

SUBJECT: Hearing Conservation Procedure	Effective Date: 4/18/12	Procedure Number: FS 2012 EHS0005
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	Responsible Authority: Director of Environmental Health and Safety	

APPLICABILITY/ACCOUNTABILITY:

This procedure applies to all departments, support personnel, and functional units within Facilities and Safety in the University of Central Florida (UCF), with employees that are exposed to an 8-hour, time-weighted average sound level (TWA) of 85 decibels or greater, measured on the A scale.

PROCEDURE STATEMENT:

This Hearing Conservation Procedure provides information to supervisors, superintendents, and employees for the selection, maintenance, and use of Personal Protective Equipment (PPE) for the ears. This procedure was designed to help reduce the employee exposure to noise at work, if other effective engineering or administrative controls are not feasible.

This procedure meets the requirements from the Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.95 Occupational Noise Exposure.

As stated in the “UCF Design, Construction, and Renovation Standards (09-13-11), Division 1 General Requirements, Section Environmental Health and Safety Construction Information”, contractors are individually responsible for meeting and monitoring their job specific requirements set forth by OSHA.

DEFINITIONS:

Action Level: level of exposure that requires establishing a prevention program (For hearing conservation the action level is 85 dBA for an 8-hr. TWA.)

Administrative Controls: method that reduces the employee's exposure time to noise (This will reduce the average dose of noise in an 8-hr. shift.)

Audiogram: test that measures the employee's hearing threshold to establish a baseline, and for future comparisons

Decibel (dB): measurement unit for sound levels

Decibel, A-Weighted (dBA): the weighted scale that approximates the range of the human hearing

Dose: the amount of sound to which the employee is exposed

Engineering Controls: physical modifications to noise sources or surrounding areas to reduce noise exposure (for example, installing noise absorption barriers between the source of noise and the employee, purchasing less noisy equipment, and changing the production process, among others)

Major Non-Compliance: the occurrence of an unsafe activity or operation not in accordance with the OSHA requirements or the UCF Safety Procedures, and that does pose an immediate life threatening danger to the employee.

Minor Non-Compliance: the occurrence of an unsafe activity or operation not in accordance with the OSHA requirements or the UCF safety procedures, and that does not pose an immediate life threatening danger to the employee.

Noise: unwanted sound

Noise Dosimeter: instrument worn by the employee that integrates the sound levels over a period of time (normally 8-hr, which is the most common work shift)

Noise Reduction Rating (NRR): number assigned to a particular hearing protection device that indicates the theoretical amount of noise reduction that can be achieved if worn correctly

Permissible Exposure Limit (PEL): maximum exposure level of 90 dBA 8-hr. TWA, established by the Occupational Safety and Health Administration (OSHA)

Sound: vibration, or pressure oscillation that is detectable by the human ear

Sound Level Meter: instrument used for the measurement of sound levels

Standard Threshold Shift: change in an employee's hearing threshold, relative to the most recent audiogram, of 10 decibels (dB) or more at 2000, 3000, and 4000 Hertz in one or both ears, and sustained within 30 days with a follow-up audiogram

Time-Weighted Average (TWA): the equivalent noise level in dB based on an 8-hr exposure time

RESPONSIBILITIES:

I. The Department of Environmental Health and Safety

- Performs the workplace and employee noise evaluations, as requested by the supervisors or superintendents
- Assists the supervisors and superintendents in identifying the need for the use of hearing protection for the employees, if engineering or administrative controls are not feasible
- Assists the supervisors and superintendents in selecting adequate hearing protection devices for the employees
- Assists the supervisors and superintendents in the coordination of all necessary training required by this procedure
- Offers the necessary training, as requested by the supervisors and superintendents
- Evaluates and updates this procedure as necessary

II. Supervisors and Superintendents

- Coordinate and arrange for payment for the audiograms and training
- Ensure that all supervised personnel are properly trained and knowledgeable of the safety precautions when working in areas with high noise levels, as well as all the requirements of this Hearing Conservation Procedure
- Ensure that engineering and administrative controls were considered before assigning personal protective equipment as the only method to control the noise exposure
- Ensure that the supervised personnel have all the necessary equipment to do the job in the safest possible way

- Keep records of all training, audiograms and any other document related to this procedure
- Identify the areas with the potential for high noise levels and coordinate with the Department of Environmental Health and Safety for evaluation
- Coordinate and arrange proper signage where hearing protection is required (Contact the Department of Environmental Health and Safety for assistance.)
- Enforce the compliance of supervised personnel regarding this procedure

III. Employees

- Follow safe practices at all times
- Attend all required training and refreshers
- Inform the supervisor or superintendent if they do not understand the information given in the training, or if there is any other safety concern before working in an area, or operation with high noise levels
- Provide all necessary information for the audiogram, and consult with the doctor about any health concern, or about the occupational exposure to high noise levels
- Use, inspect, and maintain the hearing protection equipment as instructed
- Inform the supervisor or superintendent about any defects or damage in the hearing protection equipment, or any of its components,
- Assist the supervisors and superintendents in identifying potentially high noise locations or operations to which they may be exposed

PROCEDURE COMPONENTS:

I. Audiograms

All employees exposed to an 8-hour, time-weighted average sound level (TWA) of 85 dBA or greater, are required to have a baseline audiogram. It shall be performed by a licensed or certified audiologist, otolaryngologist, other physician, or a certified technician under the supervision of an audiologist, otolaryngologist, or other physician.

The baseline audiogram shall be completed within six (6) months of the employee's first exposure. This test shall be preceded by at least 14 hours without exposure to noise levels above the action level of 85 dBA at work, or at home.

The audiograms will then be given at least annually and compared to the baseline audiogram to determine if a standard threshold shift has occurred. If a standard threshold shift has occurred, a follow-up audiogram shall be provided within 30 days. The employee shall be informed about the results within 21 days after the follow-up audiogram.

The supervisor or superintendent will notify the Department of Environmental Health and Safety if a standard threshold shift occurred. Together they will evaluate the work area or operation to determine what action shall be taken to protect the employees.

All the medical records and audiograms of the employees will be kept in their personnel files in the Department of Human Resources.

The supervisors and superintendents will be responsible for making arrangements for payment and coordination of all the audiograms and other related documents. The audiograms shall be conducted during the normal work hours, or at a time and place convenient to employees.

II. Monitoring

The supervisors or superintendents will request the Department of Environmental Health and Safety to perform a noise evaluation if they suspect any exposure to noise levels of 85 dBA or greater to any employee.

The supervisors or superintendents shall inform the Department of Environmental Health and Safety whenever there is a change in production, process, equipment, or controls that may increase the noise exposures. In this case, another noise evaluation shall be requested and completed.

Work places in which noise levels equals or exceeds 85 dBA shall have signs posted. The signs shall read "**Hearing Protection Required**".

III. Training

Any employee who is exposed to noise levels of 85 dBA or greater shall be trained annually. All training will be requested and coordinated by the supervisors or superintendents. Training will be offered by the Department of Environmental Health and Safety. Training shall include information on the proper use, inspection, and

maintenance of the hearing protection equipment, as well as other regulatory requirements.

Training shall include, but is not limited to, the following topics:

- The effects of noise on hearing
- The purpose of hearing protectors
- The advantages, disadvantages, and attenuation capabilities of various types
- Instructions on selection, fitting, use, and care
- The purpose of the audiogram and an explanation of the test procedures

IV. Hearing Protection Devices

When employees are exposed to an 8-hour, time-weighted average sound level (TWA) of 85 dBA or greater, engineering or administrative controls should be considered as the first option to control the noise exposure. If this is not feasible, the employees shall wear hearing protection devices as personal protective equipment (PPE).

New employees without a baseline audiogram and employees that experienced a standard threshold shift shall also wear hearing protection devices. This equipment will be provided at no cost to the employees and shall be replaced at no cost as necessary.

The hearing protection devices shall attenuate the employee noise exposure below an 8-hour TWA of 85 dBA. All hearing protection devices are assigned a noise reduction rating (NRR), which can be found on the individual package or box. **It is important to note that 7dB should be subtracted from the labeled NRR to obtain an estimated A-Weighted noise level. As an additional correction factor, the result shall be divided by 2 to compensate for imperfect fitting.** To determine if a specific hearing protection device is adequate, you should use the following equation:

$$\text{Employee Exposure} = \text{dBA} - [(\text{NRR}-7) \div 2]$$

Let's use the following as an example: an employee is working in an environment with a constant noise level of 97 dBA for 8 hours. What is the employee's exposure if the NRR of the ear plugs is 33 dB?

$$\text{Employee Exposure} = 97 \text{ dBA} - [(33-7) \div 2]$$

$$\text{Employee Exposure} = 97 \text{ dBA} - 13$$

$$\text{Employee Exposure} = 84 \text{ dBA}$$

As you can see in the previous example, if the employees are exposed to a constant noise level of 97 dBA for 8-hour a day, they need hearing protection devices of a minimum of 33 NRR.

The supervisors and superintendents shall call the Department of Environmental Health and Safety for assistance if they are not sure on the proper type of hearing protection devices to purchase.

In a case where the hearing protection device does not offer enough protection, earmuffs and earplugs can be worn together. Please contact the Department of Environmental Health and Safety for additional information.

V. Recordkeeping

The supervisors and superintendents are responsible for recordkeeping. These records shall be available to the Department of Environmental Health and Safety for evaluation and for the purpose of reviewing this procedure.

All audiograms will be kept in the employee's personnel file in the Department of Human Resources. They shall include:

- Name and job classification of the employee
- Date of the audiogram
- Examiner's name
- Date of the last acoustic or exhaustive calibration of the audiometer
- Employee's most recent noise exposure assessment
- Measurements of the background sound pressure levels in the audiometric test room

The audiograms should be retained for the duration of employment.

The supervisors and superintendents are required to keep records of all the noise exposure evaluations, noise workplace evaluations, training, and any other document related to this program. These documents shall be maintained for a minimum of two years.

VI. Procedure Evaluation and Review

This procedure should be evaluated and updated by the Department of Environmental Health and Safety as necessary to meet any changes in the OSHA regulation. Information from the supervisors, superintendents, and employees is vital for the review and evaluation of this Procedure.

ENFORCEMENT

The Department of Environmental Health and Safety will perform periodic inspections to determine compliance with this procedure. The following section describes the actions to be taken after a Minor Non-Compliance or a Major Non-Compliance.

I. Minor Non-Compliance

If a Minor Non-Compliance is noted, the Department of Environmental Health and Safety (EH&S) shall:

- Send an electronic notification to the supervisor or superintendent within five (5) calendar days with the non-compliance findings and with a request for corrective actions
- Conduct a follow-up inspection within 14 calendar days to ensure corrective actions were implemented
- Send an electronic notification to the Director of the Department requesting a correction plan if the unsafe situation was not corrected after the follow-up inspection
- Conduct a second follow-up inspection within seven (7) calendar days to ensure corrective actions were implemented, if necessary
- Send an electronic notification to the Vice President of the Department requesting a correction plan if the unsafe situation was not corrected after the second follow-up inspection
- Conduct a third follow-up inspection within seven (7) calendar days to ensure corrective actions were implemented, if necessary
- Refer the case to the Provost or the Safety Council for further actions if the unsafe situation has not been corrected after the third follow-up inspection

After receiving the notification from EH&S, the supervisor or superintendent (and the Director of the Department, and the Vice President, if necessary) shall:

- Ensure that all corrective actions recommended by EH&S are implemented
- Coordinate with EH&S to provide re-training on the Safety Procedures, if necessary
- Recommend disciplinary actions for the responsible personnel if the Minor Non-Compliance Safety Violation has not been corrected after the third notification
- Coordinate payment to EH&S of \$50 for the second follow-up inspection and \$100 for the third follow-up inspection, if necessary

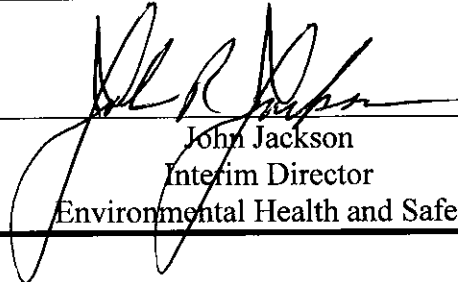
II. Major Non-Compliance

If a Major Non-Compliance is found, the Department of Environmental Health and Safety (EH&S) shall:

- Order or direct the employees to stop immediately the unsafe operation and speak with the supervisor or superintendent
- Send an electronic notification the day of the occurrence to the Director of the Department with a copy to the supervisor or superintendent with the non-compliance findings and with a request for immediate corrective actions
- Conduct a follow-up inspection the next day or before the operation is resumed, to verify corrective actions were implemented
- Send an electronic notification to the Vice President of the Department if the unsafe situation was not corrected after the second follow-up inspection
- Refer the case to the Provost or the Safety Council for further actions

After receiving the notification from the Department of Environmental Health and Safety (EH&S), the supervisor or superintendent (and the Director of the Department, and the Vice President, if necessary) shall:

- Ensure that all corrective actions recommended by EH&S are implemented
- Coordinate with EH&S to provide re-training on the Safety Procedures before sending the employee back to the worksite or procedure that was found in non-compliance
- Recommend disciplinary actions, and possibly job termination for the employee if the Major Non-Compliance has not been corrected after the second notification

Approved By:	Date Approved:
 _____ John Jackson Interim Director Environmental Health and Safety	4/18/12 _____