If you have any questions, please contact the Health and Safety Section for further information and resources.

PURPOSE

The purpose of this policy is to maintain a Hearing Conservation Program in compliance with California Occupational Safety and Health Administration (CAL-OSHA) Subchapter 7 - *General Industry Safety Orders*, Group 15 – *Occupational Noise*, Article 105 *Control of Noise Exposure*, Sections 5095 - 5100 and NFPA 1500 to ensure the prevention of occupational hearing loss for all Fire Departments within San Diego County. This policy should be used in conjunction with any existing hearing protection programs or policies.

POLICY

The permissible exposure level for this Hearing Conservation Program (HCP) is exceed an 8-hour Time-Weighted Average (TWA) sound level of 85 decibels measured on the A-scale (slow response) or equivalently, a dose of 50%. This scale is often referred to as 85 decibels A-weighted (85 dBA).

For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with the OSHA Standard, Appendix A and Table A-1 and without regard to any attenuation provided by the use of personal protective equipment. All continuous, intermittent and impulsive sound levels from 80 dB to 130 dB shall be integrated into the computation.

All employees exposed at or above 85 dBA over an 8-hour TWA period, or equivalently, a dose of 50% are required to wear hearing protection. All employees exposed to noise levels at or above these levels must participate in this program.

General Guidelines

1. Identification of Exposure
    a. This program applies to all fire personnel who respond to fires and EMS calls on a regular basis. The associated work tasks on fire and emergency medical scenes are suspected of exposing employees to noise levels at or above 85 dBA as an 8-hour TWA.
    b. Excessive decibel producing equipment (>85 dB) found in the fire stations can be identified through monitoring or sampling equipment. Items identified should prompt personnel to don hearing protection when in close proximity or utilizing the equipment such as saws, hydraulic and gas power generators, ventilation systems and fans, air compressors, and striking tools.

Additionally, there are excessive decibel producing activities listed below that should be considered:

- Ambulance backing alarm: 95 dB
- Fire pump throttled up to 150psi: 97 dB
- Apparatus backing alarm: 101 dB
- Apparatus air horn from 20 feet away: 106 dB
- Apparatus siren from 20 feet away: 109 dB
- Apparatus growler from 20 feet away: 114 dB

Remember, **hearing loss is irreversible**. Police yourselves and each other to preserve the hearing you have and protect yourself from further hearing loss.

2. Monitoring
    a. OSHA requires employers to monitor noise exposure levels in a manner that will accurately identify employees who are exposed to noise at or above 82 dB averaged over 8 working hours, or an 8-hour TWA.
    b. The exposure measurement must include all continuous, intermittent and impulsive noise within an 80 dB – 130 dB range and must be representative of a typical work situation.
    c. Monitoring should be repeated when changes in production, process or controls increase noise exposure. Such changes may mean that additional employee monitoring is needed and/or previously supplied hearing protection no longer provides adequate attenuation.
    d. Properly trained personnel should evaluate noise exposures in work areas including fireground operating areas.
    e. Employees are entitled to observe the testing and monitoring procedures and must receive notification of the results of the tests in their workplace.
3. Hearing Protection
    a. Hearing protectors must be made available to all workers exposed to 8-hour TWA noise levels of 82 dBA or above.
    b. Types of hearing protectors selected for employee protection must attenuate the noise to levels less than 85 dBA.
    c. Where equipment operators are required to maintain radio communications while operating equipment, headsets that provide noise attenuation as well as radio communications/intercom shall be provided and used.
    d. The wearing of hearing protection devices by employees will be mandatory under the following conditions:

- Wearing the hearing protection device does not create an additional hazard to the user.
- Employees who are exposed to average noise levels at an 8-hour time weighted average of 85 dBA or above.
- Employees who have not had a baseline audiogram and are exposed to 8-hour average noise levels of 85 dBA or above.

4. Audiometric Testing
    a. Annual audiometric testing of all employees exposed to 8-hour time weighted-average noise of 82 dBA or above is required.
    b. All new employees shall be given an initial baseline audiometric exam, which is performed during the pre-employment physical for new employees.
    c. Employees should be reminded to avoid exposure to loud levels of noise for at least 14 hours prior to the audiometric exam. If the employee believes that exposure to noise is unavoidable for this 14-hour period, he/she shall be instructed to wear hearing protection while exposed to noise.
    d. Employee testing environments and equipment shall be used in compliance with OSHA 29 CFR 1910.95.

5. Training and Education

    a. Fire Department employees exposed to an 8-hour time-weighted average noise of 85 dBA and above shall be trained annually in the effects of noise; the purpose of hearing protectors; the advantages and disadvantages of the various types of hearing protectors; the selection, fitting and care of protectors; the purpose of audiometric testing and an explanation of the test procedures.

6. Recordkeeping

    a. Noise exposure measurement records shall be retained for five (5) years.
    b. Employees with standard threshold shifts – STS- (25 dB shifts in hearing acuity) averaged over the frequencies at 2000, 3000 and 4000 hertz in either ear will be considered to have an OSHA reportable injury (from January 1, 20XX until December 31, 20XX). This injury shall be included on the OSHA 300 Log of Injury or Illness. STSs will be determined by annual audiometric testing.

c. Effective January 1, 2004, employees with standard threshold shifts – STS – (10 dB shifts in hearing acuity) averaged over the frequencies at 2000, 3000 and 4000 hertz in either ear which results in a total 25 dB level of hearing above audiometric zero will be considered to have an OSHA reportable injury which must be recorded on the OSHA 300 Log by checking the "hearing loss" column.
d. Records of audiometric test results shall be maintained by the employer for the duration of employment of the affected employee plus 30 years.
e. Audiometric test records must include the name and job classification of the employee, the date of the test, the name of the examiner, the date of acoustic calibration of the testing equipment, background sound pressure levels in the audiometric test room, and the employee's most recent noise exposure measurements.
f. Records of annual training shall be maintained by the employer.

DEFINITIONS

Action Level – An 8-hour time-weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.

Attenuation – The estimated sound protection provided by hearing protective devices as worn in "real-world" environments.

Audiogram – A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

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

Baseline Audiogram – The audiogram against which future audiograms are compared.

Criterion Sound Level – A sound level of 90 decibels.

Decibel (dB) – Unit of measurement of sound level.

dBA (Decibels-A-Weighted) – A unit of measurement of sound level corrected to the A-weighted scale, as defined in ANSI S1.4-1971 (R1976), using a reference level of 20 micropascals (0.00002 Newton per square meter).

Equal-Energy Rule – The relationship between sound level and sound duration based upon a 3 dBA exchange rate, i.e., the sound energy resulting from doubling or halving a noise exposure's duration is equivalent to increasing or decreasing the sound level by 3 dBA, respectively.

Exchange Rate – The relationship between intensity and dose. This policy recommends a 3dBA exchange rate. Thus, if the intensity of an exposure increases by 3dB, the dose doubles (i.e., if a 50% dose represents a sound intensity of 82 dB, then increasing that intensity by 3dB, to 85 dB, would double the dose, to 100%).

Hertz (Hz) – Unit of measurement of frequency, numerically equal to cycles per second.

Medical Pathology – A disorder or disease. For purposes of this regulation, a condition or disease affecting the ear, which should be treated by a physician specialist.

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

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

Sound Level – Ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals. Unit: decibels (dB). For use with this regulation, SLOW time response, in accordance with ANSI S1.4-1971 (R1976), is required.

Sound Level Meter – An instrument for the measurement of sound level.