



**A STANDARD OPERATING PROCEDURE  
for**

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# **Hearing Protection and Occupational Noise Exposure**

July 2001

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U.S. General Services Administration  
Safety and Environmental Management Team  
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Kansas City, MO 64131

## INTRODUCTION

This Standard Operating Procedure (SOP) for hearing protection and occupational noise exposure is based upon criteria derived from Title 29, Code of Federal Regulations (CFR), Part 1910.95, which requires the establishment of a Hearing Conservation Program (HCP) for employees exposed to an 8-hour time-weighted average (TWA) of 85 decibels on the A-weighted scale (dBA) or greater.

Excessive noise, under a variety of conditions, has been identified as a hazard to the people exposed to it. HCPs have been proven to be effective in managing noise hazard areas in the workplace and for providing controls for those individuals exposed to noise hazards. Hearing loss is most often subtle and cumulative; impairment may not be recognized until after it is too late to take corrective action. The Occupational Safety and Health Administration (OSHA) has recently given guidance to its Compliance Officers to view hearing loss as a cumulative trauma disorder requiring entry onto GSA Form 3624, Log of Occupational Injuries and Illnesses.

Safety requirements for the protection against hazardous noise are contained in Title 29, Code of Federal Regulations, Part 1910.95. The criteria contained therein is mandatory for all GSA employee tasks involving exposure to hazardous noise sources.

This SOP should be used as a model for the development of a regional SOP (in conjunction with the OSHA standard) for hazardous noise sources if one does not currently exist. The use of this SOP is not mandatory. However, if a region elects not to implement this SOP into the daily work routine, a locally-developed SOP must be implemented by the region. Locally-developed SOP criteria must be at least as stringent as the requirements specified herein.

It is incumbent upon the Facility Manager to ensure the criteria stated in the appropriate standards are enforced. It is the individual supervisor's responsibility to ensure employees are properly trained to comply with the criteria. This SOP will assist those responsible in meeting their obligations.

OSHA standards may be obtained from the local OSHA Area Office or purchased from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.

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General Services Administration  
Heartland Region

**HEARING PROTECTION AND OCCUPATIONAL NOISE EXPOSURE**

1. **PURPOSE**. This SOP establishes minimum performance standards for a hearing protection and occupational noise exposure program. The SOP also outlines procedures for assessing GSA owned or leased space for noise hazards; for performing operations in a noise hazard area; and for monitoring individuals exposed to noise hazards.

2. **SCOPE**. The procedures in the document are applicable to all GSA operations and personnel who are or may be exposed to potentially hazardous sound levels.

3. **DEFINITIONS**.

a. Hazardous Noise.

(1) Continuous noise levels at or in excess of 85 dBA or, alternatively, a dose at or in excess of 100 percent, based upon an 8-hour TWA; or

(2) Impulsive or impact noise pulses from, linearly, 10,000 per day at 120 dB to 100 per day at 140 dB. Impact or Impulsive noise is considered to be those variations in noise levels that involve maxima at intervals of greater than one per second.

b. Significant Threshold Shift (STS). A shift in hearing threshold, outside the range of audiometric testing variability (5 dB), that warrants follow-up action to prevent further hearing loss.

b. Time Weighted Average (TWA) Sound Level. That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

4. **REFERENCES**.

a. OSHA 29 CFR 1910.95, Occupational Noise Exposure.

5. **GENERAL INFORMATION**.

a. Noise-induced hearing loss is among the ten leading causes of work-related illness and injury. In 1988, the National Institute for Occupational Safety and Health (NIOSH) estimated

more than 8 million workers in the United States are exposed to potentially hazardous average daily levels of noise at 90 decibels on the "A" weighted scale (dBA) and above. Five reasons for noticeable changes in an individual's hearing are: a medical concern, occupational exposure, non-occupational exposures, improper testing methods/data, and the natural aging process.

b. A Hearing Conservation Program (HCP) must be implemented at any workplace where noise exposures for an 8-hour time weighted average (TWA) equal or exceed ( $\geq$ ) 85 dBA. Administrative or engineering controls must be used to reduce noise exposure, if possible, before the broad-based approach of using hearing protection.

c. Workplaces where exposure to noise  $\geq$  an 8-hour TWA of 85 dBA must be identified. Employees who work in these areas must be tested periodically for any shift in their hearing threshold. A significant threshold shift (STS)  $\geq$  10 dBA relative to the baseline audiogram at the 2,000, 3,000 and 4,000 Hertz (Hz) will be cause to have the test repeated, within two weeks, to confirm any shift in hearing threshold. This 10 dBA criterion is meant to be an early warning mechanism by which to trigger further investigation and, if necessary, mitigation to take corrective action at the earliest sign of possible damage.

## 6. RESPONSIBILITIES.

a. Facility Managers. Each manager of a GSA activity having personnel exposed to hazardous noise, as outlined herein, is responsible for implementation of the hearing conservation program within his or her facility.

b. Regional OSH Program Offices. Regional OSH Program Offices shall assist responsible facility managers and supervisors in identifying hazardous noise sources; developing appropriate engineering/administrative controls to mitigate exposures, where possible; selecting appropriate personal protective devices for the noise hazards; and providing training required by this SOP.

c. Supervisors. Anyone exercising supervisory authority over a GSA employee exposed to hazardous noise, as defined herein, shall:

(1) Ensure that each affected employee is provided the training required by this SOP.

(2) Ensure each authorized employee has available and utilizes the proper hearing protective devices when exposed to hazardous noise, as defined herein.

7. HEARING CONSERVATION PROGRAM. A HCP is required for all employees exposed to an 8-hour TWA of 85 dBA or greater. The HCP must include the following:

a. Noise Monitoring.

(1) Initial Noise Surveys. A complete and up-to-date noise level survey must be on record. This will be accomplished during the annual Occupational Safety and Health (OSH) reviews. When an area or process has been identified as having a potential for noise hazards, the regional OSH Program Office will arrange for monitoring to ensure an accurate noise level is on record.

(2) Repeat Noise Surveys. Monitoring must be repeated whenever increased noise exposures are suspected due to a change in processes, equipment or controls. Facility Managers should advise the regional OSH Program Office whenever changes occur which would be expected to increase or decrease noise levels.

(3) Employee Notification. Employees who work in an area which is monitored will be informed of the results of the monitoring by correspondence from the regional OSH Program Office through their Facility Manager.

b. Audiometric Testing.

(1) Audiometric testing will be accomplished by a qualified practitioner as part of the medical surveillance program for employees exposed to occupational hazards.

(2) A baseline audiogram will be obtained within six months of being assigned to the medical surveillance program. Employees will be tested at least annually thereafter. The audiometric examination will include the frequencies of 500; 1,000; 2,000; 3,000; 4,000; and 6,000 Hertz (Hz) separately for each ear. Medical personnel will review the audiograms and determine the need for further examination.

(3) If the annual audiogram shows a STS of 10 dB or more from the baseline readings at 2,000; 3,000; and 4,000 Hz, the medical practitioner will notify both the affected employee and the regional OSH Program Office. Arrangements will be made for retesting the individual by the medical practitioner to determine the validity of the audiogram.

(4) A STS of 25 or more decibels is considered to be of such magnitude as to require an entry on GSA Form 3624, Log of Occupational Injuries and Illnesses, as a reportable cumulative trauma occupational injury. In this case, OWCP Form CA-2 are required to be filed with the responsible regional Human Resources office (from which the forms are also available).

(5) All records of testing and follow-up will be retained.

c. Hearing Protection.

(1) Engineering and/or administrative controls will be utilized first in an attempt to reduce the noise level or exposure. When these attempts fail to alleviate the problem, then hearing protectors must be made available to all employees exposed to 85 dBA TWA or greater. The use of hearing protectors is mandatory for employees in the hearing conservation program who are exposed to greater than 90 dBA TWA; who have a documented STS; and/or those individuals who have been employed for six months, who would normally be in a medical surveillance program, without being scheduled for a baseline audiogram.

(2) Facility Managers will make available, at no cost to the employee, hearing protection devices which will attenuate the noise to an acceptable level (see Paragraph 5.d., below). Employees will be informed about the mandatory use of hearing protection in areas designated as noise hazard areas.

(3) Employees who have a documented STS of 10 dBA or more will be provided hearing protectors which will attenuate the occupational noise exposure to an 8-hour TWA of 80 dB or below.

d. Noise Reduction Ratings. Hearing protection (attenuation) devices carry, on their packaging, a Noise Reduction Rating (NRR) number by which the manufacturer rates it's products capacity to reduce the level of decibels. These numbers, for the most part, have been over-inflated by skillful marketing designs to such a level that they are untrustworthy, unless adjusted. OSHA provides the following formula, to be applied when trying to determine the proper protective NRRs:

$$\text{NRR (Actual)} = \frac{\text{NRR (On Package)} - 7}{2}$$

8. EMPLOYEE TRAINING. Employees exposed to 85 dBA TWA or greater must receive annual training on hearing conservation. As a minimum, the following topics must be covered during the annual training program:

a. The effects of noise on the employee's hearing.

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

c. The purpose of audiometric testing and an explanation of the testing procedures.

9. **LABELING AND POSTING REQUIREMENTS**. All areas, equipment, or processes which have been identified by proper monitoring as providing exposures to hazardous noise levels, as defined herein, shall be labeled or posted by the Facility Manager. The regional OSH Program Office may be contacted regarding appropriate signage for these areas, equipment, or processes. Exposure to noise levels so identified will require the utilization of appropriate and adequate hearing protection.