

# Hearing Conservation Program

## I PURPOSE

To establish minimum standards to preserve and protect the hearing of workers exposed to noise, in order to minimize hearing loss.

## 2 SCOPE

This procedure applies to all functional areas, operations, offices, including employees, vendors, visitors and contractors within the scope of the Integrated Management System (IMS).

## 3 DEFINITIONS AND ACRONYMS

### Definitions

**Audiogram** is the graphic result of audiometric test.

**Audiometric Test** is the measurement of an individual's hearing ability.

**Baseline Audiogram** is the first audiogram given to all workers beginning employment with the company, which serves as a reference for future audiograms.

**Exposed Worker** is when the 8 hour exposure (TWA) of any worker exceeds 85dB(A).

**Normal Audiogram** is an absence of hearing loss.

**Occupational Health Sheet** is the worker's occupational case history.

**Occupational Hearing Trauma** is hearing loss caused by exposure to occupational noise.

**Occupational Noise** is noise produced in the work area.

**Standard Threshold Shift** is an average decrease of 10 dB in the 2k, 3k & 4k Hz. Range relative to the previous baseline audiogram. The Hearing Conservation Supervisor (i.e. Audiologist) determines whether the STS are due to work, age, disease, or any physical change in the worker.

**Temporary Threshold Shift (TTS)** is a decrease in hearing of 10 dB or more with respect to the baseline audiogram, but giving the ear time to recover (rest) the hearing returns to normal levels.

### Acronyms

<b>dBA</b>	Decibel A weighting
<b>Hz</b>	Hertz (unit of measure in 1,000)
<b>IH</b>	Industrial Hygiene
<b>MSHA</b>	Mine Safety Health Administration

<b>OH</b>	Occupational Health
<b>STS</b>	Standard Threshold Shift
<b>TTS</b>	Temporary Threshold Shift
<b>TWA</b>	Time Waited Average

## 4 ROLES AND RESPONSIBILITIES

### **Document Owner**

HMR

### **Responsible Roles and Position-Holders**

#### **HSLP – Industrial Hygiene**

The IH Department, who provides guidelines for hearing protection, will send written notification to those workers who need to use hearing protection because of STS, and to their respective supervisors, to ensure that they use suitable hearing protection equipment. They will be included in the Hearing Conservation Program. They will conduct meetings to investigate the reasons for increases in STS among worker, as necessary, and monitor, define and report the areas of exposure and evaluate the Hearing Conservation Program while providing training on noise hazards. Audiometric tests will be conducted when a worker enters the company, annually, and when the worker changes jobs or leaves the company. Measurements must be carried out by a doctor with experience as a registered audiologist. The audiometer used in the medical examinations must comply with Standard ANSI S3.6-1996 and the audiometers must get a daily functional test and an annual comprehensive calibration. Locations where audiometric evaluations are conducted, must comply with ANSI S1.11-1996 and the records of the audiograms are to be filed in each worker's Occupational Case History. These files must be kept for at least 10 years after the worker has left the company. Records shall be kept of the audiometer calibration and the environmental measures of the place where the audiometric test will take place. These must be kept for 5 years.

#### **Employee/Contractors/Vendors**

Exposed workers must use hearing protection in areas of exposure and when STS has been in the individual worker. All employees must comply with the standards on the use and preservation of hearing protection equipment. Every individual entering an area of exposure must use the hearing protection equipment approved by the HSLP Department.

#### **Supervisor/Foreman**

All supervisors must verify compliance with the use of hearing protection by staff, contractors and visitors working in the areas of exposure and make sure workers with STS use hearing protection. They must make sure that the noise protection equipment in the work areas are in good condition and verify that noise levels are measured regularly in the work area. After samples are taken in their area of responsibility they must review the results with the exposed workers and return the proper documentation to the IH Department.

#### **Warehouse Supervisor**

Must make sure there is a minimum stock of hearing protection equipment.

## 5 DIRECTION

All employees, vendors, contractors on site shall comply with and ensure personnel accountability to comply with the following Hearing Conservation Program requirements of this procedure.

### **Annual Audiometric Testing**

Audiometric testing will be offered to all exposed workers for at least 30 days per year on an annual basis.

All individuals testing will complete the annual audiometric questionnaire prior to being tested.

### **Baseline Audiogram**

All new hires must answer the baseline audiometric questionnaire, and their hearing ability in each ear must be examined at frequencies of 500, 1000, 2000, 3000, 6000 and 8000Hz.

A Normal Audiogram is when the arithmetic mean of the frequencies of 2000, 3000 and 4000 HZ. Is lower than, 25 dB.

An Occupational Acoustic Trauma is when the hearing loss at 4000 HZ. is greater than, or equal to 30dB regardless of the levels of 2000, 3000 and 4000 Hz. and recovery at the frequency of 6000 or 8000 Hz., also taking into consideration the worker's background of exposure to occupational noise.

Presbycusis, or hearing loss due to old age, is when the hearing loss at 6000 and 8000 Hz. is greater than or equal to 30 dB regardless of the levels at the other frequencies.

### **Hearing Protection**

The hearing protection equipment must be available in different models to enable the user to select the one which is physically best suited to his/her ear.

Hearing protection is required anytime a person is exposed to 85dB or greater for any length of time or for workers with STS. Hearing protection is recommended at 80-84 dB.

Employees must wear dual hearing protection (i.e., ear plugs and muffs) when noise levels are equal to or greater than 100dB.

### **Monitoring The Noise Level**

Work areas must be monitored with a noise meter and a noise dosimeter to determine whether the noise level and exposure time are acceptable.

If areas of overexposure are detected, individual sampling must be performed to determine the possible impact and the methods to control the source of the noise. The following aspects must be taken into account: noise level, exposure time, job being performed and the activities involved in the job.

### **Controls**

Engineering controls must be the first option considered when trying to reduce noise levels, considering noise reduction at the source and noise reduction along the path. Then, administrative controls as well as work best practices must be used in order to ensure that workers are not exposed to noise exceeding 85 dB(A)

## **Maintenance**

Applicable engineering controls must be kept in good operative condition. In order to do this, the area responsible must manage a maintenance program for installed equipment.

## **Signs**

Signs must be posted at the entrance or at the periphery of areas where noise levels in the specific area are equal to or greater than 85 db(A) TWA (as determined by area sampling). The type of signs to be used will be in accordance with the current legislation.

## **Temporary and Standard Threshold Shifts (TTS & STS)**

Employees experiencing an unconfirmed standard threshold shift shall be retested to determine if the individual does in fact have a STS or if the individual has experienced a TTS.

Retesting shall be conducted as soon as feasibly possible, but not to exceed 30 days.

If results from the retest indicate that the individual does have a STS, then they shall be notified in writing within 21 days.

A copy of their results will be sent to the audiologist or physician and the employee will be referred for follow-ups as determined necessary by the audiologist or physician.

Employee will receive training in hearing conservation and given an opportunity to select new/ different hearing protection devices.

## **Training**

New or transferred staff must be given the following information during their induction: general concepts regarding the Hearing Conservation Program; the different types of hearing protection equipment available and how to inspect, use, and maintain the hearing protection equipment.

Periodically throughout the year, supervisors will conduct booster talks to discuss sampling results and training reminders with employees. IH personnel will develop training material to be covered as safety topics during the year.

The Hearing Conservation Program and associated Health hazards will be discussed during New Hire and Annual Refresher Training.