

University of Delaware
Environmental Health and Safety Protocol

Section: General Health and Safety

Protocol Name: Hearing Conservation Program

Origination Date: April 2015

Revisions: March 2019

Protocol Number: G-03

I. SCOPE OF PROTOCOL

This policy addresses the University's written Hearing Conservation Program and applies to all University personnel, visitors and contract personnel in applicable University facilities and/or University operations whose noise exposure levels equal or exceed an 8-hour time-weighted average (TWA) noise level of 85 dBA.

II. DEFINITIONS

- A. **Action Level** - An 8-hour time weighted average (TWA) of 85 decibels measured on the A-weighted scale, slow response, or equivalently a dose of 50%. This is the level of sound exposure at which employee participation in the Hearing Conservation Program is mandatory.
- B. **A-Weighted Sound Level (dBA)**- The weighting of sound levels that represents the function of the human ear.
- C. **Audiometric Testing Program** -The portion of the Hearing Conservation Program that consists of measuring an employee's hearing threshold to establish a baseline and for subsequent comparisons.
- D. **Decibel (dB)** -Unit of measurement of sound level.
- E. **Dose** - A ratio of noise exposure relative to the noise criterion level of 90 decibels, expressed as a percentage. Ninety decibels represents a dose of 100% over an 8-hour work shift. Eighty-five decibels represents a dose of 50% over an 8-hour work shift. Dose is based on the OSHA 5 dB exchange rate. Dose may be determined from the equation given in Table 1 for non-continuous noise or estimated from Table 2 based on the TWA.
- F. **Hearing Conservation Program (HCP)** - A written program that establishes procedures to ensure the protection of employees from high noise areas or operations in compliance with the OSHA Occupational Noise Regulation 29 CFR 1910.95.
- G. **Hearing Protection Attenuation** - The estimated reduction in the noise level at the eardrum as a result of the use of hearing protection. Estimated using the formula: Attenuated TWA, dBA = TWA - (Noise Reduction Rating, NRR, - 7) for A - scale weighted sound levels.
- H. **Noise Induced Hearing Loss, NIHL** -The OSHA recordable occupationally related hearing loss, as defined by 29 CFR 1904.10 and 29 CFR 1904.5, and includes a Standard Threshold Shift (STS) of 10 db, with age correction, averaged

over the 2K, 3K, and 4K Hz frequencies from baseline in either ear and a 25 db shift from audiometric zero, in the same ear as the 10 dB STS at the same frequencies.

- I. **Noise Reduction Rating (NRR)** - The theoretical maximum amount of noise reduction that can be achieved using a hearing protection device. This is a manufacturers' calculated value and must be displayed with the hearing protection device.
- J. **Monitoring** -The sampling of noise levels using a sound level meter, octave band analyzer, or personal noise dosimeter.
- K. **Permissible Noise Exposure** - The maximum daily noise exposure which may be experienced by employees not using hearing protectors from a continuous 8-hour exposure to a sound level of 90 dBA or equivalent dose of 100%.
- L. **Standard Threshold Shift (STS)** -A change in hearing threshold, relative to the most recent audiogram for that employee, of an average of 10 decibels (dB) or more at 2000, 3000, and 4000 hertz in one or both ears and substantiated within 30 days with a follow-up audiogram.
- M. **Time Weighted Average (TWA)** -The [equivalent] noise level, in dB, based on an 8-hour exposure time frame. If the noise is not constant over an 8-hour exposure, then a calculated 8-hour TWA must be made.

III. PROTOCOL STATEMENT

- A. To ensure that noise exposures of all University personnel, students, guests, visitors and contract personnel are minimized by assuring that the HCP includes:
 - 1. Identification and control of hazardous noise within work areas through the use of engineering and administrative controls combined with the selection and use of hearing protection;
 - 2. Details the areas of responsibility for deans, directors, department heads, supervisors and employees; and,
 - 3. The program includes requirements for noise exposure surveys, audiometric testing, training in the selection and use of hearing protection, recordkeeping and program evaluation.
- B. This program applies to all employees whose noise exposure levels equal or exceed an 8-hour time-weighted average (TWA) noise level of 85 dBA. All employees are required to follow the minimum procedures outlined in this program. Any deviations from this program must be immediately brought to the attention of the Director of the Department of Environmental Health and Safety.

IV. PROTOCOL STANDARDS AND PROCEDURES

- A. The Department of Environmental Health and Safety (DEHS) or delegate shall write and maintain the written Hearing Conservation Program. DEHS is responsible for the management and implementation
- B. The appropriate hearing protection shall be provided by the University when such equipment is necessary to protect the health of the employee. This will be

- established after performing a noise exposure assessment.
- C. The Director of the Department of Environmental Health and Safety or delegate, shall be responsible for the establishment and maintenance of the hearing conservation program.
 - D. The Department of Environmental Health and Safety or delegate shall have the authority to require the use of hearing protection.
 - E. Only hearing protective equipment approved by the Department of Environmental Health and Safety shall be purchased or utilized.
 - F. Departments shall bear the cost of hearing protective equipment, the cost of miscellaneous supplies and expenses, and the cost of medical evaluations required by the hearing protection program.
 - G. Required hearing exams shall be conducted by a licensed audiologist acceptable to the Director, Nurse Managed Primary Care Center and the Director, Department of Environmental Health and Safety.
 - H. Employees shall utilize and maintain hearing protective equipment in accordance with procedures outlined in the written hearing conservation program
 - I. The supervising department shall ensure employees comply with the provisions of the hearing conservation program.
 - J. Exceptions to this safety protocol and the hearing conservation program shall require the approval of the Director, Department of Environmental Health and Safety. For more information contact the Department of Environmental Health and Safety (ext. 8475).

For more information regarding this policy, contact the Environmental Health and Safety Office (302-831-8475).