



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
National Policy

ORDER
3900.69A

Effective Date:
11/6/20

SUBJ: Flight Standards Service Aircraft Accident Investigation Safety Program

1. The Flight Standards Service (FS) Aircraft Accident Investigation Safety (AAIS) Program is an element of the FS Occupational Safety and Health (OSH) Program, and it establishes the minimum requirements for AAIS and respiratory protection for FS employees. This program outlines the requirements that must be met to achieve an effective AAIS Program and includes the requirements for an effective Respiratory Protection Program (RPP).
2. Local office management may develop an office-specific AAIS Program as long as it meets all the minimum requirements in this order.
3. The requirements detailed in this document are based on applicable portions of Occupational Health and Safety Administration (OSHA) regulations under Title 29 of the Code of Federal Regulations (29 CFR) parts 1904, 1910, and 1926; Federal Aviation Administration (FAA) Order 3900.19, Federal Aviation Administration (FAA) Occupational Safety and Health Policy; and FAA Order 8020.11, Aircraft Accident and Incident Notification, Investigation, and Reporting; and industry consensus standards. FS management and employees must implement the requirements found herein.
4. Aircraft accident investigations involve safety requirements from several disciplines, including respiratory protection, fall protection, hearing conservation, hazardous materials (hazmat) safety, and general industry safety standards. This order supplements more specific information included in other FS OSH programs, and it includes policies and procedures for protection against potential hazards encountered at an aircraft accident scene. However, the requirements regarding bloodborne pathogens (BBP) can be found in FAA Order 3900.71, Flight Standards Bloodborne Pathogens Program, located on the FS OSH Program web page (<https://my.faa.gov/go/AFSOSH>).

A handwritten signature in black ink, appearing to read "R. Carty", is positioned above the name Robert C. Carty.

Robert C. Carty
Deputy Executive Director, Flight Standards Service

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Chapter 1. General Information

- 1. Purpose of This Order.** The purpose of this order is to provide requirements and guidelines to protect Flight Standards Service (FS) personnel from injury, illness, or death while performing work-related duties on or near aircraft accident sites. This order applies to all aircraft accident sites and at facilities where aircraft are being reconstructed for forensic analyses.
- 2. Audience.** This order applies to all FS personnel and managers involved in aircraft accident investigation activities.
- 3. Where You Can Find This Order.** You can find this order on the MyFAA employee website at https://employees.faa.gov/tools_resources/orders_notices. Inspectors can access this order through the Flight Standards Information Management System (FSIMS) at <https://fsims.avs.faa.gov>. Air carriers (operators) can find this order on the FAA's website at <https://fsims.faa.gov>. This order is available to the public at https://www.faa.gov/regulations_policies/orders_notices.
- 4. What This Order Cancels.** FAA Order 3900.69, Flight Standards Service Aircraft Accident Investigation Safety Program, dated June 8, 2016, is canceled.
- 5. Distribution.** This order is distributed to FS management; all FS offices, branches, and facilities; and FS employees involved with aircraft accident investigations.
- 6. Directive Feedback Information.** Direct questions or comments to the Organizational Resources and Program Management Division (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.

Chapter 2. Roles and Responsibilities

1. Executive Director, Flight Standards Service (AFX-1). AFX-1 shall:

- a.** Ensure resources (funding and personnel) are available to effectively implement the Aircraft Accident Investigation Safety (AAIS) Program throughout the FS organization.
- b.** Oversee the overall implementation and maintenance of the AAIS Program in the FS organization.
- c.** Designate an FS AAIS Program Manager (AAIS-PM) to oversee the program from the Service level and to provide the necessary technical support to the FS offices as needed.

2. FS Division Managers. FS Division Managers shall:

- a.** Provide oversight of the AAIS Program.
- b.** Be informed of potential hazards that may be encountered at aircraft accident sites within their jurisdiction.
- c.** Ensure applicable employee participation in the AAIS training and required medical surveillance.

3. FS Occupational Safety and Health (OSH) Team. The FS OSH Team shall:

- a.** Establish the FS-wide AAIS Program and maintain this program in compliance with current FAA orders, Occupational Safety and Health Administration (OSHA), and other applicable standards and regulations.
- b.** Support the implementation of AAIS and respiratory protection requirements at FS offices and evaluate office implementation of the AAIS Program.
- c.** Serve as the point of contact (POC) regarding technical aspects of the FS AAIS Program and provide consultation to any FS office regarding issues relating to AAIS and implementation of these program requirements.

4. FS Aircraft Accident Investigation Safety Program Manager (AAIS-PM). The AAIS-PM shall:

- a.** Provide oversight and technical guidance to managers to ensure compliance with the AAIS Program and applicable OSHA standards.
- b.** Serve as the subject matter expert (SME) for OSH-related questions for the AAIS Program.
- c.** Establish and maintain the standardized go-kit program, which includes the necessary personal protective equipment (PPE) for aircraft accident inspectors with input from the FS personnel.

d. Establish and maintain the method for offices to order the standardized go-kits, order replacements, and other general support, where resources and funding are available.

e. Perform OSH hazard analyses at aircraft accident scenes and utilize the data gathered to further revise and improve the program, where feasible.

5. FS Office Management. FS Office Management, with consultation from the FS OSH Team, shall:

a. Implement the requirements of this AAIS Program for his or her office.

b. Have the authority to determine the need for acquisition of AAIS PPE, and consult with FS OSH Office prior to any purchase of such PPE.

c. Identify employees who are likely to perform aircraft accident investigations and/or whose duties may require them to use AAIS PPE, and ensure that these employees receive FS-provided AAIS training and go-kits.

Note: AAIS training provided by former employers does not qualify an individual to utilize FS AAIS equipment.

d. Ensure all FS employees on aircraft accident duty who may investigate an aircraft accident where there is the possibility of being exposed to hazardous substances, health or safety hazards:

(1) Complete AAIS initial training;

(2) Understand the PPE in the go-kits, how to use each piece, and their limitations;

(3) Have a current respirator medical evaluation clearance, and they are cleared to wear a respirator; and

(4) Have been fit tested annually on the respirators they may wear.

e. Ensure employees who perform aircraft accident investigations do not wear a respirator until a medical questionnaire and clearance has been received and is current.

f. Assign an office AAIS-PA whose duties will include, but are not limited to, assisting in the evaluation of the go-kits and ordering, training, and maintenance of all AAIS and respiratory PPE ordered/acquired by the office. It is recommended that the AAIS-PA is also one of the office's AAIS Trainers.

g. Ensure that offices with accident duty responsibilities have a minimum of two AAIS trainers who have received Aircraft Accident Investigation Safety (AAIS)–Trainer (FAA20000103) training that is provided by the FS OSH Team.

h. Perform an annual self-evaluation of the office AAIS Program, to ensure that users of AAIS equipment have received FS AAIS training, and are properly using, storing, inspecting,

and maintaining AAIS equipment. The evaluation shall be in writing and maintained at the local office.

6. Office AAIS Program Administrators (AAIS-PA). The AAIS-PAs shall:

a. Receive AAIS User or Trainer training that meets the basic requirements of OSHA and the AAIS Program.

b. Collaborate with the AAIS-PM regarding the implementation of a standardized go-kit, the process for obtaining replacements, and general distribution procedures.

c. Inspect and maintain office-provided AAIS equipment (if applicable) and supplies, including inspection prior to issuing and upon return for damage or defects; and ensure that the equipment is properly stored.

d. Serve as the POC for the office regarding respiratory protection requirements.

e. If trained as an AAIS trainer, coordinate and facilitate office training for all employees who may respond to an aircraft accident.

7. FS Employees. FS employees who may respond to aircraft accident scenes shall:

a. Become familiar with and comply with the requirements of the AAIS Program, have an awareness of hazards at an aircraft accident site, and assess how to manage the various hazards.

b. Not subject themselves to unprotected accident site hazards, use defective AAIS equipment, or perform any function that they feel may expose them to potential injury or illness.

c. Individuals must be careful and mindful that the desire to complete the investigative tasks can place them at considerable personal risk of injury or death; so remain cautious and aware of the hazards at aircraft accident sites.

d. Obtain, use, inspect, maintain, clean, store, return, and/or dispose of PPE, including respirators and components, in accordance with the requirements of this AAIS Program.

e. Complete the respirator medical evaluation and retests when notified by the FS OSH Team as outlined in Chapter 4.

f. Participate in AAIS training, respirator training, fit testing, and medical evaluations.

g. Notify their Front Line Manager (FLM) of conditions that could have an inhalation exposure hazard and request or conduct a hazard assessment if deemed appropriate. FLMs provide first-level supervision to subordinate employees and manage the activities of one operating unit, project, or program area. FLMs report to middle or senior managers.

h. Report signs and/or symptoms which may relate to their ability to safely use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing, as well as changes in their

physical condition which might warrant reevaluation by a physician or additional fit testing (e.g., new dentures or significant weight change).

i. Immediately remove any defective or expired respiratory protection equipment from service and obtain proper replacement equipment.

j. Be aware that they are empowered and encouraged to submit Unsatisfactory Condition Reports (UCR) where situations are observed that may cause or contribute to accidents or incidents, or otherwise present a hazard to personnel and equipment.

k. Inspect PPE for damage or defects prior to use, and shall follow the guidance contained in this AAIS Program, guidance provided by equipment manufacturers, and guidance provided in AAIS-related training.

8. Contract Physicians or Other Licensed Health Care Providers (PLHCP). PLHCPs shall:

a. Maintain the online medical evaluation questionnaire and associated database.

b. Send medical clearance letters directly to the employee with the medical opinion on the employee's ability to wear a respirator and conditions that might affect usage.

c. Provide the frequency of medical reevaluation to the employee.

Chapter 3. AAIS Program Requirements

1. Unsatisfactory Condition Reports (UCR).

a. Background. No FS employee is expected to perform work activities that subject him or her to an unsafe or unhealthful work condition. If an inspector is potentially exposed to a safety hazard, he or she must not perform the task until the hazard is remediated. If it cannot be corrected, or there are no alternate measures that can be taken to address the hazard, the inspector must not complete the activity and inform his or her Front Line Manager (FLM) of the situation.

b. UCR Reporting. Preferably, the inspector should discuss the hazardous condition with the FLM to abate the unsafe condition. However, any employee or employee representative who believes that an unsafe or unhealthful working condition exists shall have the right to make a report of the unsafe or unhealthful working condition to an appropriate agency safety and health official and request an inspection of the workplace.

c. Filing a UCR. A UCR may be submitted electronically in FAA Form 1800-1, Unsatisfactory Condition Report. The electronic UCR form can be found in the intranet favorites under Aviation Safety (AVS) Resource Links or by going to https://smis.faa.gov/UCR/UCR_user_prompt.asp. Refer to FAA Order 1800.6, Unsatisfactory Condition Report, for further instructions.

2. AVS OSH Policy Statement. Per the AVS OSH Policy Statement, employees who determine their duties cannot be performed due to unsafe work activities or working environments must disengage from the activity or work environment and immediately notify their FLM.

3. Scope of FAA AAIS Responsibilities. When the National Transportation Safety Board (NTSB) is not participating, the FAA controls the accident scene for preservation of evidence and/or to determine its nine Areas of Responsibility (AOR) but does not control the safety of non-FAA personnel at the scene.

4. Hazard Identification and Control.

a. Identification of Aircraft Accident Investigation Site Hazards. Aircraft accident investigation sites often present many different types of hazards, requiring careful analysis and preparation by FS investigators prior to site entry. The following are some of the more common types of aircraft accident investigation site hazards. See Appendix A, AAIS Program Definitions, for AAIS Program-related definitions. Appendix B, Hazard Analysis, presents additional details on aircraft accident site hazards.

(1) Human Biological Hazards. Bloodborne pathogens (BBP) from crash victims or from air ambulance aircraft (refer to Order 3900.71, located on the FS Occupational Safety and Health (OSH) Program web page (<https://my.faa.gov/go/AFSOSH>) for more information).

(2) Environmental Biological Hazards. Disease-bearing insects, venomous reptiles/spiders, dangerous animals, plants, etc.

(3) Chemical Hazards. Explosives, flammable gases, liquids and solids, toxic or corrosive substances, etc.

(4) Radioactive Hazards. Medical cargo, etc.

(5) Electrical Hazards. Power lines, generator power cords, etc.

(6) Slips, Trips, and Fall Hazards. Muddy ground, open doors, lifts, entanglement hazards from aircraft wiring, etc.

(7) Mechanical Hazards. Salvage crew's equipment, power tools, etc.

(8) Noise Hazards. Generators, ground vehicles, aircraft engines, power tools, etc.

(9) Physical Hazards. Ground vehicles, falling debris, jagged metal debris, etc.

(10) Temperature, Visibility, Altitude, and Weather Hazards. Cold and hot weather, altitude hazards, ice, snow, other precipitation, reduced visibility at night and fog, etc.

(11) Impact Area Hazards. Crash into a building with chemicals, asbestos, etc.; crash into a swamp area, site with accessibility difficulties, mountainous or other difficult terrain, etc.

b. Hazard Control Measures. Appendix C, Aircraft Accident Site Hazard Control Measures, provides additional details about aircraft accident site hazard control measures. The hierarchy of controls from most to least favorable control are:

(1) Elimination. Hazard elimination involves removing the hazard from the workplace or allowing the work to be done from a safe distance. Although this is the preferred hazard control measure, due to the nature of an FS inspector's job, this is not always possible. If it is not possible, the inspector must employ other methods to mitigate hazards.

(a) Inspectors and their FLMs must exercise good judgment when determining the need to execute tasks that present significant hazards that cannot be eliminated.

(b) Practical examples of hazard elimination measures include waiting at a safe distance until fires are extinguished, waiting until a coroner removes bodies and body parts, and waiting until a hazardous materials (hazmat) crew removes hazardous cargo.

(2) Engineering Controls. If the hazard cannot be eliminated, using engineering controls is the next-best measure to control the risk. An example is shielding noisy generators at worksites.

(3) Administrative Controls. Work procedures can occasionally be adjusted to mitigate accident site hazards. For example, during hot weather, the inspector should schedule frequent breaks to reduce the potential for heat injuries, especially when wearing protective clothing. In some cases, administrative controls can be combined with elimination measures or use of personal protective equipment (PPE).

(4) PPE. PPE shall be used after other control measures are determined not to be practical or as a supplement to existing administrative and engineering controls.

5. Injury/Illness Prevention Systems for Aircraft Accident Investigation.

a. Accident Site Assessment.

(1) When an FS employee approaches the accident site, it is best to approach from upwind and uphill if possible. He or she needs to gather as much information as possible from observing the area and asking the first responders for the:

(a) Number of victims, location of bodies and/or body tissue/fluids, and if any information is known about their health.

(b) Location of debris trail and if any of the debris overhead, etc., and be aware that the wreckage, occupants, and/or cargo may be scattered over a wide area.

(c) Information on cargo, chemicals, electrical hazards (power lines or house power that are still energized), environmental concerns, etc.

(d) Wind direction, fuel spills, and areas with burnt composites.

(2) After gathering as much information as possible, the FS employee should perform his or her own personal assessment of the safety hazards of the scene and work with other site stakeholders to post signs, flags, etc., marking the primary hazards.

(3) Based on this assessment, the FS employee must don the appropriate PPE for the hazards expected.

(4) Site Hazard Procedures.

(a) Site Zones. FS employees may encounter an incident command system at aircraft accident investigation sites. FS employees may be required to report to an incident commander and/or safety officer upon arrival at the site. The employee is required to follow established protocol and/or safety procedures, if established.

1. If the FS inspector is the inspector-in-charge (IIC) for the accident scene, he or she needs to notify other authorized entry personnel of their site assessment and potential hazards.

2. In some cases where hazmat is involved, the incident commander may establish hot, warm, and cold zones.

- The hot zone is or may be contaminated. Entry will be limited to those with appropriate PPE and training, and a need to be in the hot zone.
- The warm zone is for worker decontamination when exiting the hot zone.
- The cold zone is where all other activities occur and is outside the contaminated area.

(b) Initial Isolation and Protective Action Distances. The U.S. Department of Transportation (DOT) has established initial isolation and protective action (evacuation) distances for most hazmat in the Emergency Response Guidebook (ERG) (which can be downloaded off the Pipeline Hazardous Material Safety Administration (PHMSA) website: <https://www.phmsa.dot.gov>). If hazmat is involved in an aircraft accident, FS employees shall work with the incident commander or other first responders to coordinate FS responsibilities with ongoing isolation and evacuation efforts.

b. Biological, Chemical, and Radiation Hazard Protective Measures.

(1) Protective Clothing and Respirator Ensembles.

(a) Occupational Safety and Health Administration (OSHA) PPE standards for hazmat are based on four levels of protection: A, B, C, and D.

1. The AVS Standardized Go-Kits for accident investigation contain the applicable PPE for accident investigation safety. This PPE has been reviewed and approved by OSH professionals as the appropriate PPE for FS participation in aircraft accident investigations based on information gathered from hazard analyses.

2. Hard hats, safety toe boots (refer to the AVS Standard Operating Procedure (SOP) for Selecting and Obtaining Foot Protection (https://my.faa.gov/content/dam/myfaa/org/libusiness/avs/programs/oshw/policy_guidance/AVS_SOP_FootProtection.pdf)), and eye protection (safety glasses or goggles) are included in all four ensembles.

3. Protection Level A requires fully encapsulating protective suits, and Level B requires a slightly lower level of encapsulation. Both Levels A and B require supplied air respirators, inner and outer gloves, and inner and outer boot covers.

4. FS employees will not enter sites requiring Level A or B protection. If a site requires these levels of protection, FS employees must wait until hazmat experts remove or mitigate the hazards.

(b) Trained FS employees may enter sites requiring Level C and D ensembles. Level C consists of a protective coverall, an air-purifying respirator (APR) with appropriate cartridges or filtering facepiece, inner and outer gloves, and inner and outer boot covers. Level D consists of a coverall and work gloves, plus the hard hat, eye protection, and safety toe boots included in all four ensemble levels.

(c) FS accident site employees usually work in Level D ensembles, but after Aircraft Accident Investigation Safety (AAIS) training, they are trained, equipped, and prepared to work in Level C ensembles. The FS AAIS training includes hazmat awareness. They must also complete a respiratory questionnaire and retest when required, and annually be fit tested, per Chapter 4 of this order.

c. Electrical Hazard Preventive Measures. Some aircraft accidents involve impacts with electrical sources, such as power lines, power poles, communications equipment towers, lighting

towers, and other electrically powered equipment. FS inspectors must wait to enter the area until an authorized person has appropriately mitigated the electrical hazards.

(1) While working at field investigation sites, FS inspectors may encounter power cords leading from generators to power tools or light stands. These cords present potential electrocution and trip hazards, especially at night or during wet weather. Awareness, a flashlight, and a good pair of rubber-soled boots will help mitigate these hazards. Power cords should be covered with protective shields in traffic areas to prevent damage to the outer insulation.

(2) When working at forensic reconstruction facilities, FS inspectors shall obtain a pre-entry safety briefing that should include information about site-specific electrical hazards and the facility's lockout/tagout electrical source safety program.

d. Fall Prevention Systems. FS inspectors may encounter fall hazards at field sites and forensic reconstruction facilities. Inspectors will complete FS Fall Protection Program (FPP) training. Prior to using fall protection PPE provided by host employers, FS inspectors will visually inspect the PPE using the procedures stipulated in FAA Order 3900.65, Flight Standards (FS) Fall Protection Program (FPP), and the Fall Protection User level training. FS inspectors may request fall protection PPE from the FS Fall Protection Program Administrator (FPPA).

e. Hearing Conservation. FS inspectors commonly encounter noise hazards with sound pressure levels capable of damaging hearing at aircraft accident investigation sites. Whether enrolled in the FS Hearing Conservation Program or not, all FS inspectors should carry earplugs and/or earmuffs to accident investigation sites. Sound pressure level monitoring will not be available at every aircraft accident investigation site. As a rule of thumb, inspectors should don their earplugs or muffs when noise levels require a raised voice to be heard.

6. Inspection of AAIS PPE.

a. Before Entering an Investigation Site. Inspectors must visually inspect AAIS PPE prior to entering an aircraft accident investigation site. Never assume that AAIS PPE is safe for use without an inspection.

b. PPE Inspection Checklist. Appendix D, Personal Protective Equipment (PPE) Inspection Checklist, includes an inspection checklist for aircraft accident investigation go-kit PPE, and provides a concise checklist for FS inspectors to use prior to deploying on aircraft accident investigations to ensure that PPE is functional and safe to use.

7. Training. When combined with appropriate hazard elimination, engineering controls, and PPE, training can reduce the number of injuries, illnesses, and fatalities at aircraft accident investigation sites.

a. FS-Specific Training Courses. There are two levels of FS AAIS Training: AAIS-Trainer and AAIS-User. FS inspectors who respond to aircraft accidents must complete one of the following FS-specific training courses:

(1) AAIS-Trainer class, which is a higher level of training provided by the FS OSH Team that allows the students to train others in the office, including all of the information in the

AAIS-User level class, performing the respirator fit testing, managing office employee medical clearance access, teaching AAIS-User training, and possibly serving as the office AAIS Program Administrator (AAIS-PA).

(2) AAIS-User training, which includes:

(a) All potential hazards at an accident site and the hazard control measures for each potential hazard,

(b) Hazmat awareness,

(c) Respiratory protection, and

(d) Processes and FS-specific procedures for site safety.

(3) BBP training, per Order 3900.71, located on the FS OSH Program web page (<https://my.faa.gov/go/AFSOSH>).

(4) Fall protection training, per Order 3900.65 (either User or Program Administrator level).

(5) Hearing conservation training, per FAA Order 3900.66, Flight Standards Service (FS) Hearing Conservation Program.

b. First Aid Training. If suffocation, electrocution, fall, or amputation hazards are present at the aircraft accident site, the employee must delay his or her entry into the site until a person with first aid training is on site.

c. Documentation of Training. All training shall be properly documented in the student's learning history in the electronic Learning Management System (eLMS). Documentation of training shall also include a sign-in sheet that contains the printed name and signature of the employee, the date of training, and the signature of the qualified person who performed the training.

8. Aircraft Accident Investigation Site PPE.

a. PPE Procurement. It is the responsibility of office management, with consultation from the FS OSH Team, to determine the need for and acquisition of AAIS protective equipment for their employees.

b. Obtaining Go-Kits and Replacements. Offices must work with the AAIS Program Manager (AAIS-PM) and/or the FS OSH Office to obtain the standardized go-kits and replacement items.

c. OSHA and American National Standards Institute (ANSI) Standards. All equipment selected shall meet applicable OSHA and ANSI standards and must be suitable for the work intended. The FS OSH Team and the AAIS-PAs should be consulted to aid in the selection of AAIS equipment.

Chapter 4. Respiratory Protection Requirements

1. General.

a. This chapter addresses the respiratory protection of FS employees at aircraft accident sites and areas related to accident investigation.

b. FS has made a commitment to establish and maintain a Respiratory Protection Program (RPP) for the protection of employees where respirators are used.

c. The RPP includes hazard assessment; respirator and respirator cartridge selection and issue; fit testing; medical surveillance; equipment cleaning, storage, inspection, and maintenance; and program evaluation.

2. Respirator Types and Selection.

a. Respirator Types.

(1) Filtering Facepiece Respirators. These are effective against particulates, biohazard aerosols, and different types of other aerosols (e.g., the P100 is effective against paint, petroleum, and hydraulic aerosols, while the N95 is not).

(a) They are routinely referred to as dust masks, but they are more efficient and more advanced than a dust mask.

(b) They require medical clearance and fit testing per the Occupational Safety and Health Administration (OSHA).

(c) They are disposable and easy to wear.

(d) The letter designations for filtering facepiece refer to the filter's oil resistance. "N" denotes that it is not resistant to oil; "R" denotes it is somewhat resistant to oil; and "P" is strongly resistant to oil (sometimes referred to as oil proof). The number indicates that it filters out at least that percentage of airborne particles. P100 filters at least 99.97 percent of airborne particles, and an N95 filters at least 95 percent.

(2) Air-Purifying Respirators (APR).

(a) These are tight-fitting and hooded respirators that require cartridge management, including replacing and paying attention to when the cartridges get full and ensuring that the cartridge is designed for use with that manufacturer's respirators.





(b) They require medical clearance and fit testing per OSHA.

(c) They are not disposable like filtering facepiece respirators.

(d) They are not as comfortable to wear for most people.

(e) Some are powered (Powered Air-Purifying Respirators (PAPR)).

Table 4-1. Respirator Types and Uses

Type	Use and Comments	Example Picture (note: there are many different manufacturers and types of each)
N95 Respirator	Primarily for low-to-moderate hazard particulates, bloodborne pathogen (BBP) contact, and aerosol hazards.	
P100 Respirator	Good for more dangerous particulate hazards, including composite aircraft fibers, and also protects against biohazard contact and aerosol hazards.	
Half-Face APR	<ul style="list-style-type: none"> • Capable of providing a higher level of protection than filtering facepiece respirators. • Cartridges can be specific to hazards. • Not as comfortable as the filtering facepiece for most people. • More expensive than filtering facepiece. 	
PAPR	<ul style="list-style-type: none"> • Available for applicable employees. • Most protective of these four types. • Blows filtered air into a mask or hood. • Heavy. 	

b. Respirator Selection.

(1) FS respirator selection is based on assessment of aircraft accident scenes, burn testing, and possible inhalation exposures, including findings from hazard analyses performed for the activity.

(2) The Aircraft Accident Investigation Safety (AAIS) training includes historical AAIS data on typical activities and provide scenarios where different types of respirators are required for specific activities and/or hazards.

(3) Accident go-kits shall contain P100 filtering facepiece respirators that can be used for most air contaminants at an accident scene. FS personnel will be trained when the filtering facepiece respirators will be sufficient and when a half-face APR will be needed.

(4) All selected respirators shall be certified by the National Institute for Occupational Safety and Health (NIOSH), and all filters, cartridges, and other media shall have the appropriate NIOSH approval label.

(5) All respirators and equipment shall be provided at no cost to the employee.

3. Authorized Respirators.

a. The following types of respirators are authorized for use by FS:

- (1) N95 for BBP protection filtering facepieces,
- (2) P100 filtering facepieces for aircraft accidents,
- (3) Half-face APRs, and
- (4) Hooded PAPRs.

b. An office shall not assign or procure any other type of respirator without written FS Occupational Safety and Health (OSH) Team/AAIS Program Manager (AAIS-PM) authorization, and if authorized, it will require employees are properly fit tested with that make and model (M/M) respirator prior to use.

c. FS personnel are prohibited from using self-contained breathing apparatus (SCBA) or other atmosphere-supplying respirators, which include airline (also called supplied air) respirators.

d. FS employees shall not engage in an operation or enter an area where atmosphere-supplying respiratory protection is required.

e. APRs shall not be used:

- (1) In potentially oxygen-deficient atmospheres,
- (2) In immediately dangerous to life or health (IDLH) conditions,
- (3) When hazards could be present for which the respirator or its cartridges/canisters are not approved (e.g., carbon monoxide (CO) exposure), or
- (4) When airborne concentrations may result in exposures that exceed the respirator's protection factor.

Note: The AAIS Program Administrators (AAIS-PA) shall ensure adequate quantities of filtering facepiece respirators and other respirator components are available for their office.

4. Medical Evaluation.

a. Medical Evaluation Background.

(1) The OSHA prohibits respirator use until the employee is medically cleared. This is essential since it can place a physiological burden on employees.

(2) The FS organization received two Notice of Violations from an Area Director of OSHA in 2019 for inadvertently fit testing employees who were not medically cleared.

(3) FS is responsible for ensuring that our employees have and properly use personal protective equipment (PPE) when necessary. PPE can include respiratory protection, eye protection, hand protection, etc. to protect workers from exposure to OSH hazards.

b. Medical Evaluation Requirements.

(1) Since the hazards at an aircraft accident are not known prior to launching to the scene, it is critical to have all the PPE requirements accomplished ahead of time.

(2) FS managers must not assign aircraft accident investigation duty to any FS employees who are not properly trained, who are not medically cleared for respirator use, who do not have a current medical clearance, and who do not have a current respirator fit test.

(3) Additionally, prior to AAIS training, fit testing, and use of respiratory protection, all employees must be medically evaluated and found qualified to wear the authorized respirators.

(4) Each office manager will identify his or her employees who will be assigned aircraft accident duty which may require respirator use and share this list with the office's AAIS Trainers and AAIS-PA.

(5) The AAIS-PM via a physician or other licensed health care provider (PLHCP) will provide a medical questionnaire to all potential respirator users that is administered online.

(6) The online questions included on the questionnaire are compliant with the questions in the OSHA respiratory protection regulation.

(7) The office manager shall ensure an employee is not assigned accident duty, fit tested, or issued a respirator if they have not been medically evaluated and determined by a PLHCP to be capable of wearing the designated respirator(s).

(8) The PLHCP reviews each questionnaire. Follow-up consultations with a nurse or physician may be required to further determine if the employee is medically capable of wearing the respirator.

(9) The AAIS-PM will provide the PLHCP with the list of all the authorized respirators to be used, models, hazards requiring respirator use, and any other pertinent factors.

(10) After evaluation, the PLHCP shall provide the employee and the AAIS-PM the medical determination, also called a clearance letter, regarding the ability of the employee to wear a respirator.

(11) If the PLHCP cannot make a positive determination based on the medical questionnaire, he or she may require or recommend further medical examination to determine the employee's ability to wear a respirator.

(12) Medical Reevaluations:

(a) Must be renewed every 1 to 5 years based on the physician's determination, which is stated on the medical determination/clearance letter.

(b) The employee is emailed about 60 days prior to their medical evaluation due date with instructions to follow on completing their online respirator medical questionnaire. This email is sent by FS OSH Program Analyst on behalf of the FS OSH Program Managers.

(c) If the employee has not completed their online respirator medical questionnaire approximately 30 days after the first reminder email, a second reminder email is sent to the employee, along with their manager, and FS Programs Branch management.

(d) If the employee becomes overdue, an email is sent to the manager and FS Programs Branch management, stating that the employee has to be removed from aircraft accident duty until they complete the online medical questionnaire. The employee's go-kit and respirators must be turned in, until they have completed their respirator medical clearance.

Note: An employee must not complete the medical reevaluation without notification from the FS OSH Team. There is a cost to the agency each time the questionnaire is completed and reviewed by physician/nurse.

(13) The AAIS-PM or FS OSH Program Analyst will collaborate with AAIS-PAs to track when employees are due for medical evaluations based on the medical determination. Examples of when additional medical evaluations could be provided include the following circumstances:

(a) The employee reports signs and/or symptoms to the FLM related to his or her ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing, or when he or she has a medical change such as an asthma diagnosis, or a heart attack.

(b) The medical provider or employee's FLM informs the FS OSH Team if an employee needs to be reevaluated.

(c) Information from the program, including observations made during fit testing and program evaluation, indicates a need for reevaluation.

(d) A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

(e) The employee will start using a new respirator that was not included in his or her original respirator profile.

(14) All examinations and questionnaires will be included in the employee's occupational medical file via the FAA Occupational Medical Surveillance (OccMed) Program.

c. Fit Testing.

(1) FS utilizes the train-the-trainer methodology so trained FS employees, who are trained to the trainer level, can perform the required annual respirator fit testing. The office AAIS trainer can obtain the necessary fit test kits, solutions, and hoods through the Federal Occupational Health (FOH) mailbox.

(2) Fit testing is required for tight-fitting respirators (e.g., half-face APRs) and filtering facepiece respirators (e.g., P100 and N95).

(3) Fit testing shall be conducted using the make, model, and size of the respirator that the respirator user will wear. A minimum of two respirator models of each type are available for employees, plus a variety of sizes to afford an optimal fit.

(4) Each employee shall be shown the proper method of donning, positioning, and strapping/tensioning the respirator to afford an optimal fit.

(5) Fit testing shall be conducted annually for all employees assigned aircraft accident investigation duty and when changes occur that could impact adequate fit, such as weight change, scarring, cosmetic surgery, and use of dentures. Fit testing shall not be conducted until medical evaluation is confirmed to be in date/complete, and the medical opinion confirms the user's capability to wear a respirator.

(6) Employees will not be fit tested or issued respirators with tight-fitting facepieces if the person has conditions that could compromise the facepiece to face seal. Examples include facial hair, facial deformities, and jewelry or other objects that protrude under the facepiece seal.

(a) In the past, employees were able to pass a fit test with beards or other facial hair, but this is prohibited by OSHA and the National Institute of Occupational Safety and Health (NIOSH).

(b) Therefore, FS employees with facial hair under the seal of the respirator must use the hooded PAPR for respiratory protection at accident sites.

(7) For employees that cannot be fit tested and cannot use tight-fitting facepieces for reasons other than facial hair, the hooded PAPR may be an alternative for use.

(8) Whoever performs the fit testing shall document the fit test by employee, date, and all respirator types that the employee is wearing using the Qualitative Fit Test Record. The fit test documentation will be sent to the OccMed mailbox (9-FAA-OCCMED-Rec-Submit@faa.gov) and maintained in the employee's medical file.

(9) Prior to each use and if applicable to the type of respirator, the respirator user shall conduct a seal check as recommended by the manufacturer.

d. Voluntary Use. FS does not allow the voluntary use of respirators. FS employees who are conducting work other than accident investigation must coordinate with the safety personnel for the worksite (to include host employers at external worksites where FS employees conduct aviation safety inspections) to ensure work areas are at or below the OSHA Permissible Exposure Limits prior to entering an area where respirable hazards may be present.

Note: A temporary exception to this prohibition on voluntary use may be issued temporarily to address national emergencies, on a case-by-case basis.

e. Cleaning, Maintenance, Storage, Change, and Disposal.

(1) Filtering facepiece respirators (e.g., N95s and P100s) are disposable. For biohazards, the filtering facepiece respirators shall be disposed of after each use. For other agents (e.g., nuisance or toxic dusts), N95s and other filtering facepiece respirators shall be disposed of after each work shift, when the user detects that air flow is impaired, or when they become visually loaded with dust, whichever comes first. If a filtering facepiece respirator is expected to have biohazard contamination, it should be disposed of with the other biohazard items.

(2) For tight-fitting APRs, each office must establish a process for respirator cleaning, maintenance, storage, change, and disposal, with responsibilities delineated for the AAIS-PA and respirator users. This process should include adequate supply of cartridges.

f. Respiratory Protection Training. This will be included in the AAIS training curriculum.

Appendix A. AAIS Program Definitions

- 1. Air-Purifying Respirator (APR).** A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.
- 2. Assigned Protection Factor (APF).** The workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective Respiratory Protection Program (RPP) as specified by this section.
- 3. Emergency Response Guidebook (ERG).** A North American hazardous materials (hazmat) emergency response guide, published jointly by the United States, Canada, and Mexico Departments of Transportation (DOT) at 4-year intervals. Contains hazmat lists by name and by United Nations Identification Number, as well as numbered guides for emergency response, including fire and health hazards, initial public safety measures, firefighting procedures, initial isolation and protective action distances, personal protective equipment (PPE), and first aid. Refer to the Pipeline Hazardous Material Safety Administration (PHMSA) website: <https://www.phmsa.dot.gov>.
- 4. Fit Test.** The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. See also subparagraphs a and b below.
 - a. Qualitative Fit Test (QLFT).** A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.
 - b. Quantitative Fit Test (QNFT).** An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.
- 5. Go-Kit.** A portable bag with the expected safety equipment and PPE an aviation safety inspector (ASI) would need to conduct an aircraft accident investigation safely.
- 6. Immediately Dangerous to Life or Health (IDLH).** An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.
- 7. N95 Filtering Facepiece.** A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.
- 8. The National Institute of Occupational Safety and Health (NIOSH).** NIOSH is a research agency focused on the study of worker safety and health, and empowering employers and workers to create safe and healthy workplaces. NIOSH is part of the U.S. Centers for Disease Control and Prevention in the U.S. Department of Health and Human Services.
- 9. The U.S. Department of Labor Occupational Safety and Health Administration (OSHA).** OSHA is a Federal agency charged with enforcing workplace health and safety regulations promulgated under the Occupational Safety and Health Act of 1970.

10. Oxygen-Deficient Atmosphere. An atmosphere with oxygen content below 19.5 percent by volume.

11. P100 Filtering Facepiece. A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

12. Personal Protection Equipment (PPE). Safety equipment worn to protect from specific identified and potential hazards.

13. Powered Air-Purifying Respirator (PAPR). An APR that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

14. Required (or Mandatory) Respirator Use. Respirator use that is required by the employer for an activity that is determined, through hazard assessment, to pose an actual or potential inhalation hazard that cannot be controlled by other means.

15. Respirable. Refers to those dust particles that are small enough to penetrate the nose and upper respiratory system and deep into the lungs. Particles that penetrate deep into the respiratory system are generally beyond the body's natural clearance mechanisms of cilia and mucus and are more likely to be retained.

16. Respirator Cartridge or Canister. A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

17. Self-Contained Breathing Apparatus (SCBA). An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

18. Unsatisfactory Condition Report (UCR). Provides all agency employees with direct means for advising management of an existing unsatisfactory condition per FAA Order 1800.6, Unsatisfactory Condition Report. Although the condition may be an isolated occurrence, the collection and tracking of reports via the Safety Management Information System (SMIS) may assist in the identification of trends or patterns that require a broader corrective action than is apparent from a single occurrence.

19. User Seal Check. An action conducted by the respirator user to determine if the respirator is properly seated to the face.

20. Work Area. That portion of a walking/working surface where job duties are being performed.

Appendix B. Hazard Analysis

The information contained in this appendix was obtained from Occupational Health and Safety Administration (OSHA) Document 3071, Job Hazard Analysis; field accident site hazard analyses conducted by Occupational Safety and Health (OSH) professionals; and information provided by Flight Standards Service (FS) inspectors with extensive aircraft accident site investigation experience. The Safety Hazard Analysis Reports can be found on the FS OSH web page at <https://my.faa.gov/org/linebusiness/avs/offices/afx/work/osh.html>.

OSHA Job Hazard Category	Potential Aircraft Accident Investigation Site Hazards
Biological	Bloodborne pathogens (BBP) (e.g., hepatitis or human immunodeficiency virus (HIV))
Biological	Human wastes (e.g., human remains or field latrines)
Biological	Animal wastes
Biological	Plant hazards (e.g., poison ivy, oak, or sumac)
Biological	Vectors/insects (e.g., bees, wasps, mosquitoes, flies, or ticks)
Biological	Zoonotic (animals): snakes, alligators, or mammal predators (e.g., bears or cougars)
Chemical	U.S. Department of Transportation (DOT) Class 1 explosives (e.g., cargo or aircraft components)
Chemical	DOT Class 2 Division 2.1 flammable gases (e.g., propane, butane)
Chemical	DOT Class 2 Division 2.2 nonflammable gases (e.g., oxygen cylinders, compressed air tanks, or boiling liquid expanding vapor explosions (BLEVE) from compressed gas cylinders)
Chemical	DOT Class 2 Division 2.3 toxic gases (e.g., carbon monoxide (CO), hydrogen sulfide, other combustion byproducts from fires, or fuel vapors)
Chemical	DOT Class 3 flammable liquids (e.g., aviation fuels or fuel leaks from damaged ground equipment)
Chemical	DOT Class 4 flammable solids
Chemical	DOT Class 5 oxidizers and organic peroxides (e.g., compressed oxygen bottles)
Chemical	DOT Class 6 Division 6.1 toxic substances (e.g., carbon fiber particles)
Chemical	DOT Class 6 Division 6.2 infectious substances (e.g., medical samples)
Chemical	DOT Class 7 radioactive substances (e.g., radiopharmaceutical cargo or aircraft components)
Chemical	DOT Class 8 corrosive substances (e.g., acids and bases, including corrosive firefighting chemicals)

OSHA Job Hazard Category	Potential Aircraft Accident Investigation Site Hazards
Chemical	DOT Class 9 miscellaneous products (e.g., cleaning solutions or first aid kit components)
Electrical	Shock: damaged power lines or generator cords on wet ground
Ergonomic	Lifting heavy objects
Excavation	Excavations around field sites
Fall	Doors: open fuselage doors
Fall	Slip: mud, fluids on ground or slick protective clothing/boot covers
Fall	Trip: debris, tree roots
Fall	Platforms, especially in forensic reconstruction facilities
Fall	Personal fall arrest systems (PFAS): inadequate systems or untrained users
Fall	Mechanical lifts: unstable or uneven ground
Fall	Walkways: forensic reconstruction facilities
Fall	Ladders: field sites or forensic reconstruction facilities
Fall	Stairways: forensic reconstruction facilities
Fire/heat	Hot pitot tubes, field heaters, and generators
Mechanical	Power tool operation, power tool vibration, or material handling equipment operation or failure
Noise	Power tools and generators
Noise	Ground vehicle engines
Physical	Altitude
Struck by	Ground vehicles
Struck by	Falling debris
Struck against	Jagged metal wreckage
Struck against	Pitot tubes
Struck against	Overhead hazards
Temperature	Cold injuries: hypothermia or frostbite
Temperature	Heat injuries: heat exhaustion or heat stroke
Visibility	Night investigations, fog, or rain: limit visibility of hazards
Weather	Rain or snow: hypothermia, fog, or limited visibility

Appendix C. Aircraft Accident Site Hazard Control Measures

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Biological			
Bloodborne pathogens (BBP)	Postpone investigation until coroner removes human remains.	Not feasible.	Level C biohazard personal protective equipment (PPE): N95 respirator, safety glasses, disposable coveralls, rubber boots, rubber gloves, biohazard waste bags, antiseptic wipes.
Human wastes (e.g., human remains or field latrines)	Use latrines before entering site; schedule frequent latrine breaks.	Portable latrines.	Antiseptic wipes and personal waste bags.
Animal wastes	Livestock or pets. Owners keep animals away from site.	Portable fencing around site.	Level C biohazard PPE.
Insects (e.g., bees, wasps, mosquitoes, flies, or ticks)	Investigate in daytime if feasible to avoid female anopheles mosquitoes.	Pesticide fogging, if performed by first responders.	Insect repellent, long sleeves, long pants, head nets, permethrin-treated clothing, bed nets, vaccinations (yellow fever), and malaria medications.
Wildlife and Domestic Animals (e.g., snakes, bears, alligators, livestock, cougars, hostile pets, or rabid mammals)	Request assistance from law enforcement, animal control, or wildlife management officers.	Site fencing.	Boots, chaps, boots, bear spray, or noise-making devices such as whistles or bells.
Chemical			
Explosives (e.g., cargo or aircraft components (Ballistic Recovery Systems))	Postpone investigation until manufacturer or Explosive Ordnance Disposal (EOD) removes explosive devices.	U.S. Department of Transportation (DOT) 2012 Emergency Response Guidebook (ERG) #112 (explosives) or #114 (ammunition).	

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Flammable gases	Check shipping manifest. Monitoring and ventilation by firefighters. Enforce ignition source ban (no smoking).	Ventilation; ERG #115-119.	Flame-resistant base layers and outerwear (e.g., Nomex™, modacrylic, or Merino wool).
Nonflammable gases (e.g., oxygen cylinders, compressed air tanks, or boiling liquid expanding vapor explosion (BLEVE) hazards)	Check shipping manifest. Wait until fires extinguished. Hazardous materials (hazmat) team checks and removes cylinders before investigation.	ERG #120, 121, 126.	
Toxic gases (e.g., carbon monoxide (CO), hydrogen sulfide, other combustion byproducts from fires, or fuel vapors)	Check shipping manifest. Wait until fires extinguished. Wait until hazmat team clears area.	ERG #123-126.	Carbon monoxide and hydrogen sulfide meters, toxic gas detection meters or detector tubes, oxygen meter, and Level C PPE with air-purifying respirator (APR) and correct cartridge.
Flammable liquids (e.g., aviation fuels or fuel leaks from damaged ground equipment)	Check shipping manifest. Wait until fires extinguished. Hazmat team checks and removes liquids. Enforce ignition source ban (no smoking).	ERG #127-132, 160; ventilation; foam to suppress vapors.	No-melt/no-drip base layers (e.g., 100 percent cotton, Merino wool, or modacrylic) should be worn next to the skin when working around flammable liquids and solids. Underwriters Laboratories (UL) Class 1 Div. 1 or 2 flashlights.
Flammable solids, spontaneously combustible materials, or dangerous-when-wet materials	Check shipping manifest. Wait until fires extinguished. Hazmat team checks and removes solids.	ERG #133-139.	No-melt/no-drip base layers (e.g., 100 percent cotton, Merino wool, or modacrylic) should be worn next to the skin when working around flammable liquids and solids. UL Class 1 Div. 1 or 2 flashlights.

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Oxidizers and organic peroxides (oxygen)	Check shipping manifest. Wait until fires extinguished. Hazmat team checks and removes oxygen cylinders and oxidizers in cargo.	ERG #122, 140-148.	No-melt/no-drip base layers (e.g., 100 percent cotton, Merino wool, or modacrylic) should be worn next to the skin when working around flammable liquids and solids. UL Class 1 Div. 1 or 2 flashlights.
Toxic substances (e.g., carbon fiber particles)	Check shipping manifest. Identify carbon fiber aircraft parts. Hazmat team checks and removes toxic cargo and carbon fiber parts.	ERG #151-157; air quality monitoring (pump and filter for carbon fibers, toxic gas detection meter or detector tubes).	Level C PPE with P100 filtering facepiece respirator. Use correct chemical-resistant coveralls, gloves, and foot covers.
Infectious substances (e.g., medical samples or local endemic and epidemic diseases)	Check shipping manifest. Hazmat team checks and removes infectious substances cargo. Vaccinations: tetanus, diphtheria, typhoid, rabies, hepatitis (A and B), yellow fever as needed.	ERG #158.	Level C biohazard PPE, including a N95 or P100 filtering facepiece respirator.
Radioactive substances (e.g., radiopharmaceutical packages or aircraft components)	Check shipping manifest. Hazmat team checks and removes radioactive sources. Time and distance management.	ERG #161-166; shielding appropriate for the source radiation type.	Level C N95 PPE. Shower facilities and clean clothing.

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Corrosive substances (e.g., acids, bases, or firefighting chemicals)	Check shipping manifest. Hazmat team checks and removes corrosive cargo. Avoid corrosive firefighting chemicals.	ERG #118, 123-125 (corrosive gases), #132 (corrosive flammable liquids), #134-137 (corrosive flammable solids), #153-157 (toxic and corrosive liquids and solids), #166 (corrosive and radioactive), and #167 (fluorine).	Level C clothing suitable for contact/light splash hazards with P100 filtering facepiece respirator, eye protection, rubber gloves, and foot covers.
Miscellaneous products (e.g., cleaning solutions or first aid kit components)	Check shipping manifest. Hazmat team checks and removes Class 9 cargo.	ERG #159 (irritating substances), #171 (low to moderate hazard substances).	Level C clothing suitable for contact/light splash hazards with P100 filtering facepiece respirator, eye protection, rubber gloves, and foot covers.
Electrical	Check with on-scene commander, safety officer, or firefighters. Postpone investigation until power is shut off.	Cover generator power cords with protective shields. Lockout/tagout program for electrical hazards at reconstruction sites.	Rubber foot covers, rubber gloves, and small circuit lights.
Ergonomic	Do not lift heavy items.	Material handling equipment: forklifts, scissor jacks, and boom cranes.	Back support belts, if needed.
Excavation	Check with on-scene commander or safety officer for presence of excavations. Do not enter excavations.	Barrier signage and caution tape. Trench shoring.	

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Fall			
Fuselage doors	Close or cover doors. Observe conditions from ground.	Handrails and chain barriers around doors.	Hard hats and personal fall arrest systems (PFAS).
Slip: mud, fluids on ground, or slick protective clothing boot covers	Clean up, cover, or dry mud and liquids on paved surfaces.	Gravel pathways through mud; absorbent for liquids or pavements.	Rubber overshoes with lug or mud tread soles and hard hats.
Trip: debris or tree roots	Often not feasible at wooded crash sites.	Bulldoze path to wooded crash sites.	Flashlight (UL Class 1 Div. 1 or 2) for night investigations or confined spaces.
Platforms, especially in forensic reconstruction facilities	Observe conditions from ground.	Handrails and chain barriers around platforms.	PFAS, hard hats, eye protection, and gloves.
PFAS: inadequate systems or untrained users	Observe conditions from ground.	Replace PFAS with ladders, scaffolding, walkways, and platforms.	Use FAA or host employer PFAS only after receiving training and inspecting PPE.
Mechanical lifts: unstable or uneven ground	Read and obey warning instructions on mechanical lifts.	Handrails and guard chains on mechanical lift platforms.	Hard hats, eye protection, gloves, and PFAS.
Mechanical lifts: unstable or uneven ground	Use binoculars or zoom lens cameras and remain on ground.	Handrails and guard chains on mechanical lift platforms.	Hard hats, eye protection, gloves, and PFAS.
Walkways: forensic reconstruction facilities	Use binoculars or zoom lens cameras and remain on ground.	Handrails and guard chains on walkways.	Hard hats and PFAS.
Ladders: field sites or forensic reconstruction facilities	Use binoculars or zoom lens cameras and remain on ground.	Handrails on ladders.	Hard hats and PFAS.

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Parachutes or aircraft in trees, power poles, or towers	Use binoculars or zoom lens cameras and remain on ground.	Mechanically lift inspectors up to the wreckage, or lift the wreckage down to the inspectors.	Hard hats, work gloves, boots, tree-climbing equipment, and PFAS.
Fire/heat	Awareness and avoidance. Delay investigations until fires thoroughly extinguished.	Shield hot surfaces.	No-melt/no-drip base layers (e.g., 100 percent cotton, Merino wool, or modacrylic) should be worn next to the skin, eye protection, hard hats; and forward looking infrared (FLIR) cameras to detect heat sources.
Mechanical			
Power tool operation	Read and obey safe operation instructions. Do not operate power tools unless necessary.	Check for guards and shields on power tools.	Hard hats, eye protection (goggles or safety glasses), work gloves, and safety boots.
Power tool vibration	Do not operate power tools unless necessary.	Avoid prolonged exposure to power tool vibrations.	Work gloves.
Noise			
Power tools and generators	Often not feasible.	Shield power tool motors.	Earplugs or muffs.
Ground vehicle engines	Often not feasible.	Shield and muffle engines.	Earplugs or muffs.
Struck By			
Ground vehicles	Stage vehicles in cold zone.	Mark vehicle travel lanes with barriers and tape.	High-visibility vests.
Falling debris	Avoid working under if feasible.		Hard hats.

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Struck Against			
Jagged metal wreckage	Often not feasible.	Often not feasible.	Poly-cotton coveralls, boots, work gloves, and safety glasses.
Pitot tubes	Avoid debris with extended tubes if possible.	Tag pitot tubes with caution tape, or shield or cover temporarily.	Eye protection (goggles or safety glasses).
Overhead hazards	Postpone investigation until hazards removed.	Pull down overhead debris hazards.	Hard hats.
Temperature			
Cold injuries: hypothermia or frostbite	Schedule frequent warming breaks into workday.	Temporary field heaters (ground vehicles in cold zone).	Bring 2 quarts drinking water per day (dehydration exacerbates cold injuries); COLD: Clean clothing, Oversized to trap more insulating air, Layered, and Dry.
Heat injuries: exhaustion or stroke	Investigate in morning, evening, and night hours if possible; frequent, planned rest breaks in shade.	Temporary field air conditioning (ground vehicles in cold zone).	Bring 4 quarts drinking water per person per day; hat, and light-colored clothing.
Visibility			
Night investigations	Wait until daylight if possible.	Outdoor lighting units.	Flashlights, UL Class 1 Div. 1 or 2 (intrinsically safe).
Fog or precipitation	Wait until clear weather if feasible.	Barrier signage or flashing warning lights.	High-visibility vests and outer clothing.

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Weather/Environment			
Rain or snow: hypothermia, fog, or limited visibility	Often not feasible.	Construct tarp shelter and add lights in fog.	Bring rain gear and hat to field; flashlights; and high-visibility vests.
Altitude	Schedule frequent breaks and spend time to acclimatize to the altitude prior to strenuous activity.	Often not feasible.	Observe yourself and others for signs and symptoms of altitude sickness.

Appendix D. Personal Protective Equipment (PPE) Inspection Checklists**Table D-1. Inspection Checklist for Aircraft Accident Investigation Go-Kit PPE**

Personal Protective Equipment	Inspection Checklist
P100 respirator	Check latex straps for deterioration
Disposable coveralls	Correct type for hazard, no holes, zipper functions
Inner gloves (rubber or vinyl)	Correct type for hazard, no tears or deterioration
Outer gloves (rubber)	Correct type for hazard, no tears or deterioration
Outer gloves (leather)	Clean, no rips
Knee boots (rubber)	Cleaned after last use, no deterioration or rips
Biohazard waste bag	Clean, no rips
Antiseptic wipes	Open one, check for moisture, replace wipe
Adhesive bandages	Use once and dispose of
Safety glasses	Clean, lenses undamaged, temple and hinges intact
Goggles, direct or indirect vent	Check latex straps for deterioration, lenses intact and clear
Insect repellent (skin)	DEET stored in overpack, container not leaking
Clothing: rain gear	Clean, retreat water repellent coating annually
Clothing: work gloves	Allows manual dexterity, fingertips intact, clean
Clothing: poly-cotton coveralls	Clean, no rips, fits loose, zippers or buttons functional
Boots	Broken in, covers above the ankle, clean, good repair
Flashlight	UL Class 1 Div. 1 or 2; extra batteries and bulb; batteries stored outside of flashlight
Hard hat	Shell intact, suspension intact, sized correctly
Earplugs	Clean, pair intact, extra pair(s)
Water bottles/bladders (2–4 quarts)	Clean, no leaks; chlorine dioxide

**Table D-2. Post-Investigation Inspection Checklist for Aircraft Accident Investigation
Go-Kit PPE**

Item	Directions
Sanitizing hand wipes, 100/box	Check wipes for dryness and adequate moisture; replace if needed or low in quantity.
Nitrile exam gloves, 100/box	Check gloves for dryness, cracking, and adequate tear resistance; dispose of used gloves.
Nitrile gloves 11 mil, 13", pair	Check gloves for dryness, cracking, and adequate tear resistance; dispose of torn gloves; clean gloves in 1:10 bleach solution 10 minutes and rinse.
Biohazard waste bags	Dispose of used personal protective equipment (PPE) in bags; replace bags.
Disposable coverall	Check for rips and tears, especially in armpits and crotch; check zipper function; replace used coveralls.
P100 respirator	Check plastic headband attachment on side of respirator. These occasionally become unglued; reattach with Superglue. Check respirator elastic headband for cracked rubber components. Replace used or damaged respirators.
Poly/cotton twill coverall, navy blue	Wash on sanitary or permanent press cycle with normal detergent, dry on low heat. Check zipper function; replace torn or damaged coveralls. If soiled with bloodborne pathogens (BBP), replace them.
Work gloves	Check palms and fingertips for wear through leather or fabric. Replace damaged or contaminated gloves.
Clear or shaded safety glasses	Check safety glasses sidepieces for proper function. Check lenses for excessive scratches. Replace damaged or worn glasses. Clean with isopropyl alcohol, 10-minute soak in soapy water, or 1:10 bleach solution. Rinse and dry.
Safety goggles, indirect vent	Check elastic headband for aged rubber bands, clean in soapy water, isopropyl alcohol, or 1:10 bleach solution. Rinse and dry.
Canteen, 1 quart, bisphenol A (BPA)-free	Wash in dishwasher or soak 10 minutes in soapy dishwater followed by rinse and dry.

Item	Directions
Headlamp, intrinsically safe	Check switch function; approximately 1 percent of these lights are experiencing switch failure. Wipe with alcohol pad. Replace batteries. Check elastic headband for aged rubber components and proper function. Replace if necessary.
AAA alkaline batteries, 4 pack	Replace used batteries.
Insect repellent/sunscreen wipes	Replace dry or used wipes.
Trash bag	Replace used trash bags.
Wood pencil	Replace short pencils.
Pencil sharpener	Wash in soapy water, rinse, and dry.
Duct tape, small roll	Replace rolls when low on tape.
Water-resistant notebook	Replace memo pads when low on paper.
Earplugs, foam, pair	Replace used earplugs.
Adhesive strip bandage, 1" x 3", 25/pack	Replace dirty bandages or replace box when low in quantity.
Disposable poncho	Replace when used. These are disposable to protect your personal clothing. They are not meant to be multiuse garments.
Rubber boots (steel toe and puncture-resistant)	Check soles for delamination, tears, or damage. Wash boots in soapy water or 1:10 bleach solution (10-minute soak). Rinse and dry.
Safety helmet with ratchet headband	Check ratchet assembly for function. Wash in soapy water or 1:10 bleach solution (10-minute soak). Rinse and dry.

Appendix E. Applicable Standards and Regulations

The following standards, regulations, and requirements are applicable to the Flight Standards Service (FS) Aircraft Accident Investigation Safety (AAIS) Program:

1. Federal Aviation Administration (FAA) Order 3900.19, FAA Occupational Safety and Health Program (current edition).

2. Title 29 of the Code of Federal Regulations (29 CFR) Part 1910, Occupational Safety and Health Standards:

a. Subpart D, Walking-Working Surfaces:

(1) Section 1910.21, Scope and Definitions.

(2) Section 1910.22, General Requirements.

(3) Section 1910.23, Ladders.

(4) Section 1910.24, Step Bolts and Manhole Steps.

(5) Section 1910.25, Stairways.

(6) Section 1910.26, Dockboards.

(7) Section 1910.27, Scaffolds and Rope Descent Systems.

(8) Section 1910.28, Duty to Have Fall Protection and Falling Object Protection.

(9) Section 1910.29, Fall Protection Systems and Falling Object Protection—Criteria and Practices.

(10) Section 1910.30, Training Requirements.

b. Section 1910.67, Vehicle-Mounted Elevating and Rotating Work Platforms.

c. Section 1910.95, Occupational Noise Exposure.

d. Section 1910.120, Hazardous Waste Operations and Emergency Response.

e. Subpart I, Personal Protective Equipment:

(1) Section 1910.132, General Requirements.

(2) Section 1910.133, Eye and Face Protection.

(3) Section 1910.134, Respiratory Protection.

(4) Section 1910.135, Head Protection.

- (5) Section 1910.136, Foot Protection.
- (6) Section 1910.137, Electrical Protective Equipment.
- (7) Section 1910.138, Hand Protection.
- (8) Section 1910.140, Personal Fall Protection Systems.

- f. Section 1910.151, Medical Services and First Aid.
- g. Section 1910.1030, Bloodborne Pathogens.

3. Title 29 CFR Part 1926, Safety and Health Regulations for Construction:

- a. Section 1926.451, General Requirements.
- b. Section 1926.453, Aerial Lifts.
- c. Section 1926.501, Duty to Have Fall Protection.
- d. Section 1926.502, Fall Protection Systems Criteria and Practices.
- e. Section 1926.503, Training Requirements.

4. Title 29 CFR Part 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters:

- a. Section 1960.8, Agency Responsibilities.
- b. Section 1960.59, Training of Employees and Employee Representatives.

5. American National Standards Institute (ANSI) Consensus Standards (current editions):

- a. ANSI Z87.1, Eye and Face Protection.
- b. ANSI Z89.1, Head Protection.
- c. ANSI/American Society of Safety Engineers (ASSE) Z359, Fall Protection Code Package v3.0.

6. ASTM International Standards and Publications (current edition). ASTM F2412, Standard Test Methods for Foot Protection.

Directive Feedback Information

Please submit any written comments or recommendation 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: FAA Order 3900.69A, Flight Standards Service Aircraft Accident Investigation Safety Program

To: Flight Standards Directive Management Officer, AFB-120 Directives Mailbox
(9-AWA-AFB-120-Directives@faa.gov)

(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 order, please cover the following subject:
(briefly describe what you want added)

☐ Other comments:

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

Submitted by: _____ Date: _____

Telephone Number: _____ Routing Symbol: _____