

## Guidelines for Employee Hearing Protection

Long-term exposures to excessive noise leads to permanent, irreparable hearing loss. Many individuals who live and work in noise are reluctant to recognize it as a serious threat or to accept and use personal hearing protection. Noise-induced hearing loss occurs slowly over months or years making it difficult to convince those at risk to guard their sense of hearing. The purpose of the Hearing Conservation Program is to prevent job-related, noise induced, hearing loss in the University employees. Work areas of the University which test to be noise hazard areas (exceed the maximum permissible noise exposure for employees) shall enter into the Hearing Protection Program. The three-part program includes testing, training, and hearing protection.

### I. Testing

- a. Noise testing. Sound surveys will be conducted once every two years or more frequently as considered appropriate in departments considered noise hazard areas by the facility or department safety personnel. Area testing will be accomplished using a sound level meter. In addition, 8-hour noise dosimeter evaluations may be needed from each different employee activity, if deemed necessary by the facility or department safety personnel.
- b. Hearing tests. Employees who are exposed to an eight hour time-weighted-average (TWA) of 85 dBA or greater will have their hearing tested annually. Any employee who shows a change in hearing threshold relative to the baseline audiogram of an average of 10dB or more at 2,000, 3,000, and 4,000 Hz in either ear (a standard threshold shift) when exposed to a TWA of 85-90 dBA will be required to wear hearing protection. Employees exposed to a TWA of 90 dBA or greater noise exposure for eight hours must wear hearing protection.
- c. Audiometric procedures.
  - i. Employees will be tested in the sound treated audiological suites at least once a year. Newly assigned employees will be tested within six months of employment.
  - ii. All hearing testing will be conducted in a sound treated audiological test booth in the Kansas State University Speech and Hearing Center under the supervision of a Certified Audiologist. Testing will be done following at least fourteen hours of quiet. Fourteen hours of quiet can be obtained either by testing at the beginning of the employee's work day or by the employee wearing hearing protection prior to the hearing test. The baseline and annual hearing tests will consist of pure tone air conduction threshold testing at 500, 1,000, 2,000, 3,000, 4,000, and 6,000 Hz. Immediately following the

hearing test, a verbal explanation of the test results will be given to the employee. Descriptive categories will be used to summarize the individual test results. Categories are:

1. Normal Hearing. Hearing thresholds are within limits established for normal hearing, i.e., no worse than 25 dB at any frequency
  2. Mild to Moderate High Frequency Loss. Hearing for communication purposes is essentially unimpaired. There is hearing loss present in the high frequencies.
    - a. No loss greater than 25 dB at 500, 1,000, 2,000 Hz, and no worse than 50 dB in the higher frequencies
    - b. Exceeds 50 dB at 4,000, 6,000, and/or 8,000 Hz.
  3. Moderate to Severe high Frequency. Significant hearing loss exists. The adequacy of hearing for communication purposes is questionable and the individual is borderline for aural rehabilitation. There is no threshold worse than 25 dB at 500, 1,000, or 2,000 Hz.
  4. Possible Medically Related Hearing Loss. Significant hearing loss exists of undetermined type and origin. The individual should be referred for complete examination. Thresholds exceed 25 dB at 500, 1,000, or 2,000 Hz.
  5. Test Responses Inconsistent. A retest is indicated since better test results are necessary for the reviewer to make reliable interpretations.
  6. Previously Professionally Evaluated Hearing Loss. Significant hearing loss exists which is known to the individual. The employee has seen a professional about the hearing status. A copy of the professional's (physician/audiologist) report should be obtained for the employee's records.
  7. Standard Threshold Shift, Further Professional Evaluation.
    - a. Is optional. Significant change from baseline audiogram; no referral needed. Additional professional evaluation is not likely to provide further helpful information. If exposed to noise on the job, employee would be rechecked and reoriented about hearing protection use.
    - b. Is advised. Significant change from baseline. Should be referred for further professional evaluation. This change is likely to be other than noise related. If exposed to noise on the job, employee needs to be rechecked and reoriented about hearing protection use.
  8. No Change. No significant change from baseline audiogram. Original designation still applies.
- iii. The hearing thresholds at each test frequency will be recorded and the results will be coded by a descriptive category number. Written reports of

- the results of the yearly hearing tests will be given to each employee after testing. The results of the hearing tests will be kept on file at the Speech and Hearing Center with copies sent to the Department of Environmental Health and Safety. The appropriate department Head will be advised of the need for hearing protection or job change to protect the employee’s hearing.
- iv. The cost of the yearly hearing tests by the Speech and Hearing Center will be charged, per employee, to the department in which the noise hazard is located. The charge will be set by the Speech and Hearing Center. All billing will be handled through the Speech and Hearing Center.
  - v. The test results may indicate that further hearing services are needed. Any recommendations for further testing and/or medical referrals will follow the criteria outlined in the descriptive categories. Any further testing (excluding those in Category 5), rehabilitation therapy, or hearing aids will be charged to the employee according to the fee schedule of the Speech and Hearing Center. Category 5 re-testing will be charged to the employee’s department.
  - vi. The testing and explanation of results will take approximately fifteen minutes per employee. Scheduling for hearing tests will be handled through the Speech and Hearing Center, Leasure Hall.

## II. Training

In service training for employees shall be performed annually. These training sessions will cover the areas of basic audition, anatomy of the ear, noise and noise-induced hearing loss, and the benefits of hearing protection. Scheduling will be coordinated with the involved department, the Department of EHS and the Speech and Hearing Center.

## III. Hearing Protection

- a. Engineering controls should be instituted to reduce noise levels to reasonable limits where practical. In all areas where noise hazards exist, warning signs should be posted at entrances or on the periphery of those areas.
- b. Hearing protection must be worn when the noise level exposure equals or exceeds 90 dBA for eight hours. In addition, hearing protective equipment must be available to those exposed to noise levels between 85 and 90 dBA. Maximum permissible noise exposures for employees are as follows:

Hours/Day	Sound Level (dBA)
16	85
12	87

8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

c. Effective hearing protection will be provided to any University employee in the Hearing Conservation Program. The department in which the noise hazard is located will provide the hearing protection. The type of hearing protection is left to the needs of the employee and the department with consultation from the Department of Environmental Health and Safety and the Speech and Hearing Center.