

# Santa Clarita Community College District



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## HEARING CONSERVATION PROGRAM

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Revised

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## INTRODUCTION

Many operations may generate high noise levels. The harmful noise levels may cause occupational hearing losses or related hearing illnesses to employees working in such environments; therefore, it is essential that exposure to harmful noise levels be controlled.

The primary objective would be to prevent harmful noise levels. The prevention of harmful noise levels shall be accomplished by engineering controls whenever feasible. Examples of engineering controls may include:

- Enclosure or segregation of the operation
- Application of acoustical materials to absorb sound waves
- Substitution with equipment which will produce lower sound levels

Whenever engineering controls are not feasible or do not achieve full compliance to permissible exposure limits, administrative controls, when practical, shall be implemented. Administrative controls may include such items as work practices and time allotted to exposures.

Hearing protection equipment shall be used to prevent or reduce exposure to harmful noise levels only under the following conditions:

- when feasible engineering and administrative controls fail to reduce harmful exposures to employees to a safe level
- during the time period necessary to install or implement feasible engineering controls

The remaining sections of this document deal with the Hearing Conservation Program being implemented by the District.

## **HEARING CONSERVATION PROGRAM**

### **1.1 DISTRICT POLICY**

The Santa Clarita Community College District (hereafter referred to as District) is committed to protecting the health, safety and welfare of its employees while they are performing District required jobs. The District will make all reasonable attempts to determine what operations may cause harmful noise levels to be generated in the work environment. When an assessment indicates potential noise levels above safe levels, the District will attempt to implement feasible engineering and/or administrative controls to reduce the exposure to a safe level. While the engineering and/or administrative controls are being implemented or if the controls are not adequate, the District will require implementation of a Hearing Conservation Program.

The Hearing Conservation Program will be based on the requirements of:

1. California Code of Regulations, Title 8, Article 105, Sections 5095-5100;
2. 29 Code of Federal Regulations, Part 1910.95; and
3. American National Standard Institute (ANSI) S1.4-1971 (R1976), S1.11-1971 (R1976), and S3.6-1969.

Section 2 of this document is the District's Written Hearing Conservation Plan, and as such will contain all pertinent information regarding the Hearing Conservation Program.

### **1.2 PLAN REVIEW**

To ensure that the written Hearing Conservation Plan remains a viable working document that reflects the current needs and status of the District, the Plan will be reviewed annually by the Director, Human Resources Operations and any updates to the Plan will be communicated to employees.

## **WRITTEN HEARING CONSERVATION PLAN**

### **2.1 PROGRAM ADMINISTRATION**

The Hearing Conservation Program will be under the responsibility of the District's Human Resources Department. Human Resources will be responsible for the management of this program and for ensuring that all aspects of this program are followed.

### **2.2 WHEN AND WHERE TO BE WORN**

Protection against the effects of noise exposure shall be provided when the noise exposures equal or exceed an 8-hour time-weighted-average (TWA) of 85 decibels (dB) 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 CCR, Title 8, Article 105, Appendix A, including Table N-1, and without regard to any attenuation provided by the use of personal protective equipment.

When employees are subjected to sound levels exceeding those listed in Appendix A, Table N-1, feasible engineering or administrative controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table. If the variations in noise level involve maxima at intervals of 1 second or less, the noise is to be considered continuous. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

### **2.3 NOISE LEVEL MONITORING**

When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the District shall obtain measurements for employees who may be exposed at or above that level. The monitoring may be either area monitoring or personal monitoring that is representative of the employee's exposure.

The first step of the monitoring program shall be to identify the employees or work classifications potentially exposed to high noise levels. Then the nature of the employee's work task shall be evaluated to determine if area or personal monitoring shall be conducted. Area monitoring may be used to estimate noise exposure when the noise levels are relatively constant and employees are not mobile. Where circumstances such as high worker mobility, significant variation in sound level or a significant component of impulse noise make area monitoring generally inappropriate, the District shall use representative personal monitoring sampling, unless area sampling produces equivalent results. All continuous, intermittent and impulsive sound levels from 80 dB to 130 dB shall be integrated into the computation.

### **2.3.1 Monitoring Methods**

Noise exposure shall be measured utilizing either a sound level meter or a dosimeter. Sound level meters will be used to take area measurements. Dosimeters will be used to take personal monitoring samples. All instruments used to measure employee noise exposure shall be calibrated before and after each use to ensure measurement accuracy. The instrument manufacturer's instructions shall be followed for calibration and maintenance of the monitoring equipment.

When sound level meters are selected, several measurements at different locations within the workplace being assessed, and at different times of the day, shall be made. A map shall be drawn to identify the location at which the readings were taken, and a record of the times the readings were taken shall be maintained.

A dosimeter shall be utilized for personal monitoring. The dosimeter microphone shall be attached to the employee's clothing and the exposure measurement read at the end of the desired time period. A record shall be kept of the employee's activities and work location(s) during the time of the measurement.

### **2.3.2 When Monitoring Shall Occur**

The District shall conduct monitoring at the beginning of the Hearing Conservation Program to determine the current employee exposures. Additional monitoring shall be conducted on an annual basis in order to ensure all exposed employees are included in the Hearing Conservation Program. Monitoring shall also be conducted whenever there is a significant change in machinery, production processes, procedures or controls, which may increase noise exposures to the extent that:

- additional employees may be exposed at or above the action level, or
- the attenuation provided by the hearing protectors being used by employees may be rendered inadequate to meet the requirements of the regulations.

The District shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted in compliance with hearing conservation regulations.

## **2.4 AUDIOMETRIC TESTING PROGRAM**

The District shall establish and maintain an audiometric testing program. The testing program shall include all employees whose exposures equal or exceed an 8-hour time weighted average of 85 decibels measured on the A-scale (slow response) or, equivalently, a dose of fifty percent. The testing shall be conducted at no cost to the employees and the employees shall be notified of the test results.

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 of 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 (hereinafter referred to as medical expert).

The person conducting the audiometric tests shall provide the District with written results of the tests, instrument calibration and certification information and the credentials of the person conducting the tests and the credentials of the responsible medical expert. All audiograms must be obtained pursuant to the requirements listed in CCR, Title 8, Article 105, Appendix B.

The District shall establish for each employee exposed at or above the action level, a valid baseline audiogram against which subsequent audiograms will be compared. The baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. This may be achieved by requiring the employee to wear hearing protectors, which will reduce the employee's exposure to a sound level of 80 dBA or below. The baseline audiogram shall be conducted 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.

When the District chooses to utilize the services of a mobile test van and an employee's baseline cannot be obtained within 6 months of their first exposure at or above the action level, the employee shall be required to wear hearing protectors in the workplace until the baseline audiogram is obtained. Employee's failure to comply with this requirement may result in disciplinary action.

Audiograms shall be conducted at least annually, after obtaining the baseline audiogram for all employees exposed to noise levels at or above the action level.

## **2.5 EVALUATION OF AUDIOGRAMS**

The District will ensure each employee's annual audiogram is compared to their baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. This comparison may be done by a technician. If the annual audiogram shows that an employee has suffered a standard threshold shift, the District shall obtain a retest within 30 days and consider the results of the retest as the annual audiogram.

The District will ensure a medical expert reviews all problem audiograms to determine whether there is a need for further evaluation. The District shall provide the professional performing the evaluation with the following information:

- a copy of the requirements for hearing conservation as set forth in CCR, Title 8, Sections 5097, 5098, 5099 and 5100;
- the baseline audiogram and most recent audiogram of the employee to be evaluated;

- measurements of background sound pressure levels in the audiometric test room as required in CCR, Title 8, Article 105, Appendix C; and
- records of audiometric calibrations required by the regulation.

If the comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the District will inform the employee of this fact, in writing, within 21 days of the determination. 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. 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 CCR, Title 8, Article 105, Appendix F.

If the standard threshold shift is determined to be work related or aggravated by occupational noise exposure, the District shall ensure the following steps are taken:

- if the employee was not previously wearing hearing protection, they shall be fitted with hearing protectors, trained in their use and care, and required to use them;
- if the employee was already wearing hearing protection, they shall be refitted and retrained in the use of hearing protectors, provided with hearing protectors offering greater attenuation, if necessary, and required to use them;
- the employee will be referred for clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the District suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors; or
- the employee will be informed 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.

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the District:

- shall inform the employee of the new audiometric interpretation; and
- may discontinue the requirement for the employee to use hearing protection.

An annual audiogram may be substituted for the baseline audiogram when in the judgement of the audiologist, otolaryngologist or physician who is evaluating the audiogram determines:

- the standard threshold shift revealed by the audiogram is persistent; or
- the hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.



## **2.6 AUDIOMETER TEST REQUIREMENTS**

The District will ensure audiometric tests are 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.

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. Pulse-tone and self-recording audiometers, if used, shall meet the requirements specified in CCR, Title 8, Article 105, Appendix B. Audiometric examinations shall be administered in a room meeting the requirement listed in CCR, Title 8, Appendix C.

## **2.7 AUDIOMETER CALIBRATION**

The District will ensure the functional operation of the audiometer is 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.

Audiometer calibration shall be checked acoustically at least annually in accordance with Appendix D of CCR, Title 8, Article 105. Test frequencies below 500 Hz and above 6000 Hz will be omitted from this check. Deviations of 15 dB or greater will require an exhaustive calibration.

## **2.8 HEARING PROTECTORS**

The District will make hearing protectors available to all employees exposed to an 8-hour TWA of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary. The District shall provide the employees the opportunity to select their hearing protectors from a variety of suitable hearing protectors. The employees will be trained in the proper use and care of all hearing protectors provided. The District will ensure proper initial fitting of hearing protectors. Supervisors and management personnel shall supervise and enforce the correct use of all hearing protectors. Failure on the part of the employee to comply with the requirement to correctly wear hearing protection may result in disciplinary action.

Employees shall wear hearing protectors when:

- they are exposed at or above noise levels listed in Table N-1 in Appendix A of this document;
- they are exposed to an 8-hour TWA of 85 decibels or greater, and who:
  - are required to wear hearing protectors because baseline audiograms have not been established yet; or
  - have experienced a standard threshold shift.

## **2.9 HEARING PROTECTOR ATTENUATION**

The District shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. The District will use one of the methods described in Appendix B of this document. Hearing protectors must attenuate employee exposure at least to an 8-hour TWA average of 90 decibels for employees who have not experienced a standard threshold shift. For employees who have experienced a standard threshold shift, hearing protectors shall attenuate employee exposures to an 8-hour TWA of 85 decibels or below. The adequacy of hearing protector attenuation shall be reevaluated whenever employee noise exposure increases to the extent that the hearing protectors provided may no longer provide adequate attenuation. The District will provide more effective hearing protectors where necessary.

## **2.10 EMPLOYEE TRAINING**

The District shall institute a training program for all employees who are exposed to noise at or above an 8-hour TWA of 85 dB, and shall ensure employee participation in such training programs. The training program shall be repeated annually for each employee included in the Hearing Conservation Program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

The training will consist of at least the following:

- the effects of noise on hearing;
- the purposes of hearing protectors, and the advantages, disadvantages, attenuation of various types, and instructions on selection, fitting, use and care;
- the purpose of audiometric testing, and an explanation of the test procedures;
- the employee's right to review CCR, Title 8, Article 105, and any informational materials pertaining to this standard that are supplied to the District by the U.S. Department of Labor, Occupational Safety and Health Administration; and
- the requirement of the District to notify them of any standard threshold shift.

## **2.11 RECORDKEEPING**

The District will maintain and retain records of:

- employee exposure measurements, retention 2 years;
- employee audiometric tests and notifications, retention duration of affected employee's employment; and/or
- audiometric test room measurements and calibrations, retention 2 years.

The employee's audiometric test records shall consist of:

- the name and job classification of the employee;
- the date of the audiogram;
- the examiner's name;
- the date of the last acoustic or exhaustive calibration of the audiometer; and
- the employee's most recent noise exposure assessment.

All records required by CCR, Title 8, Article 105, shall be provided upon request to employees, former employees, representatives designated by the individual employee and any authorized representative of the Chief of the Division.

## APPENDIX A

### **TABLE N-1 PERMISSIBLE NOISE EXPOSURE**

**TABLE N-1 PERMISSIBLE NOISE EXPOSURE <sup>1</sup>**

*Permitted Duration  
Per Workday*

<i>Sound Level</i>			<i>Sound Level</i>		
<i>(dBA)</i>	<i>(hours-minutes)</i>	<i>hours</i>	<i>(dBA)</i>	<i>(hours-minutes)</i>	<i>hours</i>
90	8-0	8.00	103	1-19	1.32
91	6-58	6.96	104	1-9	1.15
92	6-4	6.06	105	1-0	1.00
93	5-17	5.28	106	0-52	0.86
94	4-36	4.60	107	0-46	0.76
95	4-0	4.00	108	0-40	0.66
96	3-29	3.48	109	0-34	0.56
97	3-2	3.03	110	0-30	0.50
98	2-38	2.63	111	0-26	0.43
99	2-18	2.30	112	0-23	0.38
100	2-0	2.00	113	0-20	0.33
101	1-44	1.73	114	0-17	0.28
102	1-31	1.52	115	0-15	0.25

<sup>1</sup> When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions:  $C_1/T_1 + C_2/T_2 \dots C_n/T_n$  exceeds unity, then, the mixed exposure should be considered to exceed the limit value.  $C_n$  indicates the total time of exposure at a specified noise level, and  $T_n$  indicates the total time of exposure permitted at that level.

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

**APPENDIX B**

***HEARING PROTECTOR ATTENUATION***

## HEARING PROTECTOR ATTENUATION

The District will evaluate the hearing protectors provided to ensure the proper attenuation for the specific noise environments in which the protector will be used. One of the following methods will be utilized to estimate the adequacy of hearing protection attenuation:

- The Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA) will be related to the individual worker's noise environment in order to assess the adequacy of the attenuation of a given hearing protector. The NRR, which must be shown on the hearing protector package, is used in conjunction with the appendix to determine whether a particular hearing protector provides adequate protection within a given exposure environment. Selection among the four procedures of the appendix is dependent upon the noise measuring instruments utilized by the District, or the persons conducting the noise survey.

### OR

- Instead of using the NRR, the hearing protectors may be evaluated by using one of the three methods developed by the National Institute for Occupational Safety and Health (NIOSH), which are described in the "List of Personal Hearing Protectors and Attenuation Data", HEW Publication No. 76-120, 1975, pages 21-37. These methods are known as NIOSH methods #1, #2 and #3. The NRR described below is a simplification of NIOSH method #2. The most complex method is NIOSH method #1, which is probably the most accurate method since it uses the largest amount of spectral information from the individual employee's noise environment. As in the case of the NRR method described below, if one of the NIOSH methods is used, the selected method must be applied to an individual's noise environment to assess the adequacy of the attenuation. The District shall ensure a sufficient number of measurements in order to achieve a representative sample for each time segment.

- **Description of NRR Methods:**

When using the NRR to assess hearing protector adequacy, one of the following methods must be used:

1. When using a dosimeter that is capable of C-weighted measurements:
  - Obtain the employee's C-weighted dose for the entire work shift, and convert to TWA (see Appendix A).
  - Subtract the NRR from the C-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

2. When using a dosimeter that is not capable of C-weighting measurements, the following method may be used:
  - Convert the A-weighted dose to TWA (see Appendix A).
  - Subtract 7 dB from the NRR.
  - Subtract the remainder of the NRR from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.
3. When using a sound level meter to set to the A-weighting network:
  - Obtain the employee's A-weighted TWA.
  - Subtract 7 dB from the NRR, and subtract the remainder of the NRR from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.
4. When using a sound level meter set on the C-weighted network:
  - Obtain a representative sample of the C-weighted sound levels in the employee's environment.
  - Subtract the NRR from the C-weighted average sound level to obtain the estimated A-weighted TWA under the ear protector.

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

## APPENDIX C

### *CALIFORNIA CODE OF REGULATIONS, TITLE 8, ARTICLE 105*

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

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#### **Appendix E**

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##### Methods for Estimating the Adequacy of Hearing Protector Attenuation

I. For employees who have experienced a standard threshold shift, hearing protector attenuation must be sufficient to reduce employee exposure to a TWA of 85 dB. Employers must select one of the following methods by which to estimate the adequacy of hearing protection attenuation.

II. The most convenient method is the Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA). According to EPA regulation, the NRR must be shown on the hearing protector package. The NRR is then related to an individual worker's noise environment in order to assess the adequacy of the attenuation of a given hearing protector. This Appendix describes four methods of using the NRR to determine whether a particular hearing protector provides adequate protection within a given exposure environment. Selection among the four procedures is dependent upon the employer's noise measuring instruments.

III. Instead of using the NRR, employers may evaluate the adequacy of hearing protector attenuation by using one of the three methods developed by the National Institute for Occupational Safety and Health (NIOSH), which are described in the "List of Personal Hearing Protectors and Attenuation Data," HEW Publication No. 76-120, 1975, pages 21-37. These methods are known as NIOSH methods #1, #2 and #3. The NRR described below is a simplification of NIOSH method #2. The most complex method is NIOSH method #1, which is probably the most accurate method since it uses the largest amount of spectral information from the individual employee's noise environment. As in the case of the NRR method described below, if one of the NIOSH methods is used, the selected method must be applied to an individual's noise environment to assess the adequacy of the attenuation. Employers should be careful to take a sufficient number of measurements in order to achieve a representative sample for each time segment.

NOTE: The employer must remember that calculated attenuation values reflect realistic values only to the extent that the protectors are properly fitted and worn.

IV. When using the NRR to assess hearing protector adequacy, one of the following methods must be used:

(a) When using a dosimeter that is capable of C-weighted measurements:

(1) Obtain the employee's C-weighted dose for the entire workshift, and convert to TWA (see



Appendix A).

(2) Subtract the NRR from the C-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

(b) When using a dosimeter that is not capable of C-weighted measurements, the following method may be used:

(1) Convert the A-weighted dose to TWA (see Appendix A).

(2) Subtract 7 dB from the NRR.

(3) Subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

(c) When using a sound level meter set to the A-weighting network:

(1) Obtain the employee's A-weighted TWA.

(2) Subtract 7 dB from the NRR, and subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

(d) When using a sound level meter set on the C-weighting network:

(1) Obtain a representative sample of the C-weighted sound levels in the employee's environment.

(2) Subtract the NRR from the C-weighted average sound level to obtain the estimated A-weighted TWA under the ear protector.

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).