

CENTRAL ARIZONA PROJECT



HEARING CONSERVATION PROGRAM

REVISED OCTOBER 1, 2019

1.0 PURPOSE

To reduce noise hazard exposures, Central Arizona Project (CAP) is establishing a Hearing Conservation Program (HCP) to preserve workers' hearing and eliminate the adverse effects of high noise levels at CAP worksites. In addition, this HCP will help reduce Workers' Compensation claims and protect the company's assets.

2.0 SCOPE

CAP will provide all 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 this CAP HCP is to reduce, and eventually eliminate hearing loss due to workplace noise exposures at all facilities. This program includes the following elements:

1. Work environments will be monitored to identify potentially hazardous noise levels and personnel at risk of hearing impairment.
2. Environments that contain equipment that produces potentially hazardous noise must, wherever it is technologically and economically feasible, be modified to reduce the noise level to acceptable levels.
3. Where engineering controls are not feasible, administrative controls and/or the use of hearing protective devices will be employed.
4. Annual and periodic hearing testing will be conducted to monitor the effectiveness of this HCP. Early detection of temporary threshold shifts will allow further protective actions to be taken before permanent hearing loss occurs.
5. Initial and annual refresher training on the HCP.

The Environmental, Health & Safety (EH&S) Department, aware that excessive noise exposure is a primary cause of hearing loss, is establishing a HCP that is more conservative than that required by the Occupational Safety and Health Administration (OSHA). CAP has adopted the American Conference of Governmental Industrial Hygienists (ACGIH) noise exposure limits referred to as the Threshold Limit Value® (TLV®). The current Occupational Exposure Limit at CAP is based on the most recent TLV® which is shown in table 1-1 on the following page.

Table 1-1

Duration per day	CAP's Occupational Exposure Limit	CAP's Action Level
12 hours	83 dBA	80 dBA
10 hours	84 dBA	81 dBA
8 hours	85 dBA	82 dBA
4 hours	88 dBA	85 dBA
2 hours	91 dBA	88 dBA
1 hour	94 dBA	91 dBA
0.5 hour	97 dBA	94 dBA
0.25 hour	100 dBA	97 dBA

When sound pressure levels exceed the Occupational Exposure Limit (OEL) in Table 1-1, feasible administrative or engineering controls will be instituted. If the controls fail to reduce the sound levels to within the OEL, hearing protection will be provided and used to reduce the noise to an acceptable level. CAP employees with noise exposures equal to or exceeding the Action Level in Table 1-1 will be covered by this HCP.

3.0 RESPONSIBILITIES

3.1 ENVIRONMENTAL, HEALTH & SAFETY DEPARTMENT: The EH&S Department is responsible for developing and assisting all departments in the implementation of this HCP. This function will include the following activities:

1. Assisting all departments in acquiring engineering guidance on noise control and providing a liaison, as necessary, with noise engineering, health and safety consultants, and noise consultants;
2. Providing initial and periodic training for all affected employees;
3. Coordinating noise surveys of CAP facilities to ensure adequate information is available for this HCP;
4. Assisting in the development of noise emission specifications for existing and future equipment purchases;
5. Conducting studies to determine effectiveness of hearing protection in use, noise abatement actions, and this HCP;
6. Approving hearing protective devices;
7. Scheduling and coordinating audiometric testing (pre-employment and annual as applicable);
8. Maintaining audiometric test records; and

9. Notifying employees of the results of their audiogram.

3.1.1 Occupational Medical Clinic: The occupational medical clinic contracted by CAP will be responsible for conducting audiograms for employees identified by the EH&S Department.

3.1.2 Training Activity: The EH&S Department is responsible for coordinating and scheduling health and safety training courses presented or sponsored by CAP. The Centralized Learning and Development (CLD) department maintains documentation of the training courses presented in accordance with the HCP requirements. Additionally, all training programs for hearing conservation will be prepared in accordance with this HCP and the Senior Industrial Hygienist.

3.2 Managers and Supervisors: It is the responsibility of CAP Managers and Supervisors to ensure that all noise exposed employees have access to appropriate hearing protective devices in the work area. Managers and Supervisors are responsible for enforcing the use of hearing protective devices and engineering and administrative controls in designated hazardous noise areas. In addition, Managers and/or Supervisors should request noise surveys to be completed by EH&S whenever they have reason to believe that an area may be noisy.

3.3 Engineering and Planning Departments: Future purchases of operating equipment must consider noise controls as a feature of the purchase agreement. Specifics on noise control technologies can be obtained through the EH&S department and noise consultation services.

3.4 Employees: Employees are responsible for wearing and maintaining hearing protective devices as instructed. Employees exposed to noise levels in excess of those in Table 1-1 must also participate in annual education and training programs and the medical surveillance program which includes audiometric testing.

3.5 Audiology Consultant: The Audiology Consultant is a contracted medical consultant providing audiological (hearing), otological (ear), and/or otolaryngological (ear and throat) evaluations based on the findings of the audiometric testing portions of this HCP. The consultant will be a physician who is Board Certified by the American Board of Otolaryngology.

CAP employees with noted hearing shifts will be referred to the Audiology Consultant to identify the cause of the hearing shift.

4.0 NOISE EVALUATIONS AND SURVEILLANCE PROCEDURES

4.1 Identification of Hazardous Noise Areas: The EH&S Senior Industrial Hygienist will identify work areas within CAP facilities where noise levels equal or exceed 80 dBA. Records will be maintained by the EH&S Department and updated as necessary to determine if any alteration in noise levels has occurred. Those areas where the noise levels are below 80 dBA will not be routinely monitored.

Signs and ear plug dispensers will be posted at the entrance to any work area where noise levels exceed 80 dBA. Personnel working in these areas will have hearing protection supplied to them, will be instructed in its proper use, and will be required to wear hearing protection.

4.2 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.

Noise monitoring of employees is made up of two parts: area and personal monitoring. Area measurements will generally be obtained first. If noise levels are at or above 80 dBA, personal monitoring using dosimeters will then be performed.

4.3 Re-monitoring of Noise: All areas where noise levels equal or exceed 80 dBA will be re-monitored if there is a significant change in equipment that could impact noise levels.

Any area with noise levels that equal or exceed 84 dBA will be re-monitored whenever there is a change in production process, equipment, or controls. This re-monitoring will evaluate the effects of the changes to determine if noise levels have increased or decreased since the last monitoring. Areas where the noise levels have dropped below 80 dBA due to alterations in equipment, controls, or process changes will be eliminated from the monitoring program.

5.0 NOISE CONTROL METHODS

5.1 Engineering and Administrative Controls: The primary means of reducing or eliminating worker exposures to hazardous noise is through the application of engineering controls. Noise surveys conducted by the EH&S Department will identify areas where hazardous noise levels are occurring within CAP operations. Written reports on the noise survey will provide recommendations, when feasible, on various engineering controls that will reduce the noise levels. Managers and supervisors will then select the control(s) that are feasible and ensure these controls are instituted to reduce worker exposures to noise hazards.

Administrative controls are defined as changes in the work schedule or operations which reduce noise exposure. If engineering solutions cannot reduce the noise to

acceptable levels, 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.

5.2 Personal Protective Equipment: Hearing protective devices (ear plugs, muffs, etc.) will be the permanent solution only when engineering or administrative controls are considered to be infeasible, cost prohibitive, or do not reduce noise to less than the values listed in Table 1-1.

5.2.1 Types of Hearing Protective Device: Hearing protective devices include the following:

- 1. Insert Type Earplugs:** A device designed to provide an air-tight seal within the ear canal. There are three types of insert earplugs: pre-molded, formable, and custom earplugs.
- 2. Earmuffs:** Earmuffs are devices which surround the ear to reduce the level of noise that reaches the ear canal. Special earmuffs can be provided that attach to hardhats and other pieces of protective equipment and still maintain their effectiveness.

5.2.2 Selection of Hearing Protective Devices: Employees will be given the opportunity to select hearing protective devices from a variety of suitable ones provided by the EH&S Department. Combinations of ear plugs and earmuffs may be needed in certain noise environments. Employees enrolled in the HCP will undergo earplug fit testing during new employee orientation to ensure a proper fit and insertion technique.

5.2.3 Fitting and Issuing of Hearing Protective Devices: The key issue in an effective HCP is the fitting and issuing of Hearing Protection Devices (HPDs). The issuance of hearing protective devices is handled through the Supervisors at each work site. The EH&S Department has evaluated the noise environments at each facility and is responsible for selecting hearing protective devices (foam inserts, disposables) based on the noise type, level, and worker preference. Instruction on the proper use and care of earplugs and earmuffs will be provided whenever HPDs are dispensed.

5.2.4 Maintenance of Hearing Protective Devices: The effectiveness of HPDs can only be maintained if the devices are maintained in a clean, sanitary condition. Preformed PVC plastic plugs and earmuffs are designed to be washed and

reused. Keep hearing protection devices clean to maintain their ability to reduce noise.

1. Reusable earplugs, such as the triple flange devices can be washed in lukewarm water using hand soap, rinsed in clean water, and dried thoroughly before use. Cleaning should be done as needed. Replace any plugs that do not look new.
2. Earmuff cushions should be kept clean. Many earmuffs have detachable cushions on the ear cup which can be removed, cleaned in mild soapy water and returned to the muff. Use caution not to get water inside of the cup.

6.0 MEDICAL SURVEILLANCE

6.1 Medical Surveillance Monitoring: Employees whose noise exposures equal or exceed those listed in Table 1-1, based on noise surveys by the EH&S Department, will be recommended for inclusion in the Hearing Conservation Program's Medical Surveillance Monitoring.

6.2 Audiometric Testing: The Occupational Medical Clinic has the responsibility for administering the Audiometric Testing portion of CAP's Hearing Conservation Program. Annual retesting will be performed for all personal enrolled in this Medical Surveillance Monitoring Program.

6.2.1 Baseline Audiogram: The baseline audiogram must be obtained within the first 30 days of employment at CAP. Ideally, the baseline audiogram should be recorded during the first week of employment. The employee should have absolutely no noise exposures for at least 16 hours prior to testing for the baseline audiogram. Workers should avoid any loud activities that could shift their hearing prior to the audiogram.

A report on the baseline audiogram will be provided to the employee along with an explanation of the results of the test and any recommendations for hearing protection during working activities at CAP.

6.2.2 Annual Audiogram: Annual audiograms will be conducted at the beginning of the regular work shift prior to employees receiving workplace noise exposure. Employees showing a confirmed standard threshold shift, will be consulted to evaluate noise exposure patterns, on and off the job; use of HPDs; and workplace noise exposures using noise dosimetry. Efforts to reduce noise exposures will be completed.

6.2.3 Confirmation Audiogram: A confirmation audiogram is to be conducted when the annual audiogram indicates an OSHA STS, with age correction. This

confirmation audiogram must be conducted within 30 days of the posting of the annual audiogram results. The confirmation audiogram will be conducted by the occupational medical clinic and be preceded by at least 16 hours of “quiet” time before testing.

The confirmation audiogram will be reviewed at the occupational medical clinic by an Occupational Medicine physician. If the physician determines that the shift represents an OSHA Standard Threshold Shift (STS), the following actions will be completed.

1. Refer the employee to the Audiological Consultant for a clinical evaluation to determine if additional testing is needed or if medical pathology of the ear may be caused or aggravated by the wearing of HPDs;
2. Inform the employee of the need for further evaluation (at the employee’s own expense) if a medical pathology is the suspected cause of the hearing shift;
3. The STS will be recorded on the OSHA 300 form if results of the Audiological Consultant indicate that the STS is the result of an occupational noise-induced Permanent Threshold Shift.
4. Reset the employee’s Baseline Audiogram, based on the results of the Confirmation Audiogram.

6.2.4 Exit Audiogram: Employees enrolled in the HCP will be offered an exit audiogram upon reassignment to a non-noise hazard area or upon termination from CAP, including retirement. The exit audiogram will be scheduled by the EH&S Department prior to the last date of service to the company. The employee should have at least 16 hours of quiet time prior to this exit audiogram to ensure a true measurement of any threshold shifts experienced by the employee. The exit audiogram will be at no cost to the employee regardless of the employee’s employment status. An audiogram results letter will be mailed to the employee as soon as possible after receipt of the audiometric results in Cority.

6.3 Audiometric Referral: In the event that an employee’s confirmation audiogram indicates an OSHA Standard Threshold Shift (STS) has occurred, the shift (illness) will be recorded on the 300 log and the employee will be referred to the Audiological Consultant. CAP's Audiological Consultant must be board certified in Otolaryngology. A letter indicating the requirements of the referral will be provided to the Consultant when the appointment is arranged by the EH&S Department whether this OSHA STS is caused or aggravated by workplace noise exposure or the wearing of hearing protection.

Upon receipt of the otolaryngologist report, the Sr. IH will review the report and forward a copy to the employee.

If the otolaryngologist states that the hearing loss (STS) is caused by exposure to workplace noise the Sr. IH will notify the EH&S Manager and the employee's name will be left on the OSHA 300 log. The baseline audiogram will be reset according to the direction of the Otolaryngology Report. Risk Management will be notified of a possible Workers' Compensation case.

If the otolaryngologist states that the STS is not caused by workplace noise the Sr. IH will notify the EH&S Manager and the employee's name will be lined out on the OSHA 300 log.

If the otolaryngologist states that he cannot make a conclusive determination without an MRI, then the following policy will guide further evaluations:

- 6.3.1** If the doctor indicates that the STS may be due to workplace noise *or* that he cannot make a decision as to the cause of the STS, then EH&S will make arrangements for the MRI and pay for the procedure and any follow up.
1. If the doctor's review of the MRI indicates the hearing loss was due to workplace noise, the illness will be left on the OSHA 300 log.
 2. If a review of the MRI indicates a medical cause for the hearing loss, the illness will be lined out on the OSHA 300 log. The MRI and the doctor's report will be turned over to the employee for further follow up with a specialist of the employee's choice. The employee will not have to reimburse CAP for the cost of the MRI/evaluation, but will be responsible for any further evaluations or medical treatments.
- 6.3.2** If the doctor indicates that the STS may not be due to workplace noise then the employee will be instructed to make their own arrangements for the MRI, either through the examining otolaryngologist (preferred), or a specialist of the employee's choice
1. If a review of the MRI finds no medical indication for the hearing loss and the consulting otolaryngologist determines that the loss is due to workplace noise, then the illness will be left on the OSHA 300 log and:
 - o CAP will assume responsibility for the STS as an occupational illness and reimburse the employee for any out-of-pocket medical expenses related to the MRI. EH&S will notify Risk Management of a possible Workers' Compensation case.

- The employee will assist with obtaining a copy of the otolaryngologist's MRI report from the consulting otolaryngologist or the employee's specialist for filing.
2. If a review of the MRI indicates a medical cause for the hearing loss, the illness will be lined out on the OSHA 300 log and the employee will continue to be responsible for any costs associated with the MRI and any further evaluation or treatment.

7.0 EMPLOYEE INFORMATION AND TRAINING

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

1. Recognizing hazardous noise;
2. Effects of noise-induced hearing loss;
3. Symptoms of overexposure to hazardous noise;
4. Hearing protection devices - advantages and limitations.
5. Selection, fitting, use, and maintenance of HPDs.
6. Purposes of the Medical Surveillance Monitoring and explanation of how audiograms are recorded and maintained.
7. Explanation of noise measurement procedures.
8. Hearing Conservation Program requirements.

Employees will also be given access to copies of the OSHA noise standard (29 CFR 1910.95) including location of the OSHA Internet web site and provided with other handouts describing CAP's Hearing Conservation Program.

All personal identified for inclusion in the Hearing Conservation Program should receive a minimum of one hour of initial instruction in the requirements of the program during New Employee Orientation with the EH&S Department. Annual refresher training will be provided by the EH&S Department.

8.0 PROGRAM EVALUATION

Periodic program evaluations will be conducted to ensure compliance with federal and state regulations and to review the effectiveness of CAP's Hearing Conservation Program.

9.0 RECORDKEEPING

Records of noise surveys, noise dosimetry, training, and audiometry are required to be kept for specific periods of time. Table 9-1 lists the location of the required records and the time period that CAP will maintain the records. At the expiration of the allowed time period, the records will be destroyed by secured shredding or will be archived by scanning and storage on Content Server.

Table 9-1 – CAP Recordkeeping Requirements

Record	Location	Retention Period
Medical Evaluations and Audiograms	Occupational Medical Clinic (see Attachment A) and Medgate Computer Software	Duration of the employee's employment and 30 years thereafter.
Training Records	CAP Learning Center	30 years after completion of training class.
Hearing Conservation Program Manual, SOPs, etc.	Safety & Health Department – Content Server	For 5 years after a revision or modification to the current document.
Hazard Evaluations, Noise Surveys, Dosimeter Data	Safety & Health Department – Content Server	For 30 years after completion of the field survey.
Program Evaluations and Audits	Safety & Health Department	For 5 years after completion of the evaluation or audit.
Documentation of Audiometric Calibrations and Background Noise Levels	Safety & Health Department – Content Server	For 30 years after the completion of the calibration or noise measurement.