



***HEARING
CONSERVATION
PROGRAM***

Department of Environmental Health & Safety

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SECTION ONE - INTRODUCTION

Evidence is well established that worker exposure to noise of sufficient intensity and duration can result in hearing damage. Noise-induced hearing loss rarely results from just one exposure; it can progress unnoticed over a period of years. Initial noise-induced hearing loss occurs at the higher frequencies where the consonant portion of speech is found, making communications difficult.

1.1 Policy

It is the policy of Towson University to provide employees with a safe and healthful working environment. This is accomplished by utilizing facilities and equipment that have all feasible safeguards incorporated into their design. When effective engineering controls are not feasible, or when they are being initiated, administrative controls will be used when and where possible followed by the use of personal protective equipment.

The primary goal of the Towson University Hearing Conservation Program (HCP) is to reduce, and eventually eliminate hearing loss due to workplace noise exposures. The program includes the following elements:

- Work environments will be surveyed to identify potentially hazardous noise levels and personnel at risk.
- Environments that contain equipment that produces potentially hazardous noise should, wherever it is technologically and economically feasible, be modified to reduce the noise level to acceptable levels.
- Where engineering controls are not feasible, administrative controls and/or the use of hearing protective devices will be employed.
- Annual hearing testing will be conducted to monitor the effectiveness of the Hearing Conservation Program. Early detection of temporary threshold shifts will allow further protective action to be taken before permanent hearing loss occurs.
- Education is vital to the overall success of a hearing conservation program. An understanding by employees of the permanent nature of noise-induced hearing loss, the Towson University Hearing Conservation Program and the employee's responsibilities under the program are all essential for program effectiveness.

The Towson University Department of Environmental Health and Safety (EHS), aware that excessive noise exposure is a potential cause of hearing loss, is establishing a HCP in accordance with the Occupational Health and Safety Administration (OSHA) Occupational Noise Exposure Standard, 29 CFR 1910.95.

The Towson University Department of Environmental Health and Safety (EHS) as adopted the OSHA noise exposure limits:

PERMISSIBLE NOISE EXPOSURES

Duration per day, hours	Sound level dBA slow response
8.....	90
6.....	92
4.....	95
3.....	97
2.....	100
1 1/2	102
1.....	105
1/2	110
1/4 or less.....	115

When the sound levels listed above are exceeded, feasible administrative or engineering controls will be instituted. If the controls fail to reduce the sound levels to within those listed above, hearing protection will be provided and used to reduce the sound levels to an acceptable level. In addition, OSHA requirements dictate that whenever employee noise exposures equal or exceed an 8-hour time-weighted average (TWA) of 85 dBA, slow response, a continuing effective Hearing Conservation Program shall be instituted. This involves identifying and posting the entrances of all work areas that have noise levels above 85 dBA. All employees who enter such areas are required to wear hearing protective devices to adequately reduce their noise exposure to acceptable levels. In addition, all employees who fall in this category will be placed in the Towson University HCP, including, but not limited to, training and audiometric monitoring.

1.2 Program Organization

The Towson University HCP is organized and administered by EHS. The HCP was developed by EHS in accordance with Title 29 CFR 1910.95 and outlines and defines program responsibilities and procedures.

SECTION TWO - RESPONSIBILITIES

2.1 Department of Environmental Health and Safety (EHS)

The Department of Environmental Health and Safety is responsible for developing, implementing, and administering the Towson University HCP. Additional responsibilities include:

1. Identification of work areas and equipment within University facilities where noise levels equal or exceed an 8-hour time-weighted average of 85 decibels.
2. Identification, through personal monitoring, of University employees whose noise exposure levels equal or exceed an 8-hour time-weighted average of 85 decibels.
3. Periodic remonitoring of identified at-risk employees.
4. Resurvey of work areas and equipment where noise levels exceed an 8-hour time-weighted average of 85 decibels whenever a change in process, equipment or control occurs, or when requested by supervisors or employees who have a concern about their noise exposure.
5. Identification of noise control measures (including engineering and administrative controls) and recommendations.
6. Provide replacement personal hearing protective devices for issuance to employees. New employees and those experiencing potential changes in hearing status will be evaluated for appropriateness of personal hearing protective devices by the Speech Language and Hearing Clinic who will be responsible for documenting issuance of new personal hearing protective devices. Any employee needing specialized protection may be referred to his or her own department for purchasing of a required device.
7. Schedule audiograms for employees who are exposed to sound levels greater than or equal to 85 decibels with the Speech Language and Hearing Clinic (SLH) on an annual basis.

2.1.1 Training

EHS is responsible for coordinating and scheduling health and safety training courses and seminars presented or sponsored by the SLH Clinic for University employees. EHS and the SLH Clinic maintain documentation of the training courses.

2.2 Speech Language and Hearing Clinic

The Speech Language and Hearing Clinic (SLH) is responsible for:

1. Conducting baseline and annual audiograms for new employees who may be assigned to tasks with potential exposure to elevated noise levels.
2. Notifying EHS, the individual and the individual's supervisor of all employees who have experienced significant changes in hearing (standard threshold shifts) in order that follow-up investigations may be conducted.
3. Notifying EHS of any trends uncovered by the testing program or regarding preventative measures that should be taken.
4. Issuing hearing protective devices.
5. Training of employees in the need for, proper use and care of hearing protective devices in compliance with the OSHA/MOSH standard. Maintain documentation of such training.
6. Providing specialized training for supervisors once each year.
7. Identifying noise control measures (including engineering and administrative controls) and recommendations.

2.3 Supervisors

It is the responsibility of Supervisors to ensure that all of their employees exposed to noise levels equal to or greater than an 8-hour time-weighted average of 85 decibels have access to appropriate hearing protective devices in the work area and are enrolled in the HCP. The Supervisor must ensure all employees enrolled in the HCP go to annual audiometric testing as required. Supervisors are also responsible for enforcing the use of Hearing Protective Devices (HPD) and engineering and administrative controls in designated noise hazardous areas. Supervisors must also assist EHS in identification of University employees whose noise exposure levels may equal or exceed an 8-hour time-weighted average of 85 decibels and identification of work areas and equipment within University facilities where noise levels may equal or exceed an 8-hour time-weighted average of 85 decibels.

2.4 Employees

Employees are responsible for wearing and maintaining hearing protective devices as instructed. Employees exposed to excessive noise levels must also participate in annual training programs and audiometric testing. Prior to their annual audiometric testing, employees must have at least 14 hours of quiet time (both on the job and off the job). In addition, if hearing protection is used in the course of their workday, employees must bring the protection with them to the audiometric testing. Employees are responsible to arrive ~15 minutes early for their appointment to complete the necessary paperwork.

SECTION THREE - NOISE EVALUATION AND SURVEILLANCE PROCEDURES

3.1 Identification of Hazardous Noise Areas

EHS will identify work areas within campus facilities where noise levels equal or exceed an 8-hour time-weighted average of 85 decibels. EHS shall maintain and update records whenever a change in process, equipment or control occurs, or when requested by supervisors or employees who have a concern about their noise exposure. Those areas where the noise levels are below 85 dBA will not be routinely monitored. EHS will identify hazardous noise areas and equipment for any subsequent noise monitoring.

Signs will be posted at the entrance to any work area where noise levels exceed 85 dBA, requiring anyone entering the area to wear proper hearing protection. Anyone who works in these areas shall have hearing protection supplied to them, shall be instructed in its proper use, and be required to wear this equipment when in these identified areas. It is the responsibility of the area supervisor to ensure that these precautions are maintained.

Equipment that produces noise levels greater than 85 dBA or 140 dB peak sound pressure levels shall also be appropriately labeled.

3.2 Noise Measurements and Exposure Assessments

In order to effectively control noise, it is necessary that the noise be accurately measured according to standard procedures and that the measurements be properly evaluated against accepted criteria. All noise monitoring will be conducted in accordance with OSHA's Occupational Noise Exposure Standard, 29 CFR 1910.95.

The monitoring of employees' noise exposure is made up of two parts, area monitoring and personal monitoring. Area measurements are generally obtained first. If noise levels are at or above 85 dBA, personal monitoring may be performed using dosimeters. EHS will maintain documentation of monitoring data for both area and personal noise monitoring results. Affected employees will be notified in writing of the survey results through the appropriate supervisor/manager channels.

3.2.1 Area Measurements /Preliminary Sound Surveys

In an area survey, measurements of environmental noise levels are recorded using a sound level meter to identify work areas where employees' exposures may be above hazardous levels and where more thorough exposure monitoring may be needed. Area monitoring is conducted using a calibrated sound level meter set to the A scale, slow response.

Within the area of interest, several different locations will be measured. Typical measurement locations would include:

- In the hearing zone at the employee's normal work location.
- Next to the noise source(s).
- At the entrance(s) to the work area.
- At other locations within the area where the employee might spend time working.

The results will include a rough sketch of the area showing the locations where the noise readings were obtained.

If the noise levels are below 85 dBA on a time-weighted average basis in the area, no further routine monitoring will be required for that area. Should any of the noise measurements equal or exceed 85 dBA, records shall be maintained as to the noise levels recorded, where they were taken, and the source(s) of the noise. These records shall be updated whenever a change in process, equipment or control occurs, or when requested by supervisors or employees who have a concern about their noise exposure to determine if any changes have occurred that would warrant remonitoring of exposed employees. If any of the measurements equal or exceed a noise level of 85 dBA, employees who work in or near the high noise area or equipment shall have their noise exposure determined through personnel monitoring using dosimeters.

3.2.2 Personal Monitoring

Determination of the noise exposure level will be accomplished using calibrated personal noise dosimeters. Each employee to be monitored will have a dosimeter placed on him/her at the beginning of his/her normal work shift with the microphone placed in the "hearing zone". The dosimeter will be worn for the full duration of the work shift while the employee performs his/her normal work routine. At the end of the work shift, the dosimeter will be removed and information printed out as soon as possible. Background information will be collected from each employee detailing job description, unusual job activities, etc., for the time period sampled. Those employees whose noise exposure equals or exceeds an 8-hour time-weighted average of 85 decibels will be included in the HCP.

3.2.3 Engineering Sound Survey

The Engineering Sound Survey is a more detailed survey conducted to identify the major sound source(s) in an area and to provide technical information for noise abatement. This survey is usually performed using an octave band analyzer to separate the noise into its component frequencies, and determine

at which frequencies the hazardous portions of noise exists. This information can be used to match those frequencies with the appropriate acoustical material to dampen the noise.

3.3 Remonitoring of Hazardous Noise Areas

Any area with noise levels that equal or exceed 85 dBA shall also be remonitored whenever a change in production process, equipment, or controls increase the noise exposure such that additional employees are exposed to noise levels at or above 85 dBA on a time-weighted average basis. Areas where the noise levels have dropped below 85 dBA due to alterations in equipment, controls or process changes shall be eliminated from the monitoring program.

Employees who work for extended periods of time (>2 hours) in the high noise areas and where their 8-hour TWA equals or exceeds 85 dBA will be monitored as needed to determine their personal noise exposure.

Whenever an employee exhibits a standard threshold shift (STS), as determined by the SLH Clinic, the employee's work place shall be remonitored to identify the cause and determine appropriate procedures to reduce the risk.

SECTION FOUR - NOISE CONTROL METHODS

4.1 Engineering and Administrative Controls

The primary means of reducing or eliminating exposure to hazardous noise is through the application of engineering controls. Engineering controls are defined as any modification or replacement of equipment, or related physical change at the noise source or along the transmission path that reduces the noise level at the employee's ear. Engineering controls include redesigning the machinery, replacement with quieter equipment or materials, modifying the source and modifying the path by enclosing the operation and adding barriers, mufflers or room absorption. Engineering controls such as mufflers on heavy equipment exhausts or on air release valves are required where possible.

Administrative controls are defined as changes in the work schedule or operations that reduce noise exposure. Administrative controls include reducing the duration of exposure time, limiting the time that a machine may operate, purchasing equipment that will reduce employees' noise exposure and other similar actions. If engineering solutions cannot reduce the noise, administrative controls such as increasing the distance between the noise source and the worker or rotation of jobs between workers in the high noise area will be used if possible.

The use of engineering and administrative controls should reduce noise exposure to the point where the hazard to hearing is eliminated or at least more manageable.

4.2 Personal Protective Equipment/Hearing Protection

Hearing protective devices (ear plugs, muffs, etc.) shall be the permanent solution only when engineering or administrative controls are considered to be infeasible or cost prohibitive. Hearing protective devices are defined as any device that can be worn to reduce the level of sound entering the ear. Hearing protection will be made available to all employees exposed to any 8 hour time-weighted average of 85 dBA or greater. All persons must wear hearing protective devices when they enter or work in an area where the operations generate noise levels of:

- Greater than 85 dBA sound levels, or
- 140 dB peak sound pressure level or greater

The enforcement of hearing protection usage is the responsibility of the employee's supervisor.

4.2.1 Types of Hearing Protective Devices include the following:

a) Insert Type Earplugs

A device designed to provide an airtight seal with the ear canal. There are three types of insert earplugs - premolded, formable, and custom earplugs.

1. Premolded Earplugs

Premolded earplugs are pliable devices of fixed proportions. Two standard styles, single flange and triple flange, come in various sizes, and will fit most people. If premolded earplugs are required, the SLH Clinic will be responsible for fitting and dispensing earplugs and will train users on proper insertion, wear, and care. While premolded earplugs are reusable, they may deteriorate and should be replaced periodically.

2. Formable

Formable earplugs come in just one size. Some are made of material which, after being compressed and inserted, expands to form a seal in the ear canal. When properly inserted, they provide noise attenuation values that are similar to those from correctly fitted premolded earplugs. This is the primary form of hearing protective devices used at Towson University. EHS will provide formable earplugs. The SLH Clinic will instruct users in the proper use of these earplugs as part of the annual education program. Each earplug must be held in place while it expands enough to remain firmly seated. A set of earplugs with a cord attached is available. These earplugs may be washed and therefore are reusable, but will have to be replaced after two or three weeks or when they no longer form an airtight seal when properly inserted.

3. Custom Molded Earplugs

A small percentage of the population cannot be fitted with standard premolded or formable earplugs. Custom earplugs can be made to fit the exact size and shape of the individual's ear canal. Individuals needing custom earplugs will be referred to an audiologist at the SLH Clinic. The employee's department may be responsible for any custom molded earplugs.

b) Earmuffs

Earmuffs are devices worn around the ear to reduce the level of noise that reaches the ear. Their effectiveness depends on an airtight seal between the cushion and the head. The SLH Clinic will advise if earmuffs are required and will instruct employees in their proper usage and maintenance.

4.2.2 Selection of Hearing Protective Devices

Employees will be given the opportunity to select hearing protective devices from a variety of suitable ones provided by EHS. In all cases the chosen hearing protectors shall have a Noise Reduction Ratio (NRR) high enough to reduce the noise at the eardrum to 85 dBA or lower.

4.2.3 Issuance of Hearing Protective Devices

The issuance of hearing protective devices is handled through both the SLH Clinic and EHS. The SLH Clinic will issue and fit the initial hearing protective devices (foam inserts, disposables). The SLH Clinic will provide instruction on the proper use and care of earplugs and earmuffs whenever HPD's are dispensed and maintain documentation of such training. Employees requiring earmuffs in addition to earplugs will be informed of this requirement and educated on the importance of using proper hearing protection by SLH Clinic. EHS will dispense replacement HPD's when necessary and will maintain a supply of HPD's.

4.2.4 Use of Hearing Protective Devices (HPD)

- a. The user shall always use and maintain HPD's as originally intended and in accordance with instructions provided.
- b. Earmuff performance may be degraded by anything that compromises the cushion-to-circumaural flesh seal. This includes other pieces of personal protective equipment such as eyewear, masks, face shields and helmets. The user shall ensure nothing compromises the cushion-to-circumaural flesh seal.

4.2.5 Maintenance of Hearing Protective Devices (HPD)

The user will follow the procedures below to ensure proper maintenance of their HPD's.

- a. Reusable earplugs, such as the formable devices should be washed in lukewarm water using hand soap, rinsed in clean water, and dried thoroughly before use. Wet or damp earplugs

should not be placed in their containers. Cleaning should be done as needed.

- b. Earmuff cushions should be kept clean. The plastic or foam cushions may be cleaned in the same way as earplugs, but the inside of the muff should not get wet. When not in use, earmuffs should be placed in open air to allow moisture that may have been absorbed into the cups to evaporate.

4.2.6 Hearing Protection Performance Information

The maximum sound attenuation one gets when wearing HPD's is limited by human body and bone conduction mechanisms. Even though a particular device may provide outstanding values of noise attenuation, the actual noise reductions may be less because of the noise surrounding the head and body bypasses the hearing protector and is transmitted through tissue and bone pathways to the inner ear.

Attenuation shall be determined by the following method:

1. Determine the actual exposure through personal dosimetry.
2. Subtract 7 dB from the Noise Reduction Rating (NRR) listed for the hearing protective device chosen.
3. It is recommended that a 50% derating value be added at this point in order to compensate for the differences between laboratory and real-world performance.
4. Subtract this value from the value obtained through personal dosimetry for the actual noise exposure while wearing the hearing protective device.

The most common HPD's available are the foam-forming earplugs. The highest noise reduction rating afforded by such products is 35 decibels. Applying the above method to this NRR results in an actual protection rating of 14 decibels ($35 - 7 = 28 / 2 = 14$). Therefore, the maximum 8-hour time-weighted average exposure allowable when correctly wearing such devices is 104 decibels ($90 \text{ dB} + 14 \text{ dB} = 104 \text{ dB}$). For noise exposure greater than 104 decibels, dual protection with earplugs and earmuffs is required.

The term "double hearing protection" is misleading. The attenuation provided from any combination earplug and earmuff is not equal to the sum of their individual attenuation values. If dual protection (i.e. ear plugs and muffs) is worn, the attenuation value of the combined protection is calculated as follows: add 5 dB to the NRR of the higher-rated protector, average the two NRRs, and apply the protection factor of 2. For example, if earplugs had a NRR of 35 decibels and

earmuffs had a NRR of 25 decibels, when used together their combined NRR is 32 decibels ($[35+5] = 40 + 25 = 65 / 2 = 32.5$).

SECTION FIVE – AUDIOMETRIC TESTING

5.1 Notification

Upon identification of employees whose 8-hour TWA equals or exceeds 85 dBA, EHS will recommend to the SLH Clinic and the employee's Supervisor, in writing, to enroll certain employee(s) in the HCP. Information supplied to the SLH will include the employee(s) name, supervisor's name, telephone number. EHS will enroll the employee in the HCP.

In work locations where either through administrative or engineering controls, noise levels are found to have fallen such that the employee's 8-hour TWA is below 85 dBA, EHS shall notify the SLH Clinic and the employee's Supervisor, that the employees working in that area are no longer required to be enrolled in the HCP. The employee may remain in the program voluntarily at their discretion.

Any employee experiencing difficulty in wearing assigned hearing protection (i.e., irritation of the canals, pain) will be advised to immediately report this to their supervisor and make arrangements to go to the SLH Clinic for evaluation as soon as possible.

5.2 Audiometric Testing

The SLH Clinic has the responsibility for administering the Audiometric Testing Program portion of the Towson University HCP. The object of the audiometric testing program is to identify workers who are beginning to lose their hearing and to intervene before the hearing loss becomes worse. Audiometric testing will be provided to all employees with exposure to noise levels that equal or exceed an 8-hour time-weighted average of 85 decibels. Annual retesting will be performed for all employees enrolled in the HCP.

All University employees who are exposed to potentially hazardous noise are required to participate in audiometric testing. The SLH Clinic conducts audiometric testing on campus. Each department will be responsible for ensuring their employees are schedule for and undergo annual audiograms. EHS determines which employees are required to participate in audiometric testing.

Each individual should refrain from occupational and recreational related noises (e.g. concert, gunfire, lawnmower, etc.) for at least 14 hours prior to their audiogram. If hearing protection is used in the course of their workday, employees must also bring their HPD's to annual audiometric testing for inspection by the SLH Clinic for condition and shape. In addition, the SLH Clinic would like the employees to arrive ~15 minutes early for their appointment to complete the necessary paperwork.

If any employee is unable to keep their scheduled appointment, the Department must notify EHS (410-296-7593) so EHS can notify the SLH Clinic. A 24-hour notification of cancellation is required; otherwise the employee's department will be billed \$25 for a first missed appointment; \$50 for a second missed appointment; \$100 for a third missed appointment, and so on. Based upon initial testing, if the SLH Clinic requires an employee to be scheduled for a full audiometric exam and the employee fails to give the required 24-hour notification of cancellation, the employee's department will be billed \$75 for the first missed appointment, \$150 for the second missed appointment and so on.

The SLH Clinic will send a copy of the completed hearing results to the employee. Individuals with abnormal baseline audiometric test results or threshold changes will be referred to their private physician. If the individual's baseline examination or their annual retest is within normal limits, they will be filed for recall in one year. If a threshold shift has been identified, the individual will be notified in writing within 21 days. The SLH Clinic will notify EHS of all cases noting a threshold shift. Individuals may be sent for repeat audiograms if it is felt that their most recent audiogram may not have been accurate. EHS will investigate all cases involving a Standard Threshold Shift (STS).

The baseline audiogram will be administered within the first six months of employment for individuals exposed to potentially hazardous noise. Annual audiograms will be conducted in order to determine if a standard threshold shift has occurred. Audiometric test requirements are for a pure tone air conduction hearing threshold examination, which test frequencies 500, 1000, 2000, 3000, 4000, and 6000 Hz. If the annual audiogram shows that the employee has suffered a STS, the employee is required to obtain a retest within 30 days and consider the results of this retest as the annual audiogram. A STS is defined as a change in the hearing threshold, relative to the baseline audiogram, of an average of 10 decibels or more for ranges 2000, 3000, and 4000 Hz in either ear. Allowance will be made for the contribution of aging to the changed hearing level by correcting the annual audiogram. When an STS is detected, the employee must be notified, and fitted or refitted with hearing protection as needed.

5.3 Recording a Hearing Loss

If the SLH Clinic determines an employee has a STS, they will establish the significance of the loss by comparing the employee's total hearing level (in the ear(s) that suffered the loss) to "audiometric zero." Audiometric zero represents the statistical average hearing threshold of young adults with no history of aural pathology. If the employee's hearing level is determined to be 25 dB or more above audiometric zero, then his hearing level is considered

significantly worse than normal. The SLH Clinic will immediately notify EHS and Human Resources (HR) of the employee's hearing loss and HR will record it in accordance with OSHA's Occupational Injury and Illness Recording and Reporting Rule (29 CFR 1904).

SECTION SIX - TRAINING

The training and education program will provide information about the adverse effects of noise and how to prevent noise-induced hearing loss. At a minimum, all training will cover the following topics:

- a. Noise-induced hearing loss;
- b. Recognizing hazardous noise;
- c. Symptoms of overexposure to hazardous noise;
- d. Hearing Protective Devices (HPD's) - advantages and limitations;
- e. Selection, fitting, use and maintenance of HPDs;
- f. Explanation of noise measurement procedures; and
- g. Hearing Conservation Program (HCP) requirements.

Employees will also be advised of where the OSHA noise standard (29 CFR 1910.95) is kept on campus and be provided handouts describing the Towson University HCP.

University employees shall be encouraged to use HPD's when they are exposed to hazardous noise during activities at home (e.g. from lawn mowers, chain saws, concerts, gunfire, etc.).

All University employees identified for inclusion in the HCP will receive training by the SLH Clinic during their annual audiogram in the requirements of the program. Supervisors will receive a formal initial training by the SLH Clinic to reinforce the program's requirements so they can answer questions from their employees and enforce the requirements of the program.

Supervisors must notify EHS to schedule training for new employees assigned to work in noisy environments and for retraining of current employees.

Any employee found to have a STS will have additional training on the purpose of HPD's, how to wear HPD's and to answer any questions.

SECTION SEVEN - PROGRAM EVALUATION

Periodic program evaluations will be conducted to assess compliance with federal and state regulations. Both the monitoring and audiometric testing portions of the Towson University HCP will be reviewed to assure its quality and effectiveness.

An evaluation of the HCP, including wearer acceptance, appraisal of protection afforded, and field audits of hearing protection use and record keeping will be conducted. Items to be considered include:

- a. Training records and course content for supervisors and employees.
- b. Maintenance of HPDs
- c. Field audits of HPD use
- d. Review of recorded threshold shifts.

The findings of the Towson University HCP evaluation will be documented, and this documentation will list plans to correct faults in the program and set target dates for the implementation of the plans.

SECTION EIGHT - RECORDKEEPING

Towson University HCP records will include the following:

<i>Record</i>	<i>Location</i>
Medical Evaluation and Audiograms	Speech Language & Hearing Clinic
Training Records	Environmental Health and Safety
Hearing Conservation Program	Environmental Health and Safety Speech Language & Hearing Clinic
Hazard Evaluations (Work area noise surveys, personnel monitoring)	Environmental Health and Safety
Program Evaluations	Environmental Health and Safety
OHSA 300 Log	Human Resources

All non-medical records (ex. work area and equipment surveys) will be maintained for a period of at least five years. Results of hearing tests and medical evaluations performed for hearing conservation purposes as well as noise exposure documentation shall be recorded and shall be a permanent part of the employee's record.

All employees who routinely work in designated hazardous noise areas shall be identified and a current roster of such employees shall be maintained by EHS and updated as needed.

REFERENCES

Berger, E. H., et.al., Ed., Noise & Hearing Conservation Manual, 4th ed., Akron, OH: American Industrial Hygiene Association, 1986.

NIOSH, A Practical Guide to Effective Hearing Conservation Programs in the Workplace, September 1990.

OSHA, General Industry Standard, 29 CFR 1910.95, "Occupational Noise Exposure"

OSHA Technical Manual, OSHA Instructions TED 1.15, September 1995.

APPENDIX A

Noise - Training Information

NOISE

Supervisors and exposed workers must become aware of and understand the adverse effects of noise and how to prevent noise-induced hearing loss. To prevent progressive permanent hearing loss, people exposed to hazardous noise must take positive action. Each exposed worker and supervisor should know the following.

- A. Noise exposure may result in permanent damage to the auditory system and there is no medical or surgical treatment for this type of hearing loss. Though the use of a hearing aid may provide some benefit, normal hearing will not be restored. Many people do not realize loud sounds can cause hearing loss. Furthermore, in its initial stages, the person may not notice a problem since noise-induced hearing loss is invisible, painless, and occurs in the high frequencies. It is dangerous to ignore the temporary characteristics of noise-induced hearing loss (such as ringing or buzzing in the ears, excessive fatigue, etc.).
- B. Each person should know how to recognize hazardous noise even if a noise survey has not been conducted and/or warning signs posted. Recognizing and understanding the adverse effects of off-duty noise exposures is also important. The best rule to follow is: "If you have to shout at arms length (approximately three feet) to talk face-to-face, you are probably being exposed to hazardous levels of noise."
- C. Preventing noise-induced hearing loss is accomplished by reducing both the time and intensity of exposure. Reducing exposure time is accomplished by avoiding any unnecessary exposure to loud sound. Reducing intensity is usually accomplished by wearing personal hearing protection. Each person must be able to properly wear and care for the particular type of hearing protection selected. Speech communication is difficult in high intensity noise. However, most people do not realize it is easier to understand speech if hearing protection is worn in a hazardous noise environment. Hearing protection reduces the noise and the level of speech, resulting in a more favorable listening level. Hearing protection reduces the intensity of frequencies above the speech range; thus, reducing the noise and accentuating speech. People who claim wearing hearing protection makes it difficult to hear speech are probably in noise levels less than 85 dBA or have already developed a hearing loss.

- D. Each person must know how to tell if they have been overexposed to loud sound. Overexposure may occur even while wearing hearing protection. Earplugs and/or earmuffs alone may not be enough protection. Each overexposure results in a temporary threshold shift (TSS), a certain degree of permanent loss results. The recognizable symptoms of overexposure are described as "dullness in hearing or ringing in the ears."

APPENDIX B

Occupational Safety and Health Administration Standard - 29 CFR 1910.95

Link:

[http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS
&p_id=9735](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9735)