

## APPENDIX B



# DoD INSTRUCTION 6055.12

## HEARING CONSERVATION PROGRAM (HCP)

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<b>Originating Component:</b>	Office of the Under Secretary of Defense for Personnel and Readiness
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<b>Approved by:</b>	James N. Stewart, Assistant Secretary of Defense for Manpower and Reserve Affairs, Performing the Duties of the Under Secretary of Defense for Personnel and Readiness

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**Purpose:** In accordance with the authority in DoD Directive (DoDD) 5134.01 and the April 10, 2019 Deputy Secretary of Defense Memorandum, this issuance:

- Implements policy, assigns responsibilities, and provides procedures for administering an HCP to prevent hearing loss resulting from occupational and operational illness and injury.
- Establishes the DoD Hearing Conservation Working Group (HCWG).
- Issues requirements for the integration of noise control into the life cycle of DoD systems and equipment.

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## SECTION 1: GENERAL ISSUANCE INFORMATION

**1.1. APPLICABILITY.** This issuance applies to OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (referred to collectively in this issuance as the “DoD Components”).

**1.2. POLICY.** The DoD:

a. Protects all military personnel and noise-exposed civilian personnel from hearing loss resulting from hazardous occupational and operational noise exposure through a continuing, effective and comprehensive HCP, in accordance with Parts 1910 and 1960 of Title 29, Code of Federal Regulations (CFR).

b. Reduces hazardous occupational and operational noise exposure to personnel to enhance mission readiness, communication, and safety.

c. Considers hazardous noise control in military capabilities to support operational readiness, and integrates noise control into the design and development of defense systems and equipment.

### 1.3. INFORMATION COLLECTION.

a. The collection of DD Form 2215, “Reference Audiogram,” referred to in Paragraphs 3.8.1.(1), 3.8.1.(2)(b) and (c), 3.8.d., 3.10.b., 3.10.e., and 3.10.g.(3) of this issuance, does not require licensing with a report control symbol in accordance with Paragraph 1.b.(13) of Volume 1 of DoD Manual 8910.01.

b. The collection of DD Form 2216, “Hearing Conservation Data,” referred to in Paragraphs 3.8.e., 3.10.b, 3.10.e., and 3.10.g.(4) of this issuance, does not require licensing with a report control symbol in accordance with Paragraph 1.b.(13) of Volume 1 of DoD Manual 8910.01.

## SECTION 2: RESPONSIBILITIES

### **2.1. UNDER SECRETARY OF DEFENSE FOR PERSONNEL AND READINESS (USD(P&R)).** The USD(P&R):

- a. Oversees implementation of this issuance.
- b. Develops and updates hearing conservation policy to continuously improve the safety and health of DoD personnel, in conjunction with the Assistant Secretary of Defense for Health Affairs (ASD(HA)).
- c. Integrates hearing loss risk management into DoD strategic planning and all phases of the acquisition life cycle, in accordance with DoD Instruction (DoDI) 5000.02.

### **2.2. ASSISTANT SECRETARY OF DEFENSE FOR READINESS (ASD(R)).** Under the authority, direction, and control of the USD(P&R), the ASD(R):

- a. Serves as the principal DoD point of contact with federal regulatory agencies controlling occupational and operational exposure to hazardous noise.
- b. Establishes the DoD HCWG to:
  - (1) Serve as an integral part of the DoD Safety and Occupational Health Integrating Committee established in DoDI 6055.01.
  - (2) Provide technical advice on occupational and operational noise exposures in accordance with the functions detailed in Section 4.
- c. Monitors the effectiveness of this issuance through annual program reviews and special emphasis reviews.

### **2.3. UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING.** The Under Secretary of Defense for Research and Engineering oversees the science and technology of the health risk assessment and risk mitigation activities, as described in this issuance, and in accordance with DoDD 5134.3.

### **2.4. ASD(HA).** Under the authority, direction, and control of the Under Secretary of Defense for Personnel and Readiness, the ASD(HA):

- a. Programs, budgets, and monitors the execution of Defense Health Program resources for the occupational health program (including the HCP) within available fiscal guidance and overall Defense Health Program priorities.

- b. Provides clinical, occupational audiology, and occupational medicine subject matter experts to the ASD(R) and the DoD Components for the development and implementation of a comprehensive HCP plan.
- c. Provides oversight and support to the DoD Hearing Center of Excellence.
- d. Fully supports the HCP by providing the appropriate human resources, expertise, training, and qualified personnel throughout the DoD.
- e. Oversees the development and implementation of a hearing conservation medical surveillance and health education program.
- f. Develops, sustains, and oversees the implementation of the Defense Occupational and Environmental Health Readiness System-Hearing Conservation (DOEHRS-HC) as the system of record for hearing conservation medical surveillance for the Services.

**2.5. DOD COMPONENT HEADS.** The DoD Component heads conducting operations involving occupational and operational (including combat-related and training) noise exposures:

- a. Establish, maintain, and fund HCPs, and implement the requirements of this issuance.
- b. Annually evaluate the effectiveness of their HCPs.
- c. Appoint subject matter experts on hearing loss and noise exposures as component representatives to the DoD HCWG.
- d. Implement hearing conservation measures to the extent safely feasible with the primary focus on noise hazard identification, risk mitigation, risk communication, effective communication, medical surveillance, and situational awareness.
- e. Communicate noise hazard risks of legacy systems and equipment to designers, developers, and requirements or capabilities officers. This allows for the integration of noise controls into systems design performance, or capabilities and associated capabilities (requirements) documents in accordance with DoDI 5000.02, Military Standard (MIL-STD) 882E, and Chairman of the Joint Chiefs of Staff Instruction 3170.01I.
- f. Establish operational requirements for the use of enhanced communication and hearing protection devices for personnel who require critical hearing skills, especially in operational and high noise environments, in accordance with Chairman of the Joint Chiefs of Staff Instruction 3170.01I.
- g. Establish a collaborative effort between military operational leadership and medical leadership to reduce noise hazards, and prevent noise induced hearing loss. Leverage the expertise of audiologists and other medical specialists.

## SECTION 3: PROCEDURES

**3.1. WRITTEN PLAN.** The DoD Components prepare a written plan for the implementation of a comprehensive HCP that includes:

- a. Input of capabilities and requirements criteria for new systems and equipment that considers noise control and mitigation of human exposures.
- b. Noise controls in the design, acquisition, and systems safety process.
- c. Hearing conservation measures.
- d. Occupational and operational noise exposure computation, monitoring, noise hazard analysis and risk assessment to include procedures that describe employee notification, and allow employees to observe exposure monitoring, if requested.
- e. Ototoxic chemical exposure evaluation and control.
- f. Noise abatement.
- g. Personal hearing protective devices, including enhanced communication protection devices and systems.
- h. Methods for estimating the adequacy of hearing protector attenuation.
- i. Training program and access to information and training materials.
- j. Audiometric testing requirements.
- k. Audiology, otolaryngology, and physician clinical services for referral, evaluation, and medical qualification determination support for human resources.
- l. Audiometric test rooms.
- m. Audiometric measuring instruments.
- n. Acoustic calibration of audiometers and sound level meters (SLMs).
- o. Recordkeeping.
- p. Program evaluation.

**3.2. PROGRAM IMPLEMENTATION.** The DoD Components:

- a. Implement HCPs when DoD personnel are occupationally exposed to these types of hazardous noise:

(1) Continuous and intermittent noise (20 to 16,000 hertz (Hz)) where DoD personnel are exposed at or above 85 decibels A-weighted (dBA) as an 8-hour time-weighted average (TWA). DoD personnel exceeding these criteria for at least 1 day per year must be enrolled in an HCP.

(2) Impulse noise sound pressure levels (SPLs) of 140 decibels peak (dBP) sound pressure or greater.

(3) Ultrasonic exposures that occur under special circumstances that require specific measurement and hazard assessment calculations. (See Paragraph 3.3.k. and Table 1 for exposure guidelines.)

b. Include in acquisition programs the implementation of noise assessment and engineering control measures through the systems engineering and systems safety process, in accordance with DoDI 5000.02 when:

(1) Legacy systems have recognized noise exposure concerns as indicated by personnel exposures at or above 85 dBA or 140 dBP sound pressure.

(2) New systems are considered likely to create noise exposures at or above 85 dBA by direct measurement, or by exceeding occupational exposure or habitability criteria of MIL-STD-1474E or impulse noise exposures at or above 140 dBP sound pressure.

(3) Communication may be impaired by background noise caused by new equipment. American National Standards Institute/Acoustical Society of America (ANSI/ASA) Standard S12.65 describes speech interference levels.

### **3.3. NOISE MEASUREMENT AND ANALYSIS.** The DoD Components:

a. Initially assess noise in all potentially hazardous noise work areas, and reassess when operations change using the risk management process described in DoDI 6055.05. Noise survey information will be recorded in the Defense Occupational and Environmental Health Readiness System-Industrial Hygiene.

b. Conduct noise measurement surveys when DoD personnel are occupationally exposed to hazardous noise areas and operations, in accordance with the industrial hygiene procedures described in DoDI 6055.05.

c. Maintain a current inventory of all potentially hazardous noise areas and operations, including, at a minimum, noise levels, risk assessment, and the types of control measures used.

d. Conduct noise surveys using only personnel trained in accordance with DoD Component specifications. The employer (e.g., supervisor, occupational safety and health manager or designated representative) must:

(1) Provide the monitoring results to DoD personnel exposed at or above an 8-hour TWA of 85 dBA.

(2) Provide affected DoD personnel, or their representatives, with an opportunity to observe any noise measurements conducted.

e. Use instrumentation that meets or exceeds requirements for a type 2 SLM in Parts 1 and 3 of ANSI/ASA Standard S1.4.

(1) SLMs must have been subjected to a complete electro-acoustic calibration in accordance with the instrument manufacturer instructions.

(2) An acoustical calibration check must be performed on the instruments using the same calibrator before and after each day's measurements.

(3) The acoustical calibrator must:

(a) Comply with ANSI/ASA Standard S1.4.

(b) Be accurate to within plus or minus 1 decibel (dB). It must also have been subjected to a complete electro-acoustic calibration, at least annually, by the instrument manufacturer, or a qualified acoustical test laboratory, as defined by the National Institute of Standards and Technology Handbook 150 of the National Voluntary Laboratory Accreditation Program or equivalent.

f. Measure continuous and intermittent noise levels using A-weighting with the meter response set to "slow."

(1) When personal noise dosimeters are used for personnel exposure measurements, integrate all sound levels from 80 to 130 dBA, at a minimum. Dosimeters must meet or exceed specifications in ANSI/ASA Standard S1.25. The DoD Components must use a time-intensity exchange rate of 3 dB.

(2) Use area monitoring as a screening tool to determine potential personnel exposure. Conduct representative personnel sampling in circumstances such as high personnel mobility, significant variations in noise levels, or to obtain a general representation of impulse noise. For more precise impulse noise measurement instruction, see Paragraphs 3.3.h., 3.3.i., and 3.3.j.

(3) Conduct personal noise monitoring for the entire length of the work shift. Only conduct partial shift monitoring when:

(a) The portion being monitored is representative of the entire shift.

(b) A noise exposure can be constructed from knowledge of exposure levels and duration for all work done in the shift.

g. Compute personnel noise exposure regardless of any attenuation provided by personal hearing protectors.

h. When exposures to steady-state noise below 130 dBA occur simultaneously within the same 24-hour period, as exposure to impulse noise at or above 140 dBP sound pressure, apply

the hazard criteria separately. The allowable exposure to steady-state noise (e.g., engine noise) must not be reduced because of exposure to impulse noise (e.g., weapon firing).

i. For purposes of determining peak levels, measure impulse noise levels using calibrated SLMs that:

- (1) Meet or exceed the specifications in Parts 1 and 3 of ANSI/ASA Standard S1.4.
- (2) Have a peak hold circuit.
- (3) Have a rise time not exceeding 35 milliseconds.
- (4) Are capable of measuring peak SPLs at or above 140 dBP sound pressure.

j. For the purposes of assessing the hazard of impulse noise at or above 140 dBP sound pressure, measure the impulse noise using a data acquisition system meeting the requirements of Paragraph 4 and Appendix B of MIL-STD-1474E.

k. Use the values listed in Table 1 as a guide in the control of ultrasonic noise exposure. These values represent guidelines for ceiling limits measured in air.

(1) In the workplace where ultrasound is produced and hearing protection is not already used for audible noise, evaluate the impact of possible ultrasonic noise and provide hearing protective devices if SPLs exceed those specified in Table 1. Those levels above 20 kilohertz (kHz) are included due to the potential for hearing loss from subharmonics at those frequencies. See the American Conference of Governmental Industrial Hygienists “Documentation of the Threshold Limit Values and Biological Exposure Indices.”

(2) Consult with appropriate DoD Component technical public health centers to measure or evaluate equipment producing the levels in Table 1.

**Table 1. Exposure Guidelines for Ceiling Limits for Ultrasound Noise**

One-Third Octave Band Center Frequency (kHz)	One-Third Octave Band SPL (dB relative to 20 micropascals)
10	105
12.5	105
16	105
20	105
25	110
31.5	115
40	115
50	115

Source: American Conference of Governmental Industrial Hygienists

l. For acquisition and development of new systems, identify prospective noise levels by referencing data from existing systems, modeling anticipated noise levels, and measuring noise levels during the test and evaluation stage. MIL-STD-1474E provides guidance on acoustical

noise limits, testing requirements, and measurement techniques for determining conformance to the noise limits. Consider the following:

- (1) Noise source management.
- (2) Installation activities that affect noise generation resulting in personnel exposures.
- (3) Relevant abatement technologies and their status.
- (4) Estimate of the number of personnel that will be affected throughout the system life cycle.
- (5) Projection of personnel exposure and health impacts.

m. If ototoxic chemicals or heavy metals are present in hazardous noise areas, evaluate the risk of hearing loss considering the additive, synergistic, and individual effects of chemical and noise exposures. It is important to note that ototoxins may contribute to hearing loss in the absence of hazardous noise exposure. See DoDI 6055.05 for risk assessment and risk management of chemical hazards.

### **3.4. NOISE HAZARD SIGNS AND LABELS.** The DoD Components:

- a. Clearly identify all potentially hazardous noise areas with signs located at their entrances or boundaries.
- b. Conspicuously mark each tool or piece of equipment that produces noise levels at or above 85 dBA, including vehicles, to alert personnel of the potential hazard. The exception is when an entire space is designated as a hazardous noise area and the equipment is stationary. Professional judgment and discretion must be exercised when labeling tools and equipment. Exteriors of military combatant equipment, aircraft, and naval vessels are excluded from this requirement.
- c. Designate hazardous noise areas and equipment by posting signs with words or symbols describing the potential hazard and protective measures required (e.g., “Caution,” “Hazardous Noise,” “Hearing Protection Required When in Operation”). At a minimum, all signs must comply with Section 1910.145 of Title 29, CFR and be in accordance with DoDI 6055.01.

### **3.5. NOISE ABATEMENT.** The DoD Components:

- a. Use engineering controls as the primary means of eliminating personnel exposure to potentially hazardous noise.
  - (1) Explore all practical design approaches to reduce noise levels below hazardous levels.
  - (2) Assign priorities for noise control resources based on the applicable risk assessment.

- (3) Apply engineering controls to reduce:
  - (a) Steady-state levels below 85 dBA, regardless of personnel exposure time.
  - (b) Impulse noise levels below 140 dBP.
- (4) Apply engineering controls to military-unique workplaces within the constraints of maintaining mission readiness.
- (5) Conduct an evaluation after engineering noise controls are implemented to verify effectiveness in attenuating noise to acceptable levels.
  - b. Purchase new equipment that has the lowest sound emission levels and is technologically and economically feasible and compatible with performance and environmental requirements in accordance with Section 4914 of Title 42, United States Code.
  - c. Include acoustics in specifications for all new facilities, equipment, substantial modification projects, and weapon systems and subsystems in accordance with MIL-STD-882E.
  - d. Maintain, as feasible, a steady-state level less than 85 dBA at all personnel locations during normal operation.

### **3.6. PERSONAL HEARING PROTECTORS.** The DoD Components:

- a. Use personal hearing protectors for attenuating noise exposure as an interim protective measure while engineering control measures are being explored. Such devices are a permanent measure only if engineering and administrative controls are not technologically, economically, or operationally feasible.
  - b. Issue the appropriate and most effective form of hearing protection to DoD personnel known to be exposed to hazardous noise. Provide:
    - (1) Personal hearing protectors at no cost to all personnel working or training in hazardous noise environments, operating noise hazardous equipment, or exposed to noise hazardous military operations.
    - (2) Appropriate personal hearing protectors for off-duty noise hazardous activities, where feasible.
    - (3) Hearing protectors that provide appropriate noise reduction, while satisfying mission requirements, with particular consideration toward sustaining effective communication and situational awareness. Commanders will provide appropriate hearing protectors, including enhanced communication protection devices and systems, as identified by medical authorities.
  - c. Maintain an adequate supply of:

(1) A variety of sizes and types of preformed and hand-formed earplugs at all DoD facilities with hazardous noise areas. Use Service members and civilian employees trained in fitting preformed and hand-formed earplugs.

(2) Circumaural noise muffs and disposable earplugs for use at all hazardous noise facilities.

(3) Hearing protection readily accessible to required users in work areas, including pathways leading to areas with noise levels at or above 85dBA.

d. Provide for proper initial fitting, and supervise the correct use of all personal hearing protectors. Replace personal hearing protectors as necessary (e.g., dirty, damaged).

e. Provide administrative controls to manage exposures. Provide personal hearing protectors capable of attenuating individual noise exposure below an 8-hour TWA of 85 dBA if other controls are insufficient to manage exposure.

f. Provide an earplug carrying case, when feasible (e.g., national stock number 6515-01-100-1674, olive drab color; national stock number 6515-01-533-6168, navy blue color), at no cost.

g. Fit and issue of preformed earplugs only under the supervision of personnel specifically trained to fit earplugs.

h. Fit appropriate hearing protection, and provide education on the prevention of hearing loss during initial training and before any exposures to hazardous noise.

i. Provide custom-molded earplugs to personnel for whom proper fit cannot be otherwise achieved, and those who have other operational requirements or employment considerations. Provide preformed or custom-molded musician's earplugs to Service band members.

(1) Audiologists or other professionally trained medical personnel will take impressions of the ear necessary for custom molding.

(2) Non-medical, but professionally trained staff may take ear-mold impressions under the supervision of an audiologist or qualified physician.

(3) Medical personnel trained to fit preformed, hand-formed, and custom-molded earplugs must examine the fit and condition of the earplugs issued to DoD personnel at least annually.

j. Require personnel working in or entering designated hazardous noise areas always wear personal hearing protectors that adequately reduce exposure to levels at or below an 8-hour TWA of 85 dBA.

(1) When hazardous noise sources are operating, personnel must wear their hearing protection devices regardless of exposure time.

(2) All personnel exposed to gunfire or artillery fire in either test or training situations must wear personal hearing protectors.

k. Provide personnel with appropriate hearing protection in operational environments, where feasible, that supports the ability to sustain communication and situational awareness based on mission requirements.

l. For all situations where hearing protection is required, assess whether the personal hearing protectors are adequate using any accepted method for assessing attenuation as described in Appendix B, Section 1910.95 of Title 29, CFR or the ANSI/ASA S12.6.

(1) Consider the impact on communication and situational awareness of the selected hearing protectors, in addition to the attenuation characteristics.

(2) For DoD personnel who experience a significant threshold shift (STS), evaluate their personal hearing protection to confirm adequacy of the fit and the resulting amount of attenuation.

(a) Use a field attenuation estimation system, commonly called a fit-testing system (individual fit testing is recommended as best practice when possible); or

(b) Apply appropriate Occupational Safety and Health Administration (OSHA) or National Institute for Occupational Safety and Health derating to the reported attenuation of the hearing protector (current ANSI/ASA S12.6 does not require derating).

m. Mandate and enforce the proper use of required personal hearing protectors, at all levels of supervision and management, by personal example and direction.

n. Encourage peer-to-peer oversight to strengthen compliance. For noncompliance, take appropriate disciplinary action as a corrective measure against the offender and the supervisor.

o. DoD personnel and visitors who infrequently or incidentally enter designated hazardous noise areas, but who do not satisfy the noise exposure criteria described in Paragraph 3.2., must wear hearing protection. These personnel are not required to be enrolled in a HCP.

### **3.7. EDUCATION.** The DoD Components:

a. Provide all DoD personnel routinely working in designated hazardous noise areas and enrolled in the HCP with annual training on:

(1) The effects of noise on hearing.

(2) The purpose of hearing protection and procedures to report any concerns about the proper fit and use of hearing protection.

(3) The advantages, disadvantages, and attenuation of various personal hearing protectors.

- (4) The selection, fit, use, and care of personal hearing protectors.
  - (5) The mandatory requirement to wear assigned protective equipment, and administrative actions that may follow for failure to wear hearing protectors.
  - (6) The purpose of audiometric testing.
  - (7) An explanation of the audiometric test procedures.
  - (8) The impact of hearing loss on career opportunities and quality of life.
  - (9) The importance of using personal hearing protectors when exposed to hazardous noise during off-duty activities.
- b. Provide all military personnel, regardless of noise exposure, with periodic hearing health education, including:
- (1) The effects of noise on hearing.
  - (2) The purpose of hearing protection.
  - (3) Instructions on selection, fit, use, and care of hearing protection.
  - (4) The importance of using personal hearing protectors when exposed to hazardous noise during off-duty activities.
- c. Provide education in group settings or through electronic delivery methods.
- d. Through acquisition executives and occupational health professionals working with the Defense Acquisition University, develop course curriculums that identify relevant risk factors associated with noise generation, and provide access to information related to noise control technologies.
- e. Document hearing health education in accordance with DoD Component guidelines.

### **3.8. AUDIOMETRIC TESTING.** The DoD Components:

- a. Place DoD personnel exposed to hazardous noise levels described in Paragraph 3.2.a. in an audiometric surveillance program that includes reference (baseline), annual, and termination audiograms.
- b. Whenever possible, establish hearing testing capabilities in theaters of operation.
- c. Provide hearing conservation and readiness audiometric surveillance testing that:
  - (1) Is performed by a licensed audiologist, otolaryngologist, qualified physician, or qualified technician. A technician who performs audiometric tests is responsible to an audiologist, otolaryngologist, or other qualified physician.

(2) Is conducted in a testing environment with background octave band SPLs, in accordance with ANSI/ASA Standard S3.1, and not greater than:

- (a) 500 Hz, 27 dB
- (b) 1000 Hz, 29 dB
- (c) 2000 Hz, 34 dB
- (d) 4000 Hz, 39 dB
- (e) 8000 Hz, 41 dB

(3) Has a test environment that is resurveyed annually using equipment that conforms, at a minimum, to the type 1 requirements of Part 1 of ANSI/ASA Standard S1.4, and the order 3 extended range requirements of Part 1 of ANSI/ASA Standard S1.11.

(4) Includes pure-tone air conduction hearing thresholds for each ear at the test frequencies of 500, 1000, 2000, 3000, 4000, 6000 and, if applicable, 8000 Hz.

(5) Is performed using audiometers calibrated annually to the specifications of ANSI/ASA Standard S3.6.

(6) For the Military Services:

(a) Completes hearing conservation testing using the DOEHRS-HC hearing test system, which is comprised of the DOEHRS-HC software application, current DoD-approved audiometer, and DOEHRS-HC Data Repository Web-based application.

(b) Manually enters hearing test data from an audiologist's diagnostic evaluation into the DOEHRS-HC, as needed, if the audiologist's demographic data and DOEHRS-HC training certification number, and the audiometer's manufacturer, model, serial number, and last electroacoustic calibration date are known.

(7) Is performed with audiometers that have received a functional operation check and daily calibration check before each day's use in accordance with the specifications in Section 1910.95 of Title 29, CFR. For the Military Services, calibration checks of audiometers will be retrieved and stored in the DOEHRS-HC database. All DoD Components will record calibration information on DD Form 2217, "Biological Audiometer Calibration Check," available at [https://www.esd.whs.mil/Directives/forms/dd2000\\_2499/](https://www.esd.whs.mil/Directives/forms/dd2000_2499/) or a comparable form.

d. Perform a reference audiogram for all military personnel (and civilian personnel enrolled in an HCP) (DD Form 2215, "Reference Audiogram," available at [https://www.esd.whs.mil/Directives/forms/dd2000\\_2499/](https://www.esd.whs.mil/Directives/forms/dd2000_2499/)). All reference hearing tests must be preceded by at least 14 hours without exposure to hazardous noise, and may not be met by wearing hearing protective devices. Reference hearing tests are not conducted if there is evidence of a transient medical condition that would affect hearing.

(1) Test military personnel as soon as possible after entering Military Service, and before conducting noise hazardous operations. Record the reason for the reference test as “reference established before initial duty in noise hazardous areas” or “change in Service component,” whichever is applicable.

(2) Test civilian personnel working in an identified hazardous noise area as soon as possible after employment begins and before noise exposure. Record the reason for the reference as “reference established before initial duty in hazardous noise areas” or “change in Service component,” whichever is applicable.

e. Perform a termination audiogram for all military personnel (and civilian personnel enrolled in an HCP) (DD Form 2216, “Hearing Conservation Data,” available at [https://www.esd.whs.mil/Directives/forms/dd2000\\_2499/](https://www.esd.whs.mil/Directives/forms/dd2000_2499/)).

(1) Test military personnel before leaving Military Service.

(2) Test civilian personnel within 12 months of change in noise exposure status as a result of transfer to a non-noise hazardous job, or before departure from civilian employment.

f. Note that an STS constitutes an average change of plus or minus 10 dB at 2000, 3000, and 4000 Hz relative to the reference audiogram, in either ear, in accordance with Section 1910.95(g)(10)(i) of Title 29, CFR. Age corrections will not be applied.

g. Note that a single frequency 15 dB shift at 1000, 2000, 3000, and 4000 Hz is considered an early warning sign of permanent hearing loss with no requirement for follow-up testing or referrals, but with a requirement to counsel the patient and check hearing protection.

h. Conduct follow-up audiometric testing when a Service member’s or civilian employee’s audiogram shows an STS relative to the applicable reference audiogram for either ear. If the STS persists, further review and evaluation are required to validate the existence of a noise-induced permanent threshold shift (PTS), and determine if medical referral is required. An audiologist, otolaryngologist, or other qualified physician must evaluate personnel with a confirmed PTS to determine whether the PTS is work related.

i. When a negative STS (improvement in hearing threshold from the reference audiogram) is noted on the periodic audiogram, perform a follow-up test, which may be given the same day as the periodic test. Noise-free hours are not required in the presence of a negative STS. If the negative STS persists, the results of the follow-up test may be used to create a re-established reference audiogram.

j. When a positive STS (increase in hearing threshold from the reference audiogram) is noted on the periodic audiogram, administer a noise-free follow-up test to confirm that the decrease in hearing is permanent. The follow-up test must be preceded by at least 14 hours noise free (less than 80 dBA), and must not occur on the same day as the periodic audiogram. If the results of the follow-up test do not indicate a positive STS, the Service member or civilian employee must return for monitoring in a year.

(1) For noise-exposed civilian personnel, conduct the follow-up testing within 30 days of the periodic test showing the STS.

(2) For all military personnel, conduct the follow-up testing within 30 days, but this may be extended up to 90 days, if needed.

(3) If the prescribed allowable time for follow-up testing is exceeded, the STS remains unresolved and the process begins again with the next test. Send notification memorandums to the individual and their supervisor.

k. When the positive STS is confirmed through retest, record the STS as a PTS. Notify the Service member or civilian employee in writing within 21 days, document the condition in the individual's medical record, and code it in the electronic health record in accordance with standards outlined in the DoD Military Health System Coding Guidance.

(1) Refit the Service member or civilian employee with hearing protection that is adequate for the work environment. Provide instructions in its care and use, and remind the individual that hearing protection is required in all noise hazardous areas.

(2) Notify supervisors and responsible safety offices that the Service member or civilian employee has experienced a decrease in hearing, and communicate any recommended work restrictions.

(a) The notification will not contain additional details without prior written authorization by the individual in accordance with the requirements in DoD 6025.18-R.

(b) Advise supervisors that any discussion of a Service member's or civilian employee's hearing abilities with non-authorized personnel is strictly prohibited.

(3) In accordance with Paragraph C7.2.1.5.4. of DoD 6025.18-R, inform personnel that their supervisors are notified that they have experienced a decrease in hearing. All notifications must be in writing or through an approved enterprise medical surveillance application.

(4) In accordance with DoDI 6055.07 and Section 1904.10 of Title 29, CFR, record OSHA reportable hearing loss to the appropriate safety or health official responsible for maintaining the OSHA 300 Log, "Log of Work-Related Injuries and Illnesses" (available at <https://www.osha.gov/recordkeeping/RKforms.html>).

l. Establish a revised reference audiogram when the:

(1) STS is confirmed after the follow-up test, and an audiologist, otolaryngologist, or other qualified physician has validated the results. Keep the original and any re-established reference audiograms in the individual's medical record on a DD Form 2215.

(2) Hearing threshold demonstrated on the periodic and follow-up audiograms indicate significant improvement (negative STS) over the existing reference audiogram. For a positive STS (worse hearing), the reviewing audiologist, otolaryngologist, or other qualified physician chooses one of these options for re-establishing the reference audiogram:

- (a) Use the results of the follow-up test.
  - (b) Manually complete a DD Form 2215 using the results of the diagnostic evaluation (if all pertinent examiner and audiometer information is available for the DD Form 2215).
  - (c) Complete a separate DD Form 2215 as a re-established reference audiogram.
- m. After completing follow-up testing processes for STS, complete all appropriate medical referrals in accordance with DoD Component access to care timelines.
- n. Record a PTS resulting from exposure to hazardous noise as an illness or injury, in accordance with DoDI 6055.07, if both of the criteria in Paragraphs 3.8.n.(1) and 3.8.n.(2) are met. Remove the hearing loss from the OSHA 300 Log if subsequent evaluation as described in Paragraph 3.8.o. reveals the hearing loss is not from a workplace injury or illness.
- (1) A positive STS occurs in either ear from the applicable reference.
  - (2) Hearing thresholds for the current hearing test average 25 dB or greater at 2, 3, and 4 kHz from audiometric zero for the shifted ear.
- o. For medical referrals for noise induced PTS, include a comprehensive audiological evaluation to determine the type and degree of hearing loss, and possible causation, to assist in determining work relatedness.
- (1) Comprehensive testing performed by a non-DoD audiologist (except those performing services under contract with the DoD) will be reviewed by a DoD audiologist to confirm the PTS.
  - (2) Reports from an audiologist's evaluation referrals should include recommendations for hearing aids, hearing protection, further medical referral, noise exposure history, presence or absence of tinnitus complaints, and an interpretation of test results to explain the type and degree of hearing loss.
  - (3) The clinical outcomes must be documented and properly coded in the electronic health record.
  - (4) Personnel found to have a positive STS must be evaluated by an audiologist to determine fitness for continued work in a hazardous noise environment.
- (a) The DoD Components must implement a formal process for dispositioning personnel with a positive STS that corresponds with the DoD Component's hearing standards and guidelines.
  - (b) All duty limitations, restrictions, and permanent exclusion from noise determinations must be recorded in the appropriate military personnel and civilian human resource record data systems.

p. When a PTS has been confirmed by a DoD audiologist, or an audiologist performing services under contract with the DoD, take action to prevent further hearing loss, such as:

- (1) Evaluate the worksite.
- (2) Determine the adequacy of personal hearing protectors and hearing protector use.
- (3) Provide targeted education and training.
- (4) Restrict or remove Service members or civilian employees from noise hazards.

q. The Military Services will use DOEHRS-HC as the system of record for hearing conservation monitoring.

**3.9. ACCESS TO INFORMATION, TRAINING MATERIAL, AND RECORDS.** On request, the DoD Components provide:

a. Personnel with copies of DoD Component directives issued on the HCP, and the latest approved OSHA standard, in accordance with Section 1910.95 of Title 29, CFR.

b. Affected personnel with any information on the DoD Component HCP that is provided to the DoD Component by the Assistant Secretary of Labor for Occupational Safety and Health.

c. Current and former military and civilian personnel, and representatives designated in writing by the individual, with copies of all records about the audiometric testing and noise exposure, in accordance with DoDI 6055.05.

**3.10. RECORDKEEPING.** The DoD Components:

a. Maintain all hearing conservation audiometric testing data in accordance with DoDIs 6055.01 and 6055.05.

(1) All testing data, unless de-identified, constitutes personally identifiable information and is protected from unauthorized disclosure in accordance with DoD 5400.11-R.

(2) Testing data and other hearing loss data that become part of a Service member's or civilian employee's electronic medical record, consistent with Paragraphs 3.8.k. or 3.10.c., or that otherwise are maintained by the Military Health System, constitute protected health information pursuant to Parts 160 and 164 of Title 45, CFR and DoD 6025.18-R.

b. Maintain the results of hearing tests performed for hearing conservation, hearing readiness, and noise exposure documentation as a permanent part of a Service member's or civilian employee's electronic medical record. Use the DOEHRS-HC hearing test system to capture hearing test data on DD Form 2215 and DD Form 2216, as appropriate.

c. Keep noise exposure data for the duration of employment, plus 30 years, in accordance with DoDI 6055.05. Record data on DD Form 2214, "Noise Survey," available at

[https://www.esd.whs.mil/Directives/forms/dd2000\\_2499/](https://www.esd.whs.mil/Directives/forms/dd2000_2499/), or in an equivalent format with automated measurement equipment or a health hazard inventory system (e.g., DOEHRS-Industrial Hygiene).

d. Provide to those responsible for medical surveillance and health education the DoD Component, full name, and DOEHRS-HC acceptable numeric identifier of all personnel who are routinely exposed to hazardous noise.

(1) Provide a by-name roster of personnel requiring annual audiometric surveillance to the appropriate medical authority at least annually.

(2) Track HCP compliance data, including compliance with monitoring audiometry and health education.

e. Export hearing test data captured, as appropriate, on a DD Form 2215 or DD Form 2216 to the DOEHRS-HC Data Repository. The preferred method is to complete DOEHRS-HC data exports at the end of each test day.

f. Use information from DOEHRS-HC, as appropriate, for local and strategic program management, OSHA recordkeeping requirements in DoDI 6055.07 assessing the effectiveness of the HCP, and monitoring hearing readiness, as applicable.

g. Where the use of DOEHRS-HC and DOEHRS-Industrial Hygiene is not possible, use these DD forms as appropriate:

(1) DD Form 2214, "Noise Survey," available at <https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd2214.pdf>

(2) DD Form 2214C, "Noise Survey (Continuation Sheet)," available at <https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd2214c.pdf>

(3) DD Form 2215, "Reference Audiogram," available at <https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd2215.pdf>

(4) DD Form 2216, "Hearing Conservation Data," available at <https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd2216.pdf>

(5) DD Form 2217, "Biological Audiometer Calibration Check," available at <https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd2217.pdf>

h. Systems and materiel commands and acquisition program managers will:

(1) Maintain data regarding noise generated by the systems, and equipment for which they are responsible, with supporting noise evaluation data provided by industrial hygiene personnel. Suggested data includes:

(a) SPL dBA and unweighted octave band levels, and TWA exposure determinations where levels meet or exceed 85 dBA.

(b) dBP data where impulse noise is present and supporting information is necessary to design inputs.

(2) Limit noise surveys at all types of operational ranges to:

(a) Identification of noise-making equipment used at the range.

(b) Personnel information for individuals exposed to hazardous levels of range operational noise.

(c) Notations of noise-related changes at the range.

i. Systems and materiel commands and acquisition program managers will maintain data regarding noise generated by the systems and equipment for which they are responsible.

(1) Medical and industrial hygiene personnel will provide supporting information from routinely conducted noise evaluations, as appropriate.

(2) Suggested data includes SPL dBA and unweighted octave band levels, TWA exposure determinations where levels meet or exceed 85 dBA, dBP data where impulse noise is present, and supporting information necessary to design inputs.

### **3.11. PROGRAM PERFORMANCE EVALUATION.** The DoD Components:

a. Evaluate the HCP effectiveness annually based on:

(1) **STS Rates.** STS rates should be monitored over time to track trends, in order to identify effective prevention strategies and processes that contribute to STS rate reduction. Other factors that may influence STS rates and be considered in reviewing STS rates include:

(a) Criteria used for placing Service members or civilian employees on periodic monitoring.

(b) Frequency distribution of continuous and intermittent noise exposures for military and civilian personnel.

(2) **Audiogram Completion Rates.** This metric corresponds to the occupational exam completion rate in Paragraph 5 of the Appendix to Enclosure 3 of DoDI 6055.05.

(3) **PTS Rates.** This metric examines the incidence of permanent hearing loss to provide actionable data on the effectiveness of intervention programs.

b. Develop additional metrics to assist in measuring program effectiveness.

c. For acquisition program evaluations, consider:

(1) The effectiveness of programs in managing risk, in accordance with DoDI 5000.02 and MIL-STD-882E.

(2) Noise generation, personnel exposures, and signal control in the context of life-cycle, risk management, and combat capability.

## **SECTION 4: DoD HCWG FUNCTIONS**

The DoD HCWG:

- a. Provides hearing conservation advice to the ASD(R) and the ASD(HA).
- b. Serves as a forum for collaboration among DoD hearing loss and noise exposure stakeholders to identify data-derived, benefit-focused hearing conservation policies, programs, strategies, and initiatives.
- c. Identifies and prioritizes efforts that have the potential to reduce auditory injuries, and prevent occupational hearing loss-related mishaps.
- d. Helps the DoD Components in developing programs that target the reduction of auditory injuries and maximizes hearing conservation.
- e. Examines existing hearing conservation policies, programs, and methodologies, and makes recommendations for change to enable a consistent approach to auditory injury investigation, reporting, analysis, and prevention across the DoD.
- f. Reviews successful private-sector and other government agency initiatives and identifies best practices for inclusion in DoD policies and programs.

## GLOSSARY

### G.1. ACRONYMS.

ANSI	American National Standards Institute
ASA	Acoustical Society of America
ASD(HA)	Assistant Secretary of Defense for Health Affairs
ASD(R)	Assistant Secretary of Defense for Readiness
CFR	Code of Federal Regulations
dB	decibel
dBA	decibel A-weighted
dBp	decibels peak
DoDD	DoD directive
DoDI	DoD instruction
DOEHRS-HC	Defense Occupational and Environmental Health Readiness System – Hearing Conservation
HCP	Hearing Conservation Program
HCWG	Hearing Conservation Working Group
Hz	hertz
kHz	kilohertz
MIL-STD	military standard
OSHA	Occupational Safety and Health Administration
PTS	permanent threshold shift
SLM	sound level meter
SPL	sound pressure level
STS	significant threshold shift
TWA	time-weighted average
USD(P&R)	Under Secretary of Defense for Personnel and Readiness

**G.2. DEFINITIONS.** Unless otherwise noted, these terms and their definitions are for the purpose of this issuance.

**audiogram completion rates.** The percentage of personnel identified as requiring periodic audiograms who receive their audiograms.

**A-weighting.** A weighted network on an SLM that employs an electronic filter to measure the dB level in the range of frequencies in which the human auditory system is most sensitive.

**civilian personnel.** Individuals meeting the definition of “employee” pursuant to Section 2105 of Title 5, United States Code, as well as employees of a DoD non-appropriated fund instrumentality paid from non-appropriated funds. This includes DoD civilian employees filling full-time, part-time, intermittent, or on-call positions. Specifically excluded are contractors and, in foreign countries, host nationals or third country nationals (other than foreign nationals who are employees of the DoD or of a non-appropriated fund instrumentality).

**dB.** A measurement of SPL equal to 20 times the common logarithm of the ratio of the existing sound pressure to a reference sound pressure of 20 micropascals.

**dBA.** The standard abbreviation for sound levels measured or calculated after application of an A-weighting curve defined in Part 1 of International Electrotechnical Commission Standard 61672-1. The A-weighting process accords greater emphasis to sounds in the 500 to 2000 Hz range and is commonly used for hearing conservation purposes dealing with steady-state sound.

**dBp.** The standard abbreviation for the maximum sound pressure during a measurement period or noise event, usually associated with an impulse sound. Measured using filters or weighting scales necessary to capture the true peak sound pressure level. Often used in the measurement of impulse noise.

**follow-up audiogram.** An audiogram conducted after an STS is identified on a periodic exam. Used to determine if the STS is temporary or permanent.

**Hz.** A unit of measure of frequency, numerically equivalent to cycles per second.

**impulse noise.** A short burst of acoustic energy consisting of either a single impulse or a series of impulses. The pressure-time history of a single impulse includes a rapid rise of 40 dB or more to a peak pressure, followed by a somewhat slower decay of the pressure envelope to ambient pressure, both occurring within 1 second. When the intervals between impulses are less than 500 milliseconds, the noise is considered continuous, except for short bursts of automatic weapons fire, which are considered impulse noise.

**life cycle.** Defined in the DoD Dictionary of Military and Associated Terms.

**military-unique workplaces.** Defined in DoDI 6055.01.

**operational noise exposure.** Exposure to hazardous noise resulting from the performance of military duties, including continuous and impulse noise encountered in combat situations.

**ototoxic.** Having a harmful effect on the organs or nerves concerned with hearing and balance.

**periodic audiogram.** A 90-day, annual, termination, pre-deployment, post-deployment, or other hearing test compared to the reference audiogram to monitor changes in hearing.

**permanent hearing loss.** Any tested threshold that exceeds 25 dB hearing loss for either ear as recorded on DOEHRS-HC audiograms and confirmed by an audiologist.

**potentially hazardous noise.** Exposure to steady-state noise having an 8-hour TWA noise level greater than or equal to 85 dBA, or exposure to impulse or impact noise levels of 140 dBP peak or greater, regardless of duration.

**potentially hazardous noise area.** Any area where Service members or civilian employees are likely to be exposed to noise levels greater than or equal to an 8-hour TWA of 85 dBA, or where impulse noise levels are greater than or equal to 140 dBP.

**pure-tone air conduction.** Hearing testing conducted under circumaural, supra-aural, or insert earphones.

**qualified physician.** A physician specializing in occupational medicine or who has completed the Council for Accreditation in Occupational Hearing Conservation professional supervisor training.

**qualified technician.** A technician who has successfully completed a DoD-approved hearing conservation or hearing technician course or a course of training approved by the Council for Accreditation in Occupational Hearing Conservation supplemented by DOEHRS-HC training.

**reference audiogram.** A baseline audiogram free from auditory fatigue and other transient otologic pathology, against which future audiograms are compared.

**Service member.** A member of the uniformed services.

**STS.** An average change of plus or minus 10 dB at 2000, 3000, and 4000 Hz, relative to the reference audiogram, in either ear, without age corrections.

**STS rates.** The number of STSs identified during periodic audiograms for each 100 individuals tested during the reporting period.

**ultrasonic.** Having a frequency above the human ear's range of audibility.

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<sup>1</sup> Available for purchase at <https://www.acgih.org/forms/store/CommercePlusFormPublic/search?action=Feature>

<sup>2</sup> Available for purchase at <https://webstore.ansi.org>

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- Office of the Chairman of the Joint Chiefs of Staff, “DoD Dictionary of Military and Associated Terms,” current edition
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- United States Code, Title 42, Section 4914
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<sup>3</sup> Available for purchase at <https://webstore.iec.ch/publication>

<sup>4</sup> Available at [https://www.nist.gov/sites/default/files/documents/2018/03/01/nist-handbook-150-2016-07-01\\_pg16.pdf](https://www.nist.gov/sites/default/files/documents/2018/03/01/nist-handbook-150-2016-07-01_pg16.pdf)

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