

# HEARING LOSS PREVENTION PROGRAM AND PROCEDURES

## UW Environmental Health & Safety Department

April 2014

### 1.0 Policy

In an effort to prevent permanent hearing loss caused by excessive noise, UW maintains a hearing loss prevention program for its employees and students that complies with WAC 296-817 Hearing Loss Prevention (Noise), as required by the Washington Department of Labor and Industries (L&I) Division of Occupational Safety and Health (DOSH).

- If the 8-hour time weighted average (TWA) exposure exceeds the Permissible Exposure Limit (PEL) of 90 dBA (decibels A-weighting), feasible engineering controls must be identified and provided to reduce the exposures to 90 dBA or less.
- If the 8 hour time-weighted average (TWA) exposure exceeds the Action Level (AL) of 85 dBA, hearing protective devices must be provided and used by employees. Additionally, employees must be included in a hearing loss prevention program that is administered and enforced by the UW.

### 2.0 Scope

This policy applies to all University organizational units at all locations including the Seattle, Bothell, and Tacoma Campuses; University of WA Medical Centers, University owned property; University leased space; and temporary field locations under the control of University operations staff.

### 3.0 Responsibilities

#### 3.1 UW Environmental Health and Safety

EH&S provides technical assistance to UW departments including the following:

- Develop a written Hearing Loss Prevention Program (this document) and revise the program as appropriate.
- Conduct noise exposure monitoring and notify the department and affected employees of their exposures. Indicate when the noise levels exceed permissible standards established by DOSH and when employees must be included in the hearing loss prevention program.

- Review and select appropriate hearing protective devices for use and train employees on their appropriate use.
- Provide training on noise and hearing loss prevention that complies with regulations.
- Periodically audit the departmental-specific Hearing Loss Prevention Program.

### **3.2 Department Administrators, Managers, and Supervisors**

The employing department administrator, or designee as contact, has primary responsibility for ensuring employees are properly protected against excessive exposure to noise in the work environment including the following:

- Identify and report to EH&S, new and existing potential sources of noise exposure and have them evaluated if there is a possibility of excessive noise.
- Notify EH&S for assistance to conduct a noise level assessment.
- Reduce the level of noise from sources through the use of engineering controls or purchase of quieter equipment. Maintain equipment to minimize noise production.
- Post work areas that are designated as “high” noise exposure work areas, and establish procedures to reduce noise exposure.
- Ensure exposed employees are included in the audiometric testing program and that employees participate and receive baseline and annual tests. For an exposure of concern, or possible work-related hearing loss, more timely audiometric testing may be indicated.
- Ensure that employees who terminate work in positions requiring hearing protection have final audiometric evaluations prior to their end date of employment.
- Provide a variety of hearing protective devices appropriate for the noise level for use by “exposed” employees at no cost to the employees.
- Assisted by EH&S, train employees on the hazards of noise exposure at work and away from work, signs of hearing loss and proper use of hearing protective devices.
- Ensure workers use appropriate hearing protection when required.
- Administer and maintain this program in the department.

- Document activities including noise monitoring, equipment evaluations and selection, results in audiometric testing, and training.

### **3.3 UW Speech and Hearing Clinic, or Other Clinic That Conducts Audiometric Tests (see also Section 6)**

The Speech and Hearing Clinic, or other clinic that conducts audiometric tests, will provide the following:

- Conduct audiometric testing by a licensed audiologist, otolaryngologist (a physician specializing in diagnosis and treatment of disorders of the ear, nose, and throat), other qualified physician, or by a Council of Accreditation in Occupational Hearing Conservation (CAOHC) certified audiometric technician.
- Calibrate and maintain audiometric testing equipment as required.
- Have audiograms reviewed by a licensed or certified audiologist, otolaryngologist, or other qualified physician or by a CAOHC certified technician responsible to a qualified reviewer.
- Compare the annual audiogram to the baseline audiogram to identify a Standard Threshold Shift (STS).
- Evaluate further an employee who shows a STS and inform the employee and EH&S, who will work with the Department to take appropriate actions to address the STS if it is suspected to be caused by occupational exposure.
- Provide a final audiometric evaluation when an employee terminates work in a position that required participation in the audiometric testing program.

### **3.4 Employees**

Employees are responsible for participating in the hearing loss prevention program including the following:

- Follow Department safety procedures that address hearing loss prevention and use hearing protectors as required.
- Attend training classes.
- Wear appropriate hearing protection as required.

- Receive initial, annual, and termination audiometric tests as scheduled.
- Report work conditions that may result in high noise exposures so the hazard can be evaluated.

### **4.0 Noise Monitoring**

The Department will conduct a hazard assessment, identify work areas where suspect excessive noise exposures are present, and request assistance from EH&S to determine exposure level. The Department will be responsible for notifying EH&S of changes in work practices that could result in excess noise exposure.

EH&S will develop a sampling strategy and evaluate noise exposures as required in WAC 296-817-300 Noise Measurement and Computation.

Noise measurements will be representative of the employees who perform tasks that may result in noise exposures that equal to or exceed 85 dBA TWA. A screening survey will be conducted, followed by, as needed, comprehensive noise exposure monitoring to determine the employee's actual noise exposure.

If noise levels are below 80 dBA TWA in the area, no further noise monitoring will be required for that area.

Noise measurement data will be evaluated to identify employees, and/or groups of employees who perform similar job tasks, who have noise exposures that equal or exceed 85 dBA TWA who will be included in the Hearing Loss Prevention Program and participate in the audiometric testing program.

Exposure monitoring will be periodically repeated when there are changes in processes, job responsibilities, or equipment that may increase or decrease the exposure. Monitoring will also be repeated if an employee is identified with a Standard Threshold Shift or an employee is exposed to high levels of noise that require more than the usual level of effective hearing protection (such as the use of double hearing protection).

Supervisors and affected employees will be provided with a report that summarizes the noise monitoring results in their work area. Speech and Hearing will receive a copy to inform their interpretation of audiometric testing results.

### **5.0 Noise Controls**

When monitoring identifies noise exposure levels that equal or exceed 90 dBA TWA, feasible engineering and/or administrative controls will be implemented to reduce or

eliminate employee exposures to excessive noise. Once the noise exposures are controlled below 90 dBA TWA, no further reduction is required.

Engineering controls are installed to eliminate noise at the source or establish a permanent barrier to noise. Examples include replacing noisy equipment with quieter equipment, use of silencers and mufflers, installation of noise absorptive enclosures, and dampening noisy equipment and parts.

Administrative controls and work practices may be effective at reducing noise exposures. Examples include rotating employees between louder and quieter work environments, limiting the amount of time noise generating equipment is used, and rescheduling work.

When noise reduction efforts effectively reduce the exposures so they are below 85 dBA, then the hearing loss prevention requirements including audiometric testing, use of hearing protection, and training are no longer required but hearing protection may be utilized at the option of the worker.

If feasible engineering and administrative controls are considered and noise levels are not successfully reduced so they remain below 85 dBA, then the employees must wear hearing protectors to reduce the exposure to noise.

EH&S staff are available to assist Departments in the review of feasible noise controls.

## **6.0 Audiometric Testing Program**

### **6.1 Program Administration**

All University employees who are exposed to noise levels that equal or exceed 85 dBA must participate in the University's Audiometric Testing Program and Hearing Loss Prevention Program. The University Speech and Hearing Clinic (or other designated clinic, for example at Harborview) is responsible for administering the Audiometric Testing Program in a manner that complies with the requirements of WAC 296-817-400 Audiometric Testing. The Department of the affected employees is responsible for scheduling directly with the Clinic to have the audiometric test conducted.

The audiometric testing program is supervised by and audiograms are reviewed by one of the following licensed or certified individuals: An audiologist, otolaryngologist, or other qualified physician. Audiometric tests are conducted by an audiologist, otolaryngologist, other qualified physician, or by a technician certified by the CAOHC and responsible to a qualified reviewer.

### **6.2 Audiometric Tests**

Audiometric tests including any required travel or necessary additional examinations or testing are provided at no cost to the exposed employees.

Baseline audiometric tests are provided for employees pre-placement, upon first assignment or within 180 days of assignment to the noise designated work area, and annually thereafter. Annual testing following these initial tests will be compared to the baseline test results for all employees who continue to work in high noise areas. When the baseline audiometric test reveals a pre-existing hearing loss, a full evaluation will be conducted to determine the type of hearing loss.

Employees must not be exposed to workplace noise for at least 14 hours before having an audiogram. Employees should avoid high exposure levels from non-occupational noise sources (such as loud music, headphones, guns, power tools, motorcycles, etc.) during the 14-hour period immediately preceding the audiometric examination.

Audiograms will be reviewed by a licensed or certified audiologist, otolaryngologist, or other qualified physician. Employees will be provided with results of their individual audiometric exams. The results of the audiometric test will be distributed by the Speech and Hearing Clinic to the employee and EH&S.

### **6.3 If a Standard Threshold Shift (STS) is Identified**

If a standard threshold shift (a drop in hearing ability of at least 10 decibels in the average of three frequencies (2000, 3000 or 4000 hertz) is found, the employee will be retested within 30 days.

If upon the second evaluation a standard threshold shift remains, and it appears the audiometric thresholds shifted out of the normal hearing range, a full evaluation will be conducted to determine the type of hearing loss.

If a returning employee with a pre-existing hearing loss is returning for a re-test due to a STS and there is a change in which a full evaluation is recommended but not mandatory for the HCP, the employee will be given the option to return to the Speech and Hearing Clinic for the full evaluation or will be advised to contact their personal care provider for a referral to audiology.

The Speech and Hearing Clinic will submit a determination of occupational causes to EH&S and the employee. If the cause is determined to be non-occupational, the Speech and Hearing Clinic letter will refer the employee to their own physician. If the STS was determined to be related to occupational exposure, EH&S will then notify the employee in writing within 21 days and the following actions will be taken:

- The employee who does not wear hearing protection will be trained and assisted in selecting and fitting the proper form of hearing protection.
- The employee who already uses hearing protection will be re-fitted and re-trained.
- EH&S will evaluate and determine the likely source of noise exposure.
- EH&S will determine if there has been a change in employee noise exposure, and conduct monitoring and document as appropriate.
- EH&S will evaluate noise controls in the work area.
- The employee will be referred to an audiologist or ear, nose & throat specialist for further evaluation.
- The employee will be informed of a need for an ear exam if a medical cause unrelated to noise exposure is suspected. The employee will be advised to seek assistance from their personal physician for non- occupational illness.
- The employee or supervisor must report the permanent hearing change in the Online Accident Reporting System, OARS, and on the OSHA 300 log.

### **6.4 Termination or Transfer**

Employees who participate in the audiometric testing program will have a termination hearing evaluation prior to separation from University employment or upon transfer to duties with noise exposures below 85 dBA TWA.

## **7.0 Hearing Protectors**

The Department will provide hearing protection at no cost to employees who are determined to be exposed to noise levels that equal or exceed:

1. 85 dBA TWA (noise dosimetry, providing an average exposure over an 8-hour time period).
2. 115 dBA (slow response sound level meter, identifying short-term noise exposures).
3. 140 dBC (fast response sound level meter, identifying almost instantaneous noise exposures).

Noise hazard areas are areas where employees may be exposed at or above these levels: hearing protectors must be worn and the area will be posted with a warning sign.

## ENVIRONMENTAL HEALTH & SAFETY

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EH&S will determine the necessary attenuation of hearing protectors and identify acceptable products for use in the specific noise environments in which the hearing protection will be used. Hearing protection must attenuate (lower) the employee exposure at the ear to no more than a TWA noise level of 85 dBA when worn properly. The adequacy of hearing protection shall be reevaluated whenever employee noise exposures increase to the extent that the hearing protection may no longer provide adequate attenuation.

Employees will be given an opportunity to select hearing protection from a variety of suitable devices so that a protector that is comfortable and provides a good fit is available. The Department will provide a variety of disposable ear plugs and ear muffs.

Employees will be trained on the purpose of hearing protectors, the advantages, disadvantages and attenuation of various types, their proper use and care.

Hearing protectors shall be replaced as necessary.

The supervisor will monitor and require the correct use of hearing protectors.

Any personnel experiencing difficulty in wearing assigned hearing protection (i.e., irritation of the canals, pain) should immediately report this to the supervisor and schedule an appointment with the Employee Health Center for evaluation.

### 8.0 Posting High Noise Areas

Warning signs will be posted at the entrances or boundaries to areas where noise levels can exceed 85dBA TWA to notify employees and visitors that hearing protectors are advised.



Post the sign shown above in areas where noise exposure may exceed 85 dBA as a time-weighted average.





Post the sign shown above in areas where noise exceeds 115 dBA, even intermittently.

The supervisor is responsible for ensuring that hearing protectors are available to employees and/or visitors who enter the designated high noise area. The sign should say who to contact or what to do before entering.

## 9.0 Training

Employees who work in a designated noise area where exposures to noise can be at or above 85 dBA will be trained when first assigned to the work area and annually thereafter. Training will be provided by EH&S or staff members designated by EH&S, who are knowledgeable on the requirements of the UW Hearing Loss Prevention Program.

The supervisor is responsible for ensuring that the designated employees are trained and that a written record of the employee's initial and annual refresher training is maintained.

The training content will address the following:

- The purpose of a hearing loss prevention program.
- The responsibilities of managers, supervisors, and employees in preventing noise induced hearing loss.
- The effects of noise exposure, both occupational and non-occupational, on hearing
- The purpose of hearing protection, and the advantages, disadvantages, and attenuation of various types of hearing protectors.
- The selection, fit, use, and care of various types of hearing protectors.
- The purpose of audiometric testing, and an explanation of the test procedures.
- The findings of the noise monitoring survey.
- Employee access to exposure monitoring and audiometric test results.

## **10.0 Recordkeeping**

Records generated to document activities to comply with the Hearing Loss Prevention Program requirements will be maintained as indicated in Table 1, which appears on the next page.

**Table 1.**

**Summary of Recordkeeping Requirements Hearing Loss Prevention Program**

<b>Department</b>	<b>Type of Record</b>	<b>Record Retention Period</b>
<b>Department Manager</b>	<ul style="list-style-type: none"> <li>• Risk assessment</li> <li>• Description of tasks that result in noise exposure <math>\geq 85</math>dBa</li> <li>• List of employees in Hearing Loss Prevention Program</li> <li>• Standard Threshold Shift (STS) Notification</li> <li>• Record STS in OARS</li> <li>• Noise exposure monitoring results</li> </ul>	Maintain record as part of the permanent Department safety and personnel records
<b>UW Speech and Hearing Clinic</b>	<ul style="list-style-type: none"> <li>• Audiometric results</li> <li>• Full Audiological evaluations when recommended</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain in Speech and Hearing Clinic files</li> <li>• Maintain for duration of employment at UW</li> </ul>
<b>EH&amp;S Hearing Program</b>		
<b>Employee Health Center</b>	<ul style="list-style-type: none"> <li>• Audiometric results</li> <li>• Copy of STS notification</li> <li>• Full Audiological evaluations</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain in UW employee medical file</li> <li>• Maintain for duration of employment at UW</li> </ul>
<b>Environmental Health and Safety (EH&amp;S)</b>	<ul style="list-style-type: none"> <li>• Noise exposure monitoring results</li> <li>• Description of tasks that result in noise exposure <math>&gt; 85</math>dBa.</li> <li>• Training records, for class provided by EH&amp;S</li> <li>• STS Notification</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain in EH&amp;S file</li> <li>• Maintain as part of permanent EH&amp;S records</li> <li>• Exposure records: 2 years</li> </ul>



## 11.0 References

The Hearing Loss Prevention Program is designed to meet the Washington State Labor and Industries regulations, to protect all UW employees from hearing loss.

Washington Department of Labor and Industries (L&I) Division of Occupational Safety and Health (DOSH). *WAC 296-817 Hearing Loss Prevention (Noise)*:  
<https://www.lni.wa.gov/safety/rules/chapter/817/WAC296-817.PDF>