City of Carson

Hearing Conservation Program

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SECTION ONE - INTRODUCTION

Evidence is well established that worker exposure to noise of sufficient intensity and duration can result in hearing damage. Noise-induced hearing loss rarely results from just one exposure; it can progress unnoticed over a period of years. Initial noise-induced hearing loss occurs at the higher frequencies where the consonant portion of speech is found, making communications difficult.

1.1 Policy

It is the policy of the City of Carson to provide employees with a safe and healthful working environment. This is accomplished by utilizing facilities and equipment that have all feasible safeguards incorporated into their design. When effective engineering controls are not feasible, or when they are being initiated, administrative controls will be used when and where possible followed by the use of personal protective equipment.

The primary goal of the City of Carson Hearing Conservation Program is to reduce, and eventually eliminate hearing loss due to workplace noise exposures. The program includes the following elements:

a. Work environments will be surveyed to identify potentially hazardous noise levels and personnel at risk.
b. Environments that contain or equipment that produces potentially hazardous noise should, wherever it is technologically and economically feasible, be modified to reduce the noise level to acceptable levels.
c. Where engineering controls are not feasible, administrative controls and/or the use of hearing protective devices will be employed.
d. Periodic hearing testing will be conducted to monitor the effectiveness of the hearing conservation program. Early detection of temporary threshold shifts will allow further protective action to be taken before permanent hearing loss occurs.
e. Education is vital to the overall success of a hearing conservation program. An understanding by employees of the permanent nature of noise-induced hearing loss, the City of Carson hearing conservation program, and the employee's responsibilities under the program are essential for program effectiveness.

The City of Carson Risk Management Division is aware that excessive noise exposure is a potential cause of hearing loss and will establish a hearing conservation program that is as stringent as that required by Cal-OSHA. The Risk Management Division has adopted the following Cal-OSHA noise exposure limits:

A-weighted sound level, L (decibel)	*Reference Duration T (hour)*	*A-weighted sound level, L (decibel)*	*Reference Duration T (hour)*

80..... 32	106..... 0.87
81.....27.9	107..... 0.76
82.....24.3	108..... 0.66
83.....21.1	109..... 0.57
84.....18.4	110.....0.5
85.....16	111.....0.44
86.....13.9	112..... 0.38
87.....12.1	113..... 0.33
88.....10.6	114..... 0.29
89.....9.2	115..... 0.25
90.....8	116..... 0.22
91.....7.0	117..... 0.19
92.....6.1	118..... 0.16
93.....5.3	119..... 0.14
94.....4.6	120..... 0.125
95.....4	121..... 0.11
96.....3.5	122..... 0.095
97.....3.0	123..... 0.082
98.....2.6	124..... 0.072
99.....2.3	125..... 0.063
100.....2	126..... 0.054
101.....1.7	127..... 0.047
102.....1.5	128..... 0.041
103.....1.3	129..... 0.036
104.....1.1	130..... 0.031
105..... 1	

When the sound levels listed above are exceeded, feasible administrative or engineering controls will be instituted. If the controls fail to reduce the sound levels to within those listed above, hearing protection will be provided and used to reduce the sound levels to an acceptable level. In addition, Cal-OSHA requirements dictate that whenever employee noise exposures equal or exceed an 8-hour time-weighted average (TWA) of 85 dBA, slow response, a continuing effective hearing conservation program shall be instituted.

1.2 Program Organization

The City of Carson Hearing Conservation Program is organized and administered through the established Injury and Illness Prevention Program (IIPP). The IIPP outlines and defines program responsibilities and describes a minimum acceptable Hearing Conservation Program. The IIPP was prepared by the City's safety consultant and reviewed by the Risk Management Division in the City Manager's Department.

SECTION TWO - RESPONSIBILITIES

2.1 Personnel

2.1.1 Risk Management Division

The Risk Management Division is responsible for maintaining, implementing, and administering the City of Carson's Hearing Conservation Program. Additional responsibilities include:

1. Identification of work areas and equipment within City facilities where noise levels equal or exceed 85 dBA.
2. Identification, through personnel monitoring, of City employees whose noise exposure level equals or exceeds an 8-hour TWA of 85 dBA. Notification of employee exposure measurements is sent to the Personnel Department Risk Management Division to be included in employees' medical files.
3. Annual remonitoring of identified at-risk employees.
4. Resurvey of work areas and equipment where noise levels exceed or can potentially exceed 85 dBA every 3 years.
5. Training of employees in the need for, proper use and care of hearing protection devices.
6. Identification of noise control measures (including engineering and administrative controls) and recommendations.

2.1.2 Occupational Health Clinic

The City of Carson's Industrial Medical Clinic in conjunction with the Clinic's audiologist will determine who has experienced significant changes in hearing (standard threshold shifts) in order that follow-up investigations may be conducted and hearing can be attenuated to the appropriate level.

2.1.3 City Safety Consultant

The City Safety Consultant is responsible for coordinating, scheduling and presenting health and safety training courses and classes sponsored by Risk Management Division of the City Manager's Office. The City Safety Consultant also assists the City of Carson with regulatory safety compliance. The Risk Management Division maintains documentation of the training courses presented in accordance with the Injury Illness Prevention Program requirements.

2.2 Supervisors

It is the responsibility of Supervisors to ensure that all of their employees exposed to noise levels equal to or greater than 85 dBA have access to appropriate hearing protective devices in the work area. Supervisors are also responsible for enforcing the use of hearing protective devices and engineering and administrative controls in designated noise hazardous areas.

2.3 Employees

Employees are responsible for wearing and maintaining hearing protective devices as instructed. Employees exposed to excessive levels of noise must also participate in annual training programs and the medical surveillance program, which includes audiometric testing.

SECTION THREE - NOISE EVALUATION AND SURVEILLANCE PROCEDURES

3.1 Identification of Hazardous Noise Areas

The City Safety Consultant will identify work areas within City facilities where noise levels equal or exceed 85 dBA. Records shall be maintained by the Risk Management Division and updated at least every three years to determine if any alteration in noise levels has occurred. Those areas where the noise levels are below 85 dBA will not be routinely monitored. The City Safety Consultant will conduct identification of hazardous noise areas and equipment and any subsequent noise monitoring.

Signs will be posted at the entrance to any work area where noise levels exceed 85 dBA, requiring anyone entering the area to wear proper hearing protection. Personnel who work in these areas shall have hearing protection supplied to them, shall be instructed in its proper use, and be required to wear this equipment when in these identified areas. It is the responsibility of the area supervisor to ensure that these precautions are maintained.

Equipment, which produces noise, levels greater than 85 dBA, or 120 dB peak sound pressure levels, shall also be appropriately labeled.

3.2 Noise Measurements and Exposure Assessments

In order to effectively control noise it is necessary that the noise be accurately measured according to standard procedures and that the measurements be properly evaluated against accepted criteria. All noise monitoring will be conducted in accordance with established standard operating procedures.

The monitoring of employees for noise exposure is made up of two parts, area and personal monitoring. Area measurements are generally obtained first using sound level meters. If noise levels are at or above 85 dBA, personal monitoring using dosimeters is then performed. Sample data sheets will be used to record monitoring data for area monitoring and monitoring data reports will be generated directly from the dosimeter for personal monitoring results.

3.2.1 Area Measurements

In an area survey, measurements of environmental noise levels are recorded using a sound level meter to identify work areas where employees' exposures may be above hazardous levels, and where more thorough exposure monitoring may be needed. Area monitoring is conducted using a calibrated sound level meter set to the A scale, slow response. Within the area of interest, several

different locations will be measured. Typical measurement locations would include:

- In the hearing zone at the employee's normal work location.
- Next to the noise source(s).
- At the entrance(s) to the work area.
- At other locations within the area where the employee might spend time working.

If the noise levels are below 85 dBA on a time-weighted average basis in the area, then no further routine monitoring will be required for that area. Should any of the noise measurements equal or exceed 85 dBA, records shall be maintained as to the noise levels recorded, where they were taken, and the source(s) of the noise. These records shall be updated at least once every three years to determine if any changes have occurred that would warrant remonitoring of exposed personnel. If any of the measurements equal or exceed a noise level of 85 dBA, employees who work in or near the high noise area or equipment shall have their noise exposure determined through personnel monitoring using dosimeters.

3.2.2 Personnel Monitoring

Determination of the noise exposure level will be accomplished using calibrated noise dosimeters. Each employee to be monitored will have a dosimeter placed on him/her at the beginning of his/her normal work shift with the microphone placed in the "hearing zone". The dosimeter will be worn for the full duration of the work shift while the employee performs his/her normal work routine. At the end of the work shift, the dosimeter will be removed and information printed out as soon as possible. Background information will be collected from each employee detailing job description, unusual job activities, etc., for the time period sampled. Those employees whose noise exposure equal or exceed 85 dBA on an 8-hour TWA will be referred to the Risk Management Division.

3.3 Remonitoring of Hazardous Noise Areas

All areas where noise levels equal or exceed 85 dBA shall be remonitored at least every three years. Employees who work for extended periods of time (>2 hours) in the high noise areas and where their 8-hour TWA equals or exceeds 85 dBA will be monitored every year to determine their personal noise exposure.

3.4 Re-monitoring Due to Changes

Any area with noise levels that equal or exceed 85 dBA shall also be remonitored whenever a change in production process, equipment, or controls increase the noise exposure such that additional employees are exposed to noise levels at or above 85 dBA on a time-weighted average basis. Areas where the noise levels have dropped below 85 dBA due to alterations in equipment, controls or process changes shall be eliminated from the monitoring program.

SECTION FOUR - NOISE CONTROL METHODS

4.1 Engineering and Administrative Controls

The primary means of reducing or eliminating personnel exposure to hazardous noise is through the application of engineering controls. Engineering controls are defined as any modification or replacement of equipment, or related physical change at the noise source or along the transmission path that reduces the noise level at the employee's ear.

Administrative controls are defined as changes in the work schedule or operations, which reduce noise exposure. If engineering solutions cannot reduce the noise, administrative controls such as increasing the distance between the noise source and the worker or rotation of jobs between workers in the high noise area should be used if possible.

The use of engineering and administrative controls should reduce noise exposure to the point where the hazard to hearing is eliminated or at least more manageable.

4.2 Personal Protective Equipment

Hearing protective devices (ear plugs, muffs, etc.) shall be the permanent solution only when engineering or administrative controls are considered to be infeasible or cost prohibitive. Hearing protective devices are defined as any device that can be worn to reduce the level of sound entering the ear. All personnel shall wear hearing protective devices when they must enter or work in an area where the operations generate noise levels:

- Greater than 80 dBA sound levels, or
- 120 dB peak sound pressure level or greater

4.2.1 Types of Hearing Protective Devices Hearing protective devices include the following:

a. **Insert Type Earplugs**
A device designed to provide an airtight seal with the ear canal. There are three types of insert earplugs - premolded, formable, and custom earplugs.

1. **Premolded Earplugs**
Premolded earplugs are pliable devices of fixed proportions. Two standard styles, single flange and triple flange, come in various sizes, and will fit most people. Personnel responsible for fitting and dispensing earplugs will train users on proper insertion, wear, and care. While premolded earplugs are

reusable, they may deteriorate and should be replaced periodically.

2. **Formable**
Formable earplugs come in just one size. Some are made of material, which, after being compressed and inserted, expands to form a seal in the ear canal. When properly inserted, they provide noise attenuation values that are similar to those from correctly fitted premolded earplugs. Individual units may procure approved formable earplugs. Supervisors must instruct users in the proper use of these earplugs as part of the annual education program. Each earplug must be held in place while it expands enough to remain firmly seated. A set of earplugs with a cord attached is available. These earplugs may be washed and therefore are reusable, but will have to be replaced after two or three weeks or when they no longer form an airtight seal when properly inserted.

3. **Custom Molded Earplugs**
A small percentage of the population cannot be fitted with standard premolded or formable earplugs. Custom earplugs can be made to fit the exact size and shape of the individual's ear canal. Individuals needing custom earplugs will be referred to an audiologist.

b. **Earmuffs**
Earmuffs are devices worn around the ear to reduce the level of noise that reaches the ear. Their effectiveness depends on an airtight seal between the cushion and the head.

4.2.2 Selection of Hearing Protective Devices

Employees will be given the opportunity to select hearing protective devices from a variety of suitable ones provided by their supervisors. In all cases the chosen hearing protectors shall have a Noise Reduction Ratio (NRR) high enough to reduce the noise at the eardrum to 85 dBA or lower.

4.2.3 Issuance of Hearing Protective Devices (HPDs)

The issuance of hearing protective devices is handled through both the Risk Management Division and Department Supervisors. The Department Supervisors will issue and fit the initial hearing protective devices (foam inserts, disposables). Instruction on the proper use and care of earplugs and earmuffs will be provided whenever HPDs are dispensed. Personnel requiring earmuffs in addition to earplugs will be informed of this requirement and educated on the importance of using proper hearing protection. The

Supervisors will dispense earmuffs when necessary and will maintain a supply of disposable earplugs.

4.2.4 Use of Hearing Protective Devices

a. Always use and maintain HPDs as originally intended and in accordance with instructions provided.
b. Earmuff performance may be degraded by anything that compromises the cushion-to-circumaural flesh seal. This includes other pieces of personal protective equipment such as eyewear, masks, face shields, and helmets.

4.2.5 Maintenance of Hearing Protective Devices

a. Reusable earplugs, such as the triple flange or formable devices should be washed in lukewarm water using hand soap, rinsed in clean water, and dried thoroughly before use. Wet or damp earplugs should not be placed in their containers. Cleaning should be done as needed.
b. Earmuff cushions should be kept clean. The plastic or foam cushions may be cleaned in the same way as earplugs, but the inside of the muff should not get wet. When not in use, earmuffs should be placed in open air to allow moisture that may have been absorbed into the cups to evaporate.

4.2.6 Hearing Protection Performance Information

The maximum of sound attenuation one gets when wearing hearing protection devices is limited by human body and bone conduction mechanisms. Even though a particular device may provide outstanding values of noise attenuation the actual noise reductions may be less because of the noise surrounding the head and body bypasses the hearing protector and is transmitted through tissue and bone pathways to the inner ear.

The term "double hearing protection" is misleading. The attenuation provided from any combination earplug and earmuff is not equal to the sum of their individual attenuation values.

SECTION FIVE - MEDICAL SURVEILLANCE

5.1 Notification

Upon identification of employees whose 8-hour TWA equals or exceeds 85 dBA, the Risk Management Division will recommend to the employee's Supervisor, in writing, of the need to enroll certain employee(s) in the Hearing Conservation Medical Surveillance Program. Information supplied will include the employee(s) name, supervisor's name, telephone number, and the noise levels recorded in the employee's work area, including dosimeter data. It will be the responsibility of the Supervisor to enroll his/her employee in the Hearing Conservation Medical Surveillance Program.

In work locations where either through administrative or engineering controls, noise levels are found to have fallen such that the employee's 8-hour TWA is below 85 dBA, the Risk Management Division shall notify the US Healthworks Physician and the employee's Supervisor, by memo, that the employees working in that area are no longer required to be enrolled in the Hearing Conservation Program. The final decision as to an employee's enrollment status will be left with the US Healthworks Physician.

The Risk Management Division upon completion of the noise surveys shall forward the results of area and personal remonitoring to the US Healthworks Medical Clinic.

Any personnel experiencing difficulty in wearing assigned hearing protection (i.e., irritation of the canals, pain) will be advised to immediately report this to their supervisor and make arrangements to go to the Fullerton-Placentia Medical Center for evaluation as soon as possible.

5.2 Audiometric Testing

The object of the audiometric testing program is to identify workers who are beginning to lose their hearing and to intervene before the hearing loss becomes worse. Audiometric testing will be provided to all employees with exposure to noise levels of 85 dBA or greater. Annual retesting will be performed for all personnel enrolled in the Hearing Conservation Medical Surveillance Program.

SECTION SIX - TRAINING

The training and education program will provide information about the adverse effects of noise and how to prevent noise-induced hearing loss. At a minimum, all training will cover the following topics:

a. Noise-induced hearing loss;
b. Recognizing hazardous noise;
c. Symptoms of overexposure to hazardous noise;
d. Hearing protection devices - advantages and limitations.
e. Selection, fitting, use, and maintenance of HPDs.
f. Explanation of noise measurement procedures.
g. Hearing conservation program requirements.

Employees will also be provided with copies of the Cal-OSHA noise standard (Title 8 Section 5097) and other handouts describing the Hearing Conservation Program. Information provided in Appendix C of this document may also be used.

City employees shall be encouraged to use hearing protective devices when they are exposed to hazardous noise during activities at home; e.g., from lawn mowers, chain saws, etc.

All personnel identified for inclusion in the hearing conservation program should receive a minimum of one hour of initial instruction in the requirements of the program. Ideally this will be done when hearing protection is dispensed.

Appropriate refresher training annually thereafter and will be provided by the immediate supervisor. The Risk Management Division will provide supervisors with annual training.

Supervisors must contact the Risk Management to schedule training for new personnel assigned to work in noisy environments and for retraining of current personnel.

SECTION SEVEN - PROGRAM EVALUATION

Periodic program evaluations will be conducted to assess compliance with federal and state regulations and City Program requirements. Both the monitoring and audiometric testing portions of the City of Carson's Hearing Conservation Program will be reviewed annually to assure its quality and effectiveness.

An evaluation of the Program, including wearer acceptance, appraisal of protection afforded, and field audits of hearing protection use and record keeping will be conducted at least annually. Items to be considered include:

a. Training records and course content for supervisors and employees.
b. Maintenance of HPDs
c. Field audits of HPD use
d. Review of recorded threshold shifts on OSHA log.

The findings of the Hearing Conservation Program evaluation will be documented, and this documentation will list plans to correct faults in the program and set target dates for the implementation of the plans.

SECTION EIGHT - RECORDKEEPING

The City of Carson's Hearing Conservation Program records will include the following:

All non-medical records (ex. work area and equipment surveys) will be maintained for a period of five years. Results of hearing tests and medical evaluations performed for hearing conservation purposes as well as noise exposure documentation shall be recorded and shall be a permanent part of an employee's health record.

All personnel who routinely work in designated hazardous noise areas shall be identified and a current roster of such personnel shall be maintained by the Risk Management Division as well as Department Supervisors and updated periodically.

Appendix A

Noise - Training Information

NOISE

Supervisors and exposed workers must become aware of and understand the adverse effects of noise and how to prevent noise-induced hearing loss. People exposed to hazardous noise must take positive action, if progressive permanent hearing loss is to be prevented. Each exposed worker and supervisor should know the following.

A. Noise exposure may result in permanent damage to the auditory system and there is no medical or surgical treatment for this type of hearing loss. Though the use of a hearing aid may provide some benefit, normal hearing will not be restored. Many people don't realize loud sounds can cause hearing loss. Furthermore, in its initial stages, the person may not notice a problem since noise-induced hearing loss is invisible, painless, and occurs in the high frequencies. It is dangerous to ignore the temporary characteristics of noise-induced hearing loss (such as ringing or buzzing in the ears, excessive fatigue, etc.).
B. Each person should know how to recognize hazardous noise even if a noise survey has not been conducted an/or warning signs posted. Recognizing and understanding the adverse effects of off-duty noise exposures is also important. The best rule to follow is: "If you have to shout at arms length (approximately three feet) to talk face-to-face, you are probably being exposed to hazardous levels of noise."
C. Preventing noise-induced hearing loss is accomplished by reducing both the time and intensity of exposure. Reducing exposure time is accomplished by avoiding any unnecessary exposure to loud sound. Reducing intensity is usually accomplished by wearing personal hearing protection. Each person must be able to properly wear and care for the particular type of hearing protection selected. Speech communication is difficult in high intensity noise. However, most people don't realize it's easier to understand speech if hearing protection is worn in a hazardous noise environment. Hearing protection reduces the noise and the level of speech, resulting in a more favorable listening level. Hearing protection reduces the intensity of frequencies above the speech range; thus, reducing the noise and accentuating speech. People who claim wearing hearing protection makes it difficult to hear speech are probably in noise levels less than 85 dBA or have already developed a hearing loss.
D. Each person must know how to tell if they have been overexposed to loud sound. Overexposure may occur even while wearing hearing protection. Earplugs and/or earmuffs alone may not be enough protection. Each time a temporary threshold shift (TSS) occurs, a certain degree of permanent loss

results. The recognizable symptoms of overexposure are described as "dullness in hearing or ringing in the ears."

Appendix B

Cal-OSHA Title 8 Section 5097

Hearing Conservation Program

Subchapter 7. General Industry Safety Orders
Group 15. Occupational Noise
Article 105. Control of Noise Exposure

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§5097. Hearing Conservation Program.

(a) General. The employer shall administer a continuing, effective hearing conservation program, as described in this section, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A-scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with Appendix A and Table A-1 and without regard to any attenuation provided by the use of personal protective equipment.

(b) Monitoring.

(1) When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall obtain measurements for employees who may be exposed at or above that level. Such determinations shall be made by December 1, 1982.

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

(A) The sampling strategy shall be designed to identify employees for inclusion in the hearing conservation program and to enable the proper selection of hearing protectors.

(B) 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 employer shall use representative personal sampling to comply with the monitoring requirements of this section unless the

employer can show that area sampling produces equivalent results.

(C) All continuous, intermittent and impulsive sound levels from 80 dB to 130 dB shall be integrated into the computation.

(D) Instruments used to measure employee noise exposure shall be calibrated to ensure measurement accuracy.

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

(A) Additional employees may be exposed at or above the action level; or

(B) The attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of Section 5098(b).

(4) The employer shall provide affected employees or their representatives with an opportunity to observe any measurements of employee noise exposure that are conducted pursuant to this section.

(5) The employer shall notify each employee exposed at or above the action level of the results of the monitoring.

(c) Audiometric Testing Program.

(1) The employer shall establish and maintain an audiometric testing program as provided in this section by making audiometric testing available to all employees whose exposures equal or exceed the action level.

(2) The program shall be provided at no cost to employees.

(3) Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

(4) All audiograms obtained pursuant to this section shall meet the requirements of Appendix B: Audiometric Measuring Instruments.

(5) The employer shall establish for each employee exposed at or above the action level a valid baseline audiogram against which subsequent audiograms can be compared.

(6) Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. This requirement may be met by wearing hearing protectors that will reduce the employee's exposure to a sound level of 80 dBA or below.

(7) The employer shall notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

(8) Audiometric tests shall be made available to employees by June 1, 1983 or within 6 months of an employee's first exposure at or above the action level, except that where a mobile test van is used to conduct the audiometric test, the test shall be made available within one year of an employee's first exposure at or above the action level provided that all such employees are given an opportunity for testing.

NOTE: This requirement may be met by an audiogram available to the employer upon the effective date of this section provided the conditions under which the audiometric test was performed were the same as prescribed by this section.

(9) Where an employer chooses to have audiometric tests performed by a mobile test van in accordance with Section 5097(c)(8) and an employee's baseline audiogram has not been obtained within 6 months of the employee's first exposure at or above the action level, the employer shall make hearing protectors available to the employee in accordance with Section 5098 and require that the hearing protectors are worn by the employee until the baseline audiogram is obtained.

(10) At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above the action level.

(d) Evaluation of Audiogram.

(1) Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift, as defined in Section 5097(d)(8), has occurred. A technician may do this comparison.

(2) If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer may obtain a retest within 30 days and consider the results of the retest as the annual audiogram.

(3) An audiologist, otolaryngologist or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. The employer shall provide to the person performing this evaluation the following information:

(A) A copy of the requirements for hearing conservation as set forth in Sections 5097, 5098, 5099 and 5100.

(B) The baseline audiogram and most recent audiogram of the employee to be evaluated.

(C) Measurements of background sound pressure levels in the audiometric test room as required in Appendix C, Audiometric Test Rooms.

(D) Records of audiometric calibrations required by paragraph (f) of this section.

(4) If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined by Section 5097(d)(8), the employee shall be informed of this fact, in writing, within 21 days of the determination.

(5) Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift occurs:

(A) An employee not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them; and

(B) An employee already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.

(C) Refer the employee for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the employer suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.

(D) Inform the employee of the need for an otological examination if a medical pathology of the ear, which is unrelated to the use of hearing protectors, is suspected.

(6) If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour time-weighted average of 90 decibels indicates that a standard threshold shift is not persistent, the employer:

(A) Shall inform the employee of the new audiometric interpretation; and

(B) May discontinue the required use of hearing protectors for that employee.

(7) An annual audiogram may be substituted for the baseline audiogram when in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:

(A) The standard threshold shift revealed by the audiogram is persistent; or

(B) The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

(8) As used in this section, a standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000 and 4000 Hz in either ear.

(9) In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F: Determination and Application of Age Correction to Audiograms.

(e) Audiometric Test Requirements.

(1) Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000 and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

(2) Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used in accordance with, ANSI S3.6-1969.

(3) Pulsed-tone and self-recording audiometers, if used, shall meet the requirements specified in Appendix B, Audiometric Measuring Instruments.

(4) Audiometric examinations shall be administered in a room meeting the requirements listed in Appendix C, Audiometric Test Rooms.

(f) Audiometer Calibration.

(1) The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10 dB or greater shall require an acoustic calibration.

(2) Audiometer calibration shall be checked acoustically at least annually in accordance with Appendix D, Acoustic Calibration of Audiometers. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check. Deviations of 15 dB or greater necessitate an exhaustive calibration.

(3) An exhaustive calibration shall be performed at least every two years in accordance with Sections 4.1.2, 4.1.3, 4.1.4.3, 4.2, 4.4.1, 4.4.2, 4.4.3, and 4.5 of ANSI S3.6-1969. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this calibration.

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY 1. Amendment filed 10-3-83, effective thirtieth day thereafter (Register 83, No. 41).