

# OCCUPATIONAL NOISE EXPOSURE

## OSHA CITATIONS AND IMPROVING COMPLIANCE

During the fiscal year 1986, OSHA issued 2,208 citations for non compliance with portions of its Occupational Noise Rule, 29 CFR 1910.95. Most of the citations OSHA issued, about 74% of the total, were for violations of seven different paragraph sections of the standard. The fines during the year amounted to \$134,820. The violations, in descending order of number of citations, were issued for failures to:

1. Administer a continuing, effective hearing conservation program (c)(1).
2. Post a copy of the noise standard in the work place (1)(1).
3. Institute a training program for employees exposed to noise (k)(1).
4. Provide hearing protection to employees exposed to excessive noise (i)(2)(i).
5. Institute a noise monitoring program (d)(1).
6. Institute possible engineering or administrative controls to reduce noise exposure to workers (b)(1).
7. Institute and maintain an audiometric test program for employees exposed to noise (g)(1).

According to this list of violations, the most common problem is the failure to have a continuing, effective hearing conservation program. You can prevent this violation by conducting a noise survey to identify those employees who are overexposed to noise and providing an effective hearing conservation program. The hearing conservation program will help you protect and maintain your workers' hearing. Your cost for such a program may well be offset by fewer hearing loss claims.

The second most frequent violation is the failure to post the noise standard so that employees can read it.

The lack of a training program, third on the list, is a frequently violated portion of the standard. This standard requires that you conduct a formal training program and keep attendance records. Employees exposed to noise which is equal to or greater than the action level (equivalent to 85

decibels for an eight-hour period or a 50% noise dose) must be trained when they are hired and then on an annual basis. Distributors who fill cylinders, operate shot blasting machines, operate vacuum pumps, and distributors who do cylinder drying (following hydrotest or cleaning) should be concerned with the noise these machines produce.

Forth on the list is the failure to provide hearing protection to workers exposed to excessive noise [Noise Standard, page 1, paragraph (b)(1)]. This violation resulted in total adjusted fines of \$10,443, the highest for any of the categories. Employees must have hearing protection if feasible administrative or engineering controls fail to reduce noise levels within the provisions of Table G 16 (90 dBA for 8 hours or the equivalent). To comply with this, you must provide accurate noise monitoring, feasible administrative and/or engineering controls where applicable, and a choice of suitable hearing protectors to all employees who are still overexposed to noise. You must also enforce the use of the protectors.

Next on the list is the failure to have a noise monitoring program. Since it is necessary to know each employee's exposure to noise, only employees who are properly monitored will benefit from the provisions of the Hearing Conservation Amendment. In general, noise dosimeter tests are preferred for monitoring, since the tests provide exposure information specifically to the people who are surveyed. Representative sampling is permitted, but it is better to perform the tests on the person most likely to have the highest exposure in the represented group. Ideally, several days of testing on each person would most adequately define the actual exposure; however, such extensive testing may not be necessary unless the noise exposure varies widely from day to day. When exposures are consistent throughout the workday, and on a day-to-day basis, sound level meter tests may adequately define the exposure.

Failure to institute possible engineering or administrative controls to reduce noise exposure is the next category. It shares the distinction, with the noise monitoring program, of having the second highest adjusted fines levied. There are many noise sources which you can easily control. By controlling them, you could reduce noise significantly. You can do this by using air discharge mufflers, maintaining equipment (lubrication, gear alignment, worn bearing replacement, etc.), reducing metal to metal contact, relocating equipment to an unoccupied equipment room, and making changes when updating is required. Usually, qualified engineers must develop engineering controls. This may seem expensive at first, but by avoiding trial and error methods you may save money.

The last major category is the failure to institute and maintain an audiometric test program. To prevent this violation, hire an outside service for the annual audiometric testing. In-house testing may be better if you have a large work force, and the cost of the technician training and new equipment is justified.

These are just the major categories that have consistently been cited for noncompliance during fiscal 1986. The adjusted fines levied for all violations are low when compared to the maximum compensation paid for hearing loss in some states. Many companies have excellent hearing conservation programs which comply with the requirements of the standard and also protect their employees from hearing loss.

Remember, your insurance company Loss Control Engineer is ready to discuss your hearing conservation program, make noise surveys, and perform noise exposure tests using noise dosimeters. He or she can also provide you with visual aids for your training program.

The following highlights of the noise standard may help you determine areas which may be weak and need improvement. In addition the entire standard, beginning on page eight, is included for your reference, and you may post it for your employees.

#### Highlights of 29 CFR 1910.95 Requirements

1. Protection against effects of noise exposure when 90 decibels, as measured on the A scale (dBA), for 8 hours or the equivalent is exceeded. (The Standard uses a 5 dB doubling rate. Therefore, for each 5 dB change in level, the allowable time is either halved or doubled. For example, 90 dBA for 8 hours is equivalent to 95 dBA for 4 hours, 100 dBA for 2 hours and so on)
2. Feasible administrative or engineering controls when 90 dBA for 8 hours or the equivalent is exceeded. (Feasible controls are those controls which are possible to implement and are based on available technology)
3. Hearing conservation program
  - \* Required when 8-hour time weighted average (TWA) sound level of 85 dBA is equalled or exceeded (action level)
  - \* The action level is a noise exposure which is equivalent to 85 dBA for 8 hours. This is also a noise dose of 50%

#### 4. Monitoring

- \* Required at action level or greater noise exposure
- \* Include exposed employees in hearing conservation program
- \* Measure noise between 80 to 130 dBA, including continuous, intermittent, and impulsive sound levels with the meter set to A weighted, "slow" response
- \* Calibrate noise survey instruments
- \* Continue repeated monitoring after changes

#### 5. Notify employees if they are exposed at or above action level requirements

#### 6. Allow affected employees or representatives to observe noise measurements

#### 7. Audiometric Test Program

- \* Make testing available to employees who are exposed to the action level or greater noise exposure

##### Tests by:

1. Licensed or certified audiologist
2. Otolaryngologist
3. Physician
4. Certified technician
5. Technician who has demonstrated competence

(Technicians are responsible to an audiologist, otolaryngologist, or physician).

- \* Conduct baseline audiometric tests within 6 months of exposure (1 year if testing is done by mobile test van) to action level or more. Hearing protection must be used if 6-month period is exceeded
- \* Before testing, allow a 14-hour quiet period (hearing protectors may be used)
- \* Conduct annual tests after the baseline is completed and compare them to the baseline

- \* Review of problem audiograms by an audiologist, otolaryngologist, or physician
- \* Allow for loss of hearing because of age (presbycusis) - See Appendix F
- \* If a standard threshold shift (STS) is determined, notify the employee within 21 days. Standard threshold shift is a measure of the amount of hearing loss (10 dB or more - average of 2000 hz, 3000 hz and 4000 hz)

#### 8. Audiometric test requirements

- \* Pure tone air conduction
- \* Audiometrics to meet ANSI S3.6 - 1969
- \* Background noise in audiometric booth must meet requirements in Appendix D
- \* An audiometer check, also called a biological check, should be done each day by testing a person with known STS (10 dB or more deviation requires acoustic calibration)
- \* Annual acoustic calibration of audiometer. If deviation is 15 dB or more, exhaustive calibration is necessary
- \* Exhaustive calibration at least every two years (ANSI S3.6 1969)

#### 9. Hearing protectors

- \* Make available to employees exposed to action level or greater
- \* Employees exposed to 90 dBA or higher for 8 hours or more must use protectors (Paragraph b-1)
- \* Employees exposed to action level or greater and who have not yet had baseline audiograms or have experienced standard threshold shifts, must use protectors
- \* Allow employees to select from a variety of suitable protectors
- \* Train employees in use of protectors

- \* Employer is responsible for proper initial fitting and correct use

#### 10. Hearing protection noise reduction capability

- \* Employer's responsibility to evaluate adequacy of hearing protection for specific environment
- \* Noise reduction with protector is reduced to TWA of 90 dBA for 8 hours or less
- \* If standard threshold shift is present, reduce noise to action level or less
- \* Reevaluate adequacy of protection whenever exposure increases

#### 11. Training program

- \* Required for all who are exposed to action level or greater
- \* Repeat program annually
- \* Content includes:
  1. Effects of noise on hearing
  2. Purpose of protectors
  3. Advantages, disadvantages, and noise reduction capability of various types of protectors
  4. Instructions on selection, fitting, use, and care
  5. Purpose of audiometric testing and explanation of test procedures

#### 12. Access to information and training materials

- \* Standards and OSHA information available to representatives or affected employees
- \* Standard posted in work place
- \* Training material available to OSHA

#### 13. Record keeping

- \* Requires that employer maintain records of all employee exposures and audiometric measurements

To link to the "Department of Labor  
Occupational Noise Standard"

[Click here](#)