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A Summary Of The Occupational Safety and Health Administration's Hearing Conservation Regulation

Monitoring

The hearing conservation amendment requires employers to monitor noise exposure levels in a manner that will accurately identify employees who are exposed to noise at or above 85 decibels (dBA) averaged over eight working hours, called an 8-hour time-weighted average (TWA). The exposure measurement must include all noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. This requirement is performance oriented since it allows employers to choose the monitoring method that best suits each situation.

Under this amendment, employees are entitled to observe monitoring procedures, and they must be notified of the results of the exposure monitoring of their workplace. The method used to notify employees is left to the discretion of the employers.

Instruments used to monitor employee exposures must be calibrated to ensure that the measurements are accurate. Calibration procedures are unique to specific instruments. Employers have the duty to assure that the measuring instruments they use are properly calibrated. They should follow the manufacturer's instructions to determine when and how extensively to calibrate.

Audiometric Testing

Audiometric testing not only monitors the sharpness or acuity of an employee's hearing over time, but also provides an opportunity for employers to educate employees about their hearing and the need to protect it. The important elements of an audiometric testing program include audiometric testing, training, and follow-up procedures. Audiometric testing must be made available to all employees who have average exposure levels over an 8-hour period of 85 dBA. The audiometric testing program follow-up should indicate whether hearing loss is being prevented by the employer's hearing conservation program. A professional audiologist (specialist dealing with individuals having impaired hearing), an otolaryngologist (physician specializing in the diagnosis and treatment of disorders of the ear, nose, and throat), or a physician must be responsible for the program. Both professionals and trained technicians may conduct audiometric testing. The professional does not have to be present when a qualified technician is conducting testing, however. The professional's responsibilities include overseeing the program and the work of the technicians,

reviewing problem audiograms, and determining whether referral is necessary. There are two types of audiograms required in the hearing conservation program: baseline and annual audiograms.

Baseline Audiograms

The baseline audiogram is the reference audiogram against which future audiograms are compared.

Baseline audiograms must be provided within 6 months of an employee's first exposure at or above an 8-hour TWA of 85 dBA. Where employers use mobile test vans to obtain audiograms, baseline audiograms must be completed within one year after an employee's first exposure to workplace noise at or above a TWA of 85 dB. Where mobile vans are used and employers delay baseline testing for up to a year, after the first 6 months the employees exposed at or above 85 dBA must be fitted with hearing protectors and wear them until the baseline audiogram is obtained.

Baseline audiograms taken before the effective date of this amendment are acceptable baselines in the program if the professional supervisor determines that the audiogram is valid.

Annual Audiograms

The annual audiograms must be conducted within one year of the baseline. It is important to test hearing on an annual basis in order to identify changes in hearing ability so that protective follow-up measures can be initiated before hearing loss progresses. Annual audiograms must be routinely compared to baseline audiograms to determine whether the audiogram is accurate and to determine whether the employee has lost hearing ability (determined as the standard threshold shift (STS)).

STS is defined in the amendment as an average change in hearing bend in either ear of 10 dB or more at 2000, 3000, and 4000 Hz. Certain instances of an STS must be recorded on the OSHA 300 Injury and Illness Log, and these are discussed in the addendum to this titled "Recording Occupational Hearing Loss on the OSHA 300 Log".

Audiogram Evaluation

Employees who have an STS must be fitted with adequate hearing protectors, shown how to use them, and required to wear them. Employees must be notified within 21 days from the time the determination is made that their audiometric test results showed an STS. Some employees with an STS may need to be referred for further testing if the professional determines that their test results are questionable, or if they have an ear problem of a medical nature which is thought to be caused or aggravated by wearing hearing protectors. If the suspected medical problem is not related to wearing protectors, employees must be informed that they should see a physician. If subsequent audiometric tests show that the STS identified on a previous audiogram is not persistent, employees whose exposure to noise is less than a TWA of 90 dBA may discontinue the wearing of hearing protectors.

A subsequent audiogram may be substituted for the original baseline audiogram if the professional supervising the program determines that the employee's STS is persistent. This substitution will ensure that the same shift is not repeatedly identified. The professional may also decide to revise the baseline audiogram if an improvement in hearing has occurred. This will ensure that the baseline reflects actual hearing thresholds to the extent possible.

Hearing Protectors

Hearing protectors must be available to all workers exposed at or above the action level. This

ensures that employees have access to protectors before they experience a loss in hearing. Where baseline audiograms are delayed because it is inconvenient for mobile test vans to visit the workplace more than once a year, protectors must be worn by employees for any period exceeding 6 months from the time they are first exposed to 8-hour average noise levels of 85 dBA or above until they receive their baseline audiograms. Hearing protector use is also mandatory for employees who have standard threshold shifts, since these workers are particularly susceptible to noise.

Employees should decide, with the help of a person who is trained in fitting hearing protectors, which size and type protector is most suitable for their working environment. The protector selected should be comfortable to wear and offer sufficient attenuation to prevent hearing loss. Employees must be shown how to use and care for their protectors and must be supervised on the job to ensure that they continue to wear them correctly.

Hearing protectors must provide adequate attenuation for each employee's work environment. The employer must re-evaluate the suitability of the employee's present protector whenever there is a change in working conditions that may cause the hearing protector being used to be inadequate.

If workplace noise levels increase, employees must be given more effective protectors. The protector must reduce employees to at least 90 dB, or to 85 dB when an STS has occurred. The methods for evaluating a hearing protector are given in Appendix B of the noise standard.

Training

Employee training is very important. When workers understand the reasons for the hearing conservation program's requirements and the need to protect their hearing, they will be better motivated to participate actively in the program and to cooperate by wearing their protectors and taking audiometric tests. Employees exposed to TWA's of 85 dBA and above must be trained at least annually in the effects of noise, the purpose, advantages, and disadvantages of various types of hearing protectors; the selection, fitting and care of protectors; and the purpose and procedures of audiometric testing. The training program may be structured in any format, different parts being conducted by different individuals and at different times as long as the required topics are covered.

Recordkeeping

Noise exposure measurement records must be kept for 2 years. Records of audiometric test results must be maintained for the duration of employment of the affected employee. Audiometric test records must include the name and job classification of the employee, the date, the examiner's name, and date of acoustic or exhaustive calibration, measurements of the background sound pressure levels in audiometric test rooms, and the employee's most recent noise exposure measurement.

Addendum: Recording Occupational Hearing Loss on the OSHA 300 Log

Employers must record work-related hearing loss cases when an employee's hearing test shows a marked decrease in overall hearing. If an employee's hearing test (audiogram) reveals that the employee has experienced a work-related Standard Threshold Shift (STS) in hearing in one or both ears, and the employee's total hearing level is 25 decibels (dB) or more below audiometric zero (averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS, you must record the case on the OSHA 300 Log. Employers can make adjustments for hearing loss caused by aging, seek

the advice of a physician or licensed health care professional to determine if the loss is work-related, and perform additional hearing tests to verify.

Standard Threshold Shift

A Standard Threshold Shift, or STS, is defined in the occupational noise exposure standard at 29 CFR 1910.95(g)(10)(i) as a change in hearing threshold, relative to the baseline audiogram for that employee, of an average of 10 decibels (dB) or more at 2000, 3000, and 4000 hertz (Hz) in one or both ears. In this case the STS must only be reported to the employee. Please refer to the example below.

Frequency (Hz)	Baseline (dB)	Current Audiogram (dB)	Difference (dB)
2000	10	20	10
3000	5	10	5
4000	15	30	15
Average	10	20	10

STS & a 25-dB Overall Reduction in Hearing Level

If the employee has shown an STS you must then examine the employee's overall hearing ability in comparison to audiometric zero. Using the employee's current audiogram, average the hearing levels at 2000, 3000, and 4000 Hz to determine whether or not the employee's total hearing loss exceeds 25 dB from audiometric zero. In this case the STS must be reported to the employee **AND** recorded on the OSHA 300 log. Please refer to the example below.

Frequency (Hz)	Baseline (dB)	Current Audiogram (dB)	Difference (dB)
2000	20	30	10
3000	30	35	5
4000	10	25	15
Average	20	30	10

Entering a Hearing Loss Case in the OSHA 300 Log

In 2003, employers should record cases of occupational hearing loss either as an “injury” (single event acoustic trauma) or “other illnesses” (long term noise exposure), as appropriate to the situation. Beginning on January 1, 2004, employers will record these cases in a separate column specifically designated for occupational hearing loss on the OSHA 300 log.