Hearing Conservation Policy and Program

05/20/15 – Last Revision

1. Intent:

It is the intent of this policy to provide University at Albany employees with useful information, resources and guidance for protection against noise exposures that may result in noise-induced hearing loss experienced while in the performance of their job duties.

2. Scope and Limitations:

All University employees that may, in the course of their job performance, be exposed to noise levels, and for the duration, as set forth in OSHA 1910.95 Occupational Noise Exposure.

3. Definitions:

Action Level: An 8-hour time-weighted average of 85 decibels A-weighted (85 dBA 8-hr TWA) has been established by OSHA.

Administrative Controls: Methods that limit an employee's exposure time to noise. This includes assigning the employee to less noisy areas in the workplace for a certain length of time so the employee shall not exceed the action level.

Audiogram Testing: Exams that measure the sensitivity of a person's hearing threshold in decibels as a function of frequency.

Audiometer: An instrument for measuring the threshold or sensitivity of hearing.

Audiologist: A professional specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.

Baseline Audiogram: An audiogram obtained after 14 hours of quiet. The audiogram against which future audiograms are compared.

Continuous Noise: Noise levels that vary with intervals of one second or less.

Decibels (dB): A measure of the sound level (loudness). The decibel scale is a logarithmic scale; as an example, a 90 dB noise is ten times louder than a 80 dB noise.

Decibels, A-Weighted (dBA): The A weighted is the scale used for most occupational noise measurements. The A weighting approximates the range of human hearing by reducing the effects of lower and higher frequency noises with respect to the medium frequencies.

Decibels, C-Weighted (dBC): The C weighted scale filters include both high and low frequency noise and are used for impact noise and in the selection of hearing protection.

Engineering Controls: May include purchasing quieter equipment using barriers, damping, isolating, muffling, installing noise adsorption material, mechanical isolation, variations in force, pressure or driving speed or any combination of methods to decrease noise levels.

Frequency: A sound's pitch measured in hertz (Hz); high pitches are high frequency sounds.

Hearing Conservation Program (HCP): Program established when employees are exposed to noise exceeding the Action Level. Program must include noise surveys, audiometric testing, hearing protection training, and recordkeeping requirements.

Hearing Protection Devices (HPD's): Personal protective equipment that is designed to be worn in the ear canal or over the ear to reduce the sound level reaching the ear drum. Examples include ear muffs or plugs.

Hearing Threshold Level (HTL): The lowest threshold that the employee can hear the test tone during an audiometric test. The HTL's are recorded on the employee's audiogram.

Hertz (Hz): A unit of measurement of frequency, expressed as cycles per second.

Impulse/Impact Noise: Noise that is a sharp burst of sound, generally less than one-half second in duration, that does not repeat itself more than once per second.

Noise: Unwanted sound.

Noise Dosimeter: An instrument worn by an individual that integrates the sound level exposure over a period of time.

Noise Reduction Rating (NRR): The Noise Reduction Rating of hearing protection devices (HPD) indicates the theoretical amount of reduction of noise levels that can be achieved if the HPD is worn correctly. This rating is shown on the HPD packaging.

Otolaryngologist: A physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.

Permissible Exposure Limit (PEL): 90 dBA 8-hr TWA.

Pitch: Another term for sound frequency. Higher pitches are higher frequency sounds.

Representative Exposure: Measurements of an employee's noise dose or 8-hour time weighted average sound level that is representative of the exposures of other employees in the workplace.

Sound: A vibration or pressure oscillation that is detectable by the ear drum.

Sound Level Meter: An instrument used for the measurement of noise in sound level surveys.

Speech Interference Levels (SILs): The frequencies most associated with speech, which are the 500-4000 Hz (frequency) range. Vowels (a, e, i, o, u) are low frequency sounds (below 2000 Hz) and consonants (b, c, d, etc.) are high frequency sounds. The low frequencies are the least affected by noise. If the high frequencies are affected, t's and p's or s's and f's may be easily confused.

Standard Threshold Shift (STS): An average shift from the baseline measurement in either ear of 10 dB or more at 2000, 3000 and 4000 Hz. These frequencies are the most important frequencies in communication and the most sensitive to damage by industrial noise exposure.

Time-Weighted Average Sound Level (8-hr TWA): That sound level, which if constant over an 8-hour exposure, would result in the same noise dose measured in an environment where noise level varies.

Threshold of Pain: A noise level of 120 dB causes pain.

4. The Program:

4.1 Sound Surveys and Exposure Monitoring

Employee and/or area monitoring shall be performed when exposure is suspected of being at or above the action level of an 8-hour TWA of 85 dB. Environmental Health and Safety (EH&S) will identify work areas within the University at Albany facilities where noise levels equal or exceed 85 dBA. Signs will be posted at the entrance to any work area where noise levels routinely exceed 85 dBA, requiring those entering the area to wear proper hearing protection.

Departments that suspect they have a potential noise issue in their work area shall contact EH&S to schedule a noise evaluation.

Personnel who work 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.

Factors which suggest that noise exposures in the workplace may be at or above 85 dB include employee complaints about the loudness of noise, indications that employees are losing their hearing, or noisy conditions in which normal conversation is difficult.

All continuous, intermittent, and impulsive/impact sound levels from 80 dB to 130 dB shall be incorporated into the noise measurement survey.

The degree of noise reduction required shall be determined by comparing the measured sound levels with acceptable time duration, as presented in Table 1.

Monitoring shall be repeated whenever a change in processes, production, equipment or controls increases noise exposure to the extent that additional employees may be exposed at or above the action level or the attenuation provided by hearing protection devices being used by employees may be rendered inadequate. Affected employees or their representatives shall be provided an opportunity to observe any noise measurements.

Employees shall be removed from the Hearing Conservation Program once noise levels have been measured and determined to be at acceptable levels.

Table 1: Permissible Noise Exposures

Duration (Hours)	Sound Level (Slow Response)
8	90 dBA
6	92 dBA
4	95 dBA
3	97 dBA
2	100 dBA
1.5	102 dBA
1	105 dBA
.5	110 dBA
.25	115 dBA

4.2 Noise Control Measures

When employees are subjected to sound exceeding those levels listed in Table 1, feasible engineering and administrative controls shall be utilized as the first step in noise control. If these controls fail to reduce sound to acceptable levels, hearing protection devices shall be used. During the implementation of administrative and/or engineering controls, affected employees shall be provided with hearing protection devices and trained in accordance with this program.

4.3 Hearing Protection Devices

- Employees exposed to noise levels at or above the action level of an 8-hour TWA of 85 dBA shall wear hearing protection if they work for 8 hours at this exposure, have experienced a documented standard threshold shift or have not obtained a baseline audiogram.
- Hearing protection shall be available to all employees exposed to noise levels at or above the action level of 85 dBA 8-hour TWA, at no cost to the employees.
- Employees shall be given the opportunity to select their hearing protection from a variety of suitable types.
- Proper initial fitting and supervision of the correct use of hearing protection shall be provided.
- Hearing protection attenuation shall be evaluated for the specific noise environments in which the protector will be used.
- Hearing protection must attenuate the noise level to an 8-hour TWA of less than 85 dBA.
- Workplaces in which the noise level meets or exceeds 85 dBA shall have signs posted. The signs shall read "Hearing Protection Required".

4.4 Employee Education and Training

Employees who are exposed to noise at or above an 8-hour TWA of 85 dB shall receive training on the following:

- Effects of noise on hearing.
- Purpose of hearing protection devices.
- Advantages and disadvantages of hearing protection devices.
- Attenuation of various types of hearing protection devices.
- Instructions on selection, fitting, use and care of hearing protection devices.
- The purpose of audiometric testing including an explanation of the test procedure.

EH&S shall conduct training for all employees included in the University at Albany’s Hearing Protection Program.

4.5 Audiometric Evaluations

4.5.1 Baseline Audiograms

Baseline audiograms shall be performed within 6 months of an employee's first exposure at or above the action level. Employees shall wear hearing protection devices any time they are going to be exposed to workplace noise at or above the action level until a baseline audiogram is obtained.

Audiometric evaluations shall be made available at no cost to all University at Albany employees whose exposure equals or exceeds an 8-hour TWA of 85 dBA. Prior to the audiogram, employees shall be informed to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

4.5.2 Annual Audiograms

Audiograms shall be performed at least annually after obtaining the baseline audiogram for each employee exposed at or above the 8-hour TWA of 85 dBA. Each employee's annual audiogram shall be compared to his/her baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If the annual audiogram shows that an employee has suffered a standard threshold shift, the employee may obtain a retest within 30 days and the retest results may be considered the annual audiogram. If a comparison of the annual audiogram retest to the baseline confirms a standard threshold shift, the employee shall be informed of this in writing within 21 days of the determination.

All audiometric tests and equipment calibration shall be performed in accordance with the criteria established by "OSHA's Occupational Noise Exposure" Standard 29 CFR 1910.95.

4.6 Record Keeping

Noise exposure measurement records shall be retained for at least 2 years by Environmental Health and Safety.

Audiometric test records provided by our Occupational Health Provider(s) will be maintained by the Environmental Health and Safety Office and shall include:

- The name and job title of the employee.
- The date of the baseline and subsequent audiograms.
- A copy of the audiogram results provided by the Health Care Provider.

Records of audiometric test results shall be retained for the duration of the affected employee's employment.

5.0 Responsibilities:

5.1 Supervisors/ Departments

- Notifying Environmental Health and Safety (EH&S) of noise complaints or potential noise hazards.
- Ensuring that employees are provided with hearing protectors when required.
- Ensuring that employees properly use and care for hearing protectors.

- Ensuring that noise-hazardous equipment/areas are properly labeled or posted (greater than or equal to 85 dBA operating noise level).
- Notifying Environmental Health and Safety (EH&S) of process, materials or equipment changes that may alter noise exposures.
- Ensuring that potentially overexposed employees are provided with a baseline audiometric hearing test prior to the initial work assignment and then annually thereafter.
- High noise exposure must be avoided for 14 hours prior to an exam.
- Enforce the use of hearing protection or noise reduction procedures in the signed areas/assignments.

5.2 Environmental Health and Safety (EH&S)

- Administer the Hearing Conservation Program.
- Conduct noise assessments to determine if administrative and engineering controls are needed, and how they should be implemented.
- Identification of areas or processes that require noise abatement and/or posting.
- Evaluation and periodic re-evaluation of noise exposures, to determine which job titles need to be included in the Hearing Conservation Program.
- Maintaining records of noise surveys.
- Provide comprehensive training on hearing conservation and the Hearing Protection Program.
- Assist employees in selecting the proper hearing protection, and provide instruction on its use.

5.3 Employees

- Wear hearing protection devices and follow any noise reduction procedures as required.
- Store and maintain issued hearing protection devices in a clean and sanitary manner.
- Report noise hazards and hearing protection problems to their supervisor.
- Attending required training sessions on the Hearing Protection Program.