U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ORDER 3900.66

National Policy

Effective Date:
8/13/14

SUBJ: Flight Standards Service Hearing Conservation Program

The Flight Standards Service (AFS) Hearing Conservation Program (HCP) is established to prevent occupational hearing loss in AFS employees. Hearing loss is a pervasive occupational health issue. However, occupational noise-induced hearing loss can be reduced, or often eliminated, through the successful application of an effective HCP.

This Order specifies the actions necessary to protect the health and safety of all AFS employees, and provides the requirements for development, implementation, and maintenance of an effective HCP.

Compliance with this order implements the Occupational Safety and Health Administration's (OSHA) General Industry Standards and applicable Consensus Standards published by consensus organizations related to the AFS HCP.

ORIGINAL signed by

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Chapter 1. General Information

1. Purpose of This Order. The Flight Standards Service (AFS) Hearing Conservation Program (HCP) is established to prevent occupational hearing loss in AFS employees. This program specifies the actions necessary to protect the health and safety of all AFS employees, and provides the requirements for development, implementation, and maintenance of an effective HCP.

a. The HCP Requirements. The elements of the HCP are designed to meet or exceed the requirements of Occupational Safety and Health Administration (OSHA) Standards: Title 29 of the Code of Federal Regulations (29 CFR) §§ 1904.10, 1910.95, 1960.8, and 1960.59; and Federal Aviation Administration (FAA) Order 3900.19B, Occupational Safety and Health Program.

b. The Hearing Conservation Program Manager (HCPM). The AFS HCP is administered by the AFS Designated Hearing Conservation Program Manager (HCPM), with audiometric medical surveillance, HCP training and recordkeeping support provided by US Department of Health and Human Services (HHS).

c. The HCP Local Responsibilities. Local responsibility of the HCP execution is with Flight Standards District Office (FSDO), Certificate Management Office (CMO), International Field Office (IFO), and Aircraft Evaluation Group (AEG) Managers. AFS must provide the necessary funding to implement this HCP including hearing protection devices (HPD) for use by employees.

2. Audience. All AFS employees involved with work in high noise areas.

3. Where You Can Find This Order. You can find this order on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices. Inspectors can access this order through the Flight Standards Information Management System (FSIMS) at http://fsims.avs.faa.gov. Air carriers (operators) can find this order on the FAA Web site at http://fsims.faa.gov. This order is available to the public at http://www.faa.gov/regulations_policies/orders_notices.

4. Policy. It is AFS policy that employees comply with the AFS HCP to prevent occupational hearing loss. This guidance represents the minimum requirements for the HCP. Site-specific requirements may be more stringent based upon local risk assessments.

5. Scope and Application. This HCP applies to FAA AFS personnel performing work in hazardous noise areas.

6. Directive Feedback Information. Direct questions or comments to AFS-100 at 9-NATL-AVS-AFS-OSH@FAA.gov. For your convenience, FAA Form 1320-19, Directive Feedback Information, is the last page of this order. Note any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this order on FAA Form 1320-19.

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Chapter 2. Roles and Responsibilities

1. Director, Flight Standards Service (AFS-1) must:

a. Ensure resources (funding and personnel) are available to effectively implement this HCP throughout the AFS organization.

b. Oversee the overall implementation and life cycle management of the HCP in the AFS organization.

2. Flight Standards Division Managers must:

a. Provide oversight of the HCP.

b. Be informed of potentially hazardous noise work areas, tasks, and equipment within his/her jurisdiction.

c. Ensure employee participation in the HCP.

d. Review incidence rates of recordable hearing loss and Standard Threshold Shift (STS) in employees.

e. Review reports of HCP effectiveness reviews.

3. Managers and Front Line Managers (FLMs) must:

a. Manage and implement HCP requirements locally.

b. Evaluate the completeness and quality of the HCP elements for his/her jurisdiction.

c. Identify individuals whose job function exposures equal or exceed 85 A-weighted sound level in decibels (dBA) as identified in sound exposure database or determined through review of the Hearing Conservation Program Determination Form (HCPDF).

d. Furnish and maintain adequate supply of approved hearing protection devices (HPDs).

e. Ensure that employees receive baseline and annual audiometric tests and their initial and annual HCP training within 6 months of the employee’s enrollment in the HCP.

f. Review reports of recordable hearing loss and STS with affected employees.

g. Notify employees of potentially hazardous noise associated with work areas, tasks, and equipment through signs, notices, and other written communication, where applicable.

h. Enforce use of HPDs where required and counsel employees where appropriate.

i. Safeguard employee records with regard to Personally Identifiable Information (PII) generated by the HCP.

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4. AFS Designated Hearing Conservation Program Manager (HCPM) must:

a. Serve as the hearing conservation subject matter expert (SME) for AFS and perform overall HCP program management.

b. Provide oversight and technical guidance to managers/FLMs to ensure compliance with the HCP and applicable OSHA standards.

c. Provide appropriate and periodic noise exposure monitoring to identify employees or work activities above the Action Level (AL).

d. Maintain and use the AFS noise exposure database for identification of noise exposure by job function, hazardous noise work areas, and tasks.

e. Assist Managers and FLMs with the identification of affected employees, hazardous noise work areas, tasks, and equipment.

f. Specify and issue a list of the approved HPDs and assist managers/FLMs with the identification and use of appropriate HPDs to be worn by employees.

g. Coordinate with FOH to develop an audiometric testing and evaluation program.

h. Evaluate new operations/activities that may introduce new or additional noise exposures.

i. Provide updated noise exposure reports to Division Managers, FOH, Management, and FLMs where changes or updates in exposure risk are made.

j. Ensure HCP training related to HCP requirements is provided to Division Managers, Management, and FLMs.

5. Federal Occupational Health (FOH) must:

a. Administer the audiometric testing program to include conducting, evaluating and documenting audiometric tests according to the requirements stated in OSHA's Occupational Noise Exposure standard 29 CFR, § 1910.95, OSHA's Occupational Injury and Illness Recording and Reporting Requirements standard 29 CFR, § 1904.10 - amended, effective Jan 1, 2003). Maintain all audiometric test results and other required records.

b. Within six months, conduct baseline audiometric tests for all new AFS employees who will be included in the HPC (at or above the 8-hour time-weighted average (TWA) of 85 dBA).

c. Conduct annual audiometric tests for all employees whose noise exposures equal or exceed 85 dBA (employees included in the HCP).

d. Evaluate annual audiograms to determine the presence of a recordable hearing loss or STS.

e. Research the work relationship of hearing loss cases. Refer employees for professional consultation to assist in making a work relationship determination, when necessary.

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f. Conduct follow-up audiometric examinations within 30 days for tests indicating the presence of STS.

g. Assess and recommend treatment for medical pathology that is suspected to be caused or aggravated by hearing protectors. Refer employees to a personal physician if medical pathology, unrelated to the use of hearing protectors, is detected.

h. Notify the employee and their FLM when an employee is due for an audiogram.

i. Notify the employee, the employee's FLM and Division Manager of a recordable hearing loss, STS or any other medical pathology identified during audiometric testing. Written notification is to be made within 21 days of the examination.

6. Employee Responsibilities:

a. Comply with this HCP, applicable OSHA standards, and HCP training.

b. Participate in the audiometric testing program as required.

c. Understand the need to correlate high noise exposure with certain procedures, work areas, tasks, and equipment.

d. Report potential hazardous noise work areas, work tasks, and equipment to his/her FLM.

e. Wear approved HPDs where elevated noise exists.

f. Properly use and maintain approved HPDs and notify manager/FLM if HPD supply is insufficient or needs to be ordered.

g. Inform his/her FLM of any personal health problems that could be aggravated by the use of hearing protection devices.

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Chapter 3. Hearing Conservation Program (HCP) Requirements

1. Permissible Exposures. Permissible noise exposure levels for AFS employees and their conditions for inclusion in the HCP are defined below. These conditions and levels are referred to as the AFS Noise Exposure Limits.

a. Occupational Exposure Limit. The occupational exposure limit for noise, the criterion sound level, is 85 dBA, expressed as an 8-hour time-weighted average (TWA). Exposure to this level for any one day requires inclusion in the HCP.

b. The AL or TWA Exposure. The AL or the TWA exposure which requires program inclusion is 82 dBA or a dose of 50 percent. AFS employees exposed to this level for 30 days or more per year must be included in the HCP.

c. Recordable Hearing Loss or STS. For employees who have experienced a recordable hearing loss or STS, the noise exposure limit is 82 dBA, expressed as an 8-hour TWA exposure for any one day.

d. Second Recordable Hearing Loss or STS. For employees who have experienced a second (subsequent) recordable hearing loss or STS the exposure limit is 79 dBA, expressed as an 8-hour TWA exposure for any one day. See Table 3-1, Allowable Exposures and Times, for Noise Exposure Limits based on noise level and exposure time.

Table 3-1. Allowable Exposures and Times

Exposure Level (dBA)	Allowable Exposure Time (hours)	
	Action Level	Permissible Level
82	8	16
85	4	8
88	2	4
91	1	2
94	0.5	1
97	0.25	0.5
100	0.13	0.25

2. Affected Personnel. Employees whose work specialty or job function meet the criteria listed below *must* be included in the HCP. However, employees may request specific job tasks to be evaluated for possible inclusion in the HCP.

a. The employee's assigned job function has an associated 8-hour TWA sound exposure level of 85 decibels (dB) measured on A-weighted scale (dBA) or greater on any one day.

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b. The employee's assigned job function has an associated 8-hour TWA sound exposure level of 82 dBA or greater for 30 days or more per year.

c. The employee's regular job function has an associated sound exposure level of less than 85 dBA, but infrequently works a job function with an associated an 8-hour TWA sound exposure level of 82 dBA or greater.

d. The employee's regular job function has an associated sound exposure level of less than 85 dBA, but works in specific areas, or is engaged in trigger tasks and activities identified as hazardous noise through the Hearing Conservation Program Determination Form (HCPDF) (Appendix B, Sound Exposure Monitoring Procedure and Forms).

3. TWA Access to Information. AFS must make available to affected employees or their representatives copies of the OSHA Occupational Noise standard 29 CFR, § 1910.95 and must post a copy in the workplace. A copy of this HCP will be distributed to all AFS offices, FSDOs, CMOs and IFOs and will be made available to all affected employees.

4. Program Elements. The HCP consists of the following elements that are covered in separate chapters in this HCP.

a. Sound Exposure Monitoring. The sound exposure risk potential of all employees must be properly evaluated and reevaluated when changes in work practices or conditions occur. Exposure data collected under a uniform methodology are entered and maintained in an exposure database. Exposure monitoring provides documentation for identifying the hazardous noise job activities, employees for inclusion in the HCP, and for the proper selection of HPDs.

b. Engineering and Administrative Controls. AFS will identify, where feasible and within FAA control, areas that may require engineering controls to reduce excessive noise exposures. Administrative controls (reduced exposure time, changes in work practices, or shifts) may be considered if engineering controls are not feasible.

c. Audiometric Evaluation. An audiometric testing program must be established and maintained for all employees in the HCP. Audiometric evaluation is the only way to determine whether occupational hearing loss is being prevented. FOH is responsible for conducting and administering audiometric testing and evaluation.

d. Personal Hearing Protection. Employees are required to wear HPDs in the form of earplugs or earmuffs whenever they are exposed to hazardous noise levels. This includes on airport ramps, near runways, and around aircraft, engines, or generators. A list of "trigger" tasks or areas is included in Appendix B for assistance in identifying potentially hazardous areas.

e. Education and Training. Annual training must be provided to all employees included in the HCP. Special training administered by Supervisors and Managers may supplement annual training.

f. Recordkeeping. AFS must ensure that all required records are maintained in a manner consistent with the requirements in Chapter 9 of the HCP.

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g. Program Evaluation. The AFS HCPM will conduct an annual evaluation of the program to assess compliance with Federal and state regulations and to make sure hearing is being conserved. FOH will conduct an evaluation of audiometric testing procedures and HCP training to identify incidence rates of recordable hearing loss and STS.

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Chapter 4. Engineering and Administrative Controls

1. Engineering Controls. The optimal means of reducing or eliminating employee exposure to elevated noise is through the application of engineering controls. Engineering controls are defined as any modification or replacement of equipment, or related physical changes at the noise source or along the transmission path that reduces the noise level to which the employee is exposed. Engineering controls for the AFS workforce is an unlikely resolution since the noise sources are usually owned by the host employer.

2. Administrative Controls. If engineering controls fail to reduce sound levels within the requirements specified in this section, administrative controls must be utilized if possible. Administrative controls are defined as changes in the work schedule, procedures or operations that reduce noise exposure.

a. Examples. Examples of administrative controls include access restrictions and time limitations in the hazardous noise area.

b. Requirements. Requirements for administrative controls include:

(1) Maximizing the distance between the employee and the hazardous noise source to the extent practical; and

(2) Identifying hazardous noise areas.

(a) Since AFS employees work in a variety of host work environments, special attention must be given to identifying areas of potential hazardous noise.

(b) In the United States, host employers with noise issues are required to post signage where hearing protection is required.

(c) Hazardous noise environments overseas have not been evaluated fully, so the employee must use HPDs if they are in a high noise area.

3. Personal Protective Equipment (PPE). If both engineering and administrative controls fail to reduce sound levels to 85 dBA, 8-hour TWA or below, personal hearing protection shall be used to bring exposures to acceptable levels in accordance with the following:

a. Employees Exposure to Noise. All employees who enter areas or who perform tasks where exposure to noise is greater than or equal to 82 dBA must be provided with hearing protection. Where exposure to noise is equal to or greater than 85 dBA or 140 dB peak, regardless of duration of exposure, employees must be provided with hearing protection and required to wear it.

b. Using HPDs. All employees must use HPDs in areas that are required by the host facility and/or whenever signage requires.

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c. Earplugs. Earplugs must be for the exclusive use of each employee and not be traded or shared.

d. Earmuffs. Earmuffs must be made available to employees who cannot wear earplugs.

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Chapter 5. Sound Exposure Monitoring

1. Background.

a. Sound Exposure Monitoring. Sound exposure monitoring is an essential component of a Hearing Conservation and Noise Control Program. The sound exposure monitoring procedure provides a uniform and repeatable method to assess the level of hazard from occupational noise.

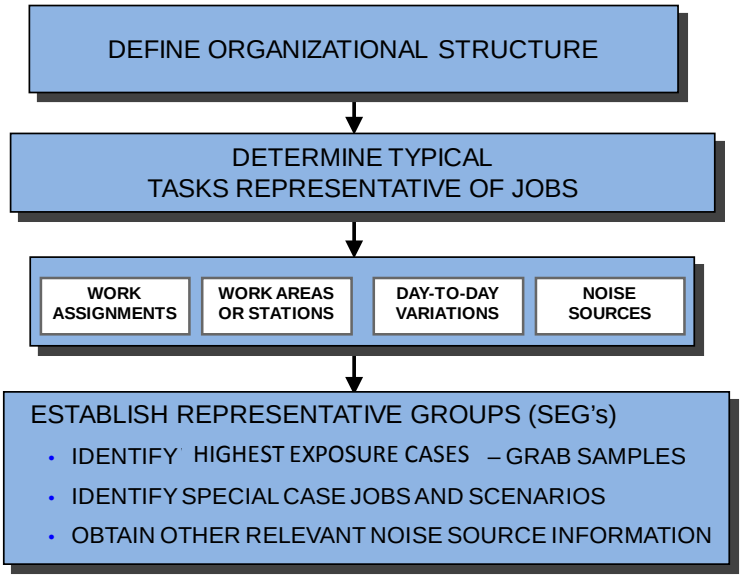
b. Noise Exposure Sampling Strategy. The noise exposure sampling strategy utilizes representative personal monitoring designed for the purpose of:

(1) Identifying employees for inclusion in the HCP, and

(2) Enabling the proper selection of HPDs.

2. Establishment of a Monitoring Program.

a. Development and Implementation. Whenever information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average (TWA) of 85 dB on any one day, or equal or exceed an 8-hour TWA of 82 dB for 30 days per year, the AFS organization must develop and implement a monitoring program involving a sampling strategy. Persons designated to conduct sound exposure monitoring must be qualified in the monitoring methodology and in using the AFS noise exposure database application.



b. Factors of Noise Exposures in the Workplace. Factors that suggest noise exposures in the workplace may be at or above this level include (1) employee complaints about the loudness of noise (2) indications that employees are losing their hearing, and/or (3) noisy conditions which make normal conversation difficult. Employees likely to be exposed to noises exceeding 85 dBs over an 8-hour TWA include personnel who work on airport ramps or near operational aircraft, engines, or generators.

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3. Sound Exposure Monitoring Purpose.

a. Purpose. The purpose of the sound exposure monitoring procedure is to document the long-term, 8-hour TWA sound level relative to Similar Exposure Group (SEG). An SEG is defined as a group of workers likely to have the same general exposure profile because of the tasks they perform, the similarity of the way tasks are performed, and the areas in which they work. Monitoring on one individual within an SEG is considered representative for the exposure expected for any member of the group. For the sampling strategy, employees will be categorized according to the following:

(1) Employees that have the potential to rotate or change jobs with no associated change in duty assignment status;

(2) Employees that are engaged in a similar kind of work; and

(3) Employees whose sound exposures are expected to be similar.

b. Noise Exposure Assessment. An employee's noise exposure assessment is the 8-hour TWA sound level identified with the SEG to which the employee is assigned. When an employee's work assignment and SEG is changed, the employee's noise exposure assessment changes to the TWA associated with the new SEG to which the employee is assigned. Not all exposed employees need to be monitored. The sound exposure monitoring procedure utilizes representative monitoring.

c. SEG. Representative monitoring determines an SEG sound exposure potential for a group of employees who are engaged in a similar kind of work and whose sound exposures are expected to be similar. The SEG reasonably believed to have the highest sound exposure potential is monitored and the resulting SEG sound exposure TWA is considered representative of the sound exposure potential for the group.

4. Methods of Measurement.

a. Sound Exposure Measurements. Sound exposure measurements may be conducted using three methods: dosimetry, area measurement, or hearing zone measurement. All methods may be used as a component for exposure modeling and determination. The sound exposure measurements will be conducted by the HCPM or designated qualified personnel.

b. Instruments. A dosimeter is a body-worn instrument that captures and stores sound level data and integrates these data over time. TWA sound levels over a period such as an 8-hour workday are derived from this measurement. An integrating Sound Level Meter (SLM) is used for conducting area and hearing zone measurements.

c. Area Monitoring. Area monitoring can be used to estimate noise exposure when the noise levels are relatively constant and the employee is not engaged in a mobile task. This measurement may be used to estimate sound exposure in offices. Hearing zone measurements are intended to measure sound level data related to performance of specific tasks. The microphone should be positioned in what is referred to as the hearing zone of the worker (a hemispheric area extending from the workers ear to a distance of 12 inches). Measurements may also be made at

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alternate positions when the worker's activities may interfere with the measurement. Measurements may also be taken if the worker is not present.

5. Measurement Criteria. AFS assesses employee noise exposure risk under a 3-dB exchange rate and an 85-dBA permissible exposure limit (PEL). Instrument settings for sound exposure monitoring are as follows:

Frequency Weighting:	A	Peak Weighting:	C
Detector Setting:	Slow	Exchange Rate:	3
Threshold Level:	80 dBA	Criterion Level:	85 dBA

6. Measurement Durations and Positions.

a. Dosimeter Measurements. For dosimeter measurements, the measurement duration (if not full shift) must be representative of the exposure associated with all the tasks performed by the employee. The microphone should be positioned on the mid-top of the wearer’s shoulder with the microphone oriented parallel to the shoulder plane.

b. Task-Based Measurement. For a task-based measurement with an integrating SLM, the measurement duration must be sufficiently long for the resulting noise exposure to be representative of the exposure associated with each of the tasks performed by the employee.

7. Developing Exposure Models.

a. Documentation of Tasks. For each job that is sampled, exposure models are constructed by developing a list of tasks, related durations, and noise level metrics. Documentation of the tasks that comprise the representative work assignment requires that the tasks must include all exposure conditions that could occur in proportion to the way they occur over the typical work shift. The list of tasks is developed based on an understanding of the job under study through observation and interview time with FLMs and workers.

b. Interview. The interview must provide information about what the job entails and the activity duration. Emphasis is placed on long-term activity, not what occurs on a specific day. Measurements are taken with an integrating SLM for durations ranging from several seconds to a few minutes to meet the requirement that the duration is sufficiently long to be representative of the exposure associated with the task.

c. Fractional Methodology. Eight-hour TWA sound levels and related noise doses are computed using the fractional methodology specified in the OSHA Occupational Noise Exposure; Hearing Conservation Amendment, 29 CFR, § 1910.95, Appendix A, using both National Institute for Occupational Safety and Health (NIOSH) and OSHA allowable time and sound level trade-offs.

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8. Frequency of Monitoring.

a. Sound Exposure Monitoring. Targeted sound exposure monitoring will be conducted on a continuous basis to expand resolution of job function sound exposures and to reflect changes in job assignments.

b. Re-monitoring of Noise Exposures. Re-monitoring of noise exposures must be performed whenever a change in job tasks, procedures, equipment or controls indicates that noise levels may have increased to result in an exposure of or greater than 85 dBA TWA, additional employees may be exposed at or above the AL or the attenuation provided by hearing protectors may be rendered inadequate to meet the requirements. Monitoring data collection forms are contained in Appendix B.

9. Employee Notification. AFS must notify each employee exposed at or above an 8-hour TWA of 85 dBA in writing of the results of the monitoring. The AFS HCPM must maintain copies of results for all employees exposed at or above the 85 dBA TWA.

10. Observation of Monitoring. AFS must provide affected employees and their representatives with an opportunity to observe any noise measurements conducted. This should be arranged through the division, FSDO, CMO, or IFO FLM or manager.

11. Instrument Care and Calibration. The AFS HCPM will ensure sound level measuring instruments and calibrators are calibrated and certified annually or biennially per manufacturer's instructions by a qualified laboratory and keep calibration certificates on file.

a. Sound Level Meters (SLM). Direct-reading integrating SLMs must be field calibrated before and at the end of each day of monitoring using the technique recommended by the manufacturer.

b. Noise Dosimeters. Noise dosimeters must be field calibrated before and at the end of each sound exposure evaluation. This calibration should also include a visual inspection to identify any damage to the instrument that may have occurred while it was attached to the employee.

c. Instrument Batteries. Check instrument batteries before each field calibration and periodically throughout the sampling period if practical.

> **Note:** If calibration check or battery check indicates unreliable readings, all measurements taken since the last acceptable calibration and/or battery check must be repeated.

12. Assignment of Sound Exposure Risk to Individual Employees.

a. Employee Exposures. The existing noise exposure database identifies employee exposure based on broad assignments of representative exposure groups and exposure profiles.

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b. Assignments. The assignments are made to ensure that no employee with noise exposure is excluded from the HCP, and potentially includes personnel who may not have significant noise exposure.

c. Responsibilities. It is the responsibility of management and supervision at each field office to annually confirm individual employee noise exposures by:

(1) Verifying the answers on the HCPDF, included in Appendix B, are still valid by conferring with the employee.

(2) Reviewing the typical day assignments of the employee and identifying certain tasks and situations that trigger noise exposure risk (included in the HCPDF).

d. Employee Examination Request. If a field office FLM or an individual employee wishes to examine if the employee should be included in the HCP, the HCPDF must be used as the guideline and the documentation for determination.

e. Hearing Conservation Program Determination Form (HCPDF). The HCPDF is designed to be completed by the employee and reviewed by the employee's FLM to document potential exposure conditions. This includes identifying noise conditions previously not identified. If the results of the interview process reveal potential exposure to hazardous noise levels, the employee is advised that he/she is enrolled in the HCP and agrees to follow procedures to use and maintain HPDs.

f. Annual Audiometric Examination. All employees included in the HCP must be scheduled for an annual audiometric examination and related procedures conducted by FOH.

g. Supplemental Information. Supplemental information is contained in the database related to trigger tasks and assignments in a special report.

h. Completed HCPDF. Completed HCPDF are to be forwarded to the AFS HCPM, and copies are to be retained in the field office. If new noise conditions are identified, notify the AFS HCPM, and they will be targeted for future monitoring.

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Chapter 6. Audiometric Evaluation

1. Requirements of Audiometric Testing and Evaluation Program (ATEP).

a. Audiometric Testing and Evaluation Program (ATEP). FOH, with contract and program oversight by the AFS OSH Office, will establish and maintain an ATEP for all employees whose assigned job function has an associated sound exposure level equal to an 8-hour time-weighted average (TWA) of 85 dB on any one day, or equals or exceeds an 8-hour TWA of 82 dB for 30 days per year. FAA must provide the ATEP at no cost to employees.

b. Audiometric Testing Requirements. Audiometric testing will be conducted and documented according to the requirements stated in OSHA's Occupational Noise Exposure standard 29 CFR, § 1910.95 and OSHA's Occupational Injury and Illness Recording and Reporting Requirements standard 29 CFR, § 1904.10 - amended, effective Jan 1, 2003).

c. Audiometric Test Frequencies. Audiometric tests (audiograms) must be pure tone, air conduction, hearing threshold examinations, with test frequencies 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hertz (Hz). The examiner must perform tests separately on each ear for each frequency.

d. FOH. FOH will ensure that FOH staff receives training to perform audiograms and that equipment; test procedures, test interpretation, clinical follow-up, and documentation meet OSHA requirements. FOH staff or contractors that conduct audiograms must have certification through the Council for Accreditation in Occupational Hearing Conservation (CAOHC).

e. Phases. Audiometric testing will be offered to employees in two (2) phases as follows:

(1) Phase One - based on initial screening exposure assessments:

(a) Based on exposure risk potential identified by initial monitoring, affected existing employees within selected job functions will be included in the HCP.

(b) Baseline, initial, or annual audiograms will be conducted for all employees identified in the HCP under Phase One and for all new employees within the aviation safety inspector (ASI) specialty.

(c) FOH, on behalf of the FAA, will conduct annual audiograms for all employees in Phase One.

(d) Retest audiograms will be performed within 30 days when an STS or recordable hearing loss is detected.

(2) Phase Two - based on expanded higher resolution exposure assessments:

(a) FOH, on behalf of the FAA, will conduct a baseline audiogram for all new employees in the HCP within six months of the employee's first exposure at or above the AFS Noise Exposure Limits.

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(b) FOH, on behalf of the FAA, will offer annual audiometric testing to all HCP Employees whose annual noise exposure assessment equals or exceeds the AFS Noise Exposure Limits.

(c) FOH, on behalf of the FAA, will perform retest audiograms within 30 days when an STS or recordable hearing loss is detected.

(d) Any AFS employee who has ever been in the HCP during their FAA career must receive an exit audiogram whenever he/she leaves the agency.

(e) When testing HCP employees, FOH will notify the employee, the employee's FLM, and the AFS HCPM in writing within 21 days when an STS or a recordable hearing loss occurs. Written notification of a decrease in hearing sensitivity is not required. However, employees may request and receive a copy of the hearing examination results.

2. ATEP Responsibilities. The AFS HCPM must be responsible for oversight of the ATEP, to include:

a. Oversee and administer contract agreements with any medical surveillance provider(s).

b. Ascertain and ensure ATEP procedures for audiometric examinations (testing, review, evaluation, follow-up, and data management) are current and comply with OSHA regulations.

c. Ascertain and ensure required HCP training is complete and compliant.

d. Regularly review reports of STS and recordable hearing loss cases.

e. Regularly review documentation and records of ATEP activity.

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Chapter 7. Personal Hearing Protection

1. Requirements.

a. Noise Prevention. Although the most effective method to prevent noise induced hearing loss is through removing the noise from the workplace or removing the worker from the noise, in most jobs within the AFS, HPDs are the only feasible means to protect workers. AFS requires the use of approved HPDs when an employee is working in an area of high noise (on an airport, during airshow with military aircraft, near a runway, aircraft, engine, or generator) or is engaged in a task with associated hazardous noise levels, regardless of daily exposure level.

b. HPDs. Employees must wear HPDs if they are exposed to the levels discussed in this HCP and if they have not yet had a baseline audiogram or they have experienced a STS.

2. Availability of HPDs. AFS managers and FLMs will make HPDs available to their employees who have the potential to work in high noise areas.

- HPDs must be provided at no cost to employees and must be replaced as necessary.
- HPDs must be for the exclusive use of each employee and must not be traded or shared.

3. Approved HPDs. The AFS HCPM must specify and provide a list of the approved HPDs. Several styles and types of earplugs have been selected specifically for AFS employees and the variety of work tasks performed. Approved earmuffs will also be included in the list. Overall, all standard HPDs must have a minimum of 25 dB Noise Reduction Rating (NRR).

a. Specialized HPDs. For individuals with specific medical needs or physical characteristics that require specific types of HPD, AFS will provide specialized HPDs. Examples of specific medical needs include hearing aids that cannot be worn in earmuffs or a person with a Cochlear implant.

b. Additional HPD Types. Occupational Safety and Health and Environmental Compliance Committees (OSHECCOMs) or individuals desiring to use additional HPD types or brands must submit a request to the HCPM in writing and will include the manufacturer's technical specifications.

4. HPD Attenuation. Each type of HPD must provide a level of protection to reduce the employee's 8-hour time-weighted average (TWA) sound level to 82 dBA or less independent of the amount of time exposed to hazardous levels of noise. Until hearing protector performance data are reported using the most recent test methods specified by ANSI S12.6-2008, calculation of the level of protection will be based on de-rating the HPD's Noise Reduction Rating (NRR) by 50 percent.

5. Training. HCP training will be provided in accordance with Chapter 8 of this order.

6. Management Support. Managers need to monitor and enforce the wearing hearing protection where required. A critical message for managers to share with employees is that is even someone who has lost some hearing ability can still save what hearing they have left by using HPDs.

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7. Special Hearing Protection.

a. Special HPDs Purchases. Special HPDs purchased by an employee, such as sound-suppression or noise-cancellation communication headsets, must be a dual-ear earmuff. It is recommended that it has a minimum NRR of 20 dB.

b. Special HPDs Inspections. These devices must be regularly inspected if they are used in hazardous noise areas. Sound-suppression and noise-cancellation headsets that have been damaged, altered, or modified in any way that affect the attenuation characteristics must not be used.

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Chapter 8. Education and Training

1. Background. The success of the HCP depends largely on effective employee education and training. The specified training requirements and the focus of the training is to educate employees to identify hazardous noise areas and jobs, and to properly use HPDs. Annual training must be provided to all employees who are or may be exposed to the AFS Noise Exposure Limits. Supplemental HCP training can be provided annually, covering job-specific topics.

2. Annual HCP Training Requirements. All employees included in the AFS HCP must be trained annually and informed of the topics listed below.

a. Effects of Noise on Hearing. Training will cover both how the effects of noise exposure show up on the audiogram and the impact of noise-induced hearing loss on everyday life. Emphasis should be placed on protecting hearing in those employees who have already experienced hearing loss.

b. HPDs Training. This training will include:

(1) The purpose of HPDs;

(2) Types of devices, the advantages and disadvantages and attenuation of various types;

(3) Selection, fitting, use, and care of HPDs;

(4) Methods for solving common problems associated with HPDs; and

(5) Recordkeeping requirements.

(6) Supervised hands-on practice in the proper fitting and donning of HPD.

c. Audiometry. Instruction will include a discussion of the purpose of audiometric testing in preventing hearing loss, a description of the actual test procedures, interpretation, implications of the test results, and recordkeeping. Employees should be made aware that threshold shifts can be traced to inadequate protection from ineffective noise controls and inconsistent use of HPDs.

3. Supplemental HCP Training. The AFS HCPM and Regional OSH Points of Contact (POC) must assist in providing training to management and/or supervisors that covers the managers' responsibilities regarding the HCP. Supplemental training must be sufficient in duration to cover the topics and assess comprehension of attendees. Employees will be provided with a copy of this AFS HCP and the OSHA Occupational Noise standard. Supplemental training topics may include the following:

- Elevated noise at the workplace.
- Competently performing assigned duties in a hazardous noise environment without sacrificing hearing.
- Off-the-job safety and hearing conservation practices.
- Individual responsibilities for preventing hearing loss.

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Chapter 9. Recordkeeping

1. AFS Required Records. The Flight Standards organization must ensure that all required records are maintained in a manner that is readily accessible to managers in the employee's line of supervision, the AFS HCPM, employees upon request, employee representatives, the AFS Safety Officer, and OSHA representatives.

2. Notification. Notify all employees with associated noise exposures equal to or greater than the AFS Noise Exposure Limits of the following:

a. Availability. Availability of the OSHA standard for Occupational Noise and where it is posted.

b. Results. The results of noise exposure assessments and the employee's most recent noise exposure assessment, communicated during annual HCP reviews through interviews and questionnaires.

c. Mandatory Requirements. The mandatory requirement to wear HPDs:

(1) While performing inspection activities on an active ramp.

(2) While involved in travel to remote sites in small aircraft and helicopters.

(3) While performing check rides in small aircraft or various helicopter types.

(4) While performing Air Show Monitor activity at public air shows that includes military aircraft.

(5) While involved in activities near engine testing operations and in direct proximity of active aircraft (auxiliary power units (APU), air cycle machines (ACM), etc.).

(6) While involved in activities in direct vicinity of wood and metal working equipment, riveting operations, and construction/utility equipment.

(7) While involved in activities in workplaces where noise levels require a raised voice in order to be heard.

d. Audiograms.

(1) Notify employees of the date, time, and place of their audiogram.

(2) Employees must be informed of the need to avoid non-occupational (e.g., riding motorcycles, concerts, shooting, etc.) noise for at least 14 hours prior to a baseline, initial, annual, or a retest audiogram.

(3) Audiometric test records must include the name and job classification of the employee, the date, the examiner's name, the date of the last acoustic or exhaustive calibration, measurements of the background sound pressure levels in the audiometric test room, and the employee's most recent noise exposure measurement.

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e. Training. The appropriate Division, FSDO, CMO, or IFO office must ensure training records are maintained in the FAA electronic training records system.

3. Record Retention.

a. Noise Monitoring Results. Records of noise monitoring results must be retained for 30 years.

b. The HCP Determinations Forms. The HCP Determinations Forms will be maintained for at least 3 years after they leave the agency.

c. Audiometric Test Records. Audiometric test records must be retained as a part of the employee's medical record for at least the length of employment plus 30 years. FOH will maintain records of all audiograms.

d. Training Records. Training records will be maintained for the duration of employment of the affected employee. These records will include the employee's name and the date of the training.

e. FOH Notification. FOH will send notification to each individual employee when a record is created that contains Occupational Medical Surveillance Program (OMSP) information. FOH will send notification on the location of the record(s) and how to obtain a copy annually thereafter.

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Chapter 10. Program Evaluation

1. Level and Frequency of Evaluation. The effectiveness of the HCP must be evaluated at the individual level and at the program level.

a. Individual Level. The evaluation at the individual level must take place during the time of audiometric testing. If an employee shows a shift in hearing ability that is occupationally related, all possible steps must be taken to ensure that no further occupational hearing loss occurs.

b. Program Level. The program level evaluation must occur annually by field office management with assistance provided by the AFS HCPM. The audiometric testing and HCP training program elements must be reviewed annually by FOH for quality and effectiveness.

2. Evaluation Tools. Program evaluation must be structured under a questionnaire and evaluation tool (Appendix D, Program Evaluation Questionnaire). Additional factors to be considered in the evaluation of program effectiveness include:

- The number and rate of employee standard threshold shifts and hearing loss recordable cases as identified through the audiometric testing program.
- Presence of supplemental training for FLMs and employees.
- Field audits of hearing protection usage and maintenance.

3. Documentation. The findings of the program evaluation must be documented and must include recommendations for program corrections, modifications and additions. This documentation must be kept for five years.

4. OSHECCOMs. The findings of the program evaluation must be shared with Establishment Level OSHECCOM members.

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Appendix A. Definitions

1. Action Level. The noise level (85 dBA), calculated as an eight-hour time-weighted average (TWA), at which OSHA requires exposed employees be included in the HCP.

2. Administrative Controls. When OSHA permissible exposure limit (PEL) exposure levels are exceeded, feasible administrative (i.e., worker-machine rotation or breaks from noise) or engineering controls must be utilized. If administrative or engineering controls fail to reduce sound levels within OSHA PEL exposure levels, personal hearing protective devices must be provided to the employee by the employer, and used to reduce sound levels to within the levels of OSHA PEL exposure levels.

3. AFS Noise Exposure Limits. Permissible noise exposure levels for AFS employees and the conditions under which exposures occur. These limits define inclusion in the AFS HCP and are defined as follows:

a. The occupational exposure limit for noise, the criterion sound level, is 85 dBA, expressed as an 8-hour TWA. Exposure to this level for any one day requires inclusion in the HCP.

b. The action level or the TWA exposure which requires program inclusion is 82 dBA or a dose of 50 percent. AFS employees exposed to this level for 30 days or more per year must be included in the HCP.

c. For employees who have experienced a recordable hearing loss or STS, the noise exposure limit is 82 dBA, expressed as an 8-hour TWA exposure for any one day.

d. For employees who have experienced a second (subsequent) recordable hearing loss or STS the exposure limit is 79 dBA, expressed as an 8-hour TWA exposure for any one day.

4. Audiogram (Hearing Test). The chart, graph, or table showing hearing threshold level as a function of frequency; a method of measuring degree of hearing loss.

5. Audiologist. A professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state Board of Examiners.

6. Baseline Hearing Test. An OSHA required audiometric examination which must be administered within six months of an HCP Employee's initial exposure to potentially elevated noise levels at or above 85 dBA TWA. This baseline test is used for comparison with future tests to determine if changes have occurred in hearing.

7. CAOHC. Council for Accreditation in Occupational Hearing Conservation.

8. CAOHC Certification. A certificate issued following successful completion of an accredited course. This certification is renewed every 5 years.

9. Criterion Sound Level. The constant sound level in dB that, if applied for eight hours, would accumulate a dose of 100 percent.

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10. dBA. Unit of measurement of sound level in dB using a weighting network of the A scale on a SLM. A weighting is a pitch/frequency response filter adjustment which makes its reading conform, roughly, to the human ear response at a loudness level of 40 phons.

11. Decibel (dB). Unit of measure for sound levels. Based on a logarithmic scale.

12. Dose. A percentage of the maximum allowable noise that a worker can be exposed to per day. This is a computation that is based on the following variables: criterion level, lower threshold, and exchange rate. Dose is expressed as a percentage.

13. Dosimeter. An instrument worn or used by an individual to measure the accumulation of their noise exposure over a work period. Dosimeters monitor all kinds of noise sources and are used when time and mobility are issues. Dosimeters generally sample 16 times per second.

14. Exchange Rate. The rate at which a noise hazard (expressed by dose) doubles. Using a decibel scale, every time the sound energy doubles, the measured level increases by 3 dB. This is the 3 dB exchange rate recommended by NIOSH and the American Council of Governmental Hygienists. For every increase of 3 dBA in the TWA, the measured dose (or risk of hearing impairment) would double. OSHA uses an exchange rate of 5 dB. The exchange rate affects the integrated readings L_{avg}, dose and TWA, but does not affect the instantaneous sound level.

15. Exhaustive Calibration. A calibration for audiometers. An exhaustive calibration must be performed at least every two years, or whenever the annual check indicates the audiometer is out of limits. The calibration process checks the audiometers output waveform for linearity, frequency, amplitude, and distortion.

16. Frequency. Pitch or the number of cycles that a sound wave completes per second. Measured in Hz or cycles per second (CPS).

17. Hazardous Noise. Noise levels which pose a danger to hearing ability and a potential cause of hearing loss. Hazardous, elevated, or high noise is caused by operating aircraft and machinery, or industrial processes that cause an individual to raise their voice when speaking. Noise levels of 85 dBA and greater constitute hazardous noise.

18. HCP (Hearing Conservation Program) Employee. An employee who is routinely exposed to workplace noise at or above 85 dBA TWA (OSHA Action Level) and an employee whose noise exposure is less than 85 dBA but reports occasional exposures to hazardous noise levels, as documented in the noise exposure assessment (sound survey).

19. Hearing Protection Devices (HPD). Personal protective equipment that is designed to be worn in the ear canal or over the ear for the purpose of reducing the sound level reaching the eardrum. Examples include earmuffs or earplugs.

20. Hearing Threshold Level (HTL). The lowest threshold that the employee can hear the test tone during an audiometric test. The HTLs are recorded on the employee's audiogram.

21. Hertz. Unit of measurement of frequency, numerically equal to cycles per second.

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22. High Noise Area. Any area where the cumulative noise exposure to employees is above 85 dBA TWA, or a 50 percent dose

23. Initial Hearing Test. An OSHA required audiometric examination which was not administered within six months of an HCP Employee's initial exposure to potentially elevated noise levels at or above 85 dBA TWA. This will be the common hearing test until this HCP is fully implemented. This initial test is used for comparison with future tests to determine if changes have occurred in hearing.

24. Job Function. A more specific job classification title that relates to a set of job activities (work tasks) routinely performed by an employee with a certain specialty and position. It is used to distinguish between different types of jobs with different sound exposure profiles within the same specialty and position.

25. Job Function Profile. A completely developed job function and is a combination of the title and the list of activities and associated sound exposure information necessary to fully describe the sound exposure profile for a typical full shift including non-productive periods. It includes a detailed description of the work performed routinely by an employee. Day–to–day or week–to–week variations that habitually occur would be included in the analysis of the job function.

26. L_{avg}. The average sound level, in decibels, for the measurement period based on either a 3 or 5 dB exchange rate.

27. Phon. A unit for measuring the apparent loudness of a sound, equal in number for a given sound to the intensity in decibels of a sound having a frequency of 1000 cycles per second when, in the judgment of a group of listeners, the two sounds are of equal loudness.

28. Presbycusis. The term used to refer to hearing loss associated with the aging process. Adjustments for presbycusis are accomplished automatically within audiometric software according to the procedures and tables contained in Appendix F of the OSHA Noise Standard.

29. Recordable Hearing Loss. A hearing loss that meets both of the following conditions:

a. An 8-hr TWA noise exposure of 85 dBA or greater, per the sound survey.

b. The audiometric test findings are consistent with noise induced hearing loss.

Note: Hearing loss is considered work related if the exposure in the work environment either caused or contributed to the hearing loss. It is not necessary for the workplace to be the sole cause, or even the predominant cause for the hearing loss to be work related. Criteria a and b above do not apply to acute occupational acoustic trauma (e.g., head injury, explosion, etc.).

30. Safety Management Information System (SMIS). The database where injuries and illnesses are recorded on the FAA Form 3900-6, Mishap Form. This is the database where the OSHA 300 Logs are generated annually.

31. Sound Survey. A workplace noise exposure assessment that is critical in determining which employees are potentially exposed to elevated noise levels and are to be enrolled in the HCP.

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32. STS (Standard Threshold Shift). An average change in hearing level of 10 dB or more at 2000, 3000 and 4000 Hz in either ear, as compared to the baseline audiogram. STS calculations are typically adjusted for presbycusis (i.e., age adjusted) according to the procedures and tables provided in Appendix F of the OSHA noise standard.

33. Time-Weighted Average (TWA). The sound level which, if constant over an eight-hour exposure, would result in the same noise dose as is measured.

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Appendix B. Sound Exposure Monitoring Procedure and Forms

1. Noise Exposure Criteria. Eight-hour time-weighted average (TWA) and related noise doses are computed using the fractional methods detailed in the OSHA Occupational Noise Exposure; Hearing Conservation Amendment, 29 CFR, § 1910.95, Appendix A and NIOSH recommendations for exposure limits (1998). Damage-risk criteria provide the basis for recommending noise exposure limits based on noise level and exposure time. OSHA and NIOSH criteria are shown below.

Exposure Level (dBA)	85	88	90	92	94	95	100	105	110	115
Permissible Exposure - OSHA	16		8			4	2	1	0.5	0.25
Recommended Exposure - NIOSH	8	4			1		0.25			

a. OSHA Permissible Exposure. OSHA permits exposures of 85 dBA for 16 hours per day, and uses a 5 dB time-intensity tradeoff, which means for every 5 dB increase in noise level, the allowable exposure time is reduced by half and for every 5 dB decrease in noise level, the allowable exposure time is doubled. All time/intensity values shown on the OSHA PEL line in the table above are assumed to have equal risk to each other, that is, 16 hours at 85 dBA carries the same auditory risk as 8 hours at 90 dBA, 4 hours at 95 dBA and 2 hours at 100 dBA.

b. NIOSH's Recommended Exposure Limit (REL). NIOSH's REL is 85 dBA for 8 hours per day, and uses a 3 dB time-intensity tradeoff, which means for every 3 dB increase in noise level, the allowable exposure time is reduced by half and for every 3 dB decrease in noise level, the allowable exposure time is doubled. The time/intensity values shown on the NIOSH REL line in the table are assumed to have equal risk to each other, that is, 8 hours at 85 dBA carries the same auditory risk as 4 hours at 88 dBA, and 2 hours at 91 dBA, etc.

c. NIOSH Criteria. AFS has adopted the NIOSH Criteria for assessing noise exposures in its employees. Further, it has adopted a combination of exposure conditions and levels to determine if an employee must be included in the HCP. The conditions are as follows:

(1) The occupational exposure limit for noise, the criterion sound level, is 85 dBA, expressed as an 8-hour TWA. Exposure to this level for any one day requires inclusion in the HCP.

(2) The action level or the TWA exposure which requires program inclusion is 82 dBA or a dose of 50 percent. AFS employees exposed to this level for 30 days or more per year must be included in the HCP.

(3) For employees who have experienced a recordable hearing loss or STS, the noise exposure limit is 82 dBA, expressed as an 8-hour TWA exposure for any one day.

(4) For employees who have experienced a second (subsequent) recordable hearing loss or STS the exposure limit is 79 dBA, expressed as an 8-hour TWA exposure for any one day.

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2. Representative Sampling Strategy. Assignments within AFS may require employees to perform several different activities during the course of a day, week, month, or year. In order to efficiently conduct personal monitoring and ensure that the employees are properly identified for inclusion in the HCP, the monitoring strategy assigns exposure risk of groups of employees based on a representative job with the highest sound exposure level. Representative groupings were based primarily on four factors:

- Field Office Structure. A personnel roster organized by specialty and position was utilized to select Similar Exposure Group (SEG);
- Job rotation patterns as identified by management and other responsible personnel. A job may be deemed representative if employees in a defined group rotates or change jobs with no associated change in personnel recordkeeping status;
- Similar jobs or work assignments; and
- Similar exposures - jobs where sound exposures are confirmed to be similar.

3. Personal Monitoring.

a. General. Because assignments can vary greatly on a daily basis personal noise exposure monitoring should be conducted focusing on identifying and characterizing individual tasks. The variability in noise levels and worker mobility makes the exclusive use of area monitoring generally inappropriate for assessing employee exposure potential. Wherever employee mobility or certain tasks make it impossible to measure with a hand held integrating SLM, the employee should wear the instrument during performance of those tasks of the job.

(1) In all cases sound level measurements are to be taken in a position that represents the worker's hearing zone, based on the conditions observed and professional judgment.

(2) For employees or jobs where access to the hearing zone is not possible or considered unsafe, controlled dosimetry should be conducted that represents the task(s) described. The length of the sample may vary based on the nature of the task.

(3) Typically, the sample length may range from several seconds up to a few minutes. If the sound emissions are highly repeatable, the total test duration may encompass only several repetitions of the activity to assure a high degree of measurement accuracy. Other non-repetitive activities could require longer observation periods to maintain reliability.

(4) The sound levels and durations of scheduled breaks and non-assignment times are obtained, and compiled with the job task analysis data to portray typical work days. All information should be recorded on standard data collection forms to facilitate data processing input.

b. Task-Based Exposure Assessment Model (T-BEAM) Methodology. Under T-BEAM Methodology jobs are analyzed based on major task components similar to a classical time-motion study. Operations are to be broken down into major sound level sources/components. Job tasks and durations are based on interviews with personnel and observations made of various jobs during the survey. This is an ideal methodology for the AFS workforce due to the diversity of the job functions and specialties.

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4. Background Noise Impact. The airport flight activity's influence on the carryover exposure should be considered to identify the potential acoustical impact from the background sound at any particular airport. The background noise impact is a function of the total number of airport runways, the maximum number of airport runways that can contribute sound at any gate/ramp area, the calculated percentage of active runways that can contribute sound to any particular gate/ramp area, and the total daily activity at the airport (events). The contribution of background noise from airport activity may be a significant factor in some environments.

5. Pre-Survey Questionnaires. Prior to onsite data collection, a Sound Survey Questionnaire may be used for completion by inspectors to describe their busy/noisy days.

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Data Collection Forms
Figure B-1. Form 1

REGION:	GROUP:	JOB CLASS:	SAMPLE DATE:	SURVEYOR:	PAGE __ OF __
JOB FUNCTION:			LARGEST ARFF INDEX:	PROFILE TYPE:	**B** **N**
JOB DESCRIPTION:				EMPLOYEES REPRESENTED BY SHIFT	
				1ST / 2ND / 3RD	

Sample Type:		ARFF Index:		Activity:						
Asgn	Task									
Area	WS									
Dsmy	Othr									
Location:		Air-port Code:	Duration Hr:	L_{OSHA} dBA:	L_{ACGIH} dBA:	L_{max} dBA:	L_{min} dBA:	L_{peak} dB:	Microphone Location:	
									HZ / SHLD / LPL	
									SIM / PCKT / Note	

Sample Type:		ARFF Index:		Activity:						
Asgn	Task									
Area	WS									
Dsmy	Othr									
Location:		Air-port Code:	Duration Hr:	L_{OSHA} dBA:	L_{ACGIH} dBA:	L_{max} dBA:	L_{min} dBA:	L_{peak} dB:	Microphone Location:	
									HZ / SHLD / LPL	
									SIM / PCKT / Note	

Sample Type:		ARFF Index:		Activity:						
Asgn	Task									
Area	WS									
Dsmy	Othr									
Location:		Air-port Code:	Duration Hr:	L_{OSHA} dBA:	L_{ACGIH} dBA:	L_{max} dBA:	L_{min} dBA:	L_{peak} dB:	Microphone Location:	
									HZ / SHLD / LPL	
									SIM / PCKT / Note	

Use Regular SCHEDULED LUNCH & BREAKS			**WORKSHIFT DURATION:**			Hours			

PROFILE CONDITIONS:			PROFILE COMMENTS:
Typl	WC	Spcl	
PROFILE COMPLETE?			
Employee ID (dosimetry):			

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Figure B-2. AFS Hearing Conservation Program (HCP) Determination Form

Directions: *Mark 'X" if this is your initial application for baseline testing. If your job has changed and this is a subsequent application, mark 'X' next to "Update". Fill in your duty assignment location. Provide the completed and signed document to your supervisor who will forward the original to the AFS OSH Program Manager and retain one copy in the originating office.*

ORIGINAL ☐	UPDATE ☐	DUTY ASSIGNMENT LOCATION:	FSDO:	CMO:	Other (list):

X		Where applicable mark "X" on the left hand column for the situation/condition that best describes your job classification and workplace noise exposure. If none apply, mark "X" for option F: "None Apply" column.
☐	A.	Air Carrier (AC) Maintenance, AC Avionics (AV), General Aviation (GA) Maintenance, & GA-AV Inspectors/Technicians whose regular job duties include performing inspection activities on an active ramp for 1 hour or more on any given day.
☐	B.	AC Operations & GA Operations Inspectors/Technicians whose regular job duties include performing inspection activities on an active ramp in excess of 4 hours on any given day.
☐	C.	Any specialty whose regular job duties include performing any of the following activities on any given day: • Travel to remote sites in small piston aircraft such as Cessna, Metroliner, Navajo and various helicopter types in excess of 4 hours per day. • Perform check rides in small aircraft or various helicopter types in excess of 4 hours per day. • Front line activity at a public air show that includes military aircraft.
☐	D.	Any specialty whose regular job duties include performing any of the following activities on any given day: • In direct vicinity (< 50 feet) of engine testing operations (other than within a control room with door closed). • Near (< 200 feet) engine testing operations (other than within a control room with door closed) for more than 5 minutes. • On an active ramp, in direct proximity of active aircraft (Auxiliary Power Units (APUs), Air Cycle Machines (ACMs), etc.) in excess of 1 hour per day. • In direct vicinity of wood and metal working equipment such as grinders, chop saws, circular saws, table saws, radial arm saws, etc. in excess of 1 hour per day. • In direct vicinity of riveting operations in excess of 10 minutes per day. • In direct vicinity of equipment utilizing an air compressor in excess of 1 hour per day. • In direct vicinity of an active runway (e.g. accident investigation) for more than 1½ hours.
☐	E.	Any Job Classifications whose primary job duties are administrative and/or supervisory who do not perform tasks described in paragraphs A through D above.
☐	F.	None of the above conditions apply.
☐	G.	A new or previously unidentified noise concern requires investigation. Describe:

If you have checked the column next to the job classification listed under paragraph A through D, or selected G this serves as official notification that your work environment includes areas of high noise that have been identified as at or above the Action Level of 85 dBA for an 8-hour exposure. This determination mandates that you be enrolled in the AFS HCP, which requires you to wear hearing protection when exposed to high noise, and that you present yourself for annual training and audiometric testing.

Note: You must also refrain from high noise 14 hours prior to your audiometric test.

I understand that by selecting Paragraphs A, B, C, D or G above that I am potentially exposed to noise levels at or above the Action Level of 85 dBA for an 8-hour TWA and am enrolled in the FAA AFS HCP.

I acknowledge that it is my responsibility to use hearing protection when exposed to high noise tasks and situations, and to replace the devices when they become lost, broken, unsanitary, or no longer useable for any reason.

Print Your Name	Signature	Date
Print Supervisor's Name	Signature	Date
Occupational Safety and Health Manager	Signature	Date

FAA Form 3900-22 (12-13) Electronic Version

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B-3. Noise Dosimetry Data Sheet

NOISE DOSIMETRY DATA SHEET

Office (FSDO, CMO, IFO, MIDO, AEG): _____ **Date and Time:** _____ **Surveyor Initials:** _____

Description of Location Monitored: _____

Employee Name	Specialty - Position	Sample Description	Sample Time		Actual Sample Duration (Min)	Actual Sample Dose	10.5 Hour Shift	
			Start	Stop			Projected Dose	Normalized 8-hr TWA (dBA)

Comments:

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Appendix C. Guidelines for Hearing Loss Cases

1. Determining Work Relationship for HCP Employees.

a. General.

(1) For employees who are in the HCP, the physician will evaluate audiometric examinations and make a work relationship determination when hearing loss (STS and/or Recordable Hearing Loss) is detected according to requirements stated in OSHA's Occupational Noise standard 29 CFR § 1910.95, OSHA's Occupational Injury and Illness Recording and Reporting Requirements standard Title 29 of the Code of Federal Regulations (29 CFR), § 1904.10 - amended, effective Jan 1, 2003). A case will be considered work related if both of the following conditions are met:

(a) An employee is exposed to workplace noise at 85 dB time-weighted average (TWA) or more, per documented Similar Exposure Group (SEG) exposure assessment.

(b) Findings are consistent with noise induced hearing loss.

Note: Hearing loss is considered work related if the exposure in the work environment either caused or contributed to the hearing loss. It is not necessary for the workplace to be the sole cause, or even the predominant cause, for the hearing loss to be work related. Criteria a) and b) above do not apply to acute occupational acoustic trauma (e.g., head injury, explosion, etc.).

(2) Evaluation may include additional professional consultation when the physician is unable to make an independent determination. Most cases should not require referral for consultation.

(3) Hearing loss cases will be entered in the Safety Management Information System (SMIS), 3900-6 Mishap Form at the time of the annual audiometric test results are received. If the condition is confirmed on retest and the hearing loss is determined to be work related, the case will remain on the OSHA Log. If the condition is not confirmed on retest or if the condition is confirmed on retest but the hearing loss is determined to be non-work related then the OSHA Recordable question must be changed from Yes to No.

b. Procedure. The following procedural guidelines are illustrated in Exhibit A:

(1) Medical staff will refer a case to the physician when an annual audiometric test shows an STS, an audiometric retest shows an STS, or an audiometric retest shows a Recordable Hearing Loss.

Note: When a Recordable Hearing Loss is detected on the annual exam, the physician evaluation may be deferred until retest. If a STS or Recordable Hearing Loss is detected on retest, the case must be referred to the physician.

(2) When evaluating audiometric cases, the FOH physician will:

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(a) Review all available documentation and test results, including actual values as displayed on the audiometer's printout, the employee's Audiometric Test History, and the Surveillance Exam comments.

(b) Consider potential effects of the testing environment by reviewing equipment calibration records, biological testing results and background sound pressure measurements, as necessary.

(3) Physicians should review the guidelines described in Exhibit B and C and they may consult with an outside professional when making a work relationship determination.

(4) If a referral is necessary, provide the following information to the outside consultant:

(a) Copies of the baseline, initial, annual, and/or retest audiograms (actual printouts from the audiometer);

(b) Background sound pressure levels for the audiometric testing room; and

(c) The most recent calibration records for the audiometer.

(5) FOH will document the work relationship determinations.

(6) Hearing loss cases will remain on the OSHA Log (in SMIS) when a Recordable Hearing Loss is confirmed on retest and when hearing loss is determined by a physician to be work related.

(7) The hearing loss case will be updated in the OSHA Log (SMIS) by changing the entry for the OSHA Recordable question to "No," if the Recordable Hearing Loss is not confirmed on retest or when hearing loss is determined by a physician to be non-work related.

(8) Unless the Physician determines threshold shift is not occupational, the following actions must be performed:

(a) Employees not fitted with hearing protectors will be fitted, trained in use, care, and directed to use them.

(b) Employees who are already using hearing protectors will be re-fitted, re-trained, and will be offered protectors with greater noise attenuation.

(c) Employees will be referred for a clinical audiology or otological evaluation if employer suspects that pathology is related to wearing hearing protectors.

(d) Inform employees of need for otological evaluation if pathology unrelated to use of hearing protectors is suspected.

(9) If subsequent audiologic evaluation of employee exposed to <8-hr TWA of 90 dB indicates that threshold shift is not persistent, employer must:

(a) Inform employee of new audiometric interpretation, and

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(b) May discontinue required use of hearing protectors for that employee.

(10) Annual audiogram may be substituted for baseline if audiologist, otologist, or physician determines that the Standard Threshold Shift (STS) is persistent or the threshold indicates significant improvement over baseline.

Figure C-1. Exhibit A. Evaluating Work Relationship of OSHA Recordable Hearing Loss

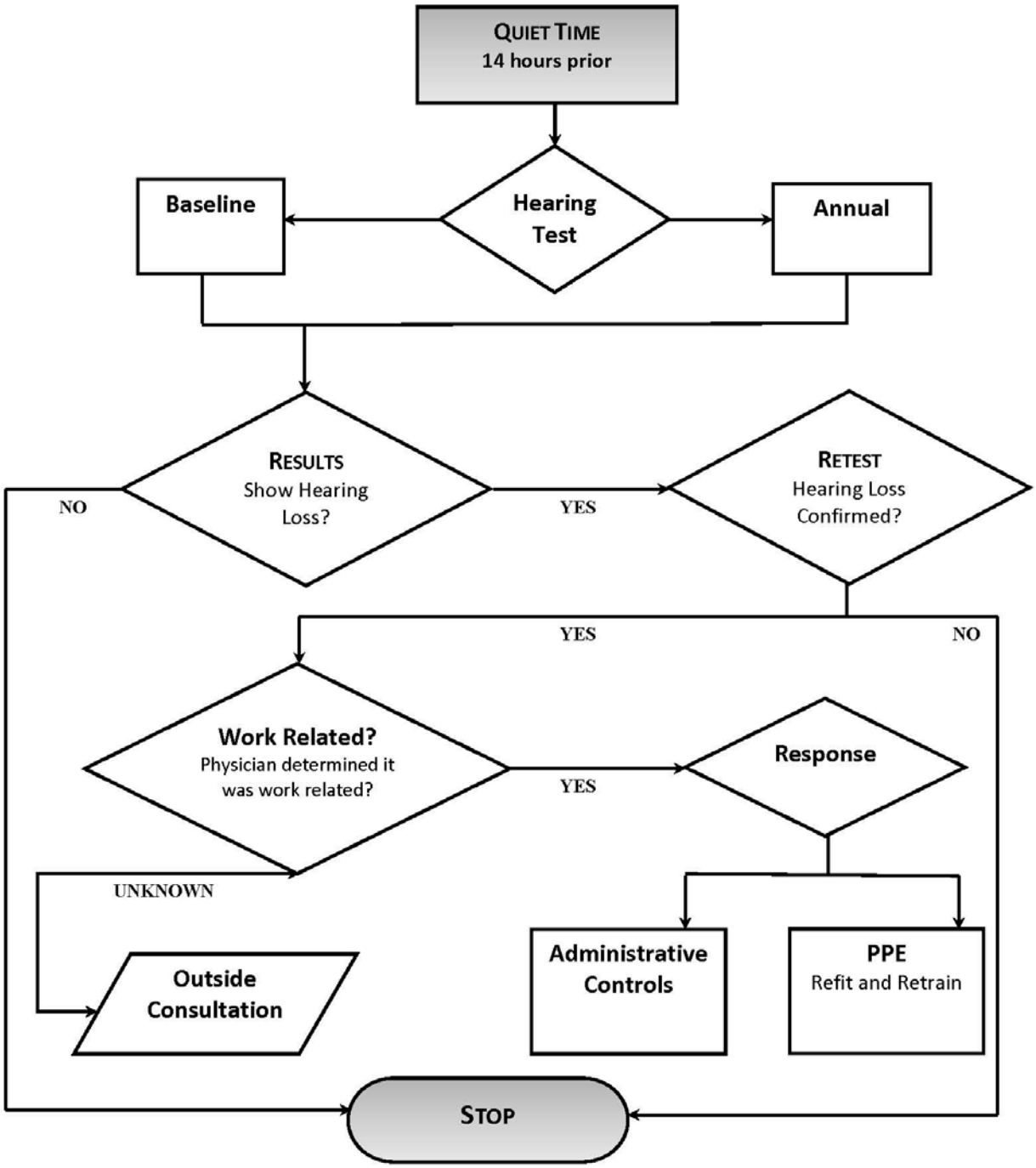

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Figure C-2. Exhibit B. Evaluating Work Relationship for OSHA Recordable Hearing Loss Cases

1. Hearing loss is designated as work related if *both* of the following conditions are met:

a. An employee is exposed to workplace noise above the AFS Exposure Limits in (Chapter 3, Hearing Conservation Program (HCP) Requirements, Section 1), per documented SEG exposure assessment.

b. Findings are consistent with noise induced hearing loss.

Notes:

- Hearing loss is considered work related if the exposure in the work environment either caused or contributed to the hearing loss. It is not necessary for the workplace to be the sole cause, or even the predominant cause, for the hearing loss to be work related.
- Criteria a and b listed above do not apply to acute occupational acoustic trauma (e.g., head injury, explosion, etc.).

2. Unilateral hearing loss must not be the sole criteria for considering a case non-work related.

3. A documented workplace exposure greater than or equal to 85 dBA is considered to have caused or contributed to hearing loss, unless the employee has a diagnosed personal condition which is considered by experts as definitive etiology for hearing loss. Examples of hearing loss conditions which are medically accepted as not being noise induced are listed below:

- Acoustic neuroma,
- Congenital atresia,
- Ear Nose and Throat (ENT) doctor -documented drug/chemical exposure induced hearing loss,
- Otosclerosis,
- Meniere's Disease,
- Acute non-occupational acoustic trauma (e.g. non-occupational head injury or explosion), and
- Other ENT documented non-noise related hearing loss.

4. The following conditions, although they may contribute to hearing loss, may not be used as sole criteria to exclude recordability.

- Diabetes.
- Hypertension.
- Ototoxic drug use (unless ENT-documented drug induced hearing loss).
- Chemical exposure (unless ENT-documented chemical exposure induced hearing loss).
- Age (Presbycusis is accounted for in HIS MDC age-corrected calculations).
- Presence of cerumen.
- Acute/chronic infection.

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Figure C-2. Exhibit B. Evaluating Work Relationship for OSHA Recordable Hearing Loss Cases (continued)

- Environmental non-occupational noise exposure (loud music, motorcycles, firearms, chain saws, prior military service, etc.).
- Eustachian tube dysfunction.
- Acute/chronic otitis media.
- Tympanic membrane scarring/bulging.
- Allergies.
- Sinus conditions.

Figure C-3. Exhibit C. Guidelines for Referring Employees to a Specialist

The following audiometric outcomes may be indicative of underlying pathology and may warrant referral to an otologist, otolaryngologist, or audiologist for further hearing evaluation, interpretation, and/or diagnosis.

1. Unilateral Hearing Loss.

- An *average* of 15 dB, or more, hearing loss difference in the low frequencies (500, 1000, and 2000 Hz) *between ears*.
- An *average* of 30 dB or more, hearing loss difference in the high frequencies (3000, 4000, and 6000 Hz) *between ears*.

2. Low Frequency Hearing Loss.

- An *average* of 15 dB, or more, hearing loss in the low frequencies (500, 1000 and 2000 Hz) in *either or both ears* compared to baseline.
- An *average* of 30 dB, or more, hearing loss in the low frequencies (500, 1000, and 2000 Hz) in *either or both ears*, where the hearing in the higher frequencies (3000, 4000, and 6000 Hz) is normal (0-25 dB).

3. Rapid Deterioration. A 30 dB or more, hearing loss for any frequency(ies) in *either or both ears*, within an *18 month period*.

4. Single Frequency Loss.

- A 45 dB, or more, single frequency hearing loss at 3000 Hz in *either or both ears*.
- A 30 dB, or more, single frequency hearing loss at 500, 1000, or 2000 Hz in *either or both ears*.

5. Miscellaneous.

- Variable or inconsistent hearing loss configuration, lacking a typical 4000 Hz notch in either or both ears.
- Unusual hearing loss configuration (e.g. U-shaped curve) in *either or both ears*.

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Appendix D. Program Evaluation Tools and Questionnaire

Figure D-1. Program Evaluation Tool

CORE DESCRIPTION	Core Requirements Fully Implemented (Acceptable)	Core Requirements Partially Implemented With Sufficiency Plans	Limited or No Implementation Lacks Acceptable Sufficiency Plan	Comments
Sound Exposure Monitoring and Assessment	Employee sound exposure monitoring reports have been reviewed and employees have been selected for inclusion in HCP.	Employee sound exposure monitoring reports have been partially reviewed and some employees have been selected for inclusion in HCP.	Employee sound exposure monitoring reports have NOT been reviewed and NO employees have been selected for inclusion in HCP.	
	Individual employees have been interviewed and the HCP Inclusion Questionnaire has been completed and forwarded to AFS HC Implementation Program Manager.	Some individual employees have been interviewed and some HCP Inclusion Questionnaires have been completed and forwarded to AFS HC Implementation Program Manager.	Individual employees have NOT been interviewed and the HCP Inclusion Questionnaire has NOT been completed and forwarded to AFS HC Implementation Program Manager.	
	Advisory posting and notices for areas and tasks with high noise concern are complete.	Advisory posting and notices for areas and tasks with high noise concern are incomplete.	Advisory posting and notices for areas and tasks with high noise concern have not been attempted.	
Noise Control Program	Major sources of noise exposure have been identified and where corrective action is feasible, a plan to abate exists.	Major sources of noise exposure have been acknowledged but no plan to abate exists.	Noise exposure sources have NOT been acknowledged and corrective measures have NOT been considered.	
Audiometric Testing	All baseline and annual audiometric tests have been scheduled and completed.	Some baseline and annual audiometric tests have been completed.	NO baseline and annual audiometric tests have been completed.	
	Annual audiometric test results are documented and communicated.	Annual audiometric test results are partially documented and communicated.	Annual audiometric test results are NOT documented and communicated.	
	Work relationships for hearing loss cases are determined, documented and communicated.	Work relationships for hearing loss cases are partially determined, documented and communicated.	Work relationships for hearing loss cases are NOT determined, documented and communicated.	
	Audiometric testing equipment and testing environments are maintained.	Audiometric testing equipment and testing environments are partially maintained.	Audiometric testing equipment and testing environments are NOT maintained.	
Hearing Protection	Hearing protectors are readily available (and replaced as necessary) to all employees.	Hearing protectors are readily available (and replaced as necessary) to some employees.	Hearing protectors are NOT readily available (and replaced as necessary) to all employees.	
	All employees use hearing protection devices in high noise areas, and situations.	Some employees use hearing protection devices in high noise areas, and situations.	Employees DO NOT use hearing protection devices in high noise areas, and situations.	
Employee Training	All HCP employees have received annual HCP training meeting and the training is documented.	Some but not all HCP employees have received annual HCP training meeting and the training is documented.	HCP employees have NOT received annual HCP training meeting and the training is documented.	
	All employees have received supplemental noise awareness training and all the training is documented.	Some but not all employees have received supplemental noise awareness training and all the training is documented.	All employees have NOT received supplemental noise awareness training and all the training is documented.	
Employee Notification and Record Keeping	All employees with sound exposure ≥ AFS Exposure Limits have been notified of the following: Availability and posting of applicable regulations; personal noise exposure assessment; hearing protection areas; and the requirements to wear hearing protection.	Some but not all employees with a sound exposure ≥ AFS Exposure Limits have been notified of the following: Availability and posting of applicable regulations; personal noise exposure assessment; hearing protection areas; and the requirements to wear hearing protection.	Employees with a sound exposure ≥ AFS Exposure Limits have NOT been notified of the following: Availability and posting of applicable regulations; personal noise exposure assessment; hearing protection areas; and the requirements to wear hearing protection.	

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1. Introduction. This questionnaire is intended for use by the field office management and supervision, AFS HCPM, or other qualified person, during the periodic evaluation of program effectiveness. The purpose of the evaluation is to determine the effectiveness of the program in reducing and preventing hearing loss of AFS employees.

2. Program Administration.

a. Are copies of the HCP available in the offices that support the various program elements? Are those who implement the program elements aware of these policies? Do they comply?

b. Are necessary materials and supplies being ordered with a minimum of delay?

c. Safety: Has the failure to hear warning shouts or alarms been tied to any accidents or injuries? If so, have remedial steps been taken?

d. Have FLMs been provided with the knowledge required to supervise the use and care of hearing protectors by employees?

e. Do FLMs wear hearing protectors in appropriate areas?

f. Have FLMs been counseled when employees resist wearing protectors or fail to show up for hearing tests?

g. Are disciplinary actions enforced when employees repeatedly refuse to wear hearing protectors?

COMMENTS:

3. Sound Exposure Monitoring and Assessment.

a. Have sound exposure reports been reviewed?

b. Have individual employee exposures been assessed using the AFS HCP Determination Form?

c. Have employees been notified of their exposures and apprised of auditory risks?

d. Are the results routinely transmitted to the AFS HCPM, Managers, FLMs, and Employees?

e. Have there been changes in areas, equipment, or processes that have altered noise exposure? Have follow-up noise measurements been conducted?

f. Are appropriate steps taken to include (or exclude) employees in the HCP whose exposures have changed significantly?

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4. Engineering and Administrative Controls.

a. Have noise control needs been identified and prioritized?

b. Has the cost-effectiveness of various options been addressed?

c. Are employees, FLMs, managers, AFS HCPM, apprised of plans for noise control measures? Are they consulted on various approaches?

d. Have employees, FLMs and managers been counseled on the operation and maintenance of noise control devices?

e. Has the full potential for administrative controls been evaluated? Are noise exposures minimized as much as practical? Do employees take their lunches and breaks in quiet areas?

COMMENTS:

5. Audiometric Evaluation.

a. Are audiometric trends (deterioration) being identified, both in individuals and in groups of employees? (NIOSH recommends no more than 5 percent of workers showing 15 dB STS, same ear, same frequency.)

b. Are the results of audiometric tests being communicated to FLMs and managers as well as to employees?

c. Has corrective action been taken to address no-shows for audiometric test appointments?

d. Are employees who show STS or have recordable hearing loss notified in writing within at least 21 days?

e. Do employees who incur noise-induced hearing loss receive counseling?

COMMENTS:

6. Personal Hearing Protection Devices (HPD).

a. Have HPDs been made available to all employees who spend any amount time in hazardous noise work areas?

b. Are employees given the opportunity to select from a variety of approved HPDs?

c. Are the HPDs checked regularly for wear or defects, and replaced immediately if necessary?

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d. Are replacement HPDs readily available?

e. Do employees understand the appropriate hygiene requirements?

f. Have any employees developed ear infections or irritations associated with the use of HPDs? Are there any employees who are unable to wear these devices because of medical conditions? Have these conditions been treated promptly and successfully?

g. Have alternative types of HPDs been considered when problems with current devices are experienced?

h. Do workers complain that HPDs interfere with their ability to do their jobs? Do they interfere with spoken instructions or warning signals? Are these complaints followed promptly with counseling, noise control, or other measures?

i. Are employees able to demonstrate that they understand how to use and care for the protector?

COMMENTS:

7. Education and Training.

a. Has it been verified that annual HCP training been conducted during audiometric testing?

b. Was supplemental training conducted?

c. Was the supplemental training program documented?

d. Was the supplemental training program evaluated?

e. Are managers and FLMs directly involved?

f. Are posters, regulations, and handouts used as training supplements?

g. For employees having problems with HPDs or showing hearing threshold shifts or hearing loss is time being made available to personally counsel or advise?

COMMENTS:

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8. Recordkeeping.

a. Are employee noise exposure records complete?

b. Are records of employees in HCP complete?

c. Are training records complete?

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FAA Form 1320-19, Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: Order 3900.66, Flight Standards Services Hearing Conservation Program.

To: Directive Management Officer, AFS-100, Organizational Resources and Program Management

(Please check all appropriate line items)

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph_____ on page _____ be changed as follows:
(attach separate sheet if necessary)

☐ In a future change to this directive, please include coverage on the following subject
(briefly describe what you want added):

☐ Other comments:

☐ I would like to discuss the above. Please contact me.

Submitted by:_____ Date:_____

FTS Telephone Number: _____ Routing Symbol: _____

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