DEPARTMENT OF PUBLIC UTILITIES SAFETY POLICY MEMORANDUM

POLICY NUMBER: 12	DATED: April 17, 2002
TITLE: Hearing Protection and Conservation Program	APPROVED BY: Martin McIntyre

REFERENCE

Title 8, California Code of Regulations, Chapter 4, Subchapter 7, Article 105, Sections 5095 - 5100

City of Fresno Injury and Illness Prevention Program

POLICY

The Department of Public Utilities Hearing Protection and Conservation Program is designed to provide maximum protection and minimum exposure to employees at risk of hearing loss.

Wearing hearing protection when exposed to a noise levels equal to or exceeding an 8-hour time-weighted average sound level of 85 decibels measured on the A-scale (slow response).

MONITORING

Each Division will provide monitoring of the workplace during noise exposure wherever information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels.

The monitoring requirement may be met by either 1) area monitoring, or 2) personal monitoring that is representative of the employee's exposure.

The sampling strategy shall be designed to identify employees for inclusion in the hearing conservation program and to enable the proper selection of protective equipment.

Where circumstances such as high worker mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring generally inappropriate, the Division shall use personal sampling to comply with the monitoring requirement.

All continuous, intermittent and impulsive sound levels above 80 decibels shall be integrated into the computation.

Instruments used to measure employee noise shall be calibrated in accordance with manufacturer's instructions to ensure measurement accuracy.

Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

Additional employees may be exposed at or above the action level.

The attenuation provided by hearing protectors being used are rendered inadequate.

Employees or their representative shall be provided an opportunity to observe any measurements of employee noise exposure which may be conducted.

Each employee exposed at or above the action level shall be notified of the results of monitoring.

AUDIOMETRIC TESTING PROGRAM

The Audiometric Testing Program shall be controlled by the City Safety Officer and Human Resources.

SELECTION OF HEARING PROTECTION

Attenuation

Hearing protection devices have different abilities to reduce (attenuate) noise levels and afford varying protection at different noise frequencies. An accurate knowledge of noise levels (and frequencies) that pose a hazard is essential to develop a good protection program. From the data obtained in the noise survey describe above, management can select the proper hearing protection devices.

To help them choose the right devices, you can use the U.S. Environmental Protection Act requirement that calls for all protectors to have a label indicating its noise reduction rating

(NRR). The number provides an estimate of the devices degree of protection and generally can be subtracted from the decibel value of noise in the workplace. This value indicates the noise level theoretically being received in the worker's ear. Some caution must be observed in accepting this NRR for the following reasons:

NRR is derived under ideal laboratory conditions.

Wearing conditions of the device on the job will be less than ideal.

Noise frequencies and levels will not be equal across the spectrum.

Thus, the NRR (or any other similar value) must be used at something less than full value. The real-world values may be as little as 50% of the published NRR value.

Types

Hearing protectors in general use fall into four types:

Enclosure (helmets).

Aural (ear insert).

Superaural (canal caps).

Circumaural (ear muffs).

Prior to issuing any ear insert it is important to take certain measures:

Each employee's ear canals should be examined for any abnormalities or irregularities. Certain diseases may not allow use of earplugs.

Employees must be taught proper insertion techniques.

Employees must be taught proper sanitation and checking techniques.

Enclosure

The enclosure hearing protector completely surrounds the head, such as an astronaut's helmet. Sound is reduced through the acoustical properties of the helmet. Additional attenuation can be achieved by wearing inserts with the enclosure helmet. Expense,

temperature inside the helmet, and its bulk normally rule out general use of the enclosure hearing protector.

Aural Insert

Commonly called inserts or earplugs, the aural insert is generally inexpensive and has a limited service life. The plug or insert falls into three broad categories:

Formable

Custom molded

Molded

Formable aural inserts fit all ears. Many of the formable types are designed to be used once, then thrown away. Materials from which these disposable plugs are made include fine glass fiber, wax-impregnated cotton, and expandable plastic foam.

Various models provide different degrees of noise reduction. Manufacturers will supply attenuation data for their products to help evaluate their effectiveness for use in a given situation.

Custom-molded hearing protectors, as the name indicates, are made for a specific individual. A prepared mixture is carefully placed in the person's outer ear, with a small portion extending into the ear canal. As the material sets, it conforms to the shape of the individual's ear and external ear canal. Only trained personnel may attempt the process of forming these hearing protectors.

Molded (or premolded) aural inserts are usually made from a soft silicone rubber or plastic. The most important aspect of this protector is a snug fit to provide adequate protection. Some persons may find these inserts uncomfortable because of the irregular shape of the ear.

Superaural

The superaural or canal cap hearing protector depends on sealing the external edge of the ear canal to achieve sound reduction. The caps, made of soft rubber-like material, are held in place against the edges of the ear canal by a spring band or head suspension.

Circumaural

Cup (or earmuff) devices cover the external ear to provide an acoustical barrier between external sound and the inner ear. The attenuation provided by earmuffs varies widely due to differences in size, shape, seal material, shell mass, and type of suspension. Head size and shape also influence the attenuation characteristics of these protectors. Also, wearing other PPE such as safety helmets or safety glasses must not compromise the efficiency of the hearing protection. Temple pieces of safety glasses can cause noise leakage. To minimize this leakage employees can use the cable temple pieces or use aural inserts. The type of cushion used between the shell and the head also has a great influence on attenuation efficiency. Liquid or grease filled cushions may give better noise suppression than plastic or foam rubber types which may present leakage problems.

TRAINING

Each employee who is exposed to noise at or above an 8-hour time-weighted average of 85 decibels, shall participate in an annual training.

Training shall be updated to be consistent with changes in protective equipment and work processes and shall contain at a minimum:

The effects of noise on hearing.

The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care.

The purpose of audiometric testing, and an explanation of the test procedures.

ACCESS TO INFORMATION AND TRAINING MATERIALS

The Division shall make available to affected employees or their representatives copies of Article 105 and shall also post a copy in the workplace.

The Division shall provide to affected employees any informational materials pertaining to the standard that are supplied to the employer by the U.S. Department of Labor, Occupational Safety and Health Administration.

The Division shall provide upon request all materials to the training and education program pertaining to the standard to authorized representatives of the Chief of the Division of Occupational Safety and Health and the Director, National Institute for Occupational Safety and Health.