION SOURCES

Title 29, *Code of Federal Regulations* (CFR) Part 1910.95 (Occupational Noise Exposure).  
OSHA-2056 *All About OSHA*  
OSHA-2098 *OSHA Inspections*  
OSHA-3074 *Hearing Conservation*  
OSHA-3077 *Personal Protective Equipment*  
OSHA-3021 *OSHA: Employee Workplace Rights*  
OSHA-3000 *Employer Rights & Responsibilities Following an OSHA Inspection*  
OSHA-3110 *Access to Medical and Exposure Records*

A single free copy of the above materials can be obtained from the OSHA Publications Office, Room N3101, 200 Constitution Ave. N.W., Washington, DC, 20210, (202) 523-9667; or call your local OSHA Area Office (listed under the U.S. Department of Labor in the telephone book).