
# Hearing Conservation Program

**Santa Clara University**
**500 El Camino Real**
**Santa Clara, CA 95053**

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## Program Approval

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| *Signature on file in the EHS Office* | *5/19/10* |
| **Signature** | **Date** |
| Joe Sugg<br>Assistant Vice President University Operations, University Operations | |

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|---|---|---|
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| 2 | November 2013 | Annual Program Review |
| | | |
| | | |

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# Hearing Conservation Program

## 1. Purpose

The purpose of this program is to prevent hearing loss at Santa Clara University (SCU) by controlling exposures to hazardous noise levels through the following elements:

- Reduce noise exposure where feasible.
- Determine noise exposure where unavoidable noise occurs.
- Protect noise-impacted personnel through the use of personal hearing protection devices and periodic audiometric monitoring where necessary.

## 2. Applicability

This program provides the minimum requirements for SCU Staff, Faculty, and temporary employees for the protection of hearing. Contractors are required to abide by SCU's hearing protection requirements and provide their employees with the appropriate hearing protection for the location and work being performed.

## 3. Definitions

The most pertinent definitions for all users are contained in Attachment I. Review and use as necessary.

## 4. Roles / Responsibilities

The following are the SCU Roles and Responsibilities in regards to hearing conservation:

| Group | Responsibilities |
|---|---|
| EHS | • Responsible for the overall administration of the Hearing Conservation Program.<br>• Ensure that jobs and areas are evaluated for exposure to excessive noise as new jobs or areas are developed and at a minimum, an annual review of existing jobs and areas.<br>• Ensure that jobs and areas where excessive noise is identified are evaluated to determine whether engineering and administrative controls are reasonable to lesson noise exposure.<br>• Ensure that areas where excessive noise has been identified are posted and that appropriate hearing protective devices are available for use.<br>• Arrange audiometric testing and manages the relationship with medical personnel involved in the program including validating that Cal/OSHA audiogram testing requirements are met. |

| | |
|---|---|
| | • Advise employees of the need to avoid high levels of non-occupational noise exposure during the 14 hours prior to the testing.<br>• Ensure that personnel receive copies of their noise exposure monitoring data.<br>• Ensure that personnel exhibiting an OSHA Standard Threshold Shift (STS) or that need further medical attention for their hearing, receive written notification within 21 days. |
| Supervisors | • Assure that employees participate in audiometric testing when required.<br>• Relay employee concerns about excessive noise to EHS.<br>• Ensure that employees participate in necessary training.<br>• Ensure that employees utilize hearing protective devices where and when required. |
| Employees, Faculty, Academic Staff, and Student Employees | • Use hearing protective devices in accordance with training and instructions.<br>• Participate in audiometric testing and medical evaluations when required.<br>• Avoid high levels of occupational and non-occupational noise exposure for the 14 hours preceding the audiogram.<br>• Report concerns about excessive noise to their Supervisor or Faculty. |
| Human Resources | • Update OSHA 300 Log based on employees/students exhibiting an OSHA Standard Threshold Shift (STS) or need further medical attention for their hearing.<br>• Consult with EHS, Supervisors and Faculty regarding communicating noise exposure monitoring data |

## 5. Design Requirements

Utilize where ever possible, design features for new operations, equipment and processes that minimize noise impacts.

## 6. Procedure

### Prevention of Hearing Problems

- Engineering Controls are considered the primary means of reducing Noise levels in the workplace.
- Administrative measures and changes in hearing protection may be used to reduce employee noise exposures as a secondary means of control.
- Warning signs are placed in any area determined to have noise levels in excess of 85 dBA to alert employees and students to the hazard:
    - When signed “Hearing Protection Required” hearing protection in such areas is mandatory, regardless of the noise exposure duration.
    - If equipment is used intermittently, then signs should read “Hearing Protection Required When Equipment is Running.”
- All employees who may potentially be exposed to more than 85 dBA for 30 minutes or more each day and any employee whose audiometry shows a significant threshold shift are provided with hearing protection.
- Hearing protection is mandatory for all employees, students, faculty, contractors (appropriate protection provided by contractor) and visitors who enter areas that are signed requiring hearing protection.
- Hearing protective devices are provided by SCU at no cost to staff, faculty or employees.
- Employees are provided with a variety of hearing protective devices to ensure a good and comfortable fit.
- All hearing protective devices provided will be evaluated for noise level attenuation for the specific noise environments in which they will be used.

### Identifying Noise Sources

#### General Noise Surveys

- Every year, an evaluation will be conducted to determine if any new equipment, processes and work areas has been added to SCU where noise levels may exceed acceptable employee exposure limits. Any suspected area is surveyed for actual noise levels. Areas determined to be greater than 85 dBA will be posted with appropriate signs indicating this status.

#### New or Non-Routine Operation Surveys

- Noise surveys are conducted during the startup of new or non-routine operations that may affect overall noise levels. In this way, any special personal protective equipment or exposure monitoring can be arranged prior to long-term employee exposure to hazardous noise levels.

- Additional monitoring is also performed when any employee expresses concern regarding high noise levels.

**Personnel Monitoring**

- Personnel monitoring is conducted, using noise dosimeters, when information from either area sampling or from other similar operations, indicates that the exposure may exceed 85 dBA for 30 minutes or more each day.
- Employee complaints, changes in annual audiograms or noisy conditions that make normal conversation difficult may also initiate personnel monitoring.

**For all Surveys and Monitoring**

- Surveys/monitoring conducted by internal personnel or by outside consultants, must be conducted by or under the direction of a Certified Industrial Hygienist.
- The survey/monitoring equipment must be properly calibrated prior to use.
- The survey/monitoring must be documented in the form of a report.

**Identification of SCU Noise Exposure Operations**

Attachment 2 contains the current operations that have been identified as having the potential to exceed noise levels above 85 dbA for 30 minutes or more.

## Monitoring the Impact of Noise- Audiometric Evaluations (Audiograms)

- Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to occupational and non-occupational noise. This may be met by wearing hearing protection which will reduce the employee's exposure to a sound level of 80 dBA or below.
- All SCU employees (including temporary employees on a six month or greater assignment), if they are potentially exposed to high noise levels, receive pre-employment and annual audiometric exams at no cost to them. The tests must 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 and employees are given hearing protection for use within 6 months of start of work. The results of each new exam are compared to the employee's first audiogram recorded as the baseline to determine whether any standard threshold shift has occurred.
- Any employee who shows evidence of an OSHA Standard Threshold Shift or needs further medical attention for their hearing are notified in writing (within 21 days) and required to wear hearing protection in all potentially high noise areas of the facility. Those employees' work areas and job assignments may also be carefully reviewed to determine whether additional control methods can be implemented. A retest and or medical consultation may be scheduled at the local clinic within 30 days of receiving the results.

- While SCU does not offer audiograms to contractor personnel, the contractor selection process includes information regarding the need for a hearing conservation program as appropriate to assigned tasks and the Contractor is responsible for providing hearing protection and monitoring for their employees.
- SCU ensures that the vendor chosen to conduct the audiograms meets Cal/OSHA requirements for audiometric testing.

## 7. Reporting

**Employee Notification:**

- EHS ensures that employees receive a written notice of the results of his/her noise exposure monitoring within 21 days of the Facility receiving the results. This information is also communicated to the employee's supervisors so that they are aware of any need for increased hearing protection.
- EHS will within 21 days provide copies of the annual audiogram to employees who have had a Standard Threshold Shift in their annual audiogram or need further medical attention for their hearing and access to a professional audiologist or physician for interpretation of results.

**OSHA 300 Log:**

A hearing loss must be recorded on the OSHA 300 Log if the employee's hearing test (audiogram) reveals:

- Change in hearing threshold (STS) relative to the baseline audiogram of an average of 10 dB or more in either ear at 2000, 3000 & 4000 Hz; and,
- The employee's total hearing loss is 25 dB or more above audiometric zero (also averaged at 2000, 3000 & 4000 Hz) in the same ear(s).

If there is evidence that the loss is not occupationally related (e.g. medical in nature), then the loss is not logged. However, documentation of the evaluation used to determine that the hearing loss was not occupationally related should be retained for five (5) years.

## 8. Training and Awareness

- All employees, students, or faculty who are exposed to noise above the exposure limits must receive annual training. Awareness training is completed for new employees and faculty during initial on the job training.
- The training covers the following topics:
  - Definition of noise
  - The effects of high noise levels
  - The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care
  - Areas of the facility where high noise levels exist
  - Explanation of audiometric exams

## 9. Record Retention

Completed records will be maintained as follows:

| Record | Location | Duration | Responsible Party |
|---|---|---|---|
| Employee exposure monitoring records (including area monitoring results) | EHS files | Length of employment plus 30 years | EHS Director |
| Employee audiograms and audiometric calibration data | EHS files | 30 years | EHS Director |
| Employee Notifications of OSHA Standard Threshold Shift | Employee file | 30 years | Department of Human Resources |
| Documentation of the evaluation used to determine that a hearing loss was not occupationally related | HR OSHA Log files | 5 years | Department of Human Resources |

## 10. Key References and Resources

- 8 CCR 5095 – 5100
- American National Standard Specification for Audiometers, S3.6-1969

# Attachment 1

# Definitions

- **Administrative Controls**: also be referred to as operational controls, limits the length of time workers are exposed to noise in the work area.

- **Audiogram**: also known as Noise- Audiometric Evaluations are tests using a pure tone air conduction analysis of both ears at 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hz to determine hearing loss.

- **Engineering Controls***:* making changes in the machinery, the way the machinery operates, or the design of the structure in which the machinery is housed can control noise levels. Engineering controls include barriers, damping, isolation, muffling, noise absorption, mechanical isolation, and variations in force, pressure or driving speed, combinations of these and other means of reducing noise emissions.

- **Exposure Limits:** noise in excess of the limits set in Cal-OSHA Title 8, Section 5096:

| Permitted Duration | | | Permitted Duration | | |
|---|---|---|---|---|---|
| **Sound Level (dBA)** | **Per Workday (hours-minutes)** | **Hours** | **Sound Level (dBA)** | **Per Workday (hours-minutes)** | **Hours** |
| 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 |

**Hearing Loss**: can be defined as a the result of audiogram testing:

- 0 db level the “normal ideal” for the young adult
- 0 to 25 db level within normal limits of hearing
- 26 to 40 db level mild hearing loss
- 41 to 70 db level moderate hearing loss
- 71 to 90 db level severe hearing loss
- 91 and above db level profound hearing loss

**Personal Protective Equipment***:* hearing protectors, earmuffs or earplugs.

**OSHA Standard Threshold Shift (STS):** the amount of hearing loss that would require recording an employee's on the OSHA 300 Log. Recording is required if the change in hearing threshold (STS) relative to the baseline audiogram is an average of 10 dB or more in either ear at 2000, 3000 & 4000 Hz and the employee's total hearing loss is 25 dB or more above audiometric zero (also averaged at 2000, 3000 & 4000 Hz) in the same ear(s).

# Attachment 2

## Operations Needing Hearing Protection

The current operations that have been identified as requiring hearing protection as they have the potential to exceed noise levels above 85 dbA for 30 minutes or more:

- Grounds Maintenance
- Facility Repair Shops
- Facilities Recycle Center
- Emergency Generator Operations
- Chillers