BY ORDER OF THE SECRETARY OF THE AIR FORCE

AIR FORCE INSTRUCTION 48-127

26 FEBRUARY 2016

DAVIS-MONTHAN AIR FORCE BASE Supplement

19 SEPTEMBER 2016

Aerospace Medicine

OCCUPATIONAL NOISE AND HEARING CONSERVATION PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available for downloading or ordering on the e-Publishing website at **www.e-publishing.af.mil/**

RELEASABILITY: There are no releasability restrictions on this publication.

OPR: HQ AF/SG3/P

Certified by: HQ AF/SG3/5 (Maj Gen Roosevelt Allen, Jr)

Supersedes: AFOSHSTD48-20, 10 May 2013

Pages: 66

(DAVIS-MONTHANAFB)

OPR: 355 AMDS/SGPB

Certified by: 355 MDG/CC (Col Mark A. Nassir)

Pages:3

This Air Force Instruction (AFI) implements Air Force Policy Directive (AFPD) 48-1, *Aerospace Medicine Enterprise;* 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 DoDI 6055.12, *Hearing Conservation Program*, except for military unique situations. This instruction administers the Air Force (AF) Hearing Conservation Program (HCP) to prevent occupational illness and injuries under Federal and Department of Defense (DoD) references. This instruction requires collecting and maintaining information protected by the Privacy Act (PA) 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 PA have an appropriate PA statement. The applicable PA System of Records Notices (SORN) Defense Health Agency (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. Ensure that all records created as a result of processes

prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW the Air Force Records Disposition Schedule (RDS) in the Air Force Records Information Management System (AFRIMS). This AFI may be supplemented at any level, but all supplements that directly implement this publication 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. The authorities to waive wing/unit level requirements in this publication are identified with a Tier number ("T-0, T-1, T-2, T-3") following the compliance statement. See AFI 33-360, *Publications and Forms Management*, Table 1.1. for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternatively, to the publication OPR for non-tiered compliance items. 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 (including Reserve technicians and Reserve Component military Reserve technicians) are covered by this instruction. (**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 instruction. Contract personnel should not be enrolled in the AF HCP unless HCP services are included in the contract. HCP services are not normally included in contracts. This instruction 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**.

(DAVIS-MONTHANAFB) AFI48-127, O*ccupational Noise and Hearing Conservation Program*, is supplemented as follows: It establishes the Davis-Monthan Air Force Base responsibilities and procedures to prevent the adverse effects of flightline hazardous noise. This supplement prescribes policies and responsibilities for all military and civilian personnel assigned to Davis-Monthan Air Force Base (AFB) and the Aerospace Maintenance and Regeneration Group (AMARG). This instruction does not apply to contractor personnel. During mission essential, contingency, or emergency operations, commanders may waive the provisions of this instruction; however, when commanders waive procedures, they must ensure all supervisors exercise caution, make certain all subordinate personnel are aware of hazardous noise conditions, and take actions to protect the health of personnel. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Contact supporting records managers as required. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847,

Recommendation for Change of Publication; route AF Form 847s from the field through the appropriate functional chain of command.

SUMMARY OF CHANGES

This document, AFI 48-127, replaces Air Force Occupational Safety and Health (AFOSH) Standard 48-20, *Occupational Noise and Hearing Conservation Program*, has been substantially revised and must be completely reviewed. This instruction identifies the Tier waiver authorities as approved by the Inspector General Advisory Board. Major changes include baseline audiograms for all new officer and enlisted accessions and hearing related fitness and risk evaluations are to close 45 days after determination that an evaluation is required.

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1. Overview.

1.1. The USAF HCP is a component of the Occupational and Environmental Health (OEH) Program, and is a command-driven 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)*. One key to accomplishing these goals is an education program that explains the individual's role in protecting their hearing to include hazardous noise exposures on and off duty and how to mitigate those threats.

1.2. DoDI 6055.12 requires all DoD Components to implement a comprehensive program and written plan for hearing conservation when personnel are occupationally exposed as described in DoDI 6055.12. This instruction meets the intent and requirements of DoDI 6055.12 and reflects the unique functions, capabilities, and procedures of the Air Force HCP.

1.3. For Joint Bases, this instruction 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.

1.4. 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.

1.5. HCP requirements should be covered with other OEH program responsibilities in memorandums of agreement as discussed in AFI 48-145.

1.6. This AFI does not encompass audiograms for new accessions (officer and enlisted), conducted by the Department of Defense Hearing Center of Excellence.

2. Roles and Responsibilities.

2.1. Deputy Assistant Secretary of the Air Force for Environment, Safety and Infrastructure(SAF/IEE) will:

2.1.1. As delegated by the Assistant Secretary of the Air Force for Installations, Environment and Energy (SAF/IE), provide policy, guidance, direction and oversight of all matters pertaining to the formulation, review and execution of plans, policies, programs and budgets relative to the Environment, Safety and Occupational Health (ESOH) programs. Oversee implementation of those programs IAW AFPD 90-8, *Environment, Safety and Occupational Health Management and Risk Management.*

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

2.2. Air Force Surgeon General (AF/SG) will:

2.2.1. Provide strategic direction and policy to execute the AF HCP.

2.2.2. Appoint the AF/SG's Audiology Consultant.

2.2.3. Support Combatant Commanders to establish hearing testing capabilities in theaters of operation whenever appropriate.

2.3. Surgeon General Aerospace Medicine Policy and Operations Division (AF/SG3P) will:

2.3.1. Serve as the principal AF point of contact with Federal and DoD agencies regulating occupational exposure to hazardous noise.

2.3.2. Develop policy and provide coordination on hearing conservation matters in the AF.

2.3.3. Provide policy execution guidance to support installations in interpreting and implementing the HCP requirements in DoDI 6055.12 and this instruction.

2.3.4. In conjunction with the AF SG's 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 6** for a list of authorized HCDC/HCCs.

2.4. Headquarters Air Force Safety Center (AFSEC) will coordinate with AF/SG3P for safety requirements associated with hazardous noise exposure (T-0).

2.5. Air Force Medical Operations Agency (AFMOA) will:

2.5.1. Allocate funding to resource and equip installations to assist with meeting the HCP requirements (T-1).

2.5.2. Ensure the gaining Military Treatment Facilities (MTFs) have funds to send all new Air Force audiologists to a hearing conservation program-training course at USAF School of Aerospace Medicine (USAFSAM) within one year of assignment to first duty station for active duty or within the first year of employment for civilian audiologists. Contract audiologists hired to perform hearing conservation program duties may attend training at USAFSAM or a civilian equivalent training approved by the AF SG's Audiology Consultant in accordance with contract management policy (T-0).

2.6. Major Commands (MAJCOMs) will:

2.6.1. Coordinate with the AF/SG's audiology consultant to identify and designate a hearing conservation consultant (e.g., a regional HCDC/HCC or an Occupational Medicine clinic) to oversee the command HCP.

2.6.2. Allocate resources to staff and equip the HCDC/HCCs within their area of responsibility to provide regional HC referral support. Reference **Attachment 6** for additional information.

2.6.2.1. HCDCs and HCCs must consist of an audiologist and support staff.

2.6.2.2. At a minimum, testing capabilities will include diagnostic audiometer equipment sufficient to complete a full comprehensive hearing exam, a full range of immittance, electrophysiological, and otoacoustic emissions equipment.

2.6.3. Utilize the ESOH Council as the executive forum to oversee the performance of the HCP and advocate for resource requirements when necessary.

2.7. Within Air Education and Training Command:

2.7.1. The 2nd AF will ensure all basic military trainees will receive an audiogram prior to or within the first week of training.

2.7.2. The Air University Commander will ensure all Basic Officer Training, Academy of Military Science and direct Commissioned Officer Training students will receive an audiogram during training.

2.8. Assistant Secretary of the Air Force for Acquisition (SAF/AQ) will:

2.8.1. Ensure Acquisitions Program Offices include personnel noise study data on systems in the Programmatic Environment, Safety, and Occupational Health Evaluations (PESHE) and obtain formal coordination of new and updated PESHEs from their supporting Surgeon General offices, as required by AFI 63-101/20-101, *Integrated Lifecycle Management*. The coordinating Surgeon General office shall provide copies of the PESHE to the USAFSAM Occupational and Environmental Health Department (USAFSAM/OE).

2.8.2. Ensure new equipment and weapons systems being considered for fielding have the lowest sound emission levels that are technologically and economically possible, and compatible with performance and environmental requirements. Title 42 USC Section 4914, *Development of Low-Noise-Emission Products*, applies.

2.9. Commander, Air Force Materiel Command (AFMC) will ensure that the AF Research Laboratory (AFRL) 711th Human Performance Wing (HPW) will:

2.9.1. Appoint an occupational medicine consultant who provides consultation for the AF HCP (T-2).

2.9.2. Execute the research and consultative missions related to noise evaluation and control via Acoustic and Vibration Center of Excellence (T-2). The Acoustic and Vibration Center of Excellence will have standing members including the 711 HPW/Human Effectiveness Directorate (RH), USAFSAM/OE, and USAFSAM Public Health (USAFSAM/PH) (T-2). The Acoustic and Vibration Center of Excellence single point of contact (POC) is the ESOH Service Center at **esoh.service.center@us.af.mil**, 888-232-3764, or DSN798-3764. Direct all requests for support and any questions about these responsibilities to this POC. The Acoustic and Vibration Center of Excellence will:

2.9.2.1. Provide consultative services to measure, evaluate, and recommend controls and solutions for occupational noise concerns within the AF (T-2). Develop and recommend noise criteria, assessment, and control strategies to acquisition programs (T-2).

2.9.2.2. Conduct research relative to noise exposure criteria and speech intelligibility (T-2).

2.9.2.3. Represent the USAF on ANSI accredited standards committees relative to noise S1 (acoustics), S3 (bioacoustics), and S12 (noise) (T-2).

2.9.2.4. Conduct acoustic research relative to human performance in USAF environments (T-2).

2.9.2.5. Conduct measurements to quantify the performance of attenuation of hearing protectors, and attenuation and speech intelligibility of communication headsets/microphones (T-2).

2.9.2.6. Characterize the ground run-up, flyover, and interior noise levels of aircraft (T-2).

2.9.2.7. Characterize high-level continuous noise, greater than 130 decibels (dB), and impulsive noise greater than 170 dB (T-2).

2.9.2.8. Recommend to AF/SG, USAF exposure criteria for continuous and impulsive noise (T-2).

2.9.2.9. Provide data/information and consultation related to historic acoustical assessments performed by the 711 HPW and professional organizations to base Bioenvironmental Engineering (BE) (T-2).

2.9.2.10. Provide consultation and assistance on the selection of hearing protectors (T-2).

2.9.2.11. Provide data/information and consultation on unique or complex acoustic environments (T-2).

2.9.2.12. Develop guidance on hierarchy of noise measurement techniques (T-2).

2.9.2.13. Represent USAF with federal agencies and national professional organizations that set standards and standards of practice in the ESOH disciplines (T-2).

2.9.2.14. Maintain a repository of relevant references in noise and hearing protection (T-2).

2.9.2.15. Develop and provide guidance and oversight for the AF HCP (T-2).

2.9.2.16. Evaluate AF HCP effectiveness based performance measures as defined by AFMSA, HAF, and DoDI 6055.12 (T-0). At a minimum, performance measures include the incidence of significant threshold shift (STS) and permanent threshold shift (PTS), and audiogram compliance rates for all workers enrolled in the HCP program (including threshold shift follow-up rates).

2.9.2.17. Provide AFMSA/SG3PM, MAJCOMs and base-specific reports communicating the results of the performance measures on a routine basis or at least annually (T-2).

2.9.2.18. Evaluate and report recommendations for corrective action to installation level Hearing Conservation Program Manager (HCPM) and to the MAJCOMs (SGPM) to improve data quality in the Department of Defense Occupational and Environmental Health Readiness System (DOEHRS) Data Repository (DR) on a routine basis (at least annually) and upon request (T-2).

2.9.2.19. Appoint an appropriately trained audiologist to serve as the AF Hearing Conservation Program Manager (AF HCPM). This individual will serve as a primary representative to the DoD HC and Readiness working group, the DoD DOEHRS-HC

functional users group and as the consultant for DOEHRS-HC and DR in the Air Force (T-1).

2.9.2.20. Provide training to support the HCP (T-2).

2.9.2.20.1. Provide DR orientation and program management training for newly assigned military, civilian and contract AF audiologists, as needed (T-2).

2.9.2.20.2. Conduct formal Council for Accreditation in Occupational Hearing Conservation (CAOHC)-approved training for DoD personnel (military and civilian) who perform audiograms (T-2). Reference **Attachment 3**.

2.9.2.20.2.1. Provide AF certification numbers to students upon completion of CAOHC training (T-2). If AF certification numbers are unavailable the last day of training, they will be provided within 10 days of CAOHC training**.**

2.9.2.20.2.2. Track HC certification numbers for personnel who are trained IAW the CAOHC (T-2). **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. AF personnel who are CAOHC trained by a DoD component will use the certification number issued by that Service.

2.9.2.20.3. Conduct training for Public Health (PH) Officers and skill-level appropriate 4E0X1 using course material that addresses components of HCP administration/management (T-2). Provide CAOHC hands-on and didactic DOEHRS-HC training for 4E0X1 personnel for the HCP (T-2).

2.9.2.20.4. Conduct training for providers on audiogram review, audiogram consultation, referrals, and fitness and risk evaluations (T-2).

2.9.2.20.5. Conduct training for 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 (T-2).

2.9.2.20.6. Provide HC orientation training for newly assigned military, civilian, and contract AF audiologists, as needed (T-2).

2.9.2.20.7. Produce annual reports on the percentage of hazardous noise workplaces characterized and the index of unacceptable noise exposures, as outlined in DoDI 6055.12, and provide to AFMSA/SG3PB (T-0).

2.10. Wing Commanders will:

2.10.1. Provide oversight and support for an installation hazardous noise reduction and protection program (T-1).

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

2.11. Squadron Commanders will:

2.11.1. Ensure workplaces and Workplace Supervisors comply with all AF HCP, DoD, and OSHA requirements (e.g., workplace noise hazard assessments, ensuring monitoring of hazardous noise-exposed personnel including pre-placement, periodic, and termination audiograms; training of noise-exposed personnel, and supplying hearing protection devices and enforcing use, as appropriate) (T-0).

2.11.2. 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) (T-2).

2.11.3. Resource engineering controls as the primary means of eliminating exposure to potentially hazardous noise when feasible (T-0). Apply engineering controls to "military-unique workplaces", within the constraints of maintaining combat readiness.

2.11.3.1. Assign priorities for noise control resources based on the applicable Risk Assessment Codes (RAC) IAW DoDI 6055.12 and DoDI 6055.05 (T-0).

2.12. Workplace Supervisors will:

2.12.1. Ensure personnel comply with all AF HCP, DoD, and OSHA requirements (e.g., comply with workplace noise hazard assessments, pre-placement, periodic, and termination audiograms, training, and use of hearing protection devices as appropriate) (T-0).

2.12.2. Use Bioenvironmental Engineering (BE) recommendations for engineering controls as the primary means of eliminating exposure to potentially hazardous noise and protecting the hearing of assigned personnel to ensure an individual's daily noise dose does not exceed an 8-hour time weighted average (TWA) of 85 decibels A-weighted (dBA) (T-0). Limiting exposure time, increasing distance from noise sources (in some cases), and ensuring all workers are correctly using approved (Certified Protective Equipment List) hearing protection are secondary means of limiting the hazardous noise dose when engineering controls are not feasible to control hazardous noise.

2.12.2.1. Explore and use all practical design approaches as recommended by BE to reduce noise levels to below hazardous levels (T-0).

2.12.3. Mark "hazardous noise areas" and "equipment" (as identified by BE) with signs and/or decals (T-0). As a minimum, all signs and decals will comply with DoDI 6055.12. Signs and/or decals will describe (in words or with other visual symbols) the potential hazard and the required protective measures (e.g., "Caution", "Hazardous Noise", "Hearing Protection Required When in Operation"). For potentially hazardous noise areas, signs will be located at their entrances or boundaries, including pathways leading to hazardous noise areas. Reference **Attachment 2.1.3**for more information.

2.12.3.1. Maintain a supply of approved hearing protection devices (HPDs) along pathways leading to hazardous noise areas or equipment (T-0).

2.12.3.2. Ensure personnel carry hearing protectors with them when working in or entering designated "hazardous noise areas" and wear their hearing protection devices when noise sources are operating, regardless of exposure time. (T-0). This includes

visitors, temporary or transient personnel (i.e., repair technicians), aircrew, and ground based controllers entering hazardous noise areas.

2.12.3.3. In consultation with BE, ensure each tool or piece of equipment producing noise levels greater than or equal to 85 dBA, including vehicles, is clearly marked to alert personnel of the potential hazard (T-0). **Exception:** When an entire space is designated a "hazardous noise area," and the equipment is stationary. In addition, exteriors of military combatant equipment are excluded from this requirement.

2.12.4. Notify BE/PH personnel within 3 calendar days for a follow-up BE noise level survey if workplace equipment, or practices and procedures involving potentially hazardous noise change (T-2). Assure that no hazardous noise producing equipment is operated beyond an initial 30 day implementation period unless it has been assessed by BE and all required controls have been implemented.(T-2).

2.12.5. 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 (T-0). Title 42 USC Section 4914 applies.

2.12.6. Consult BEs on appropriate acoustics in specifications for all new facilities, equipment, and substantial modification projects (T-0). The objective is to ensure, if possible, a steady-state level less than 85 dBA at all personnel locations during normal operations.

2.12.7. Ensure compliance and availability of approved HPDs for workers exposed to hazardous noise (T-0).

2.12.7.1. Only purchase earmuffs, disposable plugs, and/or other hearing protection approved by BE (T-1). If approved hearing protection is no longer available, consult with BE for suitable replacement (T-1).

2.12.7.2. Consult with BE, PH, and the Occupational Medicine consultant before purchasing custom molded earplugs for the unit (T-1). Reference **Attachment 4** for more information.

2.12.8. Instruct personnel on the HCP, the care/hygiene of their HPDs, and ensure their HPDs are properly maintained (T-0). Reference **Attachment 4** for more information.

2.12.9. 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 before the date of the workers' initial exposure to hazardous noise (T-0).

2.12.10. Conduct initial and annual workplace-specific hearing conservation training on shop or unit hazardous noise exposures and equipment for all personnel exposed to hazardous noise regardless of whether or not they are on the AF HCP (T-0). Consult PH for training materials (T-1).

2.12.10.1. Document all training on the worker's AF Form 55, *Record of Training***,** or equivalent (T-2).

2.12.10.2. IAW with OSHA, training must cover:

2.12.10.2.1. The effects of noise on hearing, on and off duty sources of hazardous noise, the purpose of hearing protection, and the proper use of hearing protection

devices (T-0). Recommend the need to wear hearing protection off duty when exposed to hazardous noise (T-0).

2.12.10.2.2. The advantages, disadvantages, and attenuation of various types of hearing protectors (T-0).

2.12.10.2.3. Instructions on use, proper wear, and care of hearing protectors (T-0).

2.12.10.2.4. Counsel on the interaction between HPDs interfacing with other forms of PPE (T-1). Some types of PPE, such as eyewear, can create ill-fitting circumaural HPDs if fit of all PPE is not evaluated collectively. Reference **Attachment 4** for details.

2.12.10.2.5. The purpose of audiometric testing (T-0).

2.12.10.2.6. Hearing loss and how it may lead to disqualification from current duties if hearing is critical to job performance (T-1).

2.12.10.2.7. Mandatory requirement of assigned protective equipment, and the administrative actions that may follow for failure to wear (T-0).

2.12.11. Ensure personnel on the HCP are made available for examination and attend scheduled medical appointments (T-1). All reference hearing tests and the two noise-free follow-up tests after a positive STS will be preceded by at least 14 hours without exposure to hazardous noise. This requirement will not be met by wearing hearing protective devices (T-0).

2.12.12. Inform BE/PH personnel of each new operation, job, or process before it is implemented (T-2).

2.12.13. Ensure all hazardous noise areas above the dual hearing protection requirement are evaluated for a RAC to assist commanders in tracking corrective actions and mitigating the source (T-0).

2.12.14. Recommend the use of HPDs and other noise control methods outside the workplace, including the use of HPDs for installation recreation facilities with hazardous noise sources (auto hobby, skeet, etc.) (T-0).

2.12.15. Provide a copy of 29 CFR 1910.95 in the workplace so it is available to employees (T-0).

2.12.16. Assist with completion of AF Form 1754, *Job Capability and Safety Analysis* (T-2). Reference **Attachment 5** for details.

2.12.17. IAW 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 (T-0).

2.12.18. Notify each worker of hazardous noise sources in the workplace as identified by BE (T-0).

2.12.19. Provide information to BE about work practices and procedures involving potential exposure to hazardous noise to allow proper surveys and evaluations of the workplace (T-1).

2.12.20. Update and maintain current rosters of personnel occupationally exposed to hazardous noise using the Occupational Health Supervisor Module in Aeromedical Services Information Management System (ASIMS) (T-2). Update rosters at a minimum of every 6 months (T-2). Ensure that all newly assigned and departing personnel receive all required audiograms (i.e., pre-placement and termination) in the scheduled timeframe (T-0).

2.13. Employees with Hazardous Noise Exposure will:

2.13.1. Comply with all hazardous noise control measures whether at work or at deployed location to reduce exposure to hazardous noise IAW DoDI 6055.12 (T-0). Employees will:

2.13.1.1. Reduce exposure by properly using hearing protectors and advise others in the workplace to wear HPD when exposed to hazardous noise IAW OSHA CFR 1910.95 (T-0). Employees are highly encouraged to wear HPDs off duty when operating hazardous noise producing equipment or tools, including firearms.

2.13.1.1.1. Personnel working in or entering designated "hazardous noise areas" will always carry hearing protectors with them IAW DoDI 6055.12 (T-0). This includes visitors, temporary or transient personnel (i.e., repair technicians), aircrew, and ground based controllers entering hazardous noise areas.

2.13.1.1.2. When noise sources are operating, personnel will wear their HPDs regardless of exposure time IAW DoDI 6055.12 (T-0).

2.13.1.1.3. Personnel will wear hearing protectors as directed when exposed to gunfire or artillery fire in test or training situations (T-0).

2.13.2. Maintain HPDs appropriately as instructed by supervisor (reference 2.12.8.) (T-0).

2.13.3. Notify supervisor when HPDs no longer appear functional or usable so the HPDs can be replaced (T-0).

2.13.4. Receive all required audiometric evaluations IAW OSHA 29 CFR 1910.95 and DoDI 6055.12 (T-0).

2.13.4.1. Personnel will report for appointments to receive required periodic medical surveillance examination (MSE) (T-0).

2.13.4.2. Personnel will take the HPDs used to the appointment, including any PPE that is worn in conjunction with HPDs, such as eyewear, that could affect the fit of HPDs (T-1). Proper fitting technique will be demonstrated at the time of the audiogram.

2.13.4.3. Employees should not continue to perform duties in hazardous noise if the examination requirement is not met (T-1).

2.13.5. 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 (T-1).

2.13.6. Report to the supervisor any new or changes in operating procedures that affect workplace hazardous noise exposure and participate in noise exposure surveys and evaluations by wearing monitoring equipment as requested by BE (T-1).

2.13.7. Identify initiatives and inform supervisors/leadership of opportunities to reduce or eliminate hazardous noise in their work centers (T-2).

2.13.8. **(Added-DAVIS-MONTHANAFB)** Adhere to specific Davis-Monthan AFB flightline noise policy as follows:

2.13.8.1. **(Added-DAVIS-MONTHANAFB)** Davis-Monthan AFB flightline has been identified as a hazardous noise area by the 355 Aerospace Medicine Squadron Bioenvironmental Engineering Flight (BEF). The following hearing protection standards are effective immediately every time personnel are on the flightline:

2.13.8.1.1. **(Added-DAVIS-MONTHANAFB)** Double hearing protection (ear plugs AND ear muffs/communication headsets) will be worn whenever personnel are within 100 feet of A-10, C-130, or HH-60 aircraft (approximately 2 x A-10 Wingspan, 1 x C-130 Wingspan, 2 x HH-60 Length, or 1 x Sunshade width) during all stages of engine run-up to include Auxiliary Power Unit (APU) operation up to maximum power, or whenever:

2.13.8.1.1.1. **(Added-DAVIS-MONTHANAFB)** Within 250 feet of F-16 aircraft engine run-ups.

2.13.8.1.1.2. **(Added-DAVIS-MONTHANAFB)** Aerospace Ground Equipment (AGE) is identified by the BEF in their routine health risk assessment letter and associated attachments as required to wear double hearing protection.

2.13.8.1.2. **(Added-DAVIS-MONTHANAFB)** Single hearing protection (ear plugs OR ear muffs), at a minimum, will be worn on the flightline when aircraft are powered, taking off and/or landing, or whenever:

2.13.8.1.2.1. **(Added-DAVIS-MONTHANAFB)** Personnel are within 200 feet of A-10, C-130, or HH-60 or within 350 feet of F-16 aircraft during all stages of engine run-up to include Auxiliary Power Unit (APU) operation up to maximum power.

2.13.8.1.2.2. **(Added-DAVIS-MONTHANAFB)** Personnel are within 25 feet of AGE classified as hazardous noise producing equipment as identified by the BEF in their routine health risk assessment letter and associated attachments.

2.13.8.2. **(Added-DAVIS-MONTHANAFB)** When hearing protection devices are not feasible or could compromise the health and safety of personnel involved in certain activities (e.g. emergency response or security detail), time limitations and administrative controls must be followed.

2.13.8.3. **(Added-DAVIS-MONTHANAFB)** Flightline hearing protection is not required when driving or riding in a Government Operated Vehicle (GOV) or around unpowered aircraft. However, double hearing protection should still be carried in the event that operations change and personnel must work in hazardous noise conditions.

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

2.14.1. Evaluate and reassign personnel, based on medical recommendations, to a suitable workplace (T-2). Include those awaiting reasonable accommodations in, denied placement in, or removed from, hazardous noise-related jobs.

2.14.2. Ensure civilian workers receive a pre-placement hearing test/medical clearance before being hired or transferred into a position that includes duties in a hazardous noise environment (T-0).

2.14.3. Upon request from the installation level HCPM or the provider, prepare an AF Form 1754, Part 2, with essential tasks that a worker must perform, at a minimum, to qualify for or to retain a position to allow the provider to conduct a worker's fitness and risk evaluation (T-2).

2.14.4. Report the number of civilian claims filed for noise-induced hearing loss and the cost of the award to the ESOH Council (T-2).

2.14.5. Ensure Civilian Personnel Office provides the OEHWG and installation level HCPM information related to any hazardous noise illness or injury claims (T-2).

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

2.15.1. Complete the safety analysis called for in this instruction using the AF Form 1754, Part 4, with assistance from shop supervisor. (T-2). Reference **Attachment 5** for details.

2.15.2. Report noncompliance with the HCP to the supervisor and BE office (T-1).

2.15.3. Identify newly added hazardous noise work tasks or areas noted during periodic safety inspections to BE (T-2).

2.16. MTF/CC (RMU/GMU/CC for ARC) will:

2.16.1. Ensure a comprehensive HCP is available and appropriately resourced to meet requirements (T-1).

2.16.2. Provide guidance for successful execution of the HCP at their installation (T-1).

2.16.3. Appoint the audiologist, occupational medicine provider or an experienced flight surgeon to be the installation level HCPM (T-1). For DOEHRS-HC/DR records management, a certified 7-level hearing conservationist can assume the HCPM access level role in the DOEHRS-HC software and on the Data Repository.

2.17. MTF/SGP or ARC/SGP will provide programmatic oversight of the HCP program and coordinate all Aerospace Medicine activities related to HCP (T-1).

2.18. The Squadron/CC or ARC/SGP under whose command the HCP resides will:

2.18.1. Ensure HCP personnel meet training requirements (T-1).

2.18.1.1. The Squadron/CC or ARC/SGP will ensure that personnel (civilian and military) performing audiograms are certified by an AF or DoD-equivalent course that is CAOHC-approved (T-0). Reference **Paragraph 2.9.2.20** and **Attachment 3** for details.

2.18.1.2. The Squadron/CC or ARC/SGP will ensure new Air Force audiologists attend a hearing conservation program-training course at USAFSAM within one year of assignment to first duty station for active duty or within the first year of employment for civilian audiologists (T-1). Contract audiologists who are hired to perform hearing conservation program duties may attend training at USAFSAM or a civilian equivalent in accordance with contract management policy.

2.18.2. Identify new personnel requirements to meet HCP mission needs (T-1).

2.19. Bioenvironmental Engineering (BE) will:

2.19.1. Perform noise surveys and dosimetry to quantify noise hazards as outlined in **Attachment 2** (T-0).

2.19.1.1. At the request of a pregnant worker's attending provider, quantify specific exposures if not previously quantified during routine or special assessments (T-1).

2.19.1.2. Ensure only qualified personnel (**A3.1 Certification)** conduct the surveys (T-0).

2.19.1.3. Document all results in DOEHRS-IH (T-0). Utilize the DOEHRS Hazardous Noise Data Entry and Report Guide (DERG) for accurate input of data and reports (T-2).

2.19.2. 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, *Specification for Sound Level Meters* (or current ANSI standard) (T-0).

2.19.3. Complete the Occupational and Environmental Health Exposure Data for the OEHWG, including the 8-hour TWA and required controls (T-2).

2.19.3.1. Ensure that resultant noise levels are below 85 dBA when using the hierarchy of controls (T-0). If resultant noise levels are greater than or equal to 85 dBA then engineering controls should be the first method of control considered, followed by administrative controls and PPE last (T-0).

2.19.3.1.1. Where engineering controls are undertaken, the design objective is to reduce steady-state levels to below 85 dBA, regardless of personnel exposure time, and to reduce impulsive noise levels to below 140 decibels (dB) peak sound pressure level (SPL).

2.19.3.1.2. If engineering controls are not selected to control noise hazards, then BE must document reason in DOEHRS-IH (reference the Noise DERG) (T-1).

2.19.3.2. Calculate at-the-ear exposure (T-1). Reference **Attachment 4** for method to estimate HPD attenuation.

2.19.3.2.1. Provide PH with a copy of the Certified Protective Equipment List, which includes HPDs approved for SEG use and attenuation for each workplace process (T-1).

2.19.3.2.2. Ear level exposure is recommended to be between 76 to 84 dBA for an 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.

2.19.4. Provide PH and shop supervisors the results of noise surveys and dosimetry (T-1). This information is to 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 (reference the Noise DERG).

2.19.5. Approve HPDs for local use including local purchase items and HPDs for special applications (T-1).

2.19.5.1. Verify the special need and ensure the device provides appropriate attenuation (T-1).

2.19.5.2. Notify MAJCOM/SGPB and USAFSAM/OE if they have a special need (T-2).

2.19.6. Assess the adequacy of all controls used to reduce noise exposures including hearing protectors and evaluate industrial work areas where adverse hearing loss trends are noted (T-1).

2.19.7. Assist with fitness and risk evaluations upon request of the provider, to include hazardous noise exposures on and off duty (T-2).

2.19.8. Review facility and operations plans for new or modified facilities to ensure noise exposure control is appropriately considered (T-1).

2.19.9. In conjunction with the shop supervisor, assess the feasibility of engineering controls for hazardous noise equipment/areas (T-1).

2.19.10. Conduct work place assessments to support occupational illness/injury investigations and claims for hearing loss (T-1).

2.19.11. Annually certify the audiometric testing environment with a Type I precision sound level meter (SLM) with attached octave band analyzer and establish that background octave band SPLs are not greater than the following (T-0):

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

2.19.11.2. For 1,000 Hz, 29 dB.

2.19.11.3. For 2,000 Hz, 34 dB.

2.19.11.4. For 4,000 Hz, 39 dB.

2.19.11.5. For 8,000 Hz, 41 dB.

2.19.12. When surveying the test environment use equipment conforming at least to the Type I requirements of the latest approved ANSI Standard S1.4 and the order 3 extended range requirements of the latest approved ANSI Standard S1.11, *Specifications for Octave-Band and Fractional Octave-Band Analog and Digital Filters* (T-0).

2.19.13. Assign a RAC to all potentially hazardous noise areas and operations, IAW DoDI 6055.01, *DoD Safety and Occupational Health Program* (T-0).

2.19.14. Coordinate any RAC 1, 2 or 3 with the installation safety office IAW AFI 91-202, *USAF Mishap Prevention Program*, for inclusion into the installation Master Hazard Abatement Plan (T-1).

2.19.15. Maintain a current inventory of all potentially hazardous noise areas and operations to include, minimally, noise levels, RACs, and the types of control measures used (T-0).

2.19.16. Provide technical assistance in initial monitoring, interpreting results, and recommending controls when requested for facilities where recreational exposure to loud music may occur (T-2).

2.20. Public Health (PH) will:

2.20.1. Manage and perform Occupational Hearing Conservation audiograms (except at installations where separate Occupational Medicine Services are already established outside of PH) (T-1). Place personnel identified as occupationally exposed to hazardous noise (i.e., exposed to noise levels at or above 85 dB on an 8-hour TWA as identified by BE survey and recommended by OEHWG) in a testing program that includes pre-placement, periodic (at least annually), and termination audiograms (T-0). IAW DoDI 6055.12, personnel who infrequently or incidentally enter designated hazardous noise areas are required to wear hearing protection but are not required to be enrolled in the audiometric testing program. For ARC personnel assigned to workplaces which would present them with occupational exposure to hazardous noise, an audiogram is not required unless they are exposed to hazardous noise for more than 30 days per year. This suspension from audiometric testing will not be viewed as a removal from the balance of the protective requirements of the HCP. Exposed personnel will be included in hearing conservation training, HPD issuance and fitting for work in hazardous noise environments, and other elements of an effective HCP (T-0).

2.20.2. Track personnel on the HCP along with shop supervisors using the Occupational Health Module in ASIMS (T-1). This includes monitoring occupational exam compliance.

2.20.3. Ensure technicians who conduct testing are certified by an AF or DoD-equivalent course that is CAOHC-approved (T-0). Training includes hands-on DOEHRS-HC curriculum.

2.20.4. Perform, prior to every hearing test and every earplug fitting/assessment, a lighted ear inspection (LEI) (T-2).

2.20.4.1. Performing a LEI helps to determine if cerumen removal or other treatment is necessary to obtain an accurate audiogram and properly select, assess, and fit earplugs.

2.20.4.2. Hearing conservationists are appropriately trained to perform LEI at the Hearing Conservation course at USAFSAM.

2.20.4.3. All barriers (e.g., HPDs, hearing aids) must be removed before the LEI and during the audiogram (T-2).

2.20.5. Provide standard instructions to individuals before testing (T-2).

2.20.6. Perform audiometric testing using the DOEHRS-HC software (T-0). Test Air Force and Sister Service members using the appropriate DD Form 2215, *Reference Audiogram*, and DD Form 2216, *Hearing Conservation Data* (T-0). Using the appropriate forms avoids overuse of non-HC tests, which cannot be compared to a baseline in order to monitor hearing changes.

2.20.7. Ensure that appropriate audiometric DOEHRS-HC data is forwarded to the DOEHRS-DR, at the end of each testing day (T-0). **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.

2.20.8. Perform audiometer calibration and functional checks (T-0).

2.20.8.1. Perform tests on calibrated audiometers (T-0). Reference **Attachment 3**.

2.20.8.2. Perform tests on audiometers that have received a functional and biological operation check before each day's use as outlined in **Attachment 3** (T-0). For further specifications, reference DoDI 6055.12.

2.20.8.3. Ensure audiometers receive an annual electro-acoustic calibration by a biomedical equipment technician (T-0). Reference **Attachment 3**.

2.20.9. Include pure-tone, air-conducted hearing threshold examinations of each ear at the test frequencies of 500, 1,000, 2,000, 3,000, 4,000, and 6,000 Hz (T-0).

2.20.10. Conduct reference and pre-placement audiograms, and document on DD Form 2215 IAW the following (T-0):

2.20.10.1. All civilian personnel being considered for employment in an occupational specialty or area that involves exposure to hazardous noise will receive a reference audiogram, prior to but as close as possible to the actual date of anticipated noise exposure, at no cost to the employee (5 CFR 339.303 & 339.304; 29 CFR 1910.95) (T-0). Military personnel exposed to hazardous noise will receive a reference audiogram prior to but not to exceed 30 days before the date of the workers' initial exposure to hazardous noise, including noise exposure at secondary training (T-0). **Exception:** For all new officer and enlisted accessions who received a reference audiogram at initial training, they will receive an annual audiogram if assigned to a work area with hazardous noise. **Note:** Reference **Attachment 3** for 'reason' selection.

2.20.10.1.1. The first valid hearing test administered is the reference audiogram. The worker must be informed to avoid high levels of occupational or non-occupational noise exposure during the 14-hour period preceding the examination (T-0).

2.20.10.1.2. Hearing protectors will not be used to meet the 14-hour noise-free requirement (T-0).

2.20.10.1.3. The officer accessions (e.g., Health Professional Scholarship Program and ROTC students) who did not receive a reference audiogram at initial training (no DD Form 2215 in DOEHRS-DR) will have an audiogram performed by Public Health at the first duty location (T-1).

2.20.10.2. An Audiometric Case History (AF Form 1753, *Hearing Conservation Examination*, Section I) will be completed on all reference audiograms (T-2). 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 is to be completed (T-2).

2.20.10.3. Workers terminated from the HCP who subsequently return to hazardous noise duties should have their current audiogram compared to their most recent reference audiogram. If the current results do not indicate an STS, the most recent reference audiogram serves as the reference audiogram. If an STS is present, use the current audiogram to establish a new, type 3 reference audiogram (T-0).

2.20.10.4. Maintain a variety of earplugs and accomplish the initial earplug fitting (T-0). Reference the fitting and dispensing section in **Attachment 4** for details.

2.20.10.5. Consult an audiologist for workers who cannot be adequately fitted with recommended HPD (T-0). Reference **Attachment 4** for details.

2.20.11. Conduct annual audiograms and document on DD Form 2216 IAW the following (T-0):

2.20.11.1. Personnel exposed to hazardous noise levels exceeding the standard outlined in **Attachment 2** will receive annual audiograms (T-0).

2.20.11.2. Examine the fit of pre-formed or the fit and condition of custom molded earplugs at the time of the annual audiogram by having the individual place the HPD in his/her ears as they would each day (T-1).

2.20.11.3. Document the date, type of HPD fitted, brand, noise attenuation provided, and resultant noise level (request from BE) on a suitable document such as an SF 600, *Chronological Record of Medical Care*, or an electronic equivalent, and place (or upload) to the member's medical record (T-1).

2.20.12. Complete a termination audiogram when a worker enrolled in the HCP stops working in a designated hazardous noise area and will no longer be exposed as defined in DoDI 6055.12. (T-0). **Note:** Personnel moving to other DoD jobs (i.e., PCSing, PCAing) involving hazardous noise exposure with continued HCP enrollment need not be given a termination audiogram unless they change DoD Components.

2.20.12.1. Military personnel exposed to hazardous noise will have a termination audiogram documented before leaving military service. An audiogram conducted within 12 months of separation/retirement can be considered a termination audiogram (T-0). **Note:** Reference AFI 48-123, *Medical Examination and Standards*, for guidance on the audiogram conducted for military personnel during the Separation History and Physical Examination.

2.20.12.2. Follow the same follow-up and referral procedures as an annual audiogram if an STS is identified on a termination audiogram (T-0).

2.20.13. Conduct and document HCP training on the SF 600 or the electronic equivalent at every initial and annual audiogram (T-0), and place (or upload) to the member's medical record (T-1). HCP training covers:

2.20.13.1. The effects of hazardous noise on hearing, the purpose of hearing protection, the proper use of hearing protection devices, the requirement to wear HPDs when exposed to hazardous noise on duty, potential disqualification from current duties as a result of hearing loss, and recommendations to wear hearing protection off duty when exposed to hazardous noise (T-0).

2.20.13.2. The proper selection, fit, use, and care of personal hearing protectors and demonstrating the ability to properly insert and fit HPDs. (T-0). This is to include personnel requiring earmuffs.

2.20.13.3. Counselling on the interaction between HPDs interfacing with other forms of PPE (T-1). Some types of PPE, such as eyewear, can create ill-fitting circumaural HPDs if fit of all PPE is not evaluated collectively. Reference **Attachment 4** for details.

2.20.13.4. The purpose of audiometric testing, an explanation of the audiometric test procedures (T-0), and counsel on the results of the tests (T-1).

2.20.14. Perform follow-up and referral procedures, as outlined below (T-0):

2.20.14.1. An STS includes a change in hearing threshold relative to the current reference audiogram of an **average** of 10 dB or more at 2,000, 3,000, and 4,000 Hz, in either ear. Age corrections will not be applied. **Note:** 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.

2.20.14.2. When an individual's audiogram shows an STS relative to the reference audiogram in either ear the following must be accomplished (T-0):

2.20.14.2.1. 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 (T-0). The results may be used to create a re-established reference audiogram to reflect the improvement in pure tone acuity.

2.20.14.2.2. If a positive STS (decrease in hearing threshold from reference audiogram) is noted, one or two noise-free (i.e., no hazardous noise exposure at least 14 hours prior) follow-up tests are administered to confirm (T-0).

2.20.14.2.2.1. The noise-free follow-up tests may be administered on the same day, but not on the same day as the periodic audiogram.

2.20.14.2.2.2. Follow-up testing must be done within 30 days of the annual audiogram (T-0). If no follow-up tests are performed within 30 days after the annual audiogram, then the annual audiogram is considered a PTS until further evaluation by an audiologist is completed. For ARC members, follow-up testing must be done within 60 days of the annual audiogram (T-1). If no follow-up tests are performed within 60 days after the annual audiogram, then the annual audiogram is a PTS until further follow-up is completed.

2.20.14.2.2.3. If the result of the first follow-up test does not indicate an STS, a second follow-up test is not required, and the shift is a temporary threshold shift (TTS). If the result of the first follow-up does indicate an STS, and a

second follow-up test is required IAW DoDI 6055.12, but the second follow-up test does not indicate an STS, then the shift is also a TTS.

2.20.14.2.2.4. If an STS is noted on all required follow-up tests, then the STS should be considered a PTS and patient referred to the provider or audiologist for confirmation (T-0).

2.20.14.2.3. Ensure a provider or AF hearing conservationist performs LEI prior to the noise-free audiogram (NFA) (T-1).

2.20.14.2.4. Refit the individual with hearing protection, instruct in its care, use, and wear (T-0).

2.20.14.3. Refer all patients with a PTS or problem audiogram back to the Occupational Health Consultant or to an audiologist (T-0). They determine what further follow-up is required. Reference **Table A6.1** in **Attachment 6** to determine the need for an AF HCDC/HCC evaluation.

2.20.14.4. An audiologist, an otolaryngologist, or other provider will perform an evaluation to determine whether the STS is work-related or has been aggravated by occupational noise exposure (T-0).

2.20.14.5. The worker is required to complete Section I of the AF Form 1753 prior to medical referral for a PTS (T-1).

2.20.14.6. Installations may refer to other DoD, Tricare network or Veteran Affairs (VA) audiology clinics. For installations that refer to non-AF audiologists, referrals will include comprehensive audiometric testing sufficient to determine type and degree of hearing loss, and possible causation to assist in determining work-relatedness (T-0). Audiology reports will include any 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 will be documented and properly coded in the electronic health record (T-0).

2.20.14.6.1. For referrals, the following procedures listed in **paragraphs 2.20.14.6.1.1**-2.20.14.6.1.6 will be conducted and the documents listed in **paragraphs 2.20.14.6.1.7** and **2.20.14.6.1.8** will be provided to the audiologist (T-0):

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

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

2.20.14.6.1.3. Word recognition testing, under supra-aural earphones or insert earphones, using electronically recorded lists presented at appropriate supra-threshold levels.

2.20.14.6.1.4. Word testing using competing background noise if the patient reports difficulty hearing/understanding in the presence of background noise.

2.20.14.6.1.5. 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 are to be performed unaided and with equipment calibrated per the most current and applicable ANSI standards.

2.20.14.6.1.5.1. Proof of acceptable background sound pressure levels measured in the audiometric test room. **Note:** This is required for network audiologists.

2.20.14.6.1.5.2. Proof of current audiometer calibration. **Note:** This is required for network audiologists.

2.20.14.6.1.6. Otoacoustic Emissions testing.

2.20.14.6.1.7. Copies of the most current DD Form 2215 and DD Form 2216 on record.

2.20.14.6.1.8. Copy of the AF Form 1753.

2.20.14.6.2. Track patients referred to HCDC/HCCs in conjunction with provider to ensure findings and recommendations are reviewed and appropriate action taken (T-2).

2.20.14.6.3. All audiology reports from non-DoD audiologists (i.e., Tricare network or VA audiologists) will be sent securely and in compliance with applicable regulations via fax, or email to the regional HCDC/HCC for AF audiologist review and disposition (T-1). **Note:** DoD uniformed audiologists, and DoD civilian and contract audiologists with appropriate HCP training are not required to send to the regional HCDC/HCC for review and disposition.

2.20.14.7. Notification.

2.20.14.7.1. Notify an individual, in writing, within 21 calendar days when an audiologist or a provider confirms the positive threshold shift is permanent (T-0). Workers will also be informed, in writing, that their supervisors will be notified that they have experienced a decrease in hearing (T-0).

2.20.14.7.2. Supervisors will be notified, in writing, within 10 calendar days after individual notification that the worker has experienced a decrease in hearing (T-0). The notification will not contain additional details without prior written authorization by the worker IAW DoDI 6025.18, *Privacy of Individually Identifiable Health Information in DoD Health Care Programs*, and DoD 6025.18-R, *DoD Health Information Privacy Regulation* (T-0). The supervisor will be advised that any discussion of a worker's hearing abilities with non-authorized personnel is strictly prohibited (T-0).

2.20.14.8. Document and code the condition in the Electronic Health Record per standards outlined in the Military Health System coding guidelines (T-0).

2.20.14.9. Re-establish the reference audiogram for a positive STS.

2.20.14.9.1. 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 (T-0). Replace with one of the following options (as chosen by the reviewing audiologists or provider) for re-establishing the reference audiogram (T-0):

2.20.14.9.1.1. Use the results of the most recent follow-up test.

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

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

2.20.14.9.2. The original reference audiogram will be retained in the patient's medical record (T-0).

2.20.14.10. Establish a revised reference audiogram when the hearing threshold demonstrated on the annual and follow-up audiograms indicate significant improvement over the existing reference audiogram (T-0).

2.20.15. Perform pre and post-deployment audiograms.

2.20.15.1. Perform pre-deployment audiograms (T-1). AF members may require pre-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 outlined in this instruction.

2.20.15.2. After the deployment period, AF members who required a pre-deployment audiogram will complete a post-deployment audiogram (DD Form 2216) within 30 days of returning to permanent assignment (T-1). Recommendations and follow-up procedures for post-deployment audiograms (DD Form 2216) will follow the same procedures as outlined in this instruction. **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.

2.20.16. Ensure all completed HCP medical forms are included in the member’s Electronic Health Record (EHR) (T-1).

2.20.17. Perform trend analysis for HCP compliance and outcome measures (i.e., test compliance, STS and PTS rates, overall and/or workplace-specific data) (T-2). Use data to determine management actions to improve the HCP (T-2). Compare observed trends to the trends in the current “USAF Hearing Conservation Program, DOEHRS Data Repository Annual Report” published by USAFSAM. Use data and trends to determine management actions to improve the HCP (T-2). Investigate and provide re-education to shops in which trends indicate compliance issues or negative hearing conservation outcomes (T-2).

2.20.18. Conduct illness investigations related to reportable occupational hearing loss and document in AFSAS (T-1).

2.20.18.1. Reporting to OSHA. Criteria for an OSHA-reportable STS are defined in **Attachment 1**.

2.20.18.1.1. Report OSHA-reportable STS (i.e., PTS) in AFSAS (T-0). Case must be closed within 7 calendar days of confirmation of the PTS by the audiologist or overseeing provider IAW 29 CFR 1904.10 (T-0).

2.20.18.1.2. When an OSHA-reportable hearing loss occurs from an instantaneous event (e.g., acoustic trauma from a one-time blast over pressure), record the hearing loss as a work-related "injury" IAW OSHA-recommended guidelines (T-0). Case must be closed within 7 calendar days of confirmation of the PTS by the audiologist or overseeing provider (T-0).

2.20.18.1.3. Do not use age corrections for any hearing loss calculations (T-0).

2.20.18.1.4. Report the hearing loss only once unless an additional OSHA-reportable loss of hearing is incurred (T-0).

2.20.19. 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 (T-2).

2.20.20. In consultation with OEHWG, conduct fitness and risk evaluations and forward the completed AF Form 1754 to the appropriate medical record authority for inclusion in the member's medical record (T-2). Reference **Attachment 5** for details on conducting these evaluations.

2.20.21. 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 (T-2).

2.21. Biomedical Equipment Technician (or equivalent) will:

2.21.1. Ensure all calibrations and certifications are performed according to ANSI S1.4 and ANSI S3.1 or current ANSI standards (T-0).

2.21.2. Acoustically calibrate audiometers annually per 29 CFR 1910.95, Appendix E, *Acoustic Calibration of Audiometers* (T-0).

2.21.3. Perform exhaustive calibrations every 2 years (T-0). Reference **Attachment 3**.

2.22. Installation level Hearing Conservation Program Manager (HCPM) will:

2.22.1. Ensure procedures are established to identify, schedule, and monitor all personnel on the HCP (T-1).

2.22.2. Ensure only audiometers meeting the standards of the ANSI S3.6, *Specification for Audiometers*, or the most current version of this ANSI standard are used in the HCP (T-0).

2.22.3. Review the HCP for adequacy/appropriateness to protect workers from hazardous noise (T-1). 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 the program and address concerns.

2.22.4. Trend and analyze DOEHRS-DR reports; attend and provide consultation on the HCP for the OEHWG (T-2).

2.22.5. Ensure the most current version of DOEHRS-HC (or current HC software application) is used, and technicians are adequately trained on the program (T-1).

2.22.6. Ensure hearing related fitness and risk evaluations are conducted and closed 45 days after determination that an evaluation is needed (T-2). Reference **Attachment 5**.

2.22.7. Ensure an efficient referral tracking mechanism is in place for audiograms between providers in the MTF and any outside audiologist or agency (T-0).

2.23. Occupational Health Consultant (a flight surgeon or AF audiologist can serve this function) will:

2.23.1. Review problem audiograms (defined in **Attachment 1**) and determine if further evaluation is needed per DoDI 6055.12 and OSHA requirements (29 CFR 1910.95) (T-0). If follow-up care is needed, then request HCDC/HCC consultations or medical referrals for personnel who fall into the referral criteria at **Table A6.1**. in **Attachment 6** (T-1).

2.23.2. Ensure medical recommendations restricting hazardous noise exposure are based on (T-0):

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

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

2.23.2.3. Probability of the worker endangering himself/herself or others if allowed to work in a noise hazard environment. Consider the Risk Management (AFI 91-802) matrix for assistance in the decision making process.

2.23.3. 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 (T-1). Reference **Attachment 5** for details on fitness and risk evaluations.

2.23.4. Ensure workers who are qualified for duty in hazardous noise areas, or processes are able to perform essential job tasks and they are not a safety hazard to themselves or others (T-1).

2.23.5. Attend and provide consultation to the OEHWG on HCP matters (T-2).

2.24. Flight Medicine or ARC provider will:

2.24.1. Consult with the audiologist or Occupational Health Consultant on all problem audiograms and occupational hearing related referrals (T-1).

2.24.2. Develop knowledge of related OSHA and DoD guidance to ensure appropriate audiometric follow-up and disposition occurs (as detailed in this instruction) (T-1).

2.24.3. Perform required periodic MSE and make clinical recommendations (T-0). A regional HCDC/HCC audiologist can be consulted for appropriate clinical recommendations.

2.24.4. Determine if workers possess the minimum physical abilities needed to perform essential duties and responsibilities without undue risk to themselves or others (T-1).

2.24.5. 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 (T-1). The installation level HCPM is the point of contact.

2.24.6. In coordination with the installation level HCPM, initiate AF Form 1754 for fitness and risk evaluations for personnel who exceed the H-1 profile and work in a hazardous noise area, and make a medical recommendation (T-2). Determine the extent of fitness and risk evaluation (T-2). Reference **Attachment 5**.

2.24.7. Determine whether a shift is related to an Ear, Nose and Throat (ENT) condition (T-2). Advise worker of the condition and either treat or refer for treatment (T-2). If an audiologist or provider 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.

2.24.8. When indicated review, complete, and sign AF Form 1753 (T-2).

2.24.9. Complete Section II of the AF Form 1753, before a baseline audiogram is re-established (T-2). An examination of the ears, to include a comprehensive audiological evaluation as indicated, will be performed on patients with a PTS, individuals undergoing a fitness and risk evaluation, getting a reference audiogram with worse than H-1 hearing levels, or asymmetric hearing loss as defined in the Medical Standards Directory (T-1). Record the results in Section II (T-2). The provider will note (T-2):

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

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

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

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

2.24.10. Determine appropriate additional referral criteria as needed (T-2).

2.24.11. Document and code the condition in the Electronic Health Record per standards outlined in the Military Health System coding guidelines (T-0).

2.24.12. Comply with Department of Labor Office of Workers' Compensation Program (OWCP) Hearing Loss Medical Requirements listed in **Attachment 7** when completing provider and audiologist reports (T-0).

2.24.13. 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 (T-0). See **Attachment 2** for further details.

2.24.13.1. Work with BE to appropriately characterize the work environment and to recommend the sound levels that should be avoided (T-1).

2.24.13.2. Job rotation should be considered but not mandated for pregnant workers who are exposed to hazardous noise after 20 weeks (T-2).

2.24.14. Track patients referred to HCDC/HCCs in conjunction with PH to ensure findings and recommendations are reviewed and appropriate action taken (T-2).

2.25. Hearing Center of Excellence (HCE) will support AF HCP as appropriate within the scope of their approved mission (T-2).

2.26. Hearing Conservation Diagnostic Center (HCDC) and Hearing Conservation Center (HCC). Reference **Attachment 6** for further details (e.g., referral criteria) and listing.

2.26.1. HCDC will provide a wide range of diagnostics and treatments in support of clinical referrals (T-2).

2.26.2. HCC will provide diagnostic care in direct support of the HCP (T-2).

2.26.3. The regional AF HCDC/HCC will review all evaluations by non-DoD audiologists (T-2).

2.26.4. AF HCDC/HCC will provide consultation and overview of referrals, so that management and disposition of patients meet current AF standards (T-2).

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

2.27.1. Ensure personnel who have occupational hazardous noise exposures that exceed levels as identified in this instruction are monitored in the HCP (T-0).

2.27.2. Evaluate the effectiveness of the HCP by monitoring and reporting hazard assessment and outcome metrics (T-0). Additional metrics to assist in measuring program effectiveness will be determined by the OEHWG (T-2).

2.27.2.1. Noise-related metrics for evaluation are defined in DoDI 6055.05 and DoDI 6055.12.

2.27.2.2. Overall and workplace-specific outcome metrics to identify high-risk occupations and areas, and to determine if further intervention is necessary are outlined in DoDI 6055.12.

2.27.3. 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 (T-1).

2.27.4. Document HCP decisions and recommendations in the OEHWG minutes (T-2).

MARK A. EDIGER
Lieutenant General, USAF, MC, CFS
Surgeon General

(DAVIS-MONTHANAFB)

SCOTT C. CAMPBELL, Colonel, USAF
Commander, 355th Fighter Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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

Title 10 USC Section 8013, *Secretary of the Air Force*, 16 January 2014

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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.*

The Medical Standards Directory at **https://kx2.afms.mil/kj/kx4/FlightMedicine/Documents/Medical** Standards Directory (MSD)

DOEHRS Hazardous Noise Data Entry and Report Guide (DERG)

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

AFB—Air Force Base

AFMAN—Air Force Manual

AFRIMS—Air Force Records Information Management System

AGE—Aerospace Ground Equipment

AMARG—Aerospace Maintenance and Regeneration Group

APU—Auxiliary Power Unit

BEF—Bioenvironmental Engineering Flight

GOV—Government Operated Vehicle

IAW—In Accordance With

OPR—Office of Primary Responsibility

RDS—Records Disposition Schedule

ACGIH—American Conference of Governmental Industrial Hygienists

AF—Air Force

(Added-DAVIS-MONTHANAFB) AFB—Air Force Base

AFI—Air Force instruction

AFMAN—Air Force manual

(DAVIS-MONTHANAFB) 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

(Added-DAVIS-MONTHANAFB) AFRIMS—Air Force Records Information Management System

AFRL—Air Force Research Laboratory

AFSAS—Air Force Safety Automated System

AFSEC—Air Force Safety Center

(Added-DAVIS-MONTHANAFB) AGE—Aerospace Ground Equipment

(Added-DAVIS-MONTHANAFB) AMARG—Aerospace Maintenance and Regeneration Group

ANG—Air National Guard

ANR—Active Noise Reduction

ANSI—American National Standards Institute

(Added-DAVIS-MONTHANAFB) APU—Auxiliary Power Unit

AR—Air Reserve

ARC—Air Reserve Component

ASIMS—Aeromedical Services Information Management System

BE—Bioenvironmental Engineering

(Added-DAVIS-MONTHANAFB) BEF—Bioenvironmental Engineering Flight

BEI—biological exposure indices (from ACGIH)

CAOHC—Council for Accreditation of Occupational Hearing Conservation

CFR—code of federal regulations

dB——decibel

dBA—decibels A-weighted

dBc——decibels relative to the carrier

DERG—Data Entry and Report Guide

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

ECL—equivalent continuous level

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

ESOH—Environment, Safety and Occupational Health

(Added-DAVIS-MONTHANAFB) GOV—Government Operated Vehicle

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

HPW—Human Performance Wing

HQ—headquarters

Hz—hertz

(Added-DAVIS-MONTHANAFB) IAW—In Accordance With

JSA—Job Safety Analysis

LEI—lighted ear inspection

MAJCOM—major command

MSD—Medical Standards Directory

MSE—Medical Surveillance Examination

MTF—medical treatment facilities

NFA—noise-free audiogram

NIOSH—National Institute for Occupational Safety and Health

NSN—national stock number

NRR—noise reduction rating

OEH—Occupational and Environmental Health

OEHWG—Occupational Environmental Health Working Group

(Added-DAVIS-MONTHANAFB) OPR—Office of Primary Responsibility

OSHA—Occupational Safety and Health Administration

OWCP—Department of Labor Office of Workers' Compensation Program

PA—Privacy Act

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

RH—Human Effectiveness Directorate

RHCB—Battlespace Acoustics Branch

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

SLM—sound level meter

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/PH—United States Air Force School of Aerospace Medicine Public Health 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 complete the USAFSAM Hearing Conservation Certification Course and are trained IAW the Council for Accreditation in Occupational Hearing Conservation to perform audiometric testing in support of the Air Force's Hearing Conservation Program. The USAFSAM Hearing Conservation Certification must be renewed every 5 years.

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

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 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 Profile—Hearing Profile threshold criteria (H-1 through H-4) are defined in AFI 48-123 and the Medical Standards Directory. 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 Program Manager (HCPM)—An individual appointed by the MTF Commander or Ground RMU/GMU Commander for ARC. The HCPM, usually a credentialed provider, is responsible for managing all aspects of the HCP while ensuring OSHA/DoD/AFI compliance. However, HCPM access in DOEHRS-DR is often assigned to the senior NCO of PH.

Hearing Conservationist—military or civilian member that is CAOHC trained. Reference **Attachment 3**.

Impulsive 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.

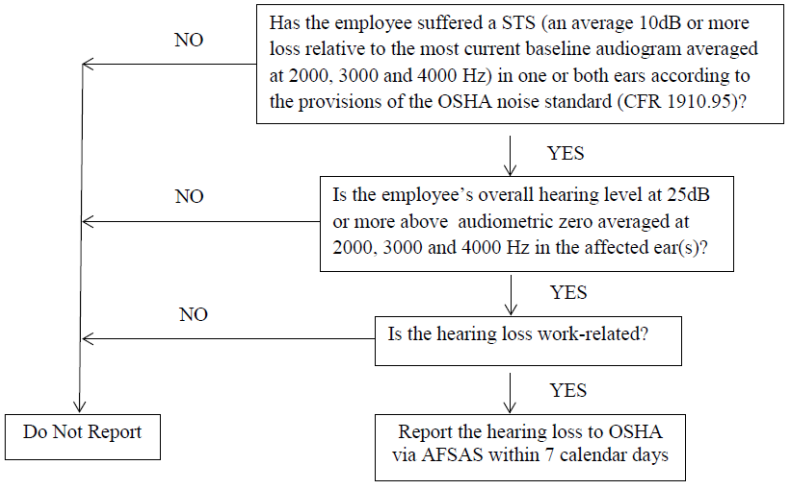
Negative Threshold Shift (Lower Hearing Threshold than Reference)—Same criteria as STS calculations except negative shift represent improved hearing levels.

Noise—Free Audiogram (NFA)—An audiogram performed after a worker has not been exposed to noise greater than 72 dBA or impulsive 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 Health Consultant—A provider, usually a Flight Surgeon that serves as consultant to primary care 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—If a worker's current audiogram reveals that the worker has experienced a work-related STS (as defined) in one or both ears and the worker's total hearing level is 25 dB or more above audiometric zero (averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS, you must report the case to OSHA via AFSAS within 7 calendar days.

Figure A1.1 Decision Tree for Reporting Hearing Loss.—



Otoscopic Examination (lighted ear inspection)—The act of viewing 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.

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

Positive Threshold Shift (Higher Hearing Threshold than Reference)—Same criteria as STS calculations. Positive shifts represent poorer hearing levels.

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

Potentially Hazardous Noise Area—Any area where workers are likely to be exposed to noise levels equal to or greater than an 8-hour TWA of 85 dBA, or where impulsive 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) will receive an audiogram prior to beginning work. The results of the pre-placement audiogram, if meeting the requirements of a reference audiogram, may be used as the reference audiogram.

Problem Audiograms—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/or audiograms with thresholds that are not repeatable. A HCDC/HCC audiologist can be consulted to review problem audiograms.

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.

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. 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 X 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. An average change of 10 dB or more at 2,000, 3,000, and 4,000 Hz in either ear, according to CFR 1910.95. That is, if the sum of the shifts at 2,000, 3000, and 4,000 Hz equals or exceeds 30 dB in either ear, an STS has occurred. Use of age corrections will NOT be applied when determining STS. **Note**: OSHA terminology is standard threshold shift.

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 a TTS, unless there is a resolved medical condition.

Termination Audiogram—A hearing test administered and recorded on DD Form 2216 when a worker discontinues employment involving hazardous noise exposure as defined in DoDI 6055.12. A Termination Audiogram shall 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, do not require a Termination Audiogram if a periodic audiogram was completed within 12 months.

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

Time-Weighted Average (TWA)—The time-weighted average sound level or exposure for an 8-hour workday and 40-hour workweek.

Attachment 2

HAZARDOUS NOISE SURVEILLANCE

A2.1. Noise Exposure Limits on Hearing. The occupational and environmental exposure limit (OEEL) is the most appropriate limit adopted from established, recognized standards (e.g., 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) for noise and 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 A2.1. Health Protection Criteria

Hearing Protection*	85 dBA, 8-hours or equivalent exposure times (reference Table A2.2.)
Criterion level	85 dBA
Exchange rate	3 dB
Threshold level	80 dBA
Maximum level	115 dBA
Impulsive Noise	$L_{IAeq100ms}$=85 dBA. Reference MILSTD 1474E Appendix B for impulsive noise requirements.
Whole Body Effects*	No octave or one-third octave band level above 145 dB for frequencies from 1 Hz to 40 kHz
Ultrasound*	Reference Table A2.3.
Exposure to Music	
Patrons	Leq.2h < 90 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.

A2.1.1. Continuous or Intermittent Exposures. The duration of unprotected noise exposure per day will not exceed the values specified in **Table A2.2** for the levels indicated for continuous exposure.

Table A2.2. 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 at **Figure A2.1**.:

Figure A2.1. Duration of Exposure Calculation.

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

where, L_A = A-weighted sound level

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

A2.1.1.1. If exposures to two or more levels occur in one day, their combined effect should not exceed an 8-hour equivalent continuous level, Leq, 480 min, of 85 dB, given by the equation in **Figure A2.2**:

Figure A2.2. Calculating Equivalent Sound Level.

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

where:
$L_{eq,T}$ = equivalent soud 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

A2.1.1.2. 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 A2.3. Unity Calculation.

$$\frac{C1}{T1} + \frac{C2}{T2} + \frac{C3}{T3} + \ldots + \frac{Cn}{Tn} > 1$$

A2.1.1.3. The C values are the actual exposure times to a given level; the T values are the times allowed at those levels by **Table A2.3**. All occupational noise exposures above the threshold level of 80 dBA will be used in the above equations IAW OSHA 29 CFR 1910.95.

A2.1.1.4. 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 A2.4**:

Figure A2.4. Calculating 8-hour Equivalent Sound Level.

$$L_{eq,8hr} = L_{eq,T} + 10 \log (T/8)$$

where:
$L_{eq,8h\ r}$ = equivalent sound level for an 8-hour period
$L_{eq,T}$ = measured sound level for the period T
T = length of the work shift in hours

A2.1.2. Impulsive or Impact Exposures. Unprotected personnel will not be exposed to impulsive or impact noise. Reference MILSTD 1474E for impulsive noise requirements.

A2.1.3. Hazardous Noise Areas. A potentially hazardous noise area will be clearly identified by signs located at entrances to, or the borders of, the area. Signs will be designed according to the guidelines in DoDI 6055.12, and will have the following message:

CAUTION
HAZARDOUS NOISE AREA
HEARING PROTECTION REQUIRED

A2.1.3.1. 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”). 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.

A2.2. Noise Exposure Limits on Whole Body Effects. 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.

A2.2.1. 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 cannot exceed 150 dB (unweighted). There are no time limits for exposures below these levels. However, protecting hearing requires adherence to the hearing protection limits mentioned above, in

addition to the ultrasonic evaluation requirements mentioned in the next paragraph, to protect against non-auditory effects of noise; this applies regardless of any hearing protection used.

A2.2.2. The impact of workplace equipment or other workplace conditions causing ultrasonic noise exposures will 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 A2.3. 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.*

A2.2.3. 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 L*eq,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 **2.23.12**). 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 unlawful discrimination against pregnant women in the workplace.

A2.2.3.1. Job rotation should be considered but 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.

A2.2.3.2. Working in impulsive or impact noise environments, requiring hearing protection (e.g., firing ranges, EOD detonations, etc.), should be avoided by pregnant workers.

A2.2.4. 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.

A2.2.5. No impulsive noise exposure will exceed 190 dB peak unless an analysis of non-auditory damage risk is conducted to include but not limited to blast lung injury. No impulsive noise exposure will exceed 197 dB peak.

A2.3. Noise Exposure Limits on 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.

A2.3.1. Quality of Person-to-Person Communication. The data shown in **Table A2.4** provides 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.

Table A2.4. 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.				

A2.3.2. 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 **Table A2.5** and **Table A2.6**.

Table A2.5. 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 A2.6. 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.

A2.3.3. 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 A2.7**. **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 A2.7. 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, *American National Standard for Rating Noise with Respect to Speech Interference.*	

A2.4. Music Exposure Criteria. Exposure to recreational music may lead to hearing damage; two groups are typically affected: the employees (occupational exposure) and customers (recreational exposure). 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.

A2.4.1. Employees. For employees who have occupational exposure to music, the noise exposure limits and other provisions in this instruction apply as for any other group of occupationally exposed employees.

A2.4.2. 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, L*eq*, of 94 dBA for any continuous 2-hour period at any customer location. 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.

A2.4.3. 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 will be calculated according to the formula at **Figure A2.5**.

Figure A2.5. Calculating Average Daily Equivalent Continuous Level.

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

where:

ECL = average daily equivalent continuous level

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

n = number of workdays monitored.

A2.5. Noise Surveys and Dosimetry.

A2.5.1. Frequency of Assessments. Potential noise hazards will be identified, assessed, and controlled as an integral part of the assessments specified in AFPD 48-1, *Aerospace Medicine Enterprise*, AFI 48-101, *Aerospace Medicine Enterprise*, and AFI 48-145. Specifically, the health effects of noise will 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).

A2.5.1.1. An initial assessment will be conducted in all potentially hazardous noise areas. Representative L*eq,T* noise level data will 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) working in hazardous noise areas.

A2.5.1.2. An additional assessment should be accomplished within 30 days of any change in operations affecting noise levels.

A2.5.1.3. When the noise exposures for a particular SEG are highly variable or not clearly well above/below the OEEL, L*eq,T* evaluations will be accomplished IAW AFI 48-145 and AFMAN 48-146 to adequately characterize the noise hazard.

A2.5.2. 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.

A2.5.2.1. 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 will 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.

A2.5.2.2. 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 will be conducted when new processes are identified or existing data is no longer current. Measurements will be made using equipment conforming to the appropriate ANSI standard in the references. All noise data used to characterize occupational exposures will be entered into DOEHRS-IH. Noise data collected from 711 HPW/RHCB (Human Performance Wing/Battlespace Acoustics Branch), or other independent source on behalf of the AF, will be provided to USAFSAM/OE to disseminate to the BE career field for integration into DOEHRS-IH as appropriate.

A2.5.3. Noise Source Survey. This survey is used to classify whether a particular noise source output is equal to or exceeds the criterion level of 85 dBA and could present a potential exposure hazard to workers. Sound level measurements will be made in accordance with DoDI 6055.12, 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 to warn operators of the need to wear hearing protection..

A2.5.4. Worker Exposure Survey. Where the potential to exceed the limits as discussed under *Noise Exposure Limits-Hearing* exists, worker exposures will be evaluated by direct measurements with noise dosimeters, or indirectly with noise exposure calculations specified in **Table A2.2**.

A2.5.4.1. TWA noise levels will be determined for all AF workers working in hazardous noise areas at least once and should be accomplished within 30 days of any change in operations affecting noise levels. In circumstances such as high worker mobility, significant variations in noise levels, representative personnel sampling will be conducted.

A2.5.4.2. Impulsive noise and high level (>130 dB) continuous noise cannot be accurately measured using traditional SLMs or dosimeters because special instrumentation is required. If there is a request for additional information or impulsive noise measurement, contact USAFSAM ESOH Service Center, 2510 Fifth Street, WPAFB OH 45433, 1-888-232-3764, or AFRL/711 HPW/RHCB, 2610 Seventh Street, WPAFB OH 45433.

A2.5.4.3. Worker noise exposure will be computed and reported regardless of any attenuation provided by hearing protectors. However, workers should understand how hearing protection devices effect their exposure levels.

A2.5.4.4. The decision to place an individual on the HCP will be based on the likelihood of exposure at or 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 exposure to hazardous noise in these environments:

A2.5.4.4.1. Number of days spent in classroom training;

A2.5.4.4.2. Number of days spent in administrative tasks, medical appointments other duties, etc.;

A2.5.4.4.3. Number of days detailed to wing support not related to primary duty; or

A2.5.4.4.4. Number of days at formal training or temporary duty.

A2.5.5. 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.

A2.5.5.1. 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.

A2.5.5.2. Instrumentation used for these surveys must meet or exceed requirements for type 2 SLM 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 based on manufacturers' specifications before 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.

A2.5.5.3. 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 will use a time-intensity exchange rate of 3 dB. 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.

A2.6. Noise Control. 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.

A2.6.1. 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. 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**.

Attachment 3

CERTIFICATION AND EQUIPMENT STANDARDS

A3.1. Certification. 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. 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 USAFSAM to receive an AF Certification number BEFORE performing audiometric testing because he/she will need to coordinate hands-on training with the DOEHRS-HC software. Personnel who are CAOHC trained by a DoD component will use the certification number issued by that Service. CAOHC-approved re-certification is required at 5-year intervals for individuals active in hearing conservation testing.

A3.1.1. CAOHC trained Hearing Conservationists, are not trained or permitted to conduct audiometric testing outside of requirements outlined in this instruction (i.e., audiograms for diagnostic evaluations, school screenings, or hearing tests outside of the HCP with exception to Sister Service readiness audiograms and threshold audiograms performed for the purpose of separation history and physical exams).

A3.1.2. AF Certified Hearing Conservationists who perform audiograms must be responsible to an audiologist, otolaryngologists, or other provider, OSHA 29 CFR 1910.95, (g)(3).

A3.2. 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.*

A3.2.1. 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.

A3.2.2. 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.

A3.3. Calibration, Testing, and Functional Checks. All audiometers and sound rooms must be tested and calibrated before use in the HCP.

A3.3.1. 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:

A3.3.1.1. Crackling sounds or changes in loudness while moving the cord.

A3.3.1.2. The presence of tones at all frequency settings.

A3.3.1.3. Presence of tones only in the appropriate headphone.

A3.3.1.4. Periods of silence while listening to the frequency and attenuation changes.

A3.3.2. Daily Calibration Check. Will 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 check in order to verify the system is within calibration specifications. 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*. **Note:** Medical Equipment Repair Center (MERC) will perform the equipment calibration when the equipment is not within specifications according to the daily calibration check.

A3.3.2.1. 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.

A3.3.2.2. 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.

A3.3.2.3. Document all activities on the DD Form 2217. A new DD Form 2217 must be established when the audiometer is re-calibrated.

A3.3.3. Annual Acoustic Calibration. Audiometers used in the HCP will be acoustically calibrated by Biomedical Equipment Technicians or appropriate provider of these services, annually. The calibration date, taken from the hearing conservation forms, will be stored at the DOEHRS-DR for 30 years.

A3.3.4. Exhaustive Calibration. Performed by Biomedical Equipment Technician every 2 years according to 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.

A3.4. DOEHRS-HC/DR. All hearing conservationists using DOEHRS-HC will have a DR account.

A3.4.1. Prior to running a hearing test, previous tests must be inquired from the DR.

A3.4.1.1. If a previous reference audiogram has not been established, perform a reference audiogram (on DD Form 2215) using a type 1 reason, *prior to noise exposure*.

A3.4.1.2. If any type of hearing test has been accomplished previously, an annual test should be performed (on DD Form 2216).

A3.4.1.3. If a new reference is warranted, use a type 3 reason, *reestablished after follow up*.

A3.4.1.4. If a member has separated from military service but will continue in civil service in a noise-exposed job, a new reference will be established using a type 4 reason, *change in service component*. This reason will also be used if the member changes from civilian to uniformed military service.

A3.4.2. Hearing conservation technician or program manager must export data to the DR every day that patients are seen using DOEHRS-HC data export function. Data must be backed up to a secure device or network drive daily. When a new back up file is created, previous files may be deleted. Only the most recent backup file is needed in case of a computer crash. Exporting data to the DR is not the same as backing up the database. Both must be accomplished.

Attachment 4

HEARING PROTECTION

A4.1. 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. Such devices will 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.

A4.2. Personal hearing protectors are provided at no cost to all AF personnel who work in designated hazardous noise areas or operate noise-hazardous equipment.

A4.2.1. The worker's organization will pay for the personal hearing protectors (including custom molded hearing protection). However, 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.

A4.2.2. 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 will be necessary.

A4.2.3. An earplug carrying case will be made available by the owning organization (initial issue and replacement based on normal wear and tear) for each set of pre-formed earplugs. It will be provided at no cost to the AF personnel who work in designated hazardous noise areas or operate noise-hazardous equipment. This case can also be used for hand-formed earplugs. National stock numbers (NSN): Olive drab color, NSN 6515-01-100-1674 or Navy blue color, NSN 6515-01-533-6168.

A4.3. Estimating Noise Attenuation for HPD. The noise attenuation provided by HPDs varies between wearers, even when the wearers are highly skilled at fitting the HPDs to their ears.

A4.3.1. Multiple methods exist for selecting attenuation values; the recommended and most preferred to least preferred methods are listed in Table A4.1 and A4.2. The AFRL attenuation values along with other noise references can be found on the 711th portal/ESOH Service Center at **https://hpws.afrl.af.mil/dhp/OE/ESOHSC**/.

Table A4.1. Preferred Methods for Selecting Attenuation Values for HPDs for Continuous Noise.

1 - Most Preferred	AFRL ANSI measured values utilizing the ANSI S12.6
2	Other independent laboratories values utilizing the ANSI S12.6
3	Manufacturer values utilizing the ANSI S12.6
4 - Least Preferred	Manufacturer values utilizing ANSI S3.19 derated by 50% for earplugs and 25% for earmuffs

Table A4.2. Preferred Methods for Selecting Attenuation Values for HPDs for Impulse Noise.

1 - Most Preferred	AFRL ANSI measured values utilizing the ANSI S12.42
2	Other independent laboratories values utilizing the ANSI S12.42
3	Manufacturer values utilizing the ANSI S12.42
4 - Least Preferred	Manufacturer values utilizing ANSI S3.19 derated by 50% for earplugs and 25% for earmuffs

A4.3.2. **Methods for calculating effective noise levels at the ear.** Apply hearing protector attenuation data (mean minus two standard deviations) to noise levels. Note: The octave band and NRR attenuation data used for calculation of the effective noise level under the hearing protector shall be the mean minus two standard deviation attenuation data. This ensures that approximately 98% (single tail normal distribution) of the users should achieve the calculated attenuation value or more.

A4.3.2.1. The preferred method for applying hearing protector attenuation is the octave band method. If the 8 hr TWA is greater than 92 dBA and the octave band method is not being used, the ESOH Service Center must be contacted for guidance.

A4.3.2.2. A secondary method of calculating the effective noise level at the ear using the NRR is allowable, but not preferred. A 7 dB correction factor will be applied to account for the de-emphasis of low-frequency energy inherent to the A-weighting scale. Following the 7 dB correction factor, an additional derating of 50% is required when ANSI S3.19 NRR values are used. A4.3.2.2.1. When using ANSI S3.19 NRR values use the following equation: Effective level at ear (dBA) = A-weighted level – ((NRR-7 dB) * 0.50)

A4.3.2.2.2. When using ANSI S12.6 NRR values use the following equation: Effective level at ear (dBA) = A-weighted level – (NRR - 7 dB)

A4.4. Limits of Hearing Protection Performance. 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.

A4.4.1. 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. Consult the ESOH Service Center for information. If no data is available, add 3 dB to the highest NRR of the plug or muff to estimate combined protective rating.

A4.4.2. Wear of dual 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.

A4.4.3. 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 will 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.

A4.4.4. 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.

A4.5. Fitting and Dispensing Earplugs.

A4.5.1. PH will maintain a variety of earplugs, from at least two manufacturers and including at least three 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.

A4.5.2. 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 will assess the conditions (e.g., cold weather) in which the HPDs will be worn to ensure proper wear for sufficient sound attenuation. Each ear will be individually fit with earplugs (approximately 20 percent of the population requires a different size of earplug for each ear). Workers unable to be properly fit with pre-molded or foam HPD will be referred by PH to an AF audiologists or a certified licensed civilian audiologist for custom molded earplugs at AF expense.

A4.5.3. Custom molded devices may be appropriate for special circumstances. Service band members should be provided with pre-molded or custom molded musician's earplugs, at their unit's expense. Only audiologists, otolaryngologists, and medical providers professionally trained in custom earpiece fabrication may take impressions of the ear necessary to make the custom molded earplugs.

A4.5.4. Workers may be fitted with pre-formed earplugs as determined by PH at the expense of the AF. If workers request custom molded 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 molded 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 may or may not provide resources to conduct the fitting of custom molded earplugs for large numbers of personnel, depending on the availability of resources and personnel, and per the MTF commander's approval.

A4.5.5. PH will examine the fit and condition of all HPD (certified for use by BE) during the annual audiogram, and whenever an effectiveness question exists (DoDI 6055.12 (6)(1)). The worker will demonstrate proper fitting technique at the time of the audiogram. If a

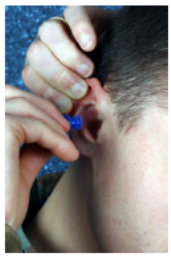
worker cannot be adequately fit with the earplugs recommended by the BE, an audiologist will determine an action plan that ensures the worker is adequately protected from occupational hazardous noise.

A4.6. Types of Hearing Protective Devices.

A4.6.1. 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 molded earplugs.

Figure A4.1. General earplug information.

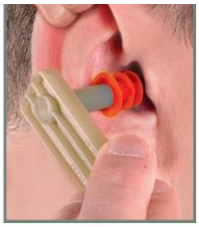
1. Use the earplug seating device or make the ear canal accessible by reaching over your head with the opposite hand and pulling the ear up and out.
2. A proper seal should be accompanied by a vacuum sensation. Your voice should sound muffled, as if talking inside a barrel.
3. Plugs tend to work loose as a result of talking and chewing, and must be reseated.
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.

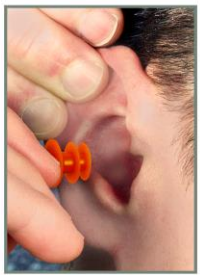


A4.6.1.1. Premolded Earplugs (e.g., triple flange, Quattro). Premolded earplugs are pliable devices of fixed proportions. Personnel fitting and dispensing earplugs will train users on proper insertion, wear, and hygiene. They are reusable, but may deteriorate and need replacement. The earplugs should be discarded if they become brittle or torn, or if routine cleaning cannot remove debris.

Figure A4.2. Instructions for Triple-Flange Earplugs.

1. Using the seating device (lid of the earplug carrying case), place the stem of the triple-flange earplug into the device's open end.
2. Gently push the plug into the ear canal until you get a good seal. The plug is properly fitted when the first two flanges are in the ear canal and the outside third flange is blocking the canal entrance.
3. Check for proper fit by gently tugging on each earplug. You will feel some tension.
4. If not using the seating device, access your ear by reaching over your head with the opposite hand and pulling the ear up and out.
5. Grasp the plug by its stem and insert into the ear canal. Push and twist the plug until you get a good seal.
6. If you cannot get a good seal, try a different size of triple-flange earplug or other type of earplug.





A4.6.1.2. Formable Earplugs (e.g., foam). Formable earplugs 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.

Figure A4.3. Instructions for Foam (Hand formed) Earplugs.

1. Ensure that your hands and earplugs are clean before using.
2. Roll, rather than squeeze, each plug into as small a cylinder as possible.
3. Access your ear canal by reaching over your head with the opposite hand and pulling your ear up and out.
4. Insert the earplug into the ear, gently insert the orange end first when using the orange and green Sound Guard™ foam earplug. Hold gently in place with your fingertip until expansion is complete.
5. When you have a good fit and seal, only the green color will be visible and the orange portion of the earplug will be completely in the ear canal.
6. Do not use handformed earplugs where hazardous chemical vapors can be absorbed into the plug.
7. Dispose of these earplugs after one or two uses.

A4.6.1.3. 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 molded earplugs are made to fit the exact size and shape of an individual's ear canal. AF Band members are authorized to obtain custom molded musician's earplugs without medical determination. All individuals needing custom molded earplugs will be referred by Public Health to an AF audiologist or licensed civilian audiologist. The selected custom molded earplug must be reviewed by BE to confirm it meets the attenuation requirements of that individual’s workplace.

A4.6.2. 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.

Figure A4.4. General Information on Earmuffs (eg, noise muffs).

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, otocups (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.

A4.6.2.1. 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 711 HPW/RHCB to evaluate the device to confirm the level of output is not harmful, or limit to non-harmful levels. Consult installation BE for more information.

A4.6.2.2. Communication Earmuff's (Electroacoustic Devices). Personnel who must communicate in the presence of intense noise use these devices, as determined by BE. They are fitted with earmuffs and, if needed, a noise-shielding or noise cancelling microphone so voice communications can be achieved during various operations. Noise exposure limits may be exceeded by the combination of external noise plus voice. Sound levels produced by communication devices only need to be measured if they represent the primary noise exposure; communications are considered the primary noise source when background noise levels are 85 dBA or less.

A4.6.2.3. 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 ESOH Service Center.

A4.6.3. Active Noise Reduction (ANR) hearing protection may not be appropriate for all industrial and/or military environments. Before employing ANR hearing protection, contact ESOH Service Center to assist in determining the appropriateness and feasibility of ANR applications. Additionally, ANR device data used in the HCP should be IAW the most current ANSI standards, for measuring passive and active attenuation.

A4.6.4. Communication headsets, typically used by flight crew as hearing protection during engine start up, are designed to provide hearing protection and simultaneous communication capability and are appropriate in some environments. Contact ESOH Service Center to assist

in determining the appropriateness and feasibility of these applications. Additionally, communication measurements should be IAW with the most current ANSI standard.

A4.6.5. 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.

A4.6.6. 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.

A4.7. Education and Training on Proper Use, Care, and Maintenance of HPDs.

A4.7.1. PH will train personnel on the proper use and care of HPD at the time of audiometric testing. Personnel requiring earmuffs (in addition to earplugs) will be informed of this requirement and educated on the importance of using adequate protection.

A4.7.2. Supervisors will instruct users on proper use and care of HPDs in the workplace as part of the annual training program.

A4.7.3. 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.

A4.7.4. 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.

A4.7.5. 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.

Attachment 5

FITNESS AND RISK EVALUATIONS

A5.1. 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. Clinical evaluations by either HCDC/HCC, other DoD, VA or network audiologist are required as part of the fitness and risk evaluation. Personnel will be considered for a fitness and risk evaluation if they demonstrate any of the following:

A5.1.1. Show a second PTS in either ear.

A5.1.2. Exceed the H-1 profile and work in a hazardous noise area.

A5.1.3. Complain of not hearing/understanding spoken communications, auditory cues or signals.

A5.1.4. 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).

A5.1.5. Exhibit behaviors that call into direct question the ability to work in the assigned job.

A5.1.6. Cannot be fit with HPDs.

A5.2. 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 the Medical Standards Directory. 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.

A5.3. For non-flying personnel, the provider initiates the fitness and risk evaluation in coordination with the installation level HCPM.

A5.3.1. The provider must address clinical status and job safety in the Reason(s) For Request section of AF Form 1754. The provider may include a job capability assessment in the informed medical recommendation.

A5.3.2. The 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.

A5.4. The Job Capability and Safety Analysis.

A5.4.1. 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.

A5.4.2. Installation level HCPM completes the Job Capability Survey, using the AF Form 1754, Part 3. 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.

A5.4.3. When requested by the medical provider, the safety representative in conjunction with the shop supervisor will analyze job safety, complete AF Form 1754, Part 4, and return the form to the medical provider. The Job Capability Survey (Part 3) and the Job Safety Analysis (Part 4) should be performed at the same time.

A5.4.3.1. 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.

A5.4.3.2. The safety analysis should address, but is not limited to, the following conditions:

A5.4.3.2.1. Does the worker perform tasks alone or in-groups?

A5.4.3.2.2. If group tasks are required, are visual cues available?

A5.4.3.2.3. Does the worker need to communicate to perform tasks?

A5.4.3.2.4. Do potential hazard signals exist that the worker needs to hear (forklifts, special machinery, announcements, etc.)?

A5.4.3.2.5. Do the job tasks include confined space entry?

A5.5. Medical Determinations and Recommendations. 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.

A5.5.1. To assist managers in making employment and placement decisions, medical recommendations will be one of the following:

A5.5.1.1. Worker meets medical requirements of the position.

A5.5.1.2. 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).

A5.5.1.3. 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.

A5.5.2. A determination of hearing profile might also be necessary IAW 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.

A5.5.3. 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:

A5.5.3.1. 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.

A5.5.3.2. 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.

A5.5.4. 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.

A5.5.5. A disqualifying medical determination is warranted if:

A5.5.5.1. Allowing the worker to perform the job would exacerbate a preexisting medical condition and no reasonable accommodation would enable the worker to perform essential functions of the job without exacerbation or further damage to the known preexisting medical condition.

A5.5.5.2. Allowing the worker to perform the job would endanger their safety, the safety and security of other workers, or the public.

A5.5.5.3. The worker fails to meet a valid medical standard or physical requirement for placement in the position.

A5.5.5.4. The worker determined to be medically disqualified because of reasons above must be individually evaluated.

A5.5.6. 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:

A5.5.6.1. Reason for the fitness and risk evaluation.

A5.5.6.2. Clinical status (determination of whether a medical condition is temporary or permanent, and has reached maximum medical benefit).

A5.5.6.3. Safety assessment results.

A5.5.6.4. Recommendations for accommodations and (or) restrictions in the particular job.

A5.5.7. The completed AF Form 1754 will be forwarded to PH who will then forward to the appropriate medical record authority for inclusion in the member's medical record (T-2).

Attachment 6

HEARING CONSERVATION DIAGNOSTIC CENTERS (HCDC)/HEARING CONSERVATION CENTERS (HCC) AND REFERRAL CRITERIA

A6.1. An HCDC is located at an AF medical treatment facility. It provides a wide range of diagnostics and treatments in support of clinical referrals for hearing conservation, and provides services to all other persons authorized medical care by AFI 41-210, *Tricare Operations and Patient Administration Functions.*

A6.2. An HCC is a center located at an AFMC installation that provides direct support for referrals under the HCP.

A6.3. In order to provide support, HCDCs and HCCs must consist of an audiologist and support staff. Evaluations by certified military or state licensed civilian audiologists are permitted. All evaluations by non-DoD audiologists will be reviewed by the regional HCDC or HCC.

A6.3.1. The HCDC and HCC provide consultation and overview of referrals, so the 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. The reviewing audiologist must create an encounter in the electronic medical record to document that a record review has taken place and provide a patient disposition to include recommendations for reference audiogram re-establishment, return to duty or restrictions, OSHA reporting requirements and any follow-up required.

A6.3.2. At a minimum, testing capabilities will include diagnostic audiometer equipment sufficient to complete a full comprehensive hearing exam, a full range of immittance, electrophysiological, and otoacoustic emissions equipment.

A6.4. Referral Criteria. 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 the 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. Medical providers should use Table A6.1. to determine if a referral is recommended. Note: Aircrew members who fail to meet the requirements for continued flight duty will be evaluated as specified in AFI 48-123.

Table A6.1. Referral Criteria.

CONDITION	RECOMMENDED ACTION
On pre-placement, have a hearing profile exceeding H-1 (reference the Medical Standards Directory).	Fitness and Risk Evaluation*
For medical reasons may not be able to perform the job capably or safely in a noise hazard environment.	Fitness and Risk Evaluation*
Have a PTS following required Noise Free evaluation. Audiologists and providers 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 25 dB difference between the left and right ears at any two consecutive frequencies.	Referral to HCDC/HCC (Once referral is completed annual follow-up not required if asymmetry is stable)
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
Meet other referral criteria as determined by the consulting audiologist or program manager.	Referral to HCDC/HCC
* Requires clinical evaluation by audiologist	

A6.5. Processing Patient Referrals. 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.

A6.5.1. Providers will complete an electronic referral to Audiology for further evaluation, indicating the reason for the referral and request of care, and send the patient to the appropriate administrative MTF function to schedule the referral appointment. The 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. The patient's medical record and referral information must be available to the HCDC/HCC or Occupational Health consultant at the time of the examination. The provider may use the DOEHRS-HC generated SF 600e, *DOEHRS-HC Hearing Loss Referral*, or the AF Form 1672, *Hearing Conservation Diagnostic/Center Referral*, as another option to submit the referral.

A6.5.2. 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 audiological 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.).

A6.5.3. In cases where HCDC/HCC audiology availability, travel restrictions or finances prohibit referral to an HCDC/HCC, the patient should be referred 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-DoD audiologists. See **Paragraph 2.20.14.6.1** for a list of requirements.

A6.5.4. The HCDC/HCC audiologist will enter into the electronic medical record the audiological evaluation results and patient disposition to include recommendations for reference audiogram re-establishment, return to duty or restrictions, OSHA reporting requirements and any follow-up required. The provider may complete and upload the DOEHRS-HC generated SF 600e or AF Form 1672 with results and associated disposition into the electronic medical record.

A6.6. HCDC/HCC Listing.

A6.6.1. 779 AMDS/SGPE, 1050 West Perimeter Rd., Joint Base Andrews, MD 20762

A6.6.2. 31 MDOS/SGOV, Unit 6180 Box 245, Aviano AB, APO AE 09604

A6.6.3. 96 AMDS/SGPQ, 307 Boatner Rd. Bldg 2825, Eglin AFB, FL 32542-1282

A6.6.4. 673 MSGS/SGOSLA, 5955 Zeamer Ave, Joint Base Elmendorf-Richardson, AK 99506-3700

A6.6.5. 75 AMDS/SGPQ, 7238 6th Street, Hill AFB, UT 84056-5012

A6.6.6. 81 MSGS/SGPQ, 301 Fisher St., Room GE240, Keesler AFB, MS 39534

A6.6.7. 59 SGC/SGCXA, 2200 Bergquist Dr. Ste.1, Joint Base San Antonio, TX 78236-9908

A6.6.8. 48 MSGS/SGCU, Unit 5210 Box 230, RAF Lakenheath, APO AE 09461-0230

A6.6.9. 633 AMDS/SGSE, 77 Nealy Ave, Joint Base Langley-Eustis, VA 23665-2080

A6.6.10. 6 AMDS/SGPQ, 3250 Zemke Ave., MacDill AFB, FL 33621-1607

A6.6.11. 99 MSGS/SGCX, 4700 N. Las Vegas Blvd., Nellis AFB, Las Vegas, NV 89191

A6.6.12. 55 MDOS/SGOSLA, 2501 Capehart Rd. Offutt AFB, NE 68133-2160

A6.6.13. 78 AMDS/SGPQ, 655 7th Street Bldg. 207, Robins AFB, GA, 31098-2227

A6.6.14. 52 MDOS/SGOT, Unit 3690 Bldg 61, Spangdahlem AB, APO AE 09123-3690

A6.6.15. 72 AMDS/SGPOA, 8941 Entrance Rd., Bldg 3334, Tinker AFB, OK 73145-5300

A6.6.16. 60 AMDS/SGCPQ, 101 Bodin Circle, Travis AFB, CA 94535-1880

A6.6.17. 10 MDOS/SGOA, 4102 Pinion Drive, USAF Academy, CO 80840-4000

A6.6.18. 88 AMDS/SGPQ, 2325 Fifth Street, Bldg 675 Area B, Wright-Patterson AFB, OH 45433-7021

A6.6.19. 374 AMDS/SGPO, Unit 5227 Bldg 440, Yokota AB, APO, AP 96328-5227

A6.6.20. 86 MDS (Landstuhl Regional Medical Center), Attn: Audiology Clinic, CMR 402, APO AE 09180

Attachment 7

OWCP HEARING LOSS MEDICAL REQUIREMENTS AS PARAPHRASED FROM DOL OWCP HEARING LOSS

A7.1. The report submitted must include the results of an otological (ENT) exam, conducted by a provider, and the results of an audiological exam administered in a sound-treated booth. Please forward both the ENT report and the audiological evaluation to the office designated to handle worker compensation claims (e.g., Civilian Personnel Office). Bills may only be paid when we have received the ENT report and the audiological evaluation.

A7.1.1. The report of the provider's ENT examination must include:

A7.1.1.1. The date and hour of examination;

A7.1.1.2. The date and hour of the claimant's last exposure to employment related noise;

A7.1.1.3. A detailed and relevant medical history;

A7.1.1.4. The provider's reasoned opinion concerning the etiology of any indicated hearing loss and, specifically, its relationship to the claimant's occupational noise-exposure history;

A7.1.1.5. The provider's recommendations for treatment, including the need for a hearing aid; and, the provider's original signature.

A7.1.2. The report of the audiological evaluation must include:

A7.1.2.1. 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;

A7.1.2.2. 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);

A7.1.2.3. The results of an impedance test battery, including tympanometry and stapedial reflex threshold measurements;

A7.1.2.4. 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;

A7.1.2.5. 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 prior to your examination.