

Environmental Health &  
Safety  
Muncie, IN 47306

## Hearing Conservation Program



**BALL STATE  
UNIVERSITY**

**W E F L Y**

**Updated February 2018**

REVISED AUGUST 2011, 2014

## TABLE OF CONTENTS

Statement of Policy

Purpose and Objective

Scope

Definitions

Responsibilities of Program

Health and Environmental Safety

Supervisors

Affected Employees

Standard Operating Procedures

Noise Monitoring

Program Participation

Hearing Protection

Audiometric Testing

Training and Information

Record Keeping

# Hearing Conservation Program

## STATEMENT OF POLICY

Ball State University is firmly committed to the responsibility of providing a work environment that is free of recognized hazards for its employees. Consistent with this duty is the Occupational Noise Exposure Standard 29 CFR 1910.95.

Ball State University is required by OSHA's Occupational Noise Exposure standard to administer a continuing effective hearing conservation program whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of eighty five (85) decibels.

This plan will be available to any Ball State University employee, representative, or OSHA representative.

## PURPOSE AND OBJECTIVES

The University's primary objective is to maintain noise levels in the work areas below eighty five (85) dBA for its employees using accepted engineering control methods. However, when that is not feasible, or when such controls are being instituted or evaluated, hearing protection shall be provided to employees who may be required to work in situations where noise exposures are potentially unhealthy.

The maximum Permissible noise Exposure Level (PEL) for an eight-hour TWA is ninety (90) dBA. Exposure to noise levels over ninety (90) dBA are permissible for shorter periods of time as defined by the Permissible Noise Exposure.

## SCOPE

This Program applies to all Ball State University employees at all operations and facilities, which collectively referred to throughout this Program as the "University".

## DEFINITIONS

**Action level-** An 8-hour time-weighted average of eighty five (85) decibels measured on the A-scale, slow response, or equivalently, a dose of fifty (50) percent.

**Affected employee-** Any University employee exposed to sound levels at or above the action level.

**Audiogram-** A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

## Hearing Conservation Program

**Audiologist-** A professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by the State Board of Examiners.

**Audiometer-** An instrument that measures a person's ability to hear a pure tone at various frequencies.

**Background Noise-** Noise coming from sources other than the particular noise source being monitored.

**Baseline Audiogram-** The audiogram against which future audiograms are compared.

**Bone Conduction-** The process by which sound is conducted to the inner ear through the bones in the skull.

**Criterion Sound Level-** A sound level of 90 decibels.

**Decibel (dB)-** Unit of measurement of sound level.

**Ear Muff-** A type of hearing protector, which encloses the entire outer ear.

**Ear Plug-** A type of hearing protector, which is inserted into the ear.

**Hearing Conservation-** The prevention or minimizing of noise induced hearing loss through the use of hearing protection devices, the control of noise through engineering methods, annual audiometric tests, and employee training.

**Hertz (Hz)-** Unit of measurement of frequency, numerically equal to cycles per second.

**Medical Pathology-** A disorder or disease affecting the ear, which should be treated by a physician.

**Noise Dose-** The ratio, expressed as a percentage of one (1) the time integral over a stated time or event, of the 0.6 power of the measured SLOW exponential time-averaged, squared A-weighted sound pressure and (2) the product of the criterion duration (8 hours) and the 0.6 power of the squared sound pressure corresponding to the criterion sound level (90 dB).

**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.

## Hearing Conservation Program

**Noise Induced Hearing Loss-** The slowly progressive inner ear hearing loss that results from exposure to continuous noise over a long period of time as contrasted to acoustic trauma or physical injury to the ear.

**Permissible Exposure Level (PEL)-** The legally enforced exposure limit for noise established by OSHA.

**Otolaryngologist-** A physician specializing in diagnosis and treatment of disorders of the ear, nose, and throat.

**Representative Exposure-** Measurements of an employee's noise dose or 8-hour time weighted average sound level that the employer deems to be representative of the exposures of the other employees in the workplace.

**Sound Level-** Ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals.

**Sound Level Meter-** An instrument for the measurement of the sound level.

**Standard Threshold Shift (STS)-** A change in the hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2,000, 3,000 and 4,000 Hz in either ear.

**Time-Weighted Average Sound Level-** Sound level, which is constant over an 8-hour exposure.

**Tinnitus-** Ringing in the ear or noise sensed in the head.

### RESPONSIBILITIES FOR PROGRAM

#### Environmental Health and Safety (EHS) Office

The Hearing Conservation Program is administered by the EHS Office. The Industrial Hygienist will provide noise exposure monitoring, evaluation of results, training, and record keeping. The Industrial Hygienist will also provide guidance in the selection of hearing protective devices. The EHS Office shall coordinate audiometric testing with a competent testing provider (University Department of Speech Pathology & Audiology). The EHS Office and/or the University Department of Speech Pathology & Audiology will notify each employee and Supervisor of the results. The EHS Office has the responsibility and authorization to ensure all aspects of the OSHA standard 29 CFR 1910.95 are complied with.

## Hearing Conservation Program

### Supervisors

Supervisors shall identify employees who may work in areas of high noise levels and recommend noise monitoring for those areas. Supervisors and Group Leaders are responsible for monitoring and enforcing hearing protection for those employees who are required to use it. In addition, Supervisors are responsible for scheduling audiometric testing for affected employees. Supervisors should maintain and allow employees to view the Occupational Noise Exposure Standard 29 CFR 1910.95 during work hours.

### Affected Employees

Employees who have been identified as being exposed to noise above the action level of 85 dBA are ultimately responsible for using hearing protective equipment in situations where exposure to loud noise can reasonably be expected. Employees shall keep their hearing protection equipment in clean and serviceable condition. Affected employees must attend annual audiometric testing and training programs as provided by the University.

## STANDARD OPERATING PROCEDURES

### Noise Monitoring

The EHS Office is responsible for implementing a noise monitoring program. The sampling strategy shall be designed to identify employees for inclusion in the Hearing Conservation Program. The EHS Office working with Supervisors shall identify equipment and areas within the University's facilities, which can reasonably be expected to subject employees to sound levels above 85 dBA. All noise measurements can be observed by the affected employees.

### Program Participation

Employees of the University who are exposed to sound levels at or above the action level of 85 dBA are required to participate in the University Hearing Conservation Program.

### Hearing Protection

When the sound levels and durations in the Permissible Noise Exposure Table are reached or exceeded, the employee exposure will be reduced by:

1. Engineering Controls: The installation of noise mufflers, use of quieter equipment, or enclosure of noisy equipment.
2. Administrative Controls: The rotation of workers to reduce exposure time.

## Hearing Conservation Program

3. Personnel Protective Equipment (PPE): Ear muffs or ear plugs. PPE is used to lower exposure below the PEL and should only be implemented when engineering controls are not feasible. PPE will be provided to any employee who requests it, regardless of exposure level.
4. Hearing protection shall be made available to all program participants. Supervisors should maintain an adequate amount of hearing protection that is easily accessible to employees. Supervisors can contact the EHS Office for assistance in the selection and/or use of hearing protective devices.

### Audiometric Testing

The University shall maintain an audiometric testing program, coordinated by the EHS Office. All employees who are exposed to sound levels at or above the action level of 85 dBA shall participate in the program. This program shall be provided at no cost to the employees. Audiometric testing will be provided by the Department of Speech Pathology & Audiology. Baseline audiometric testing shall be performed upon identification and annually thereafter for program participants.

### Training and Information

The EHS Office shall conduct and/or assist with training for all affected employees within the program. This training will be repeated annually. The training shall include the following:

1. The effects of loud noise on hearing.
2. The purpose of hearing protection devices, the advantages, disadvantages, noise reduction methods.
3. Instructions on the selection, fitting, care and use of hearing protection.
4. The purpose of audiometric testing, and brief explanation of the test procedures.
5. General over-view of the program and the Occupational Noise Exposure Standard 29 CFR 1910.95.

### Record Keeping

The EHS Office shall maintain records of all noise monitoring, including both personal and area site sampling. Personal sampling results will be maintained in a separate file and updated when site conditions change. EHS Office will also maintain hearing conservation training records for all affected employees.