

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

**AIR FORCE OCCUPATIONAL SAFETY AND
HEALTH STANDARD 48-20**



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Aerospace Medicine

**OCCUPATIONAL NOISE AND HEARING
CONSERVATION PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Air Force Occupational and Environmental Safety, Fire Prevention, and Health (AFOSH) Standard (Std) implements policy to meet or exceed the requirements of Occupational Safety and Health Administration (OSHA) Title 29, Code of Federal Regulations (CFR), 1910.95, *Occupational Noise Exposure*; Title 5, CFR, Volume 1, Part 339, *Medical Qualification Determinations*; and Department of Defense Instruction (DoDI) 6055.12, *Hearing Conservation Program*, except for military unique situations. This standard administers the Air Force (AF) Hearing Conservation Program (HCP) to prevent occupational illness and injuries under Federal and Department of Defense (DoD) references. This AFOSH Std requires collecting and maintaining information protected by the Privacy Act of 1974. The authorities to collect and maintain the records prescribed in this publication are *Title 10 United States Code (USC) Chapter 55, Medical and Dental Care, 10 USC § 8013, Power and Duties of the Secretary of the Air Force, and Executive Order 9397*. Forms affected by the Privacy Act have an appropriate Privacy Act statement. The applicable Privacy Act System of Records Notices (SORN) DHA 07, *Military Health Information System*, DHA 19, *DoD Occupational Environmental Health Readiness System-Industrial Hygiene*, and F044 F SG E, *Electronic Medical Records System* apply. SORN is available online at <http://dpclo.defense.gov/privacy/>. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Major Commands (MAJCOM), Direct Reporting Units (DRU), and Field Operating Agencies (FOA) may supplement this standard when additional or more stringent safety and health criteria are required, but all supplements that directly implement this standard must be routed to Air Force Medical Support Agency/Public Health and Preventive Medicine Branch

(AFMSA/SG3PM) for coordination prior to certification and approval. Refer recommended changes and questions to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. Requests for waivers must be submitted through chain of command to the OPR listed above for consideration and approval. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

All AF Active Duty, Reserve, and National Guard military and civilian personnel are covered by this standard. (**Note:** Air Reserve (AR) and Air National Guard (ANG) will collectively be referred to as Air Reserve Component (ARC)). This includes all appropriated fund, non-appropriated fund, seasonal, and temporary personnel. Foreign nationals employed by the United States Air Force (USAF) under a direct or indirect hire arrangement are also included unless exempt by other agreements. Foreign national military personnel assigned to the USAF are included, unless other preventive measures and medical care are not provided by AF. Contractors must comply with state and Federal noise standards and are exempt from compliance with this standard. Contract personnel should not be enrolled in the AF HCP unless HCP services are included in the contract. HCP services will not normally be included in contracts. This standard does not apply to community noise situations.

Referenced American National Standards Institute’s (ANSI) standards may be obtained for a fee from ANSI at <http://webstore.ansi.org>.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Major changes include: IAW 29 CFR 1904.10 Public Health has 7 calendar days to report an OSHA reportable STS in the Air Force Safety Automated System (AFSAS) once the PTS is confirmed by an audiologist or overseeing provider (2.12.10); clarification of organizational roles and responsibilities (Chapter 2); Occupational and Environmental Health Working Group Chair and members will consider everyone who works at the base (including aircrew) who is exposed to noise as identified in this standard will be monitored in the HCP; deletion of previous AFOSHSTD 48-20 Chapter 8, *Forms Prescribed*, and Chapter 9, *Forms Adopted*, by moving prescribed and adopted forms to Attachment 1; deletion of previous AFOSHSTD 48-20 Attachments 2, *Impulse Noise*, and 9, *Audiometric Instructions Poster*; and updated posters in Attachments 5 through 7.

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1. INTRODUCTION.

1.1. **Purpose.** The USAF HCP is a component of the AFOSH Program designed to reduce or eliminate hazardous noise exposure to workers and protect workers from the harmful effects of hazardous noise, while enhancing combat and operational capabilities. This process must occur across the full life cycle of acquisition, sustainment and support for weapons systems, munitions and other materiel systems. This requires identifying all areas where workers are exposed to hazardous noise and reducing exposure through engineering or administrative controls, or personal protective equipment (PPE). (Also, refer to AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*). The key to accomplishing these

goals is an education program that explains the individual's role in protecting their hearing to include dangerous noise exposures on and off duty and how to mitigate those threats.

1.2. Overview:

1.2.1. DoDI 6055.12 requires all DoD Components to implement a comprehensive program and written plan for hearing conservation. This AFOSH Std meets the intent and requirements of DoDI 6055.12 and reflects the unique functions, capabilities and procedures of the Air Force HCP. For Joint Bases, this standard is followed unless specific processes and provisions, meeting the intent and requirements of OSHA and DoDI 6055.12, are detailed in the Memorandum of Agreement.

1.2.2. The Aerospace Medicine Squadron/ARC Medical Unit Commander manages the occupational health program. IAW AFI 48-145, *Occupational and Environmental Health Program*, hearing conservation issues will be considered through the Occupational and Environmental Health Working Group (OEHWG) just as any other occupational exposure.

1.2.2.1. At collocated installations (i.e., host Active Duty installation with tenant AF Reserve units), HCP responsibilities conferred to the AF Reserve Medical Unit (RMU) Commander, Bioenvironmental Engineering and Public Health are a joint responsibility between the AF RMU Commander and the Active Duty Medical Treatment Facility (MTF) Commander. In accordance with DoDI 4000.19, *Interservice and Intragovernmental Support*, a support agreement between the AF RMU and MTF will describe HCP responsibilities assigned to each. The AF RMU Commander is responsible for assuring a comprehensive HCP is available to include program elements accomplished by the MTF. This does not apply to joint bases that have memorandums of agreement.

1.2.2.2. At stand-alone ARC installations (i.e., no active duty host installation), HCP responsibilities conferred to the AF RMU Commander, Bioenvironmental Engineering and Public Health are a joint responsibility between the AF RMU Commander and the Mission Support Group (MSG) Commander. In accordance with DoDI 4000.19, a support agreement between the AF RMU and MSG will describe HCP responsibilities assigned to each. The AF RMU Commander is responsible for assuring a comprehensive HCP is available to include program elements accomplished by the MSG.

2. ROLES AND RESPONSIBILITIES.

2.1. Headquarters AF (HAF).

2.1.1. AFMSA/SG3P will:

2.1.1.1. Provide policy and coordination on hearing conservation matters in the AF.

2.1.1.2. Serve as the principal AF point of contact with Federal and DoD regulatory agencies controlling occupational exposure to hazardous noise.

2.1.1.3. In conjunction with the AF/SG Audiology Consultant, identify USAF Hearing Conservation Diagnostic Centers (HCDC) and Hearing Conservation Centers (HCC) used for the evaluation of personnel with hearing loss in support of the HCP. Reference attachment 2 for a list of authorized HCDC/HCCs. This list may change

because units with a large number of personnel (at least 4,000 military and/or civilian members) assigned to the HCP can be considered a HCC.

2.1.1.4. Ensure operations involving occupational and combat-related exposure to hazardous noise establish and maintain HCPs in compliance with Federal and DoD requirements. Such programs shall encompass the minimum requirements in DoDI 6055.12.

2.1.1.5. Report HCP metrics to Air Force and DoD agencies, Working Groups, and Councils as requested (e.g., Environmental, Safety, and Occupational Health Council performance measures).

2.1.2. Headquarters Air Force Safety Center (AFSEC) Ground Safety will coordinate with AFMSA/SG3P for safety requirements associated with hazardous noise exposure.

2.2. AFMOA and MAJCOMs will:

2.2.1. Provide policy execution to support installations in interpreting and implementing the HCP requirements in DoDI 6055.12 and this AFOSH Standard.

2.2.2. Allocate funding to resource and equip installations to assist with meeting the HCP requirements.

2.2.3. Designate a hearing conservation consultant (i.e., a regional HCDC/HCC or an Occupational Medicine clinic) to oversee the command HCP.

2.2.4. MAJCOMs will utilize the Environment, Safety and Occupational Health (ESOH) Council as the executive forum to oversee the performance of the HCP and advocate for resource requirements when necessary.

2.2.5. MAJCOMs will allocate resources to staff and equip the HCDC/HCCs within their area of responsibility to provide the following:

2.2.5.1. The HCDC and HCC audiologist will provide regional HC referral support. Testing capabilities will include, at minimum, diagnostic audiometer equipment sufficient to complete a full comprehensive hearing exam, a full range of immittance, electrophysiologic, and otoacoustic emissions equipment. HCDC/HCC minimum staffing will consist of an audiologist and support personnel.

2.2.5.2. Ensure the gaining MTFs have funds to send all new Air Force audiologists to the Hearing Conservation Technician Course within one year of assignment to first duty station for active duty or within the first year of employment for civilian audiologists.

2.2.6. Acquisitions Weapon Systems Program Offices within Air Force Material Command (AFMC) will send noise study data on system development and Programmatic Environmental, Safety and Health Evaluations (PESHE) to USAF School of Aerospace Medicine Occupational and Environmental Health Department (USAFSAM/OE).

2.3. United States Air Force School of Aerospace Medicine (USAFSAM) will:

2.3.1. Provide consultative services to measure, evaluate, and recommend controls and solutions for occupational noise concerns within the AF. Occupational noise concerns include, but are not limited to, speech interference and communication limitations.

- 2.3.1.1. Have specialized noise-measuring equipment necessary to monitor and record various types of noise either of biological significance or which might interfere with successful conduct of AF operations.
- 2.3.1.2. Interpret and provide MAJCOM and base-specific reports communicating interpretation of results, as requested.
- 2.3.1.3. Produce annual reports on the percentage of hazardous noise workplaces characterized and the index of unacceptable noise exposures, as outlined in DoDI 6055.12, para. E3.12.a.
- 2.3.2. Serve as the principal coordinator on occupational noise studies conducted during weapons systems development.
- 2.3.3. Review PESHE from AFMC and ensure hazardous noise is addressed and controlled to prevent hearing loss and adverse effects.
- 2.3.4. Evaluate any unique or unusual occupational noise problems at the request of the MAJCOM, DRU, FOA, or installation.
- 2.3.5. Maintain an information repository on noise characteristics of noise producing equipment typically found in AF industrial workplaces. Contact the ESOH Service Center at website: <https://hpws.afrl.af.mil/dhp/OE/ESOHSC/> for more information.
- 2.3.6. Appoint an occupational medicine consultant who will provide consultation for the AF HCP.
- 2.3.7. Appoint and maintain an AF HCP Office with at least one audiologist as the AF HCP manager (HCPM) and one supporting technician. The AF HCP office will provide the following services:
 - 2.3.7.1. Provide HC consultation and HC reports to Air Staff/MAJCOM/installations upon request.
 - 2.3.7.2. Report annually to AFMSA/SG3PM on the incidence of significant and permanent threshold shifts (STS and PTS, respectively) and compliance rate among Air Force workers enrolled in the HCP program, as outlined in DoDI 6055.12, para. E3.12.a.
 - 2.3.7.3. Evaluate AF HCP effectiveness based on the STS and PTS rates, audiogram compliance rates for all workers enrolled in the HCP program (including threshold shift follow-up rates), and other performance measures as defined by AFMSA, HAF, and DoDI 6055.12, E3. Interpret and provide HAF, MAJCOM and base-specific reports communicating interpretation of results on a routine basis or at least annually.
 - 2.3.7.4. Evaluate and report recommendations for corrective action to installation level HCPM and to the MAJCOMs (SGP) to improve data quality in the Department of Defense Occupational and Environmental Health Readiness System (DOEHRS) Data Registry (DR) program on a routine basis or at least annually.
 - 2.3.7.5. Serve as the primary representative to the DoD HC working group, the DoD DOEHRS-HC functional users group and the consultant for DOEHRS-HC and DR in the Air Force.

2.3.8. Provide training to support the HCP.

2.3.8.1. Conduct formal Council for Accreditation in Occupational Hearing Conservation (CAOHC)-approved training, for DoD personnel (military and civilian) who perform audiograms.

2.3.8.2. Provide and track AF certification numbers to students within 10 days of completion of CAOHC training.

2.3.8.3. Conduct training for Public Health (PH) Officers and skill-level appropriate 4E0X1 course material that addresses components of HCP administration/management. Provide CAOHC hands-on and didactic DOEHRS-HC training for 4E0X1 personnel for the HCP.

2.3.8.4. Conduct training for providers on audiogram review, audiogram consultation, referrals, and Fitness and Risk Evaluations.

2.3.8.5. Conduct training for Bioenvironmental Engineering (BE) technicians and officers that addresses identification, assessment, control and documentation (in DOEHRS-Industrial Hygiene (IH)) of hazardous noise exposures as outlined by Federal, DoD and AF standards.

2.3.8.6. Provide and track AF HC certification numbers for personnel who are trained IAW the CAOHC. **Note:** AF personnel who receive CAOHC approved training at civilian agencies must register certification information with the AF HCPM and receive an AF certification number prior to conducting audiometric testing.

2.3.8.7. Provide HC orientation training for newly assigned military and civilian AF audiologists, as needed. Doctor of Audiology students usually receive orientation at Wilford Hall Ambulatory Surgical Center during completion of the clinical training year, and fully qualified audiologists may receive a one-week orientation at Wilford Hall Ambulatory Surgical Center, as needed, at the expense of the individual's unit.

2.3.9. In conjunction with AFRL/RH, represent and vote for USAF on ANSI accredited standards committees on Acoustics, S1, Bioacoustics, S3, and Noise, S12.

2.4. Air Force Research Laboratory-Human Effectiveness Directorate, Battlespace Acoustic Branch (AFRL/RHCB) will:

2.4.1. Maintain an AF research and development capability to address science and technology needs and requirements in physical acoustics.

2.4.2. Provide expert consultation to AF/SG and USAFSAM on effects of physical acoustics, bioacoustics, hearing protection, and speech communication on AF operations. Make attenuation specifications of any hearing protection device (HPD) that have been tested by the AF or by DoD Components, as available, readily available. Specifications should outline methods used and provide at least two standard deviations of data.

2.4.3. Recommend to AF/SG exposure criteria and language for AFIs and guidelines.

2.4.4. Advise and provide subject matter expertise to USAFSAM on noise measurement, noise assessment, hearing protection performance measurement, impulse noise

measurement, impulse noise assessment, hearing protection technologies, voice communication performance and measurement techniques, and noise exposure criteria.

2.4.4.1. Advise and provide noise data to USAFSAM, MAJCOMs, and AF/SG resulting from AFRL measurement of unique noise environments.

2.4.4.2. Represent and vote for USAF on ANSI accredited standards committees on Acoustics, S1, Bioacoustics, S3, and Noise, S12.

2.5. Wing Commanders will:

2.5.1. In coordination with an Air Force Community noise program, run an integrated installation hazardous noise reduction and protection program, which includes noise control by operational means, building design, and land use planning.

2.5.2. Ensure HCP is an annual (or more frequently as directed) standing agenda item for the ESOH Council. Program effectiveness will be evaluated; information to be briefed may include the program performance metrics, as outlined in DoDI 6055.12, E3.12.a. and Attachment 2 in AFI 90-801, *Environment, Safety, and Occupational Health Council*, the number of shops and personnel on the program, incidence rate of STS and PTS, percent of workers requiring follow-up, etc.

2.6. Squadron Commanders and Workplace Supervisors will:

2.6.1. Participate in the review of the workplace hazards as process owners to identify actions taken to mitigate hazardous noise (i.e., efforts to procure equipment, which does not generate hazardous noise, applying engineering and administrative controls) and ensure personnel are receiving pre-employment and annual medical exams.

2.6.2. Use engineering controls as the primary means of eliminating exposure to potentially hazardous noise and protecting the hearing of assigned personnel (an individual's daily noise dose does not exceed an 8-hour time weighted average (TWA) of 85 decibels A-weighted (dBA)). All practical design approaches to reduce noise levels to below hazardous levels by engineering principles shall be explored. Priorities for noise control resources shall be assigned based on the applicable RAC. Engineering controls shall be applied to "military-unique workplaces," within the constraints of maintaining combat readiness. However, noise dose can also be controlled by limiting time exposure, increasing distance from noise sources (in some cases), and ensuring all workers are correctly using adequate hearing protection; ensure workplace complies with all AF HCP, DoD, and OSHA requirements.

2.6.3. Mark "hazardous noise areas" and "equipment" (as identified by BE) with signs and/or decals. For potentially hazardous noise areas, signs will be located at their entrances or boundaries, including pathways leading to hazardous noise areas.

2.6.3.1. Signs and/or decals will describe (in words or with other visual symbols) the potential hazard and the required protective measures (e.g., "Danger", "Hazardous Noise", "Hearing Protection Required When in Operation"). As a minimum, all symbols and decals shall comply with 29 CFR 1910.145, *Specifications for Accident Prevention Signs and Tags*.

- 2.6.3.2. An approved dBA rated supply of disposable HPDs shall be maintained and readily available to required users, along pathways leading to hazardous noise areas or equipment.
- 2.6.3.3. In consultation with BE, ensure each tool or piece of equipment producing noise levels greater than or equal to 85 dBA, including vehicles, is conspicuously marked, where feasible, to alert personnel of the potential hazard. The exception shall be when an entire space is designated a "hazardous noise area," and the equipment is stationary. Exteriors of military combatant equipment are excluded from this requirement.
- 2.6.4. Inform BE/PH staff if workplace equipment, or practices and procedures involving potentially hazardous noise change so they may evaluate noise exposure levels.
- 2.6.5. Ensure new equipment being considered for purchase has the lowest sound emission levels that are technologically and economically possible and compatible with performance and environmental requirements. Title 42 USC Chapter 65, Sect. 4914, *Public Health and Welfare, Noise Control, Development of Low-Noise Emission Products*, applies.
- 2.6.6. Include appropriate acoustics in specifications for all new facilities, equipment, and substantial modification projects. The objective shall be to ensure, if possible, a steady-state level less than 85 dBA at all personnel locations during normal operations.
- 2.6.7. Ensure compliance and availability of approved HPDs for workers exposed to hazardous noise. Instruct personnel on the HCP and care/hygiene of their hearing protection devices and ensure their HPDs are properly maintained (reference section 5.15. for more details).
- 2.6.8. Ensure workers with an occupational exposure to hazardous noise complete an initial/reference audiogram and receive HCP training from PH prior to but not to exceed 30 days from the date of the workers' initial exposure to hazardous noise. In addition, workplace-specific hearing conservation training must be conducted as defined in **paragraph 2.6.9**.
- 2.6.9. Conduct initial and annual workplace-specific hearing conservation training on shop or unit hazardous noise exposures and equipment. Consult PH for training materials. Document all training on the worker's AF Form 55, *Record of Training*, or equivalent. Training must cover:
- 2.6.9.1. The effects of noise on hearing, on and off duty sources of hazard noise, the purpose of hearing protection, and the proper use of hearing protection devices. Encourage the use of hearing protection off duty when exposed to hazardous noise.
 - 2.6.9.2. The advantages, disadvantages, and attenuation of various types of hearing protectors.
 - 2.6.9.3. Instructions on selection, use, proper wear, and care of hearing protectors.
 - 2.6.9.4. Counsel on the interaction between HPDs interfacing with other forms of PPE. Some kinds of PPE, such as eyewear, can create ill-fitting circumaural HPDs if fit of all PPE is not evaluated collectively (reference **paragraph 5.13.4**).

- 2.6.9.5. The purpose of audiometric testing.
- 2.6.9.6. Hearing loss and how it may lead to disqualification from current duties if hearing is critical to job performance.
- 2.6.9.7. Mandatory requirement of assigned protective equipment, and the administrative actions that may follow for failure to wear.
- 2.6.10. Ensure personnel on the HCP are made available for examination and attend scheduled medical appointments. Personnel scheduled for a noise-free audiogram (NFA) will remain noise free from occupational hazardous noise sources for at least 14 hours prior to testing.
- 2.6.11. Assure the MTF or ARC Medical Unit Commander is informed of each new operation, job, or process before the start of regular operations.
- 2.6.12. Ensure all hazardous noise areas above the double protection requirement are assigned with Risk Assessment Codes (RAC) to assist commanders in tracking corrective actions and mitigating the source.
- 2.6.13. Require the use of HPDs and other noise control methods, including the use of HPDs for installation recreation facilities with hazardous noise sources (auto hobby, skeet, etc.).
- 2.6.14. Provide a copy of 29 CFR 1910.95 in the workplace so that it is available to employees.
- 2.6.15. Assist with the *Job Capability and Safety Analysis*, AF Form 1754.
- 2.6.16. In accordance with OSHA regulation 29 CFR 1910.95 (e), notify each employee exposed at or above an 8-hour TWA of 85 dBA of the results of the noise monitoring performed by BE.
- 2.6.17. Notify each worker of hazardous noise sources in the workplace and provide information to BE about work practices and procedures involving potential exposure to hazardous noise to allow proper surveys and evaluations of the workplace.
- 2.6.18. Update and provide a current roster of personnel occupationally exposed to hazardous noise to PH at least semi-annually or upon request. Ensure that all newly assigned and departing personnel receive all required audiograms (i.e., pre-placement and termination) in the scheduled timeframe.

2.7. Employees with Hazardous Noise Exposure will:

- 2.7.1. Comply with all hazardous noise control measures whether at work or at deployed location to reduce exposure to hazardous noise.
 - 2.7.1.1. Reduce exposure by including the proper use of hearing protectors and advise others in the workplace to wear HPD when exposed to hazardous noise. Personnel should wear HPDs off duty when operating hazardous noise producing equipment or tools, especially if exposure includes firearms.
 - 2.7.1.1.1. Personnel working in or entering designated "hazardous noise areas" shall always carry and use hearing protectors. This includes temporary or transient personnel (i.e., repair technicians), aircrew, and ground based controllers

entering hazardous noise areas.

2.7.1.1.2. When noise sources are operating, personnel shall wear their hearing protection devices regardless of exposure time.

2.7.1.2. Identify initiatives and inform supervisors/leadership of opportunities to reduce or eliminate hazardous noise in their work centers.

2.7.2. Report for appointments to receive occupational health medical exams, and take the HPDs they use to their appointment, including any PPE that is worn in conjunction with HPDs, such as eyewear, that could affect the fit of HPDs.

2.7.3. Wear hearing protectors when exposed to gunfire or artillery fire in test or training situations.

2.7.4. Report new or changes in operating procedures that affect workplace hazardous noise exposure to the supervisor and participate in noise exposure surveys and evaluations by wearing monitoring equipment as requested by BE.

2.7.5. Report to supervisor or medical personnel conditions that place themselves or others at risk for accident because of communication difficulty or the inability to hear warning signals.

2.7.6. IAW OSHA and this standard, receive an annual audiometric evaluation. Employees should not continue to perform duties in hazardous noise if this requirement is not met.

2.8. Directors of Base Personnel (Military and Civilian) will:

2.8.1. Evaluate and reassign personnel, based on medical recommendations, to a suitable workplace. Include those awaiting reasonable accommodations in, denied placement in, or removed from, hazardous noise-related jobs.

2.8.2. Ensure civilian workers receive a pre-placement hearing test/medical clearance before being hired or transferred into a position that includes hazardous noise duties.

2.8.3. Upon request from the installation level HCPM or Primary Care Manager (PCM), prepare an AF Form 1754, with minimum, essential tasks that a worker must perform to qualify for or to retain a position to allow the PCM to conduct a worker's Fitness and Risk Evaluation.

2.8.4. Report the number of civilian claims filed for noise-induced hearing loss and the cost of the award to the ESOH Council.

2.8.5. Civilian Personnel Office will provide the OEHWG and installation level HCPM information related to any hazardous noise illness or injury claims.

2.9. Host Installation and/or Organizational Safety Staff will:

2.9.1. Assist in performing Fitness and Risk Evaluations by conducting the Job Safety Analysis, AF Form 1754, Part 4.

2.9.2. Report noncompliance with the HCP to the supervisor. Identify newly added hazardous noise work tasks or areas noted during periodic safety inspections to BE.

2.10. MTF and ARC Medical Unit Commander will:

2.10.1. Ensure a comprehensive HCP is available.

2.10.2. Appoint the audiologist, occupational medicine physician or an experienced flight surgeon to be the installation level HCPM. For DOEHRS-HC/DR records management, a senior NCO can assume the HCPM access level role in the DOEHRS-HC software and on the Data Repository. At installations with a tenant AF Reserve unit, the support agreement should specify if both the MTF and AF RMU Commanders will appoint an installation level HCPM or the MTF appointee will support both.

2.10.3. Ensure that personnel (civilian and military) performing audiograms have CAOHC certification and an AF certification number issued by the AF or other DoD component.

2.11. Bioenvironmental Engineering (BE) will:

2.11.1. Perform noise surveys and dosimetry to quantify noise hazards as described in Chapter 3. All results should be documented in DOEHRS-IH.

2.11.2. Work with Precision Measurement Equipment Laboratory and/or Biomedical Engineering personnel to ensure calibration and certification of noise meters are performed according to ANSI S1.4-1983 (R2006), *Specification for Sound Level Meters* (or current ANSI standard).

2.11.3. Complete the AF Form 2755, *Occupational and Environmental Health Exposure Data*, or the equivalent workplace exposure data summary for the OEHWG, including the 8-hour TWA and required controls.

2.11.3.1. Using the hierarchy of controls, ensure that resultant noise levels are below 85 dBA. If resultant noise levels are greater than 85 dBA then engineering controls should be the first method of control considered, followed by administrative controls and PPE last (reference paragraph 5.13.3. for method to determine HPD attenuation). Where engineering controls are undertaken, the design objective shall be to reduce steady-state levels to below 85 dBA, regardless of personnel exposure time, and to reduce impulse noise levels to below 140 decibels (dB) peak sound pressure level (SPL).

2.11.3.2. Calculate at-the-ear exposure (reference **paragraph 5.7.**).

2.11.4. Provide PH and shop supervisors the results of noise surveys and dosimetry. This information should include hazard and required controls (i.e., engineering, administrative, and/or HPD). This can be in the form of the certified PPE list if no engineering controls are being used.

2.11.5. Assess the adequacy of all controls used to reduce noise exposures including hearing protectors per Chapter 5, and evaluate industrial work areas where adverse hearing loss trends are noted.

2.11.6. Assist with Fitness and Risk Evaluations upon request of provider.

2.11.7. Review facility and operations plans for new or modified facilities to ensure noise exposure control is appropriately considered.

2.11.8. In conjunction with the shop supervisor, assess the feasibility of engineering controls for hazardous noise equipment/areas.

2.11.9. Conduct work place assessments to support occupational illness/injury investigations and claims for hearing loss.

2.11.10. Annually certify the audiometric testing environment with a Type I precision SLM with attached octave band analyzer (reference Chapter 4) and establish that background octave band SPLs are not greater than the following:

2.11.10.1. For 500 Hertz (Hz), 27 dB.

2.11.10.2. For 1,000 Hz, 29 dB.

2.11.10.3. For 2,000 Hz, 34 dB.

2.11.10.4. For 4,000 Hz, 39 dB.

2.11.10.5. For 8,000 Hz, 41 dB.

2.11.11. When surveying the test environment use equipment conforming at least to the Type I requirements of the latest approved ANSI Standard S1.4-1983 (R2006) and the order 3 extended range requirements of the latest approved ANSI Standard S1.11-2004 (R2009), *Specifications for Octave-Band and Fractional Octave-Band Analog and Digital Filters*.

2.12. Public Health (PH) will:

2.12.1. Track personnel on the HCP along with shop supervisors using the current occupational health computer software. This will include monitoring occupational exam compliance.

2.12.2. Perform audiometric testing using the DOEHRS-HC Software. Air Force and Non-Air Force service members should be tested using the appropriate DD Form 2215, *Reference Audiogram*, and DD Form 2216, *Hearing Conservation Data*. Using the appropriate forms will avoid overuse of non-HC tests, which cannot be compared to a baseline in order to monitor hearing changes.

2.12.3. Place personnel identified by supervisors that are occupationally exposed to hazardous noise (by BE survey and recommended by OEHWG) in a testing program that includes pre-placement, periodic (at least annually), and termination audiograms. For AFRC traditional reserve personnel assigned to workplaces, which would present them with occupational exposure to hazardous noise, an annual audiogram is not required unless they are exposed to hazardous noise for more than 30 days per year. This abeyance from audiometric testing shall not be viewed as a removal from the balance of the protective requirements of the HCP. Exposed reservists shall still be included in hearing conservation training, HPD issuance and fitting for work in hazardous noise environments, and other elements of an effective HCP.

2.12.4. Prior to any testing, perform a lighted ear inspection (LEI) to determine if cerumen removal or other treatment is necessary to obtain an accurate audiogram. Hearing conservationists are appropriately trained to perform LEI at the Hearing Conservation course at USAFSAM.

2.12.5. Conduct audiometric testing in accordance with the following:

2.12.5.1. Technicians who conduct testing either will be certified by the CAOHC or an equivalent DoD training. Standard instructions shall be given to individuals before testing.

2.12.5.2. Include pure tone, air conduction, and hearing threshold examinations of each ear at the test frequencies of 500, 1,000, 2,000, 3,000, 4,000, and 6,000 Hz.

2.12.5.3. Be performed on calibrated audiometers (reference Chapter 4 for audiometric equipment standards). Audiometers must receive annual electro-acoustic calibration by a biomedical equipment technician.

2.12.5.4. Be conducted on audiometers that have received a functional and biological operation check before each day's use (reference Chapter 4). For specifications reference 29 CFR 1910.95 (h)(5)(i).

2.12.6. Conduct audiometric monitoring for reference and/or pre-placement audiograms (DD Form 2215) according to the following:

2.12.6.1. Military personnel exposed to hazardous noise shall receive a reference audiogram (DD 2215, reason 1 "reference established prior to initial duty in hazardous areas") as soon as possible after assignment to workplace, but prior to noise exposure (including noise exposure at secondary training). All civilian personnel being considered for employment in an occupational specialty or area that involves routine exposure to hazardous noise shall receive a reference audiogram (DD 2215) at no cost to the employee (5 CFR 339.303 & 339.304; 29 CFR 1910). The audiometric test used as a reference test must be administered prior to but as close as possible to the worker's initial exposure to hazardous noise. It shall not be conducted more than 30 days from the date of the workers' initial exposure to hazardous noise. The first valid hearing test administered is the reference audiogram and the worker must be informed to avoid high levels of occupational or non-occupational noise exposure during a 14-hour period preceding the examination. Hearing protectors shall not be used to meet the noise-free requirement.

2.12.6.2. An Audiometric Case History (AF Form 1753, *Hearing Conservation Examination*, Section I) shall be completed on all reference audiograms. If worse than H-1 hearing levels are noted, or if personnel answer "yes" to asterisked questions, then a clinical examination is required, and the remainder of AF Form 1753 must be completed.

2.12.6.3. Workers terminated from the HCP who subsequently return to hazardous noise duties should have current audiogram compared to their original reference audiogram. If the current results do not indicate a STS, the original DD Form 2215 will serve as the reference audiogram. If an STS is present, use the new audiogram to establish a reference.

2.12.7. Complete annual audiograms and document them on DD Form 2216 in accordance with the following:

2.12.7.1. Personnel exposed to hazardous noise levels exceeding the standard in **Table 2**, shall receive annual audiograms. Examine the fit of pre-formed and the fit

and condition of custom earplugs at the time of the annual audiogram by having the individual place the HPD in his/her ears as they would each day.

2.12.7.1.1. PH will accomplish initial earplug fitting (reference paragraph 5.8. and 5.14.).

2.12.7.1.2. For workers that cannot be adequately fitted with recommended HPD, consult an audiologist (reference [paragraph 5.8](#) and [5.14](#)).

2.12.7.2. A STS shall include a change in hearing threshold relative to the current baseline audiogram of an **average** of 10 dB or more at 2,000, 3,000, and 4,000 Hz, in either ear. A single frequency 15 dB shift at 1,000, 2,000, 3,000, or 4,000 Hz is considered an early warning flag with no requirements for follow-up testing or referrals, but with a requirement to counsel the patient and check hearing protection. Age corrections will not be applied.

2.12.7.3. When an individual's audiogram shows an STS relative to the reference audiogram in either ear the following must be accomplished:

2.12.7.3.1. If a negative STS, improved hearing threshold from reference audiogram is noted, a follow-up test will be administered the same day as the periodic test. The results may be used to create a re-established reference audiogram to reflect the improvement in pure tone acuity.

2.12.7.3.2. If a positive STS, decrease in hearing threshold from reference audiogram is noted, two noise-free follow-up tests are administered to confirm. The noise-free follow-up tests may be administered on the same day, but not on the same day as the periodic audiogram and those two follow-up tests must be preceded by at least a 14-hour NFA. If the results of the first follow-up NFA do not indicate a STS then reference [2.12.7.3.2.2](#). Follow-up testing must be done within 30 days of the annual audiogram. If no follow-up tests are performed within 30 days after the annual audiogram, then the annual audiogram should be considered a PTS until further evaluation. For ARC members, follow-up testing must be done within 60 days of the annual audiogram. If no follow-up tests are performed within 60 days after the annual audiogram, then the annual audiogram must be considered a PTS until further follow-up is completed.

2.12.7.3.2.1. Ensure a provider or AF hearing conservationist performs LEI prior to the NFA.

2.12.7.3.2.2. If the results of the first follow-up NFA do not indicate a STS, a second follow-up test is not required, and the shift is considered a temporary threshold shift (TTS). If there is a STS on the 14-hour NFA, a second 14-hour NFA will be performed. The second 14-hour NFA may be performed immediately.

2.12.7.3.2.3. If a STS is noted on the second NFA, then the STS should be considered a PTS and patient referred to the physician or audiologist for confirmation.

2.12.7.4. Refer all patients with a PTS or problem audiogram back to the Occupational Health Consultant or to an audiologist. They determine what further

follow-up is required. Table 1. provides referral criteria to determine the need for an AF HCDC/HCC evaluation. An audiologist, an otolaryngologist, or other physician shall perform an evaluation to determine whether the STS is work-related or has been aggravated by occupational noise exposure.

2.12.7.4.1. Problem audiograms are audiograms that show large differences in hearing thresholds between the two ears, audiograms that show unusual hearing loss configurations that are atypical of noise induced hearing loss, and audiograms with thresholds that are not repeatable. A HCDC/HCC audiologist can be consulted to review problem audiograms.

2.12.7.4.2. The worker is required to complete Section I of the AF Form 1753 prior to medical referral for PTS.

2.12.7.4.3. When PH makes a referral, they shall send the following documents with the referral:

2.12.7.4.3.1. A copy of the requirements for hearing conservation.

2.12.7.4.3.2. Copies of all audiograms on record (retrieve using DOEHRSHC and paper records, if necessary).

2.12.7.4.3.3. Measurements of background sound pressure levels in the audiometric test room.

2.12.7.4.3.4. Records of audiometer calibrations as required.

2.12.7.4.4. Medical referrals for STS should be completed as quickly as possible upon completion of the follow-up testing process and are the responsibility of the medical facility, and will be completed within the designated referral timeframe.

2.12.7.5. Notify an individual in writing within 21 days when an audiologist or a physician confirms the positive threshold shift is permanent, and document and code the condition in the Electronic Health Record per standards outlined in the Military Health System coding guidelines. The individual shall be refitted with hearing protection, instructed in its care and use, and strongly encouraged to wear the hearing protection. Workers shall also be informed, in writing, that their supervisors are notified that they have experienced a decrease in hearing. Supervisors shall be notified in writing within 10 days after individual notification that the worker has experienced a decrease in hearing. The notification shall not contain additional details without prior written authorization by the worker in accordance with DoDI 6025.18, *Privacy of Individually Identifiable Health Information in DoD Health Care Programs*, and DoD 6025.18-R, *DoD Health Information Privacy Regulation*, (valid authorization consistent). The supervisor shall also be advised that any discussion of a worker's hearing abilities with non-authorized personnel will be strictly prohibited.

2.12.7.6. Replace the original reference audiogram with a new reference audiogram when the medical evaluation confirms the STS noted during the annual and follow-up audiograms is permanent. The original reference audiogram shall be retained in the patient's medical record on a DD Form 2215. A revised reference audiogram should also be established when the hearing threshold demonstrated on the annual and follow-up audiograms indicate significant improvement over the existing reference

audiogram. For a positive STS, the reviewing audiologist or physician shall choose one of the following options for re-establishing the reference audiogram:

2.12.7.6.1. Use the results of the most recent follow-up test, as designated by audiologist or provider.

2.12.7.6.2. Use the results of the audiology referral (if all pertinent examiner and audiometer information are available for the DD Form 2215). Diagnostic audiologic threshold results are to be inputted manually at the request of the audiologist or physician.

2.12.7.6.3. Conduct a separate hearing test and DD Form 2215 and use it as a reference.

2.12.8. Complete a termination audiogram when a worker enrolled in the HCP is about to stop working in a designated hazardous noise area. Personnel moving to other DoD jobs (i.e., PCSing, PCAing) involving hazardous noise exposure need not be given a termination audiogram unless they change DoD Components. An audiogram conducted within 12 months can be considered a termination audiogram. In addition, all military personnel exposed to hazardous noise will receive a termination audiogram prior to leaving military service. An STS on a termination audiogram will follow the same follow-up and referral procedures as an annual audiogram.

2.12.9. Report OSHA reportable STS in AFSAS within 7 calendar days of confirmation of the PTS by the audiologist or overseeing provider IAW 29 CFR 1904.10., provided that the employee's current average hearing level at the same frequencies in the same ear is 25 dB or greater (average change of 10 dB or more in either ear at 2,000, 3,000, and 4,000 Hz compared to that ear's baseline or revised baseline). When an OSHA-reportable hearing loss occurs from an instantaneous event (e.g., acoustic trauma from a one-time blast over pressure), the hearing loss shall be recorded as a work-related "injury", according to OSHA-recommended guidelines, within 7 calendar days of confirmation of the PTS by the audiologist or overseeing provider. National Institute of Occupational Safety and Health (NIOSH) age corrections shall NOT be used for calculating an OSHA reportable hearing loss. That loss shall only be reported once unless an additional OSHA-reportable loss of hearing is incurred.

2.12.10. Electronically track patients referred to HCDC/HCCs in conjunction with provider to ensure findings and recommendations are reviewed and appropriate action taken.

2.12.10.1. For installations that refer to non-AF audiologists, referrals shall include comprehensive audiometric testing sufficient to determine type and degree of hearing loss, and possible causation to assist in determining work-relatedness. Audiology reports should include recommendations for hearing aids, hearing protection, further medical referral, and include noise exposure history, any known indicators to the cause of the hearing loss, and an interpretation of tests results to explain the type and degree of hearing loss. The clinical outcomes shall be documented and properly coded in the Electronic Health Record.

- 2.12.10.2. All non-AF audiology reports will be sent securely and in compliance with applicable regulations via fax, or email to the regional HCDC/HCC for AF audiologist oversight.
- 2.12.11. Perform pre-deployment audiograms. AF members may require pre- and post-deployment audiograms if they are deemed “at-risk” for hazardous noise exposure during the deployment period (refer to remarks in deployment tasking line or COCOM reporting instructions). Examples of higher risk deployments might include Joint missions such as stability operations, humanitarian or emergency response activities. Recommendations for follow-up and referrals will follow the same procedures as for the HCP audiograms.
- 2.12.11.1. After the deployment period, AF members will complete a Post-Deployment (DD Form 2216) within 30 days of returning to permanent assignment. Recommendations and follow-up procedures for Post-Deployment audiograms (DD Form 2216) will follow the same procedures as annual HCP audiograms (DD Form 2216). **Note:** ARC members who deploy for 30 days or more are entitled to post-deployment follow-up care for 180 days upon return to home station.
- 2.12.11.2. Whenever feasible, hearing testing capabilities shall be established in theaters of operation.
- 2.12.12. Ensure that appropriate audiometric DOEHRS-HC data is forwarded to the DOEHRS-DR, at the end of each testing day. **Note:** In the event of network issues, export the records to either a shared network or disc and upload to the DR website when available.
- 2.12.13. Perform trend analysis for HCP outcome measures (i.e., test compliance, STS and PTS rates, overall and/or workplace-specific data). Use data to determine management actions to improve the HCP. Investigate and provide re-education to any shop not meeting standards.
- 2.12.14. Ensure appropriate hearing protection is properly fitted to personnel exposed to hazardous noise during the annual audiogram, and whenever an effectiveness issue exists. Document the date, type of HPD fitted, brand, noise attenuation provided, and resultant noise level (request from BE). Record the member’s signature on an SF 600, *Chronological Record of Medical Care*, or other suitable document and place the original form in the member’s medical record; provide a copy to the member so the supervisor can document training on the AF Form 55 or its electronic equivalent in the workplace.
- 2.12.15. Brief the OEHWG at least quarterly (or more frequently as directed) and annually brief (or more frequently as directed) the ESOH Council on the HCP to include unit compliance rates and unit-specific STS/TTS/PTS rates.
- 2.12.16. Conduct illness investigations related to reportable occupational hearing loss.
- 2.12.17. In consultation with OEHWG, conduct Fitness and Risk Evaluations.
- 2.12.18. Provide a semi-annual, or upon request, update to USAFSAM Epidemiology Consultant Services Division (USAFSAM/PHR) with current contact information to include HCP Point-of-Contact, mailing address, phone number and e-mail address.

2.12.19. Forward all completed HCP medical forms to the appropriate medical record authority for inclusion in the member's permanent outpatient medical record. When feasible, HCP medical forms should be attached to the member's electronic health record.

2.12.20. Conduct and document HCP training on a suitable document such as an SF 600, or electronic file, to notify supervisor at every initial and reference audiogram. HCP training covers:

2.12.20.1. The effects of noise on hearing and the fact that hearing loss may lead to disqualification from current duties.

2.12.20.2. The proper selection, fit, use, and care of personal hearing protectors and be able to demonstrate a proper fitting technique.

2.12.20.3. The purpose of audiometric testing and an explanation of the audiometric test procedures.

2.12.20.4. The advantages, disadvantages, and attenuation of various hearing protectors.

2.12.21. Track and monitor occupational exam compliance of workers on the HCP.

2.13. Hearing Conservation Program Manager (HCPM) at the installation level will:

2.13.1. Ensure procedures are established to identify, schedule, and monitor all personnel on the HCP.

2.13.2. Ensure only audiometers meeting the standards of the ANSI S3.6-2010, *Specification for Audiometers*, or the most current version of this ANSI standard are used in the HCP.

2.13.3. Review the HCP for adequacy/appropriateness to protect workers from hazardous noise. Include adequacy of education, audiogram completion rates, and adverse hearing loss trends in relationship to workplaces/Air Force Specialty Codes/HPD usage, etc. **Note:** the OEHWG is the proper forum to evaluate program and address concerns.

2.13.4. Trend and analyze DOEHRS-DR reports; attend and provide consultation on the HCP for the OEHWG.

2.13.5. Ensure the most current version of DOEHRS-HC (or current HC software application) is used, and technicians are adequately trained on the program.

2.13.6. Ensure hearing related Fitness and Risk evaluations are conducted IAW Chapter 7, and copies of Fitness and Risk evaluations are sent to the designated HCDC/HCC for quality assurance review by the hearing conservation consultant.

2.13.7. Ensure an efficient referral tracking mechanism is in place for audiograms between providers in the MTF and any outside audiologist or agency.

2.14. Occupational Health Consultant will:

2.14.1. Review "problem audiograms" (reference paragraph 2.12.7.4.1.) and determine if further evaluation is needed per OSHA requirements (29 CFR 1910.95). A flight surgeon or AF audiologist can serve this function. If follow-up care is needed, then request

HCDC/HCC consultations or medical referrals for personnel who fall into the referral criteria at **Table 1**.

2.14.2. Ensure medical recommendations restricting hazardous noise exposure are based upon:

2.14.2.1. Failure of the worker to meet medical standards as defined in AFI 48-123, *Medical Examination and Standards*, AFI 36-2101, *Classifying Military Personnel (Officer and Enlisted)*, and 5 CFR 339 for job placement.

2.14.2.2. Inability of the worker to perform the essential functions of the job.

2.14.2.3. Probability of the worker endangering himself or herself or others if allowed to work in a noise hazard environment, consider the Risk Management (AFI 91-202) matrix for assistance in the decision making process.

2.14.3. Ensure recommendations are made for reasonable accommodations that allow a hearing-impaired worker to perform duties in a noise hazard environment without undue risk to personal safety and health or the safety of others (reference chapter 7 on Fitness and Risk Evaluations).

2.14.4. Ensure workers who are qualified for duty in hazardous noise areas, or processes, are capably able to perform essential job tasks that are not a safety hazard to themselves or others.

2.14.5. Attend and provide consultation to the OEHWG on HCP matters.

2.15. Flight Medicine or ARC physician will:

2.15.1. Consult with the audiologist or Occupational Health Consultant on all problem audiograms and occupational hearing related referrals.

2.15.2. Develop knowledge of related OSHA/DoD/AFOSH guidance to ensure appropriate audiometric follow-up and disposition occurs (as detailed in this standard).

2.15.3. Perform worker medical evaluations and make clinical recommendations. A regional HCDC/HCC audiologist can be consulted for appropriate clinical recommendations.

2.15.4. Determine if workers possess the minimum physical abilities needed to perform essential duties and responsibilities without undue risk to themselves or others.

2.15.5. Establish reference and periodic (annual and close scrutiny) evaluations to detect signs and symptoms of noise induced hearing loss at an early stage to prevent progression. The installation level HCPM is the point of contact.

2.15.6. In coordination with the installation level HCPM, initiate Fitness and Risk Evaluations for personnel who exceed the H-1 profile and work in a hazardous noise area, and make a medical recommendation. Determine the extent of Fitness and Risk Evaluation.

2.15.7. Determine whether shift is related to Ear, Nose and Throat (ENT) condition. Advise worker of the condition and either treat or refer for treatment. If an audiologist or physician determines the shift is not occupationally related (i.e., middle ear infection) the MTF is not responsible for the referral or treatment costs for civilian employees.

2.15.8. When indicated review, complete, and sign AF Form 1753.

2.15.9. A provider will complete Section II of the AF Form 1753, before a baseline audiogram is re-established. An examination of the ears, to include a comprehensive audiologic evaluation as indicated, will be performed on patients with a PTS, undergoing a Fitness and Risk evaluation, getting a reference audiogram with worse than H-1 hearing levels, or asymmetric hearing as defined in AFI 48-123 (greater than or equal to 25 dB difference between ears at any two consecutive frequencies). The results will be recorded on Section II. The provider should note:

2.15.9.1. Condition of the external auditory canals and tympanic membranes.

2.15.9.2. Presence of middle ear disease and eustachian tube function.

2.15.9.3. Any condition that may interfere with the wear of HPD (permanently or temporarily).

2.15.9.4. Any abnormality that might adversely affect the audiogram results.

2.15.10. Determine appropriate additional referral criteria as needed.

2.15.11. Comply with Department of Labor Office of Workers' Compensation Program (OWCP) Hearing Loss Medical Requirements (reference atch 8) when completing physician and audiologist reports.

2.15.12. Use the American Conference on Governmental Industrial Hygienists (ACGIH) Threshold Limit Value Committee's recommendation and restrict pregnant women after 20 weeks gestation from discharging firearms with larger than a .22 caliber round or noise exposure greater than 115 decibels relative to the carrier (dBc) TWA and peak 155 dBc to protect fetus' hearing.

2.15.13. Track patients referred to HCDC/HCCs in conjunction with PH to ensure findings and recommendations are reviewed and appropriate action taken. Electronic tracking methods are easy to follow, and help identify the patient at each stage of referral until disposition has been completed.

2.16. Hearing Conservation Diagnostic Center (HCDC) and Hearing Conservation Center (HCC).

2.16.1. HCDC consists of (an) audiologist(s) and support personnel, and provides a wide range of diagnostics and treatments in support of clinical referrals. Hearing conservation is an integral part of a HCDC's duties. HCC consists of (an) audiologist(s) and support personnel, and provides diagnostic care in direct support of the HCP. Evaluations by certified military or state licensed civilian audiologists are permitted. All evaluations by non-AF audiologists will be reviewed by the regional AF HCDC/HCC. AF HCDC/HCC provides consultation and overview of referrals, so that management and disposition of patients meet current AF standards. Guidance can be via "standing order" or record review. Record reviews can be accomplished by fax, or encrypted email, if Health Insurance Portability and Accountability Act (HIPAA) compliant. Authorized HCDC/HCC locations are listed in Attachment 2.

2.16.2. Referral Criteria:

2.16.2.1. Medical providers may validate a PTS, but the Occupational Health Consultant or audiologist may be consulted to review problem audiograms to determine if further evaluation is required before re-establishing a reference audiogram. If medical provider determines no further evaluation is required, then proper documentation in the Electronic Health Record must be provided to explain why no further follow-up was required.

2.16.2.2. Medical providers use Table 1. to determine HCDC, HCC, or licensed civilian audiology consultation as part of the Fitness and Risk Evaluation.

2.16.2.3. Aircrew members who fail to meet the requirements for continued flight duty should be evaluated as specified in AFI 48-123.

2.16.3. Processing Patient Referrals:

2.16.3.1. Providers complete the DOEHRS-HC generated SF 600e, *DOEHRS-HC Hearing Loss Referral*, indicating reason for referral and request of care, and sends patient to the appropriate administrative MTF function to schedule referral appointment.

2.16.3.2. MTF scheduler arranges appointment and travel orders, and notifies the patient, the patient's supervisor, PH, and the referring provider of the date, time, and location of the appointment.

2.16.3.3. The patient's medical record and referral information must be available to the HCDC/ HCC or consultant at the time of the examination.

2.16.3.4. When the local MTF does not have the capability to provide an examination (or a portion of the exam) for the civilian employee, the MTF may arrange to have the examination in the civilian sector (non-DoD) healthcare community after receiving authorization from the employee's unit commander. The employee's unit commander must also authorize payment for the examination. Payment is made from the same appropriation that funds the employee's salary IAW AFI 65-601v1, *Budget Guidance and Procedures*. In cases where a civilian worker requests an audiologic evaluation for other than an occupationally related condition, i.e. hearing aid assessment, the employee will pay for the evaluation at a civilian establishment and any associated costs (e.g., travel, etc.; reference [paragraph 5.5](#)).

2.16.3.5. Patients will be referred to AF HCDC/HCC for evaluation. In cases where HCDC/HCC audiology availability, travel restrictions or finances prohibit referral to an AF HCDC/HCC, refer patient to a licensed and/or certified civilian audiologist. Providers may consult with the AF/SG Audiology Consultant on military or civilian audiology service selections and results interpretation. An AF audiologist is required to review/consult on all audiometric evaluations performed by non-AF audiologists. A letter (reference atch 3) will be attached to the DOEHRS-HC SF Form 600e or the AF Form 1672, *Hearing Conservation Diagnostic/Center Referral*, when patients are sent to non-AF audiologists.

2.16.4. Reporting Results of the Referral Examination. The HCDC/HCC audiologist or licensed/certified civilian audiology consultant will provide to the referring provider a completed SF 600e or AF Form 1672, or an equivalent Audiologic Evaluation Form, and

patient disposition including reference audiogram re-establishment, return to duty or restrictions, and follow-up required.

Table 1. Referral Criteria.

<u>CONDITION</u>	<u>RECOMMENDED ACTION</u>
On pre-placement, have a hearing profile exceeding H-1 (reference AFI 48-123).	Referral to HCDC/HCC
For medical reasons may not be able to perform the job capably or safely in a noise hazard environment.	Fitness and Risk Evaluation, after referral to HCDC/HCC
Have a PTS following 2 nd Noise Free evaluation. Audiologists and physicians are permitted by OSHA regulations to reestablish reference audiograms without HCDC/HCC referrals, with appropriate electronic documentation of non-referral rationale.	Referral to HCDC/HCC
Are unable to wear standard hearing protective devices.	Referral to HCDC/HCC
Complain of inability to correctly hear or understand routine spoken communications, auditory cues, and signals.	Referral to HCDC/HCC
Need special hearing skills and complain of hearing problems. (For example: Morse or voice-intercept operators, air traffic controllers, etc.)	Referral to HCDC/HCC
Are unable to test using standard procedures or equipment.	Referral to HCDC/HCC
Have a 40 dB or greater difference between ears at any frequency. (Requires masked audiogram)	Referral to HCDC/HCC
Have asymmetric hearing loss greater than or equal to 20 dB difference when comparing left and right ears at any two consecutive frequencies, or greater than or equal to 15 dB at 3,000Hz.	Referral to HCDC/HCC
Exhibits behavior resulting in invalid or unreliable test results suggesting an exaggerated hearing loss or a problem unrelated to a known physical illness or disease.	Referral to HCDC/HCC, and Fitness and Risk Evaluation
Meet other referral criteria as determined by the consulting audiologist or program manager.	Referral to HCDC/HCC

2.17. Occupational and Environmental Health Working Group (OEHWG) will:

2.17.1. Ensure personnel (including aircrew) that have occupational hazardous noise exposures that exceed levels as identified in Chapter 3 are monitored in the HCP.

2.17.2. Evaluate the effectiveness of the HCP by monitoring and reporting hazard assessment and outcome metrics. Additional metrics to assist in measuring program effectiveness will be determined by the OEHWG.

2.17.2.1. Noise-related metrics for evaluation include the percentage of noise hazardous workplace characterizations completed, and an index of unacceptable noise

exposures. These metrics are defined in DoDI 6055.05, appendix to enclosure 3, paragraphs 2 and 4.

2.17.2.2. Overall and workplace-specific incidence of STS, TTS, PTS, and audiometric exam compliance rate are outcome metrics to identify high-risk occupations and areas, and to determine if further intervention is necessary. Details of these metrics are outlined in DoDI 6055.12, appendix to enclosure 3.

2.17.3. Review approved civilian hearing loss claims filed at the installation and determine appropriate actions (e.g., focused education, increased audiometric monitoring, and coordination) with Safety for increased compliance monitoring, or other actions deemed necessary.

2.17.4. Document HCP decisions and recommendations in the OEHWG minutes.

3. HAZARDOUS NOISE SURVEILLANCE REQUIREMENTS: Health protection criteria are summarized in **Table 2**. Specific details are outlined in separate paragraphs.

3.1. Noise Exposure Limits-Hearing:

3.1.1. Limits. The occupational and environmental exposure limit (OEEL) for noise is intended to prevent damage to the hearing of exposed personnel. These noise exposure limits are sound levels and durations to which nearly all workers may be exposed without permanent adverse effect on their ability to hear and understand normal speech.

Table 2. Health Protection Criteria.

Hearing Protection*	85 dBA, 8-hours or equivalent exposure times (reference Table 3.)
Criterion level	85 dBA
Exchange rate	3 dB
Threshold level	80 dBA
Maximum level	115 dBA
Impulse Noise	No unprotected exposures above 140 dB peak level
Whole Body Effects*	No octave or one-third octave band level above 145 dB for frequencies from 1 Hz to 40 kHz
Ultrasound*	Reference paragraph 3.2.3.
Exposure to Music	
Patrons**	Leq.2h < 94 dBA
Employees*	Same as occupational standard
Air Force Musicians*	Same as occupational standard
* Based on recommendations from the Threshold Limit Values for Chemical Substance and Physical Agents & Biological Exposure Indices published by the American Conference of Governmental Industrial Hygienists; the current edition of this annual publication will be applied. Applies for on and off duty exposure.	
**Per USAFSAM/OE, exposure level is based on an assumption of 2 hours per week exposure using an 84-dBA criterion level.	

3.1.2. Continuous or Intermittent Exposures. The duration of unprotected noise exposure per day shall not exceed the values specified in **Table 3** for the levels indicated for continuous exposure.

Table 3. Limiting Values for Unprotected Noise Exposures*.

Sound Level (dBA)	Time (minutes)	Sound Level (dBA)	Time (minutes)	Sound level (dBA}	Time (minutes)
Over 115	Forbidden				
115	0.5	102	9.5	89	190
114	0.6	101	12	88	240
113	0.7	100	15	87	302
112	0.9	99	19	86	381
111	1.2	98	24	85	480
110	1.5	97	30	84	605
109	1.9	96	38	83**	762
108	2.4	95	48	82**	960
107	3.0	94	60	81**	1210
106	3.8	93	76	80**	24 Hours
105	4.7	92	95	Below 80	No limit
104	6.0	91	120		
103	7.5	90	151		

* The A-weighted sound level is used to assess hearing damage risk due to noise exposure; for engineering noise control, other measures are required. The limiting duration of exposure at any noise level equal to or less than 115 dBA is determined from the equation:

Figure 1. Duration of Exposure Calculation.

$$\text{Time, } T \text{ (minutes)} = 480 \times 2^{(85 - L_A)/3}$$

where, L_A = A-weighted sound level

3.1.2.1. ** Exposures of more than 12 hours should be followed by periods of equal length in quiet (less than 72 dBA).

3.1.2.2. If exposures to two or more levels occur in one day, their combined effect should not exceed an 8-hour equivalent continuous level, L_{eq} , 480 min, of 85 dB, given by the equation:

Figure 2. Calculating Equivalent Sound Level.

$$L_{eq,T} = 10 \log \left[\frac{1}{T} \sum_{i=1}^n t_i 10^{0.1L_i} \right]$$

where:

$L_{eq,T}$ = equivalent sound level for the time period T (T = 480 for 8-hour)

L_i = sound level of each noise source above 80 dBA

t_i = exposure period (minutes) for each noise source

T = total time period (minutes; 480 for 8-hour equivalent)

n = number of sources

3.1.2.3. This is equivalent to summing the fractions of the actual time of exposure to the allowable time of exposure. If this value exceeds one (1), the combined exposure should then be considered to exceed the standard. This may also be expressed mathematically as:

Figure 3. Unity Calculation.

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \frac{C_3}{T_3} + \dots + \frac{C_n}{T_n} > 1$$

3.1.2.4. The C values are the actual exposure times to a given level; the T values are the times allowed at those levels by Table 3. All occupational noise exposures above the threshold level of 80 dBA shall be used in the above equations. (OSHA 29 CFR 1910.95)

3.1.2.5. For work shifts other than 8-hour periods, the measured average noise exposure should be adjusted to an 8-hour equivalent exposure level using **Figure 4**.

Figure 4. Calculating 8-hour Equivalent Sound Level.

$$Leq,8hr = Leq,T + 10 \log (T/8)$$

where:

$Leq,8hr$ = equivalent sound level for an 8-hour period

Leq,T = measured sound level for the period T

T = length of the work shift in hours

3.1.3. Impulse or Impact Exposures. Unprotected personnel shall not be exposed to impulse or impact noise exceeding 140 dB peak sound pressure level.

3.1.4. Hazardous Noise Areas. A hazardous noise area with any exposure at or above 85 dBA shall be clearly identified by signs located at entrances to, or the borders of, the area. Signs should be designed according to the guidelines in DoDI 6055.12, para. E3.5.c., and will have the following message:

**CAUTION
HAZARDOUS NOISE AREA
HEARING PROTECTION REQUIRED**

3.1.4.1. AF Visual Aid (AFVA) 48-101 may be used for this purpose. Such wordings as "When machines are operating" or "Within 25 feet of operating band saw" may be added at the bottom of the caution sign to accurately identify the noise hazard area. Shop supervisors will consult BE whenever such modifications are required. All personnel shall wear hearing protection in a hazardous noise area when hazardous noise sources are operating, regardless of exposure duration.

3.2. Noise Exposure Limits-Whole Body Effects.

3.2.1. At certain high sound pressure levels, exposed persons may suffer adverse effects, which do not involve the hearing organs. Whole body limits are designed to prevent these effects.

3.2.2. No octave or one-third octave band level may exceed 145 dB for frequencies in the range of 1 Hz through 40 kHz, and the overall sound pressure level must be below 150 dB (unweighted). There are no time limits for exposures below these levels. However, protecting hearing requires adherence to the hearing protection limits in paragraph 3.1. in addition, the ultrasonic evaluation requirements in 3.2.3. to protect against non-auditory effects of noise; this applies regardless of any hearing protection used.

3.2.3. The impact of workplace equipment or other workplace conditions causing ultrasonic noise exposures shall be evaluated. The limits specified in DoDI 6055.12 and the latest version of ACGIH Threshold Limit Values (TLV) for Chemical Substances and Physical Agents should be used. Note these limits are designed to protect hearing. They apply at the ear, and hearing protective devices can be used to meet these limits. Consultation with USAFSAM/OE may be required in measuring or evaluating ultrasonic noise.

Table 4. Exposure Guidelines for Upper Sonic and Ultrasound Noise*.

	One-Third Octave-Band SPL (dB re: 20 micropascals (μPa))	
Mid-Frequency of Third Octave Band (kHz)	Ceiling Values	8-Hour TWA
10	105 ^A	88 ^A
12.5	105 ^A	89 ^A
16	105 ^A	92 ^A
20	105 ^A	94 ^A
25	110	--
31.5	115	--
40	115	--
50	115	--

*ACGIH, 2010 TLVs and BEIs. These recommended limits (set at the middle frequencies of the one-third octave bands from 10 kHz to 50 kHz) are designed to prevent possible hearing loss caused by the subharmonics of the set frequencies, rather than the ultrasonic sound itself. (Also, reference most current version of American Conference of Governmental Industrial Hygienists for updates). Consultation with appropriate DoD Component technical centers may be required in measuring or evaluating equipment producing those levels.

^A Subjective annoyance and discomfort may occur in some individuals at levels between 75 and 105 dB for the frequencies from 10 kHz to 20 kHz especially if they are tonal in nature. Hearing protection or engineering controls may be needed to prevent subjective effects. Tonal sounds in frequencies below 10 kHz might also need to be reduced to 80 dB.

3.2.4. Pregnant Workers. Fetal noise is a controversial topic with limited research on which to base exposure guidelines for pregnant women. A few studies suggest noise is a potential hazard; however, these studies provide insufficient evidence to establish firm fetal noise protection guidelines. There is evidence to suggest that noise exposure in excess of a C-weighted, 8-hour *Leq,T* of 115 dBc or a peak exposure of 155 dBc to the abdomen of pregnant workers, beyond the fifth month of pregnancy, may cause hearing loss in the fetus (reference paragraph 2.15.12.). The worker's attending physician should work with BE to appropriately characterize the work environment and to recommend the sound levels that should be avoided. BE should quantify specific exposures, as requested by the attending physician, if not previously quantified during routine or special assessments. Job rotation or modification of job tasks should be considered to create the safest and healthiest environment for pregnant workers and their unborn children. However, concern for safety and health should not lead to inappropriate actions that may constitute discrimination against pregnant women in the workplace.

3.2.4.1. Job rotation should be considered not mandated for pregnant workers who are exposed to hazardous noise after 20 weeks. Using job rotation for 20+ week pregnancies is highly recommended but not mandated for workers having an equivalent continuous level (ECL) at or above 100 dBA unprotected exposure.

3.2.4.2. Working in impulse or impact noise environments requiring hearing protection (e.g., firing ranges, EOD detonations, etc.) should be avoided by pregnant workers.

3.2.5. If ototoxic chemicals are present in hazardous noise areas, be aware the chemicals may act in an additive or synergistic mode to increase the risk of hearing loss.

3.3. Music Exposure Criteria. Exposure to recreational music may lead to hearing damage; two groups are typically affected: customers (recreational exposure) and the employees (occupational exposure).

3.3.1. Employees. For employees who have occupational exposure to music, the noise exposure limits and other provisions in this standard apply as for any other group of occupationally exposed employees.

3.3.2. Customers. Entertainment planners and customers need some understanding of the hazards associated with recreational exposure to loud music. Air Force occupational noise exposure standards cannot be directly applied to recreational exposures. Assuming customer exposure to loud music is generally limited to 2-hours, once per week, the music level should not exceed an equivalent continuous level, *Leq*, of 94 dBA for any continuous 2-hour period at any customer location.

3.3.2.1. The manager of each facility or activity where recreational exposure to loud music may occur should post or issue precautionary warnings. BE personnel may provide technical assistance in initial monitoring, interpreting results, and recommending controls.

3.3.2.2. 94 dBA is a guideline and does not constitute a never to be exceeded sound level. The intent is to allow music to be entertaining within reasonable and safe limits.

3.4. Noise Exposure Limits--Job Performance. Noise exposure limits in this section are provided to maintain effective job performance. These limits should be used as design recommendations in the construction of new facilities or to address concerns or correct problems arising from present conditions that interfere with accomplishing current tasks or operations.

3.4.1. Quality of Person-to-Person Communication. The data shown at Table 5. provide ranges of sound levels and the corresponding routine communication capability for several situations. When evaluating speech interference near small arms areas, or other areas where hearing protection is worn, the attenuation of the hearing protection will be taken into account.

3.4.2. Office and Work Space. Noise measurements made for comparing noise in an office with these criteria should be done with the office in normal operation, but with no one talking at the location where speech communication is being evaluated. Background noise with the office unoccupied should be lower by 5 to 10 dBA. Acceptable levels are at Tables 3.5. and 3.6.

3.4.3. Group Meeting, Study, and Rest and Relaxation Areas. Noise measurements made to compare the noise environment in an area with these criteria should include internal and external background noise. Acceptable levels are at Table 8. **Note:**

Expected voice represents the increase of voice level a speaker in a noisy field usually adopts. The communicating voice level is the voice level a speaker can produce over the range of sound levels shown when forced to communicate (achieve a 95 percent word score, with positive, instantaneous feedback).

Table 5. Quality of Person-to-Person Voice Communication*.

Voice Levels				
Noise Level (dBA)	Normal Voice	Raised Voice	Shouting	Telephone Use
40 to 50	Satisfactory to 30 feet			Satisfactory
50 to 60	Satisfactory to 6 feet	Satisfactory		Satisfactory
60 to 70	Satisfactory to 3 feet	Satisfactory to 6 feet		Satisfactory to slightly difficult
70 to 80*	Satisfactory to 1 foot	Satisfactory to 3 feet		Slightly difficult
80* to 90		Satisfactory to 1 foot,	Slightly difficult	Difficult
90 to 95		Slightly difficult to 2 feet	Slightly difficult to 3 feet	Very Difficult
Above 95			Slightly difficult to 1 foot	Unsatisfactory
*Noise exposure limits may be exceeded by a combination of noise plus voice.				

Table 6. Noise Levels for Offices*.

Range of Levels (dBA)	Communication Environment
30 to 40	Very quiet office, telephone use satisfactory, suitable for large conferences.
40 to 45	Quiet office, satisfactory for conferences at a 15 foot table; telephone use satisfactory; normal voice 10 to 30 feet.
45 to 50	Satisfactory for conferences at a 6 to 8 foot table; telephone use satisfactory; normal voice 6 to 12 feet
50 to 60	Satisfactory for conference at 4 to 5 foot table; telephone use occasionally slightly difficult; normal voice 3 to 6 feet; raised voice 6 to 12 feet.
60 to 65	Unsatisfactory for conference of more than two or three people; telephone use slightly difficult; normal voice 1 to 2 feet; raised voice 3 to 6 feet.
Above 65	Very noisy; office environment unsatisfactory; telephone use difficult.

Table 7. Noise Levels for Work Spaces*.

Range of Levels (dBA)	Communication Environment
70 to 80	Person-to-person communication with raised voice satisfactory 1 to 2 feet; slightly difficult 3 to 6 feet. Telephone use difficult.
80 to 90	Person-to-person communication slightly difficult with raised voice 1 to 2 feet; slightly difficult with shouting 3 to 6 feet. Telephone use very difficult.
Above 90	Person-to-person communication extremely difficult. Telephone use unsatisfactory.

Table 8. Noise Levels for Group Meetings, Study, Rest and Relaxation*.

Range of Levels (dBA)	Type of Space and Activities
34 to 45	Group gatherings to listen to speech and music; low background noise and good hearing conditions required; sleeping.
45 to 55	Areas where some concentration and relaxed communication may be desirable; reading rooms, sedentary relaxation; radio and television listening.
55 to 65	Good communication conditions not essential; some distraction due to external noise can be permitted; internal noise generation due to other activities may be present.
* Based on recommendations outlined in ANSI S12.65-2006 (R2011), <i>American National Standard for Rating Noise with Respect to Speech Interference</i> .	

3.5. Frequency of Assessments. Potential noise hazards shall be identified, assessed, and controlled as an integral part of the assessments specified in AFPD 48-1, *Aerospace Medicine Enterprise*, AFI 48-101, *Aerospace Medical Enterprise*, and AFI 48-145. Specifically, the health effects of noise shall be evaluated as part of routine and special assessments, and when operations change or new operations start. Additionally, assessments are performed when specific requests address the potential for hazardous noise exposure or evaluation of other types of requests show there to be potential noise hazards (OSHA 29 CFR 1910.95).

3.5.1. An initial assessment shall be conducted in all potentially hazardous noise areas. Work area/shop supervisors will notify BE within 3 days of any change in operations that results in a change in noise levels and BE will conduct a new noise evaluation, preferably within 30 days.

3.5.2. Initial, representative *Leq,T* noise level data shall be collected for similar exposure group (SEG) established IAW AFI 48-145 and AFMAN 48-146, *Occupational and Environmental Health Program Management*, for all AF employees (military and civilian) routinely working in hazardous noise areas; additional assessment should be accomplished within 30 days of any change in operations affecting noise levels. When the noise exposures for a particular SEG are highly variable or not clearly well above/below the OEEL, *Leq,T* evaluations will be accomplished IAW AFI 48-145 and AFMAN 48-146 to adequately characterize the noise hazard.

3.6. Noise Hazard Survey. A generalized process sequence, coupled with specified evaluation procedures, will be instituted to ensure a uniform approach to noise hazard assessment. The objective is to determine whether noise exposures pose a significant risk to the workers' hearing. There are three phases in the health risk assessment process: identification, analysis, and control.

3.6.1. Identification. In this phase of health risk assessment the goal is to determine whether a potential or existing exposure poses a health threat to a specified population during a specified period and location. It is critical to understand the duties of the populations and sub-populations. BE shall become familiar with the processes being performed in the workplace through firsthand observation, interviews with shop personnel, review of existing assessment data, and epidemiological summaries completed by PH. Potentially hazardous noise sources should be noted during this phase to identify the need for further consideration in the analysis phase.

3.6.2. Analysis. Three types of noise surveys are conducted to evaluate the noise environment: the noise source survey, the worker exposure survey, and the hazardous noise area survey. Data collection shall be conducted when new processes are identified or existing data is no longer current. Measurements shall be made using equipment conforming to the appropriate ANSI standard in the references. All noise data used to characterize occupational exposures shall be entered into DOEHRS-IH. Only qualified personnel who are approved by a fully qualified Bioenvironmental Engineer (BEE) shall conduct noise surveys;; qualification will be determined either by an assessment of formal education/training or by application of professional judgment.

3.6.2.1. Noise Source Survey. This survey is used to classify whether a particular noise source output exceeds the criterion level of 85 dBA and could present a potential exposure hazard to workers. Sound level measurements shall be made using A-weighting with slow response. If the source is determined to be potentially hazardous, engineering controls will be considered before other control measures; an octave band analysis may be necessary. Historical data should be applied to sources of hazardous noise that have previously been well characterized, e.g., a generator for which the sound pressure levels are adequately assessed. Hazardous noise sources will be labeled where possible with an AFVA 48-101, 48-103, 48-104, and 48-150 to warn operators of the need to wear hearing protection..

3.6.2.2. Worker Exposure Survey. Where the potential to exceed the limits in paragraph 3.1. exists, worker exposures shall be evaluated by direct measurements with noise dosimeters, or indirectly with noise exposure calculations (3.1.2).

3.6.2.2.1. TWA noise levels shall be determined for all AF workers routinely

working in hazardous noise areas at least once and should be accomplished within 30 days of any change in operations affecting noise levels.

3.6.2.2.2. In circumstances such as high worker mobility, significant variations in noise levels, or a significant component of impulse noise, representative personnel sampling shall be conducted.

3.6.2.2.2.1. Impulsive noise cannot be accurately measured using traditional sound level meters or dosimeters because special instrumentation is required.

3.6.2.2.2.2. Requests for additional information or impulse noise monitoring, contact USAFSAM ESOH Service Center, 2510 Fifth Street, WPAFB OH 45433, 1-888-232-3764.

3.6.2.2.3. When multiple worker days are used to determine the average daily ECL for an individual or group of individuals, the ECL can be used when formulating surveillance plans and shall be calculated according to the formula:

Figure 5. Calculating Average Daily Equivalent Continuous Level.

$$ECL = 10 \log \left[\frac{1}{n} \sum_{i=1}^n 10^{0.1L_{eq,Di}} \right]$$

where:

ECL = average daily equivalent continuous level

$L_{eq,Di}$ = daily equivalent continuous sound level

n = number of workdays monitored.

3.6.2.2.4. Worker noise exposure shall be computed and reported regardless of any attenuation provided by hearing protectors. However, workers should understand how hearing protection devices effect their exposure levels.

3.6.2.2.5. The decision to place an individual on the HCP will be based on the likelihood of routine exposure exceeding 85 dBA as an 8-hour TWA. The following conditions should be considered when estimating exposure for an individual or group of individuals assigned to a SEG. These conditions are based on the assumption of no routine exposure to hazardous noise in these environments:

3.6.2.2.5.1. Number of days spent in classroom training;

3.6.2.2.5.2. Number of days spent in administrative tasks, medical appointments other duties, etc.;

3.6.2.2.5.3. Number of days detailed to wing support not related to primary duty; or

3.6.2.2.5.4. Number of days at formal training or temporary duty.

3.6.2.3. Hazardous Noise Area Survey. These surveys are used to define work areas where noise exposures are assumed hazardous based on routine operations. Hearing protection requirements for these areas should be made clear to all personnel that might enter these areas. These surveys can be used to define a work area enclosed by

clear borders as a hazardous noise area or to identify a hazardous noise zone around a certain piece of equipment. When marking a hazardous noise zone around a piece of equipment, careful consideration must be given to noise production variables and the equipment's mobility.

3.6.2.4. Instrumentation used for these surveys must meet or exceed requirements for type 2 sound level meter as identified in ANSI Standard S1.4-1983 (R2006) and its most recent revision. Instruments must have been subjected to a complete electro-acoustic calibration no more than 1 year before the survey. Acoustical calibration must be performed on the instruments before and after each day's measurements. The acoustical calibrator must be accurate to within plus or minus one dB, and must have been subjected to a complete electro-acoustic calibration no more than 1 year before the survey.

3.6.2.5. When personal noise dosimeters are used for worker exposure measurements, they must integrate all sound levels from 80 dB to 130 dB. Dosimeters must meet or exceed specifications in the latest approved ANSI Standard S1.25-1991 (R2007), *Specification for Personal Noise Dosimeters*. AF components shall use a time-intensity exchange rate of 3 dB.

3.6.3. A RAC shall be assigned to all potentially hazardous noise areas and operations, in accordance with DoDI 6055.1, *Safety and Occupational Health Program*.

3.6.4. A current inventory of all potentially hazardous noise areas and operations shall be maintained to include, minimally, noise levels, RACs, and the types of control measures used.

3.6.5. Secure/Classified Area. Noise dosimeters are authorized for use in Sensitive Compartmented Information Facilities, but local clearance will be obtained in advance through the facility Sensitive Compartmented Information Security Officer.

4. PERSONNEL AND EQUIPMENT STANDARDS.

4.1. **Certification of Hearing Conservationists.** Personnel performing audiograms as part of the USAF HCP will be trained as Hearing Conservationists as established by the CAOHC. AF trained individuals may apply to CAOHC to receive Certification. CAOHC trained Hearing Conservationists, are not permitted to conduct audiometric testing outside of HCP requirements. It is recommended that AF personnel obtain CAOHC approved HC training at either USAFSAM or DoD component, as it includes training on the DOEHRS-HC software. Personnel who are CAOHC certified or receive training from a CAOHC approved civilian agency must contact the USAFSAM to receive an AF Certification number BEFORE performing audiometric testing. Personnel who are CAOHC trained by a DoD component will use the certification number issued by that Service.

4.2. AF Hearing Conservationists can perform the following activities:

4.2.1. Audiometric testing.

4.2.2. Visual exam/otoscopy of the ear to rule out conditions that interfere with audiogram.

4.2.3. Taking an occupational medical history.

- 4.2.4. Care of the audiometer and ensuring daily and annual calibration.
 - 4.2.5. Educating, training, and counseling noise exposed personnel.
 - 4.2.6. Selecting and fitting appropriate hearing protective devices.
- 4.3. CAOHC approved re-certification is required at 5-year intervals for individuals active in hearing conservation testing.
- 4.4. AF Hearing Conservationists who perform audiograms must be responsible to an audiologist, otolaryngologists, or other physician, OSHA 29 CFR 1910.95, (g)(3).
- 4.5. AF Certified Hearing Conservationists are not trained to provide audiograms for diagnostic evaluations, school screenings, or hearing tests outside the scope of the AF HCP.
- 4.6. **Audiometric Equipment Standards.** Audiometric testing done in support of the HCP will be conducted with audiometers meeting the standards of ANSI S3.6-2010 (or current ANSI standard). Audiometers must be DOEHRS compatible. Audiometric testing room requirements are reflected in ANSI S3.1-1999 (R2008), *Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms*.
- 4.7. **Standardized HCP Audiometers.** Routine pure tone air conduction testing is to be accomplished with standardized HCP audiometers. DOEHRS-HC is the authorized system for use in the HCP, and provides input into the DoD-wide Occupational Health databases. Data from diagnostic clinical audiometers used by HCDC/HCC can be input manually. Questions concerning the DOEHRS-HC system should be directed to the AF HCP Manager, USAFSAM/PHR.
- 4.8. Computer generated forms must be suitable for securing in the patient's health record.
- 4.9. **Calibration and Testing.** Hearing Conservationist will ensure all audiometers and sound rooms have been tested and calibrated before use in the HCP. The Biomedical Equipment Technician or equivalent will ensure all calibrations and certifications are performed according to ANSI S1.4-1983 (R2006) and ANSI S3.1-1999 (R2008) or current ANSI standards.
- 4.10. **Daily Functional Check.** A daily functional check is required before each day's use. DOEHRS-HC software provides a functional check sequence. The examiner should listen to all frequencies at various intensity levels. This general check of the machine and its function will include listening for:
- 4.10.1. Crackling sounds or changes in loudness while moving the cord.
 - 4.10.2. The presence of tones at all frequency settings.
 - 4.10.3. Presence of tones only in the appropriate headphone.
 - 4.10.4. Periods of silence while listening to the frequency and attenuation changes.
- 4.11. **Daily Calibration Check:** Shall be performed every day that hearing tests are administered. DOEHRS-HC software provides a calibration check sequence. An examiner who operates the audiometer must perform the calibration. The calibration test subject can be an electroacoustic ear or someone with known stable hearing levels, free of ENT problems, and not routinely exposed to hazardous noise. Record the daily calibration results on the DD Form 2217, *Biological Audiometer Calibration Check*.

4.12. If a change in threshold of more than plus or minus 5 dB at any frequency (except 6,000 Hz), or more than plus or minus 10 dB at 6,000 Hz occurs, repeat the calibration procedure. If the calibration standard is an electroacoustic ear, reset the headphones and repeat the procedure. If the calibration test fails a second time, test a person with known stable hearing thresholds. Headphones are calibrated with a specific audiometer; do not mix and match headphones and audiometers that have not been calibrated together by Biomedical Technicians. Out-of-calibration audiometers must not be used, checked by Biomedical Technicians, and repaired or re-calibrated before being placed back in service.

4.13. **Document all activities on the DD Form 2217.** A new DD 2217 must be established when the audiometer is re-calibrated.

4.14. **Annual Acoustic Calibration:** Audiometers used in the HCP will be acoustically calibrated by Biomedical Equipment Technicians or appropriate provider of these services, annually, per 29 CFR 1910.95, Chapter XVII, Attachment E, *Acoustic Calibration of Audiometers*. The calibration date, taken from the hearing conservation forms, will be stored at the DOEHRS-DR for 30 years.

4.15. **Exhaustive Calibration:** Performed by Biomedical Equipment Technician every 2 years according to sections 4.1 through 4.5 of ANSI S3.6-2010 (or current ANSI standard). Test frequencies below 500 Hz and above 6,000 Hz may be omitted from this calibration for those audiometers used in the HCP.

4.16. **Earphones.** Only earphones meeting the requirements of ANSI Standard S3.6-2010, or current ANSI standard, will be used in the AF HCP for screenings with DOEHRS-HC software. Earphones must ONLY be used with the audiometer they were calibrated. HCDC/HCC evaluations by audiologists only may use insert earphones that have been appropriately calibrated by Biomedical Equipment Technicians or equivalent civilian technicians. If the STS is due to collapsing canals, it is recommended to prevent the collapse of the canal by placing a disposable HPD behind the pinna when using circumaural earphones.

5. HEARING PROTECTION.

5.1. The use of personal hearing protectors to limit noise exposure is an interim protective measure while engineering control measures are being explored, evaluated, and designed, etc. Such devices shall constitute a permanent measure only if the BE determines, in coordination with the workplace supervisor and the unit commander, that engineering controls are not technologically, economically, or operationally feasible. BE must document in DOEHRS-IH why engineering controls were not selected to control noise hazards IAW 29 CFR 1910.95.

5.2. Personal hearing protectors are provided at no cost to all AF personnel who work in designated hazardous noise areas or operate noise-hazardous equipment (i.e., individuals affected by this instruction). The workers organization shall pay for the personal hearing protectors (including custom molded hearing protection). If custom molded hearing protection is required as determined by the MTF, the MTF provides the initial set and the worker's organization is responsible for replacements.

5.3. The hearing protectors provided must be capable of attenuating worker noise exposure below a TWA of 85 dBA. If hearing protectors do not provide sufficient attenuation, further control of exposure shall be necessary.

5.4. An earplug carrying case will be available by the owning organization (initial issue and replacement based on normal wear and tear), at no cost to the AF personnel who work in designated hazardous noise areas or operate noise-hazardous equipment, for each set of pre-formed earplugs. This case can also be used for hand-formed earplugs.

5.5. BE must approve HPDs for local use including local purchase items and HPDs for special applications. BE will verify the special need and ensure the device provides appropriate attenuation (reference paragraph 5.13.). Installation BE will notify MAJCOM BE and USAFSAM/OE if they have a special need. USAFSAM/OE will consolidate special needs and determine if an evaluation of a particular device is needed. If so, it will make a recommendation to the Air Staff (AFMSA/SG3PB) to fund a project to conduct additional testing.

5.6. Earmuffs and other HPD with input capacity, such as for music players or built-in radios designed for recreational listening will not be used with or as protectors. Any HPD with input capacity must be approved for use by AFRL to evaluate the device to confirm the level of output is not harmful, or limit to non-harmful levels. Consult installation BE or USAFSAM/OE, in assistance with 711 HPW/RHCB, for more information.

5.7. Hearing aids are not hearing protectors. Certain hearing aids or surgically implanted devices may be used with over-the-ear hearing protectors after evaluation and approval by an audiologist or otolaryngologist. If approved, the worker should be closely scrutinized on evaluation to determine STS after occupational noise exposure.

5.8. **At-the-ear exposure is calculated by BE.** BE will provide PH with a copy of the Certified Protective Equipment List which includes HPDs approved for SEG use and attenuation for each workplace process, as described in this standard. Ear level exposure is recommended to be between 76 to 84 dBA/8-hour exposure. **Note:** Care must be taken to avoid over protection. Excessive attenuation may cause the worker distress resulting in non-compliance with wearing the HPDs.

5.9. At the time of the annual audiogram Public Health should ensure personnel are fit with earplugs certified for use by BE. If a worker cannot be adequately fit with the earplugs recommended by the BE, an audiologist will determine an action plan that ensures the worker is adequately protected from occupational hazardous noise.

5.10. PH shall maintain a variety of earplugs, from at least 2 manufacturers and including at least 3 sizes, as well as carrying cases. Individual units must purchase earmuffs, disposable plugs, and other hearing protection variations approved by BE, necessary to protect workers fully against hazardous noise. An earplug carrying case (national stock number (NSN) 6515-01-100-1674, olive drab color; NSN 6515-01-533-6168, Navy blue color) will be provided at no cost to the worker (See para. 5.6.). The case may also be used for disposable earplugs.

5.11. Active Noise Reduction (ANR) hearing protection may not be appropriate for all industrial/military environments. Before employing ANR hearing protection, contact USAFSAM/PHR and USAFSAM/OE, in assistance with 711 HPW/RHCB, to assist in determining the appropriateness and feasibility of ANR applications.

5.12. Communication headsets are appropriate in some environments. Contact USAFSAM/PHR and USAFSAM/OE, in assistance with 711 HPW/RHCB to assist in determining the appropriateness and feasibility of these applications.

5.13. Types of Hearing Protective Devices:

5.13.1. Insert Type Earplug. An insert earplug is designed to provide a seal with the ear canal. There are three types of insert earplugs: premolded, formable, and custom earplugs.

5.13.1.1. Premolded Earplugs. Premolded earplugs are pliable devices of fixed proportions. Personnel fitting and dispensing earplugs will train users on proper insertion, wear, and hygiene. They are reusable, but may deteriorate and need replacement, and should be discarded if they become soiled. (Reference [Attachment 5](#))

5.13.1.2. Formable Earplugs. Formable earplugs come in one size. Some are made of material that, after compression and insertion, expands to form a seal in the ear canal. When properly inserted, they provide noise attenuation values that are similar to those from correctly fitted premolded earplugs. Formable earplugs are usually considered disposable, and therefore are more expensive for long-term routine use. Individual units may procure approved formable earplugs. Each earplug must be held in place while it expands enough to remain firmly seated. These earplugs may be washed and reused, but should be replaced after five uses or when they no longer form an airtight seal when properly inserted. (Reference [Attachment 6](#))

5.13.1.3. Custom Molded Earplugs. A small percentage of the AF population cannot be fitted, as determined by the MTF, with standard premolded or formable earplugs. Custom earplugs are made to fit the exact size and shape of an individual's ear canal. Individuals needing custom earplugs will be referred by Public Health to a professionally trained HCDC/HCC or licensed civilian audiologist. The selected custom earplug should be reviewed by BE to confirm it meets the Noise Reduction Rating (NRR) requirements of that individual's workplace. AF Band members are the only ones authorized to obtain custom-made musician's earplugs (consult an audiologist).

5.13.2. Earmuffs. Earmuffs are devices worn around the ear (circumaural) to reduce the noise reaching the ear. Their effectiveness depends on a tight seal between the cushion and head. (Reference [Attachment 7](#))

5.13.3. Communication Earmuff's (Electroacoustic Devices). Personnel who must communicate in the presence of intense noise use these devices, as determined by PH and BE. They are fitted with earmuffs and, if needed, a noise-shielding microphone so voice communications can be achieved during various operations. Noise exposure limits may be exceeded by the combination of external noise plus voice.

5.13.4. Combination Communications Earmuff and Earplug. When extremely high noise levels are present and attenuation of communication earmuffs does not allow enough exposure time to complete the mission, earplugs can be worn in addition to the earmuffs. Custom molded earplugs can be made under the supervision of an audiologist. This combination of protection should provide a longer allowable exposure time for

mission completion. Information on modifications of earmuffs and fabrication of custom molded earplugs can be obtained from USAFSAM/PHR and USAFSAM/OE.

5.13.5. Flight Helmets. Flight helmets used during ground or airborne operations provide varying degrees of protection from noise. The ear enclosures in these devices determine the degree of protection achieved. Generally, the amount of protection provided, primarily at frequencies below 1,000 Hz, varies with the condition of the ear enclosures and the acoustic seal. Headset ear enclosures and ear cushions must be maintained in good repair.

5.14. Limits of Hearing Protection Performance:

5.14.1. The maximum possible sound attenuation provided by HPDs is limited by human body and bone conduction mechanisms. Even though a particular device may provide outstanding values of noise attenuation, the actual noise reduction may be less because the noise surrounding the head and body bypasses the hearing protector and is transmitted through tissue and bone pathways to the inner ear.

5.14.2. The term "double hearing protection" for earplug and earmuff combinations is misleading. The attenuation provided from earplug and earmuff will be less than the sum of their individual attenuation values. Never add individual HPD attenuation values to derive a combination value. Add 3 dB to the highest NRR of the plug or muff to estimate combined protective rating if actual attenuation data for the combination is not available.

5.14.3. Estimating Noise Attenuation for HPD.

5.14.3.1. The noise attenuation provided by HPDs varies between wearers, even when the wearers are highly skilled at fitting the HPDs to their ears. Noise attenuation data reported by manufacturers are given as a mean and standard deviation attenuation for a highly trained human test panel. Attenuation values for HPDs use the reported mean minus two standard deviations. Consult with USAFSAM, AFRL, and/or NIOSH for independent attenuation data. If no attenuation data is available from these government sources, manufacturer's data may be used until independent attenuation data is available from a government source. In addition, NIOSH maintains a database and website with HPD attenuation values and procedures on how to calculate at-the-ear sound levels. Mean minus two standard deviations attenuation values shall be used in the HCP to estimate the noise level at the ear.

5.14.3.2. Octave Band Calculations. The preferred method to calculate HPD noise attenuation when the 8-hour TWA exceeds 94 dBA involves calculating attenuated sound levels at each octave band. Subtract two standard deviations from the manufacturer's mean attenuation values for at-the-ear noise level calculation. The estimated at-the-ear sound levels at each octave band are then compared to the A-weighting scale, and added logarithmically for the total A-weighted sound pressure level.

5.14.3.3. NRR. The preferred method of estimating HPD noise attenuation when the 8-hour TWA is less than 94 dBA is by using the NRR. The NRR assumes equal noise levels in each octave band. IAW the Occupational Noise Standard subtract 7dB from the NRR and subtract the adjusted NRR from the A-weighted sound pressure

level for the noise source to determine the at-the-ear A-weighted sound pressure level. **Note:** 7 dB correction factor is used to account for the de-emphasis of low-frequency energy inherent to the A-weighting scale.

5.14.4. Wearing double hearing protection in various conditions. When earmuffs are not worn properly (i.e., airtight seal of the earmuff to the circumaural region surrounding the pinnae of the ear) the amount of protection provided by the earmuff is greatly reduced and it is impossible to determine how much protection the worker is receiving from the noise.

5.14.4.1. If earmuffs cannot be worn due to other PPE being worn around the head (e.g., respirator with airline) then ear-inserted single hearing protection must be used. If single hearing protection does not provide enough protection to reduce the TWA 8-hr exposure below 85 dBA then administrative controls, such as reduced time in the hazardous noise area, are needed (assuming use of engineering controls has already been evaluated and is not feasible). Shop supervisors will consult BE whenever such administrative controls are required.

5.14.4.2. For other conditions where earmuffs can be worn but an airtight seal cannot be maintained (e.g., wearing of polar hood/balaclava for cold weather protection), then the sound attenuation provided by the earmuffs in combination with earplugs and the protective head gear shall be assumed to equal the attenuation provided by the earplugs alone. Administrative controls will be required to reduce the 8-hr TWA to below 85 dBA. Shop supervisors will consult BE whenever such administrative controls are required.

5.15. **Fitting and Dispensing Earplugs:**

5.15.1. PH will accomplish initial earplug fitting. PH will fit and dispense pre-formed earplugs and/or foam plugs at the time of the audiometric evaluation. At this time, PH should assess the conditions (e.g., cold weather) in which the HPDs will be worn to ensure proper wear for sufficient sound attenuation.

5.15.2. Each ear will be individually fit with earplugs (approximately 20 percent of the population requires a different size of earplug for each ear).

5.15.3. Workers unable to be properly fit with pre-molded or foam HPD should be referred to the HCDC/HCC or a certified civilian audiologist for custom made earplugs at AF expense.

5.15.4. Custom made devices may be appropriate for special circumstances. Service band members should be provided with pre-molded or custom molded musician's earplugs. Only audiologists, otolaryngologists, and medical providers professionally trained in custom earpiece fabrication may take impressions of the ear necessary to make the custom earplugs.

5.15.5. Workers may be fitted with pre-formed earplugs as determined by PH at the expense of the AF. If workers request custom-made devices as a personal preference, the unit is not obligated to pay for any additional examinations and the fabrication of specialized plugs. However, if a unit chooses to purchase custom-made earplugs for their personnel, they must consult with BE, PH, and the occupational medicine consultant who

will provide oversight of the brand/type selection, fitting, and monitoring of the custom devices. The MTF will not provide resources to conduct the fitting of custom plugs for large numbers of personnel.

5.15.6. PH will examine the fit and condition of all HPD during annual audiogram, and whenever an effectiveness question exists (DoDI 6055.12 (6)(1)). The worker should demonstrate proper fitting technique at the time of the audiogram (reference [paragraph 2.12.14](#)).

5.15.7. PH trains personnel on the proper use and care of HPD at the time of audiometric counseling. Personnel requiring earmuffs (in addition to earplugs) will be informed of this requirement and educated on the importance of using adequate protection.

5.15.8. Supervisors will instruct users on proper use and care of HPDs in the workplace as part of the annual training program.

5.15.8.1. Users will maintain HPDs appropriately as instructed.

5.15.8.2. Users should immediately notify their supervisor when HPDs no longer appear functional or usable so the HPDs can be replaced.

5.16. **Cleaning and Maintenance.**

5.16.1. Reusable earplugs or formable devices should be washed in lukewarm water with hand soap, rinsed in clean water, and dried thoroughly. Wet or damp earplugs should not be worn or placed in their containers. Cleaning should be done as needed.

5.16.2. Earmuff seals should be kept clean. The plastic or foam cushions may be cleaned in the same way as earplugs, but the inside of the muff should not get wet. When not in use, earmuffs should be placed in open air to allow moisture that may have been absorbed into the cups to evaporate. Earmuff seals should be replaced as needed.

5.16.3. Anyone having difficulty in wearing hearing protection (i.e., irritation of the ear canal(s) or pain) should immediately report this to their supervisor. The supervisor should remove the worker from exposure to hazardous noise and contact their provider or PH.

6. **NOISE CONTROL.**

6.1. **Hierarchy of Controls.** Engineering controls are the first choice to reduce hazardous noise exposures existing in the workplace. Due to cost and design limitations associated with some engineering control solutions, administrative controls and/or the use of personal protective equipment may be necessary.

6.2. **Engineering Procedures.** Noise limit recommendations should be included as part of the acquisition process. If the required equipment is not available within specified noise output limits, alternate methods of noise control may be necessary. This may also be the case when noise levels associated with existing equipment cannot be controlled cost effectively through engineering solutions. Some examples of engineering controls are provided below. To obtain a more detailed description or other examples of sound reduction methods, consult the ESOH Service Center at website: <https://hpws.afrl.af.mil/dhp/OE/ESOHSC>.

6.2.1. **Sound Absorbent Materials.** Equipment with moving parts such as gears and cams can generate significant noise levels, especially in confined areas where noise can reflect

and build-up. Sound absorbent materials can help reduce noise levels in the immediate area and in adjoining areas. Specific applications involving the type, amount, configuration, and placement of sound absorbent materials need to be determined based on an engineering evaluation.

6.2.2. Noise Barriers/Enclosures. The use of barriers and enclosures reduces noise by partially absorbing and reflecting it away from receivers. Barriers/enclosures effectiveness to reduce noise levels depends on the noise source, the configuration and materials used for the noise barrier/enclosure, and acoustic shielding. For further information regarding use of barriers/enclosures to reduce noise, reference AFM19-10, *Planning in the Noise Environment*, section 5-2.1.

7. FITNESS AND RISK EVALUATIONS.

7.1. Personnel who cannot perform essential job functions, and/or pose a safety risk to themselves or others, because of a medical condition, will be evaluated for fitness and risk. The fitness and risk evaluation may be requested by the medical provider or by line management. Personnel should be considered for a fitness and risk evaluation when they:

7.1.1. Show a second PTS in either ear.

7.1.2. Exceed the H-1 profile and work in a hazardous noise area.

7.1.3. Complain of not hearing/understanding spoken communications, auditory cues or signals.

7.1.4. Exhibit behavior resulting in invalid or unreliable audiograms (Failure to obtain accurate audiometric test data should result in a worker being removed from all hazardous noise environments due to an inability to accurately monitor hearing).

7.1.5. Exhibit behaviors that call into direct question the ability to work in the assigned job.

7.1.6. Cannot be fit with HPDs.

7.2. Flying and other special operational duty personnel who meet the criteria above or exceed hearing standards for their flying class will be evaluated as directed in AFI 48-123. **Note:** A fitness and risk evaluation is performed as part of the waiver process for flying and other special operational duty personnel who exceed hearing standards IAW AFI 48-123. If there has not been a PTS since waiver approval, an additional fitness and risk evaluation is not warranted. However, if there has been a PTS since waiver approval, consult a flight surgeon for initiating a fitness and risk evaluation.

7.3. For non-flying personnel, provider initiates the Fitness and Risk Evaluation in coordination with the installation level HCPM. The provider must address in the Reason(s) For Request: clinical status and job safety. The practitioner may include a job capability assessment in the informed medical recommendation.

7.4. Provider will perform a clinical examination. As a minimum, the routine clinical exam (AF Form 1753, Section II) will be performed. If other medical conditions affect the person's ability to perform the job capably or safely, they will be addressed in the clinical examination.

7.5. Clinical evaluations by either HCDC/HCC or a licensed civilian audiologist are required as a part of the fitness and risk evaluation.

7.6. The Job Capability and Fitness Survey:

7.6.1. Base Personnel Flight must prepare a list, using the AF Form 1754, Part 2, of the minimum essential tasks and auditory requirements a worker must have for job qualification.

7.6.2. Installation level HCPM completes the Job Capability Survey, using the AF Form 1754, Part 3. Installation level HCPM interviews the worker, visits the workplace, and for each task identified by the appointing official makes a judgment if the worker will be able to capably perform the task.

7.6.3. The shop supervisor, with assistance from Safety as needed, will perform the Job Safety Analyses (JSA), at the request of the medical provider. The Job Capability Survey and the Job Safety Analysis should be performed at the same time.

7.6.3.1. The safety representative, with assistance from the shop supervisor, completes Part 4 of the AF Form 1754. In consultation with BE and PH, Safety officials interview the worker, visit the workplace, and for each task identified by the appointing official, make a judgment as to whether the worker should be able to reasonably perform the task without endangering themselves or others.

7.6.3.2. The safety analysis should address, but is not limited to, the following conditions:

7.6.3.2.1. Does the worker perform tasks alone or in-groups?

7.6.3.2.2. If group tasks are required, are visual cues available?

7.6.3.2.3. Does the worker need to communicate to perform tasks?

7.6.3.2.4. Do potential hazard signals exist that the worker needs to hear (forklifts, special machinery, announcements, etc.)?

7.6.3.2.5. Do the job tasks include confined space entry?

7.7. Medical Determinations and Recommendations:

7.7.1. The medical provider will only make a recommendation whether the worker will be able to capably perform the task. The appointing official/commander makes the final decision.

7.7.2. To assist managers in making employment and placement decisions, medical recommendations will be one of the following:

7.7.2.1. Worker meets medical requirements of the position.

7.7.2.2. Worker meets medical requirements with an accommodation or restriction. (List recommended accommodations or restrictions and the expected therapeutic or risk avoiding benefit considering risk management decision-making process).

7.7.2.3. Worker is not fit to perform essential tasks, will pose an undue risk to themselves or others, or fails to meet medical requirements for the job. The medical provider must include reasonable justification for recommendations.

7.7.3. A determination of hearing profile might also be necessary (per AFI 48-123). AF Form 422 and H-1 profile designation are not appropriate for civilian employees. Hearing profiles are not appropriate for decisions concerning disposition and/or disqualification. Individual worker determinations are made on a case-by-case basis as outlined by the Fitness for Duty Evaluation.

7.7.4. The provider may assume a worker meets the minimum medical qualifications to perform a job in a hazardous noise environment if one of the following conditions is true:

7.7.4.1. Worker has an H-1 profile, can wear standard HPDs, and does not report difficulty hearing and understanding routine spoken communications, auditory cues, or signals.

7.7.4.2. Worker has undergone a previous fitness and risk evaluation, hearing thresholds have not changed significantly (no STS compared to most current reference), medical condition that may affect job performance in a hazardous noise job has remained stable; and the worker's supervisor has not expressed any new concerns.

7.7.5. The medical recommendation for placement or continuation in a noise-hazardous job will include the following statement on the AF Form 422, *Notification of Air Force Member's Qualification Status*, or locally derived return to duty memo, "This worker meets medical standards to work as a [insert job title and occupation code] in [insert shop name and number]." If restrictions or accommodations are recommended, they should be listed on AF Form 422, or locally derived return to duty memo, along with the expected risk-reducing or therapeutic benefit.

7.7.6. A disqualifying medical determination is warranted if:

7.7.6.1. A medical condition prevents the worker from performing the essential functions of the job and no reasonable accommodation would enable the worker to perform the job.

7.7.6.2. Allowing the worker to perform the job would endanger their safety, the safety of other workers, or the public.

7.7.6.3. The worker fails to meet a valid medical standard or physical requirement for placement in the position.

7.7.6.4. The worker determined to be medically disqualified because of reasons above must be individually evaluated.

7.7.7. A summary of the Fitness and Risk Evaluation will be prepared, using an AF Form 422, or locally derived return to duty memo, by the provider and will contain the following minimum information:

7.7.7.1. Reason for the Fitness and Risk Evaluation.

7.7.7.2. Clinical status (determination of whether a medical condition is temporary or permanent, and has reached maximum medical benefit).

7.7.7.3. Safety assessment results.

7.7.7.4. Recommendations for accommodations and (or) restrictions in the particular job.

7.7.8. The completed AF Form 1754 will be forwarded to PH for filing in the medical record.

7.7.9. Referral to an HCDC/HCC audiologist or licensed civilian audiology consultant is optional. However, if there is a need for audiologic consultation, a referral is appropriate.

THOMAS W. TRAVIS, Lieutenant General, USAF,
MC, CFS
Surgeon General

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

Title 5, CFR, Volume 1, Part 339, *Medical Qualification Determinations*, 1 January 2012

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DoDI 6055.1, *DoD Safety and Occupational Health (SOH) Program*, 19 August 1998

DoDI 6055.12, *Hearing Conservation Program*, 3 December 2010

DoDI 8910.01, *Information Collection and Reporting*, 6 March 2007

DoD 6025.18-R, *DoD Health Information Privacy Regulation*, 24 January 2003

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AFI 90-901, *Operational Risk Management*, 1 April 2000

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AFI 91-302, *Air Force Occupational and Environmental Safety, Fire Protection, and Health Std.*, 18 April 1994

AFMAN 19-10, *Planning in the Noise Environment*, 15 June 1978

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AFVA 48-103, *Caution-Hearing Protection Must Be Worn When This Equipment is in Operation Label (Issued by Sheet, 12 Labels per Sheet)*, 1 November 2006

AFVA 48-104, *Caution-Hearing Protection Must Be Worn When This Equipment is in Operation Label (Issued by Sheet, 25 Labels per Sheet)*, 1 November 2006

AFVA 48-150, *Caution-Hearing Protection Must Be Worn When This Equipment is in Operation Label (3 1/2 x 5)*, 1 February 2001

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ANSI S1.11-2004 (R2009), *Octave-Band and Fractional Octave-Band Analog and Digital Filters*.

ANSI S1.25-1991 (R2007), *American National Standard Specifications for Personal Noise Dosimeters*.

ANSI S3.1-1999 (R2008), *Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms*.

ANSI S3.6-2010 (or most current edition), *Specification for Audiometers*.

ANSI S4.1-1983 (R2006), *Specification for Sound Level Meters*.

ANSI S12.42-2010, *Methods for the Measurement of Insertion Loss of Hearing Protection Devices in Continuous or Impulsive Noise Using Microphone-in-Real-Ear or Acoustic Test Fixture Procedures*.

ANSI S12.65-2006 (R2011), *American National Standard for Rating Noise with Respect to Speech Interference*.

Environmental Protection Agency Report 550/9-74-004, *Information on Levels of Environmental Noise Requisite to protect Public Health and welfare with an Adequate Margin of Safety*.

American Conference of Governmental Industrial Hygienists (ACGIH) *TLVs and BEIs, Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices, Latest Edition*.

Prescribed Forms

AF Form 1672, *Hearing Conservation Diagnostic/Center Referral*

AF Form 1753, *Hearing Conservation Examination*

DD Form 2215, *Reference Audiogram*

DD Form 2216, *Hearing Conservation Data*

DD Form 2217, *Biological Audiometer Calibration Check*

Adopted Forms

AF Form 55, *Employee Safety and Health Record*

AF Form 422, *Notification of Air Force Member's Qualification Status*

AF Form 847, *Recommendation for Change of Publication*

AF Form 1754, *Job Capability and Safety Analysis*

SF 600, *Chronological Record of Medical Care*

SF 600e, *DOEHRS-HC Hearing Loss Referral*

Abbreviations and Acronyms

ACGIH—American Conference of Governmental Industrial Hygienists

AF—Air Force

AFI—Air Force instruction

AFMAN—Air Force manual

AFMC—Air Force Materiel Command

AFMSA—Air Force Medical Support Agency

AFOSH—Air Force Occupational and Environmental Safety, Fire Protection, and Health

AFPAM—Air Force pamphlet

AFPD—Air Force policy directive

AFSAS—Air Force Safety Automated System

AFSEC—Air Force Safety Center

ANG—Air National Guard

ANR—Active Noise Reduction

ANSI—American National Standards Institute

AR—Air Reserve

ARC—Air Reserve Component

BE—Bioenvironmental Engineering

BEE—Bioenvironmental Engineer

BEI—biological exposure indices (from ACGIH)

CAOHC—Council for Accreditation of Occupational Hearing Conservation

CFR—code of federal regulations

dB—decibel

dB_A—decibels A-weighted

dB_c—decibels relative to the carrier

DoD—Department of Defense

DoDI—Department of Defense instruction

DOEHRS—DR—Department of Defense Occupational Environmental Health Readiness System-Data Repository

DOEHRS—HC—Department of Defense Occupational Environmental Health Readiness System-Hearing Conservation

DOEHRS-IH—Department of Defense Occupational Environmental Health Readiness System-Industrial Hygiene

DRU—direct reporting unit

ECL—equivalent continuous level

ENT—ear, nose, and throat, usually refers to an otolaryngologist

ESOH—Environment, Safety and Occupational Health

FOA—field operating agency

HAF—Headquarters Air Force

HCC—hearing conservation center

HCDC—hearing conservation diagnostic center

HCP—Hearing Conservation Program

HCPM—Hearing Conservation Program Manager

HIPAA—Health Insurance Portability and Accountability Act

HPD—hearing protection device

HQ—headquarters

Hz—hertz

JSA—Job Safety Analyses

LEI—lighted ear inspection

MAJCOM—major command

MTF—medical treatment facilities

NFA—noise-free audiogram

NIOSH—National Institute for Occupational Safety and Health

NSN—national stock number

NRR—noise reduction rating

OEEL—Occupational and Environmental Exposure Limit

OEHWG—Occupational Environmental Health Working Group

OSHA—Occupational Safety and Health Administration

OWCP—Department of Labor Office of Workers' Compensation Program

PCA—permanent change of assignments

PCS—permanent change of station

PDO—publishing distribution office

PESHE—Programmatic Environmental, Safety and Health Evaluations

PH—public health

PPE—personal protective equipment

PTS—permanent threshold shift

RAC—Risk Assessment Code

RMU—Reserve Medical Unit

SEG—similar exposure group

SG—Surgeon General

SG3P—Chief, Aerospace Medicine Policy and Operations

SG3PB—Bioenvironmental Engineering Branch

SG3PM—Public Health and Preventive Medicine Branch

SORN—System of Records Notices

SPL—sound pressure level

Std—Standard

STS—significant threshold shift

TLV—threshold limit values (from ACGIH)

TTS—temporary threshold shift

TWA—time-weighted average

USAF—United States Air Force

USAFSAM—United States Air Force School of Aerospace Medicine

USAFSAM/OE—United States Air Force School of Aerospace Medicine Occupational and Environmental Health Department

USAFSAM/PHR—United States Air Force School of Aerospace Medicine Epidemiology Consult Services Division

USC—United States Code

Terms

Air Force Certified Hearing Conservationists—Personnel that are trained IAW the Council for Accreditation in Occupational Hearing Conservation and perform audiometric testing in support of the Air Force's Hearing Conservation Program.

Annual Audiogram—An audiogram performed at least annually (also called periodic audiogram).

Appointing Official—Personnel officer or official authority to make management decisions concerning hiring, placement, accommodation, and termination of employees.

Audiogram—The measurement of a worker's hearing sensitivity expressed in decibels as a function of frequency. Data are reported in graphic or numeric form.

Audiologist—A clinician, researcher, or consultant, specializing in the preservation, evaluation, and rehabilitation of hearing.

Close Scrutiny Audiogram—Frequently administered audiograms used to closely monitor a worker or group. When, on whom, and how often to perform scrutiny exams is determined by the examining practitioner, or as directed by the OEHWG.

Criterion Level—The sound level allowed for an 8-hour exposure, used as the basis for measurement of a noise standard. For the Air Force the criterion level is 85 dBA.

Department of Defense Occupational and Environmental Health Readiness System DR—DOEHRS-HC data collection, retrieval and reporting site; used to submit, retrieve, and report DOEHRs-HC data; location for downloading updated DOEHRs-HC lookup tables.

Department of Defense Occupational Environmental Health Readiness System HC—An automated audiometric system used by the military services for hearing conservation purposes.

Examining Practitioner—A credentialed health care provider (physician, nurse practitioner, physician assistant or audiologist) who performs occupational health examinations.

Exchange Rate (or doubling rate)—The time-intensity exchange rate for determining length-intensity of equivalent exposure levels. The AF uses a 3-dB exchange rate. Reference Chapter 3, Hazardous Noise Surveillance Requirements.

Fitness and Risk Evaluation—Evaluations performed by medical and safety professionals for the purpose of determining a worker's ability to perform specific job tasks (fitness) and the likelihood of harm, either to the worker or others (risk), in relation to anticipated workplace exposures and job demands. In the USAF HCP, fitness and risk evaluations are the processes used to evaluate workers who, if placed at work in hazardous noise, may not be able to perform essential duties adequately or may pose a health or safety risk to themselves or others.

H-1 Profile—Hearing Profile threshold criteria (H-1 through H-4) are defined in AFI 48-123. This criterion is used to identify workers for further evaluation to determine if they are able to capably and safely perform their job in a hazardous noise environment.

Hearing Conservation Center (HCC)—A center located at an AFMC base that provides support for referrals under the USAF HCP. Authorized HCCs are listed in [Attachment 2](#).

Hearing Conservation Diagnostic Center (HCDC)—An AF medical treatment facility staffed by an audiologist, and support staff. An HCDC gives direct clinical support to referrals under this standard and provides services to all other persons authorized medical care by AFI 41-115. Authorized HCDCs are listed in [Attachment 2](#).

Hearing Conservation Program Manager (HCPM)—Appointed by the MTF Commander or ARC Unit Commander. The HCPM, usually a credentialed provider, is responsible to manage

all aspects of the HCP while ensuring OSHA/DoD/AFOSH compliance. HCPM access in DOEHRs-DR is often the senior NCO of PH, however.

Hearing Conservationist—military or civilian member that is trained IAW Chapter 4.

Impulse or Impact Noise— A short burst of acoustic energy consisting of either a single burst or a series of bursts. The pressure-time history of a single burst includes a rapid rise to a peak pressure followed by a somewhat lower decay of the pressure envelope to ambient pressure. A series of impulses may last longer than 1 second.

Negative Threshold Shift (Improved Threshold Shift)—Same criteria as STS calculations except negative shift represent improved hearing levels. When this occurs, at least one follow-up test is required, and may be administered (immediately) the same day as the annual test. The result of the follow-up test may be used to establish a new reference audiogram, if required.

Noise- Free Audiogram (NFA)—An audiogram performed after a worker has not been exposed to noise greater than 72 dBA or impulse noise greater than 120 dB peak for a minimum specified amount of time. (e.g., 14-hour NFA, requires a minimum of 14 hours noise-free prior to the test). HPDs cannot be used to reach this noise-free status. All noise-free follow-up audiograms must be completed within 30 days of the annual audiogram.

Occupational and Environmental Exposure Limit—The OEEL is the most appropriate limit adopted from established recognized standards including, but not limited to, those in AFI and AFOSH Standards, the latest edition of the *TLV® Booklet* published annually by the American Conference of Government Industrial Hygienists, 29 CFR 1910.1000 Tables Z-1, Z-2, and Z-3 and 40 CFR 141. OEELs are limits of exposure established to protect personnel from hazardous OEEL threat exposures. OEELs apply to OEEL threat exposures for individuals and/or similarly exposed groups of individuals.

Occupational Health Consultant—A physician, usually a Flight Surgeon that serves as consultant to PCM teams for operational health concerns, including review of problem audiograms, to determine if further testing is required before disposition. An audiologist can serve as a consultant for audiology/hearing conservation review/disposition concerns.

OSHA Reportable Hearing Loss—Work-related STS (an average change of 10 dB or more in either ear at 2,000, 3,000, and 4,000 Hz compared to that ear's baseline or revised baseline) provided that the worker's current average hearing level at the same frequencies in the same ear is 25 dB or greater. PH will provide OSHA reportable hearing loss to base safety for inclusion on the OSHA 300 Log or equivalent. (Audiometric test results reflect the worker's overall hearing ability in comparison to audiometric zero. Therefore, using the worker's current audiogram, you must use the average hearing level at 2,000, 3,000, and 4,000 Hz to determine whether or not the worker's total hearing level is 25 dB or more)

Otoscope Examination (lighted ear inspection)—The act of viewing into the external auditory canal to the tympanic membrane. This exam is accomplished with the use of an otoscope.

Peak Pressure Level— The maximum absolute level, in dB, achieved for any specified time interval. (Peak pressure is the maximum absolute pressure, in Pascals, achieved.)

Permanent Threshold Shift (PTS)—Any STS found on monitoring audiometry which is still present after a second 14-hour NFA is considered a PTS. A STS on an annual audiogram is considered a PTS if follow-up testing is not conducted in the specified time.

Positive Threshold Shift (Poorer hearing from the reference)—Same criteria as STS calculations. Positive shift represents poorer hearing levels. When this occurs, two noise-free follow-up tests are required. The two noise-free tests may be completed on the same day but cannot be completed on the same day as the annual audiogram. The result of the second follow-up test may be used to re-establish the reference audiogram or make appropriate audiologic referral for additional testing, if required.

Potential Hazardous Noise—Exposure to steady-state noise having an 8-hour TWA noise level \geq (greater than or equal to) 85 dBA, or exposure to impulse/impact noise levels greater than 140 dB peak SPL, regardless of duration.

Potentially Hazardous Noise Area—Any area where workers are likely to receive a daily total noise dose in excess of that calculated using DoDI 6055.12, E3.3, or where impulse noise levels exceed 140 dB peak SPL.

Pre—placement Audiogram—All persons entering employment in hazardous noise (greater than or equal to an 8-hour TWA of 85 dBA, the OSHA limit) shall receive an audiogram prior to beginning work. The results of the pre-employment audiogram, if meeting the requirements of a reference audiogram, may be used as the reference audiogram.

Reference Audiogram—An audiogram used as a baseline to compare subsequent audiograms against to determine if hearing loss has occurred. All persons entering employment in hazardous noise (greater than or equal to an 8-hour TWA of 85 dBA, the OSHA limit) should receive a pre-placement audiogram that should be used as the reference audiogram. Also called baseline audiogram by OSHA.

Routine Noise Exposure—TWA noise levels determined by SEG for all AF employees (military and civilian) working in hazardous noise areas at least once and within 30 days of any change in operations affecting noise levels.

Sound Level (Noise Level)—The weighted sound pressure level measured by the use of a meter with characteristics and weighting A, B, or C, as specified in ANSI S1.4-1983 (R2006). The weighting must be indicated; otherwise the A-weighting is understood.

Sound Pressure Level—The sound pressure level of a sound, in dB, which is 20 times the logarithm to the base ten of the ratio of the pressure of this sound to the reference pressure of 20 microPascals (uPa) (20 microNewton/m²) (2×10^{-4} microbar).

Speech Interference Level—The arithmetic average of the sound pressure levels, in dB, of a noise in the four octave bands of center frequency 500, 1,000, 2,000, and 4,000 Hertz.

Significant Threshold Shift (STS)—A change in hearing thresholds relative to the reference audiogram of an average of 10 dB at 2,000, 3,000, and 4,000 Hz, either ear, according to CFR 1910.95. That is, if the sum of the shifts at 2,000, 3,000, and 4,000 Hz equals or exceeds 30 dB in either ear, a STS has occurred. Use of age corrections will NOT be applied when determining STS. **Note:** standard threshold shift as defined by OSHA.

Temporary Threshold Shift (TTS)—A temporary loss of hearing due to noise exposure. Any positive STS that is not confirmed by the noise free follow-up test is considered to be a TTS, unless there is a resolved medical condition.

Termination Audiogram—A hearing test administered when a worker discontinues employment involving hazardous noise exposure. A Termination Audiogram should be

accomplished when a hazardous noise exposed worker, who has been included on the HCP, separates or retires from military/civil service. Individuals who are PCSing, PCAing, or will be in an inactive flying position shall not receive a Termination Audiogram.

Threshold Level:—A sound level below, which exposures are not included in dose calculations or measurements. For this standard, the threshold is 80 dBA.

If at any step a “no” is encountered, the process ends and the hearing change is not reportable.

- **Step 1:** Compared to the original baseline audiogram or last audiogram showing a reportable shift in hearing, is there an STS in either ear (age adjustments are not allowed)? If yes, continue to step 2.
- **Step 2:** Is the average hearing level on the current hearing test at 2,000, 3,000, and 4,000 Hz in the same ear greater than or equal to 25 dB HL (no age adjustments allowed¹)? If yes, continue to step 3.
- **Step 3:** Is the STS confirmed upon 30-day retest (or was a retest not conducted)? If yes, continue to step 4.
- **Step 4:** Has a qualified health care professional determined that the shift in hearing is more likely than not work-related? If yes, continue to step 5.
- **Step 5:** Record the case within 7 days.

From: Megerson, Susan. 2002. “**OSHA’s Final Rule for Recording Occupational Hearing Loss,**” CAOHC Update, available at <http://www.caohc.org/updatearticles/fall02.pdf>.

Attachment 2**AUTHORIZED HEARING CONSERVATIONDIAGNOSTIC CENTERS (HCDC)/
AUTHORIZED HEARING CONSERVATION CENTERS (HCC)**

- A2.1.** 779 MDG/AMDS, 1050 West Perimeter Rd., Joint Base Andrews, MD 20762
- A2.2.** MDG/SGOR, Unit 6180 Box 245, Aviano AB, APO AE 09604
- A2.3.** 96 MSGS/SGCXL, 307 Boatner Rd. Bldg 2825, Eglin AFB, FL 32542-1282
- A2.4.** 673 MDG/SGOSLA, 5955 Zeamer Ave, Elmendorf AFB, AK 99506-3700
- A2.5.** 75 AMDS/SGPQ, 7238 6th Street, Hill AFB, UT 84056-5012
- A2.6.** 81 MSGS/SGCQLA, 301 Fisher St., Room GE240, Keesler AFB, MS 39534
- A2.7.** 59 MDW/SG02OA, 2200 Bergquist Dr. Ste.1, Lackland AFB, TX 78236-9908
- A2.8.** 48 MSSQ/SGCUL, Unit 5210 Box 230, RAF Lakenheath, APO AE 09461-0230
- A2.9.** 633 MDG/SGPSA, 77 Nealy Ave, Langley AFB, VA 23665-2080
- A2.10.** 6 MDG/SGPQ, 3250 Zemke Ave., MacDill AFB, FL 33621-1607
- A2.11.** 99 MSGS/SGCX, 4700 N. Las Vegas Blvd., Nellis AFB, Las Vegas, NV 89191
- A2.12.** 55 MDG/SGOSL, 2501 Capehart Rd. Offutt AFB, NE 68133-2160
- A2.13.** 78 AMDS/SGPFA, 655 7th Street Bldg. 207, Robins AFB, GA, 31098-2227
- A2.14.** 82 AMDS/SGPA, 149 Hart Street, Ste.5, Sheppard AFB, TX 76311-3482
- A2.15.** 52 MDG/SGPM, Unit 3690 Bldg 61, Spangdahlem AB, APO AE 09123-3690
- A2.16.** 72 AMDS/SGPOA, 8941 Entrance Rd., Bldg 3334, Tinker AFB, OK 73145-5300
- A2.17.** 60 AMDS/SGPQ, 101 Bodin Circle, Travis AFB, CA 94535-1880
- A2.18.** 10 MDG/SGOSL, 4102 Pinion Drive, USAF Academy, CO 80840-4000
- A2.19.** 88 AMDS/SGPO, 2325 Fifth Street, Bldg 675 Area B, Wright-Patterson AFB, OH 45433-7021
- A2.20.** 374 AMDS/SGPF, Unit 5227 Bldg 440, Yokota AB, APO, AP 96328-5227
- A2.21.** 86 MDS (Landstuhl Regional Medical Center), Attn: Audiology Clinic, CMR 402, APO AE 09180

Attachment 3**SAMPLE REFERRAL LETTER**

Hearing Conservation Program Manager
USAF Hearing Conservation Audiological Evaluation
Consultant's Name

1. (Patient's Name) is referred for an audiological evaluation to assist in determining if allowing him/her to perform duties as a (job title) in a hazardous noise environment will pose risk to their personal health and safety or the health and safety of others. The reasons for this referral are indicated on the attached Hearing Conservation Diagnostic Center Referral. As part of your evaluation, please perform the following:

a. Pure tone air conduction test, under earphones or insert earphones, using pulsed tones for frequencies 250 Hz through 8,000 Hz (to include 3,000 and 6,000 Hz).

b. Pure tone bone conduction test, using pulsed tones for frequencies 500 through 4,000 Hz (to include 3,000 Hz).

c. Word recognition testing, under earphones or insert earphones, using taped or CD lists presented at appropriate suprathreshold levels.

d. Immittance measures to include tympanometry, and acoustic reflexes obtained for both ipsilateral and contralateral conditions. Acoustic reflex decay at 500-1,000 Hz should be accomplished if clinically warranted. **Note:** All tests must be performed unaided and with equipment calibrated per the most current and applicable ANSI standards.

e. Otoacoustic Emissions testing is required for a Hearing Conservation referral.

2. In addition to performing the above tests, please provide a report including an interpretation of test results to explain the type and degree of hearing loss as well as any recommendations or referral.

3. Please direct any questions you may have concerning this patient to (name and phone number of referring practitioner).

MTF COMMANDER SIGNATURE

Attachment 4

GENERAL INFORMATION FOR EARPLUGS

Figure A4.1. Earplugs General Information.

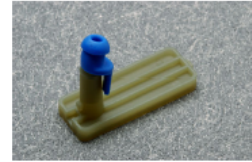
1. Use the earplug seating device or make the ear canal accessible by reaching over your head with the opposite hand and pulling the ear up and out.
2. A proper seal should be accompanied by a vacuum sensation. Your voice should sound muffled, as if talking inside a barrel.
3. Plugs tend to work loose as a result of talking and chewing, and must be resealed.
4. Little difficulty understanding speech should be experienced when plugs are being used, if the voice of others is raised slightly above the level of ordinary conversation.
5. Even a small air leak defeats the purpose of wearing plugs.
6. Keep plugs clean with soap and water. Return them dry to their case and store until needed.
7. Earplugs are for your personal use only.



Attachment 5

EARPLUG SEATING DEVICE AND CARRYING CASE POSTER**Figure A5.1. Single-Flange Earplugs.**

1. Use the seating device (top part of carrying case) and insert the pointed, plastic tip into the device's open-ended stem.
2. Place the single-flange plug over the tip and insert into the ear canal, with the tab down.
3. Twist the plug 90 degrees toward the back of the ear until a good seal is achieved.
4. When a good seal is not obtained, try a different size. Single-flange plugs come in five sizes, but are currently not being manufactured.
5. Without the seating device, make the ear canal accessible by reaching over the head with the opposite hand and pulling the ear up and out.
6. Grasp the plug by its tab and insert into the ear canal with the tab down. Twist the plug 90 degrees to the rear of the head until a seal is achieved by the flange.



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Figure A5.2. Triple-Flange Earplugs.

1. Using the seating device (lid of the carrying case), place the stem of the triple-flange earplug into the device's open end space.
2. Push and wiggle the plug into the ear canal until a seal is achieved.
3. The plug is properly fitted when the two flanges are in the canal and the third (last) flange is completely blocking the canal entrance.
4. When a good seal is not obtained, try a different size. Triple-flange plugs are available in three sizes: large, regular and small.
5. Without the seating device, make the ear canal accessible by reaching over your head with the opposite hand and pulling the ear up and out.
6. Grasp the plug by its stem and insert into the ear canal. Push and twist the plug toward the rear-center of your head until a seal is achieved by the third (last) flange.



DA Poster 40-501D, Mar 2006

Attachment 6

FOAM EARPLUG INSTRUCTION POSTER**Figure A6.1. Foam (Hand formed) Earplugs.**

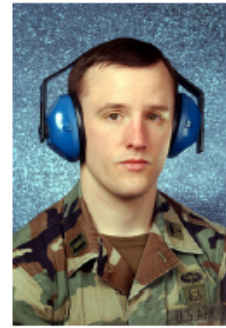
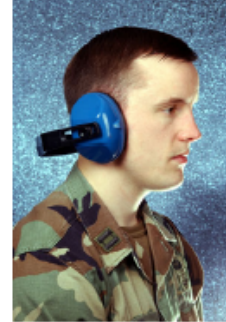
1. Insure that hands and plugs are clean before using.
2. Roll, rather than squeeze, each plug into as small a cylinder or golf tee shape as possible (see diagram).
3. Insert quickly into the ear canal.
4. Hold gently in place with your fingertip for one minute until expansion is complete.
5. Keep plugs clean by washing in mild soap and rinsing thoroughly in water. Discard if discoloration or disfiguration occurs after cleaning.
6. Do not use where hazardous chemical vapors could be absorbed into the plug.
7. Do not cut these plugs in half, because there will be insufficient foam mass for effective noise reduction.



Attachment 7

NOISE MUFFS: GENERAL INFORMATION POSTER**Figure A7.1. Noise Muffs General Information.**

1. Adjust the headband and strap to insure earcup seals are in complete contact with the head.
2. Earcup seals must fit well around the temples of eyeglasses, when worn.
3. The type II noise muff can be worn over the head, behind the head or under the chin.
4. When noise muffs are properly worn, your own voice should sound muffled to you, as if talking inside a barrel.
5. Do not bend, alter or modify any part of the headband, otcups (including the lining and the seal).
6. Replace earcup seals that become hardened, damaged or otherwise unserviceable.
7. Even a small air leak eliminates the protection provided by noise muffs.



Attachment 8**OWCP HEARING LOSS MEDICAL REQUIREMENTS AS PARAPHRASED FROM
DOL OWCP HEARING LOSS**

- A8.1.** The report submitted must include the results of an otological (ENT) exam, conducted by a physician, and the results of an audiological exam administered in a sound-treated booth.
- A8.2.** The report of the physician's ENT examination must include:
- A8.3.** The date and hour of examination;
- A8.4.** The date and hour of the claimant's last exposure to employment related noise;
- A8.5.** A detailed and relevant medical history;
- A8.6.** The physician's reasoned opinion concerning the etiology of any indicated hearing loss and, specifically, its relationship to the claimant's occupational noise-exposure history;
- A8.7.** The physician's recommendations for treatment, including the need for a hearing aid; and, the physician's original signature.
- A8.8.** The report of the audiological evaluation must include:
- A8.9.** An authenticated, legible, and dated audiogram consisting of pure tone air conduction threshold from 250 to 8,000 Hz, including 3,000 Hz, and bone conduction thresholds from 250 to 4,000 Hz, also including 3,000 Hz;
- A8.10.** The results of speech reception threshold (SRT) and speech discrimination testing, including stimuli and method of presentation (SRT and pure tone average (PTA) should agree within ± 10 dB);
- A8.11.** The results of an impedance test battery, including tympanometry and stapedial reflex threshold measurements;
- A8.12.** The standard and date of last electronic calibration, and the name of the person who performed the calibration, (our procedures require that the date of last electronic calibration be within 1 year of the date of examination) for each instrument used;
- A8.13.** A statement regarding the reliability of the audiological evaluation (if questionable, administer additional tests so that reliable conventional audiometric responses will be obtained); and, a statement indicating that the claimant was removed from any exposure to injuries noise for at least 16 hours prior to your examination.
- A8.14.** Please forward both the ENT report and the audiological evaluation to this office. Bills may only be paid when we have received the ENT report and the audiological evaluation.