

Procedure 4.1526

Occupational Noise Hearing Conservation Procedure

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A. Purpose

The purpose of this procedure is to provide guidelines for employees exposed to occupational noise and to comply with the OSHA Occupational Noise Exposure Standard 29 CFR 1910.95.

B. Objective

The objective of this procedure is to provide guidelines to protect the hearing of those employees exposed to noise levels in excess of 85 dBA (decibels, A Scale), to provide a uniform method of dealing with noise and hearing conservation for all departments, and to develop historical data.

C. Scope

1. All employees exposed to an 8-hour time-weighted average (TWA) of 85 dBA or greater shall be included in this procedure.
2. The Occupational Noise Procedure consists of the following components:
 - a. Noise Level Monitoring and Evaluation
 - b. Noise Control
 - c. Audiometric Testing
 - d. Hearing Protection
 - e. Employee Training

D. Noise Level Monitoring And Evaluation

1. Noise Level Monitoring

- a. Monitoring of noise exposure levels shall be conducted to accurately identify employees who are exposed to noise levels at or above 85 dBA, averaged over eight working hours; this is called an 8-hour time-weighted average (TWA). The exposure measurement shall include all sound levels within an 80 dBA to 130 dBA range, and shall be taken during a typical work situation. Measurements shall be obtained on the A scale of a standard sound level meter at slow response.

Note: Where high worker mobility or significant variations in sound level make area monitoring generally inappropriate, representative personal sampling (dosimetry) shall be conducted.

- b. Monitoring shall be repeated whenever a change in the process, equipment, or controls is suspected of increasing noise exposures to the extent that additional employees may be exposed to noise levels at or above 85 dBA as an 8-hour TWA, or when the attenuation provided by the selected hearing protective devices is rendered inadequate. This re-evaluation of work place noise shall be conducted within 60 days following the aforementioned changes.
- c. Employees are entitled to observe the monitoring procedures.
- d. Review of all employee complaints concerning noise shall be conducted within 60 days by:
 - i. In-house screening of noise levels with a sound level meter by the college Safety Coordinator.
 - ii. Conducting noise dosimetry on affected employees.

2. Noise Exposure Evaluation

1. Upon completion of a noise level monitoring of an area, noise dosimetry shall be conducted on those employees potentially exposed to levels of noise in excess of an action level of 85 dBA or greater. (Personnel noise dosimetry shall be

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conducted by job description.)

2. Noise dosimeters shall be capable of integrating all continuous, intermittent, and impulsive sound levels from 80 decibels to 130 decibels.
3. All sound level meter reading and octave band analyses that represent employee exposure shall be maintained on file at least 30 years in accordance with 1910.1020(d)(1)(ii).
4. Each employee exposed at or above an 8-hour TWA of 85 dBA shall be notified of the results of the monitoring. The normal method of notification is posting the results in a visible location.

E. Noise Control

1. Noise control can be addressed by three main categories: engineering controls, administrative controls, and personal hearing protection. This section will address the first two controls.
2. The most desirable method of noise control is to apply engineering principles designed to reduce sound levels either at the source or within the hearing zone of the employee. This application can usually reduce noise to a desired level, however economic considerations and/or operational necessities can make these controls impractical. It is the college's policy to utilize engineering controls whenever feasible and practical to reduce employee noise exposures.
3. Whenever engineering controls are not feasible or practical, the use of administrative controls should be explored. (Note: Administrative controls may be used in conjunction with engineering controls.) Administrative controls include any administrative decision that results in lower noise exposures; including complying with purchase agreements that specify maximum noise levels for machinery.
4. Administrative controls may include rotating jobs, so that exposure times are reduced. This includes such measures as transferring employees from a location with high noise levels to one with a lower level for part of a workday, in order to reduce the daily exposure below the "action level". When administrative controls are not feasible with regard to job rotation, other alternatives, including hearing protection (See Section G) will be utilized to reduce the daily noise exposure.

F. It is the college's policy to use administrative controls whenever

practical to reduce employee noise exposure.



Audiometric Testing

1. Criteria for Audiometric Testing

- a. Audiometric testing monitors the sharpness or acuity of an employee's hearing over time, and provides an opportunity for employers to educate employees about their hearing and the need to protect it.
- b. A baseline audiogram is the reference audiogram against which future audiograms are compared. Baseline audiograms shall be conducted for new hires that will work in areas with high levels of noise within 6 months. Any employees whose job contains exposure to an 8-hour time-weighted average (TWA) of 85 dBA shall be included in the baseline audiogram.
- c. The annual audiogram shall be conducted within one year of the baseline. It is important to test hearing on an annual basis in order to identify changes in hearing ability. Annual audiograms shall be routinely compared to baseline audiograms to determine whether the audiogram is accurate and to determine whether the employee has a change in hearing ability (that is, if a standard threshold shift (STS) has occurred).
- d. STS is defined as an average shift in either ear of 10 dBA or more at 2,000, 3,000, and 4,000 Hz. An averaging method of determining STS was chosen because it diminishes the number of persons falsely identified as having STS who are later shown not to have had a change in hearing ability.
- e. The annual audiogram shall be conducted for all employees who are exposed to noise levels equal to or in excess of an 8-hour time-weighted average (TWA) sound level of 85 dBA measured on the A scale. Employees who have the baseline audiogram conducted as a new hire shall receive an annual audiogram.
- f. A work history/hearing questionnaire is required on each employee tested. This questionnaire shall be updated with each annual test.

4. Annual Hearing Test Guidelines

- a. The annual audiogram shall be preceded by 14 hours without exposure to workplace noise; however, hearing protectors may be used as a substitute for this practice.

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- b. An annual work history/hearing questionnaire is required.
- c. The audiometric examination shall be conducted by a certified audiometric technician (CAOHC), a trained physician, or a licensed or certified audiologist.
- d. The audiometer shall be acoustically calibrated annually in accordance with Appendix E of 29 CFR 1910.95. The audiometric examination shall be conducted in a booth/room meeting the criteria outline in 29 CFR 1910.95, Appendix, Table D-1. The booth/room shall have accurate sound level measurements made at least annually, using a Type 1 octave band analyzer/sound level meter.
- e. If an employee has a STS when exposed to noise at or above the action level, the following items shall be reviewed:
 - i. Employees shall be notified within 21 days from the time the determination is made that their audiometric test results showed a STS.
 - ii. A retest may be obtained within 30 days and the results of the retest can be considered as the annual audiogram.
- f. Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.
- g. Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
- h. Some employees with a STS may need to be referred for further testing if the professional determines that their test results are questionable or if they have an ear problem of a medical nature which is thought to be caused or aggravated by wearing hearing protectors. If the suspected medical problem is not thought to be related to wearing protectors, employees must be informed that they should see a physician.
- i. A subsequent audiogram may be substituted for the original baseline audiogram if the professional supervising the procedure determines that the employee's STS is persistent. This substitution will ensure that the same shift is not repeatedly identified. The professional may also decide to revise the baseline if an improvement in hearing has occurred. This will ensure that the baseline reflects actual hearing thresholds to the extent possible.

5. Post-test Guidelines

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All audiograms will be reviewed by the college's consulting occupational physician or audiologist.



G. Hearing Protection

1. Hearing protective devices (HPD) shall be readily available at no cost to all employees exposed to an 8-hour time-weighted average of 85 dBA or greater, and to employees that enter an area or perform a task requiring hearing protection. Appendix A lists the locations and tasks at the college that require hearing protection.
2. HPDs must be worn by:
 - a. All employees exposed to an 8-hour TWA of 85 dBA or greater.
 - b. Any employee entering an area in which hearing protection is required, where noise levels are 85 dBA or greater.
 - c. Any employee performing a task in which hearing protection is required, where noise levels are 85 dBA or greater.
3. The employees shall have an opportunity to select their HPDs from at least 2 different styles. Each department shall supply the HPDs, and the college Safety Coordinator shall have an additional supply.
4. HPDs shall be evaluated to ensure that they attenuate noise level exposures to less than 90 dBA. For employees who have experienced a standard threshold shift, hearing protectors shall attenuate employee exposure to an 8-hour TWA of 85 dBA or below.

H. Training

1. Annual training is required for all employees who are exposed to noise at or above an 8-hour TWA of 85 dBA.
2. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work process.
3. Each employee shall be informed of the following:
 - a. The effects of noise on hearing.
 - b. The purpose of hearing protection, the advantages, disadvantages, and attenuation of various types, the instruction on selection, care and use.
 - c. The purpose of audiometric testing and explanation of the test procedure.
 - d. How to determine if one needs hearing protection without monitoring.

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4. The college Health & Safety Coordinator is responsible for maintaining all training documentation.

I. Recordkeeping

1. Audiometric test records shall be retained on all employees and maintained for 30 years after employment ceases. The records shall be maintained with the college Safety Coordinator or at another designated storage location. The record shall include:
 - b. Name
 - c. Job title
 - d. Date of audiogram
 - e. Examiner's name
 - f. Make and model of audiometer
 - g. Calibration date of audiometer
 - h. Most recent noise exposure assessment (in accordance with 1910.95(m)(2)(ii)(E))
6. Noise exposure monitoring records shall be maintained in accordance with 1910.1020(d)(ii). The college Safety Coordinator will maintain these records.
7. Employees who suffer a STS will be recorded on the OSHA Form 300 Injury and Illness Log as required by 29 CFR 1904.7.

J. Review of Occupational Noise Procedure

An annual audit of the Occupational Noise Procedure shall be conducted by the college Health & Safety Coordinator.

K. Revision History

Date	REV#	Change
5/19/2017	3	Annual Review by H&S Committee
7/7/2016	2	Annual Review by H&S Committee
8/24/2015	1	Approved by Senior Staff
5/19/2015	0	New Issue

L. Appendix A-Suggested Areas For Hearing Protection

Noise areas requiring hearing protection, which have been defined by noise level monitoring, shall have an adequate number of signs requiring the wearing of hearing protectors. Disposable hearing protectors or ear muffs shall be provided at these locations.

The following areas require hearing protection:

- **Machining area, when high noise levels are present**
- **Welding area, when high noise levels are present**
- **Construction Equipment area, when high noise levels are present**
- **Automotive Technology area, when high noise levels are present**
- **Science Labs when high noise levels are present**
- **Skills Center, when high noise levels are present**
- **Building 8A, Small Engine Repair Classes, when high noise levels are present**
- **Operating a mower**
- **Operating a string trimmer (weed eater)**
- **Operating a blower**
- **Operating a mulching machine**
- **Operating an air compressor**
- **Operating a hedge trimmer**
- **Operating a chain saw**
- **Operating a circular hand saw, table saw, router, planer, sander**
- **Operating a band saw**
- **Hammering – 140 dBA slow response maximum and any other equipment or procedure that causes impact or quick, impulsive noise**
- **Printing and other presses in the Print Shop**
- **Outboard and any other fuel powered engines**
- **Firearms Qualification Range**
- **Any other type of motorized or electric powered equipment found to emit 85 or more decibels of sound, when measured on a dosimeter set on sound level slow response per NCDOL standard 1910.95 (2)**

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Audiometric testing will be made available at school expense to any BCCC employee found to meet or exceed exposure levels of 85 dBA.

Disposable ear plugs and/or ear muffs will be made available to employees at no cost to the employee.

References

Legal References: *29 CFR 1910.95*

SACSCOC References: *CS 3.11.2*

Cross References:

History

Senior Staff Review/Approval Dates: *8/24/2015*

Board of Trustees Review/Approval Dates: *Enter date(s) here*

Implementation Dates: *8/24/2015*