U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Aircraft Certification Service

ORDER IR 3900.73A

Effective Date:
03/01/2023

SUBJ: Aircraft Certification Service (AIR) Aircraft Accident Investigation Safety (AAIS) Program - Occupational Safety and Health (OSH)

The Aircraft Certification Service (AIR) Aircraft Accident Investigation Safety (AAIS) Program is an element of the AIR Occupational Safety and Health (OSH) Program and establishes the minimum requirements for AAIS and respiratory protection for AIR 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).

The requirements detailed in this document are based on applicable portions of Occupational Safety and Health Administration (OSHA) regulations under Title 29 of the Code of Federal Regulations (29 CFR) Parts 1904, 1910, and 1926; the current edition of Federal Aviation Administration (FAA) Order 3900.19, *Occupational Safety and Health Policy*; and FAA Order 8020.11, *Aircraft Accident and Incident Notification, Investigation, and Reporting*; and industry consensus standards. AIR management and employees must implement the requirements found herein.

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 AIR 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) are located in the AIR Bloodborne Pathogens (BBP) Program Order, FAA IR 3900.74.

Training associated with this OSH related program order does not replace Aircraft Accident Investigation courses taught at the Transportation Safety Institute.

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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 Aircraft Certification Service (AIR) personnel from injury, illness, or death while performing work-related duties on or near aircraft accident sites. This order applies to workplace locations to include all aircraft accident sites, and at facilities where aircraft are being reconstructed or are part of a teardown for forensic analyses. Also at locations where hands-on inspection activities of single aircraft components associated with such incidences.

2. Audience. This order applies to all AIR personnel, supervisors, and managers involved in aircraft accident investigation activities.

3. Where To Find This Order. You can find this order on the MyFAA employee website at Orders and Notices. Air carriers (operators) can find this order on the FAA's website at Orders and Notices. This order is available to the public at Dynamic Regulatory System (DRS).

4. What This Order Cancels. FAA Order 3900.73, Aircraft Certification Service Aircraft Accident Investigation Safety (AAIS) Program – Occupational Safety and Health (OSH), dated April 9, 2018, is canceled.

Chapter 2. Roles and Responsibilities

1. Executive Director, Aircraft Certification Service (AIR-1). AIR-1 must ensure resources (funding and personnel) are available to effectively implement the Aircraft Accident Investigation Safety (AAIS) Program throughout the AIR organization.

2. Director, Enterprise Operations Division (AIR-900). Director, Enterprise Operations Division must:

a. Oversee the overall implementation and maintenance of the AAIS Program in the AIR organization.

b. Designate an AIR AAIS Program Manager (AAIS-PM) to oversee the program and to provide the necessary technical support to AIR Divisions as needed.

c. Be informed of newly discovered potential hazards that may be encountered at aircraft accident sites or at facilities where aircraft involved with accidents are reconstructed or are part of a teardown.

d. Ensure applicable employee participation in the AAIS and RPP training.

3. The AIR Occupational Safety and Health (OSH) Program Office. The AIR OSH Program Office must:

a. Establish the AIR-wide AAIS Program and maintain this program in compliance with current FAA, OSHA, and other applicable standards and regulations.

b. Support the implementation of AAIS and respiratory protection requirements at AIR offices and evaluate branch and section office implementation of the AAIS Program.

c. Serve as the point of contact (POC) regarding technical aspects of the AIR AAIS Program and provide consultation to any AIR branch office regarding issues relating to AAIS and implementation of these program requirements.

4. The AIR Aircraft Accident Investigation Safety Program Manager (AAIS-PM). The AAIS-PM must:

a. Provide oversight and technical guidance to applicable AIR Divisions 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. In coordination with Flight Standards OSH program managers, maintain a standardized go-kit with the necessary personal protective equipment (PPE), appendix D, for aircraft accident inspectors with input from branch office personnel.

d. Ensure training on appropriate PPE usage is available.

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

f. In coordination with Flight Standards Service (FS), perform safety hazard analyses (SHA) at aircraft accident scenes and utilize the data gathered to further revise and improve the program, where feasible.

5. AIR Managers. AIR Managers, with consultation from the AIR OSH Program Office, must:

a. Implement the requirements of this AAIS Program for their office if assigned personnel are involved with aircraft accident investigations.

b. Have the authority to determine the need for acquisition of AAIS PPE, and consult with the AIR OSH Program 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 FAA issued AAIS PPE, and ensure that these employees receive AIR, as a primary, or FS provided, as a secondary, AAIS training, and go-kit PPE items.

AAIS training provided by former employers, with the exception of personnel transferring over from FS, does not qualify an individual to utilize AIR AAIS equipment.

d. Ensure AIR employees 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 know 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 are to wear.

e. Ensure employees who perform aircraft accident investigations do not wear a respirator until a medical questionnaire, and clearance have been completed and received followed by appropriate fit testing.

f. If applicable, appoint and work with the local AIR OSH POC whose duties will include, but are not limited to, assisting in the evaluation of the go-kits, ordering and maintenance of all AAIS and respiratory PPE ordered/acquired by the office for applicable employees.

g. Perform an annual self-evaluation of the office AAIS Program, to ensure that users of AAIS equipment have received either AIR or FS AAIS training, and are properly using, storing, inspecting, and maintaining AAIS equipment. The evaluation must be in writing and maintained at the local office. Program Evaluation Checklist located in appendix F.

6. The Local AIR OSH POC. The Local AIR OSH POC must:

a. Assist manager/supervisor, of employees who are involved with aircraft accident investigations, with ensuring office compliance with this program order and verify that appropriate PPE is maintained and accessible for applicable employees.

b. Receive AAIS training as an observer provided either by AIR or FS that meets the basic requirements of OSHA and the AAIS Program. If attending class as an observer the medical questionnaire is not required.

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

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

7. AIR Employees. AIR employees who may respond to aircraft accident scenes with or without fatalities, or visit aircraft accident reconstruction or teardown sites, or inspect aircraft components as part of the investigation must:

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. Must be careful and mindful that the desire to complete the investigative tasks can place them at considerable personal risk of injury or death; to remain cautious and aware of the hazards at aircraft accident sites and locations where the investigated aircraft has been reassembled or torn down for further investigation.

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

e. Prior to wearing an assigned respirator, complete the required respiratory medical evaluation questionnaire. Ensure that a respiratory medical evaluation is performed, initially and repeated as directed by a physician or other licensed health care professional (PLHCP). Employees must not use a respirator if a respiratory medical evaluation has not been performed or the certificate has expired. See Chapter 4 for additional guidance.

f. Participate in AAIS training, respirator training, medical evaluation, and fit testing on their assigned respirators.

g. Notify their supervisor of conditions which could have an inhalation exposure hazard and request or conduct a hazard assessment if deemed appropriate.

h. Report signs and/or symptoms which may relate to their ability to safely use a respirator. Some examples include shortness of breath, dizziness, chest pains, or wheezing, as well as changes in their physical condition. Signs or symptom such as these might warrant reevaluation by a physician or additional fit testing (e.g., new dentures, or changes in facial hair at the seal of the respirator 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 employees 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. Additional information on UCRs is located in Chapter 3 of this order.

k. Inspect PPE, using Appendix D, for damage or defects prior to use, and must 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 Professional (PLHCP). PLHCPs must.

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 future medical evaluation to the employee.

Chapter 3. AAIS Program Requirements

1. Unsatisfactory Condition Reports (UCR).

a. Background. No AIR employee is expected to perform work activities that subject them to an unsafe or unhealthful work condition. If an employee is potentially exposed to a safety hazard, they 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 employee must not complete the activity and must inform their manager of the situation.

b. UCR Reporting. Preferably, the employee should discuss the hazardous condition with the supervisor to abate the unsafe condition. However, in general, any employee or employee representative who believes that an unsafe or unhealthful working condition exists must 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 or in writing on FAA Form 1800-1, *Unsatisfactory Condition Report*. Refer to the current edition of 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 manager.

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, 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 AIR investigators prior to site entry. In many cases, FS aircraft accident investigators will have already been on scene prior to the arrival of AIR personnel. The following are some of the more common types of aircraft accident investigation site hazards. See Appendix A, AAIS Program Definitions, and Appendix B, *Hazard Analysis*, that presents additional detail on aircraft accident site hazards.

(1) Human Biological Hazards. Bloodborne pathogens (BBP) from crash victims or from air ambulance aircraft (please refer to the AIR Bloodborne Pathogens (BBP) Program Order FAA IR 3900.74 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, burning composite material, etc.

(4) Radioactive Hazards. Medical cargo, etc.

(5) Electrical Hazards. Power lines, generator power cords, live wires within a damaged building, aircraft batteries and electrical systems that have not been de-energized, 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. Altitude, 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 AIR employees' job, this is not always possible. If it is not possible, the employee must employ other methods to mitigate hazards.

(a) Employees and their supervisors 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 bodily 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 employee 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 PPE.

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

5. Inspection of AAIS PPE.

a. Before Entering an Investigation Site. Employees 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 AIR employees to use prior to deploying on aircraft accident investigations to ensure that PPE is functional and safe to use. The local AIR OSH POC for office go-kit supplies should complete appendix D on a semi-annual basis. A copy of the checklist should be kept with the go-kit, and with the local AIR OSH POC.

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

a. Accident Site Assessment.

(1) When an AIR employee approaches the accident site, it is best to approach from upwind and uphill if possible. The AIR inspector needs to gather as much information as possible from observing the area and asking the first responders, including, but not limited to the:

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

(b) Location of debris trail and is 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 possibly energized), environmental concerns, etc.

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

(2) After gathering as much information as possible, the AIR employee should perform their 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 AIR employee must don the appropriate PPE for the hazards expected.

(4) Site Hazard Procedures.

(a) Site Zones. AIR employees may encounter an incident command system at aircraft accident investigation sites. They 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.

If an FS inspector is the inspector-in-charge (IIC) for the accident scene, that person will notify other authorized entry personnel of their site assessment and potential hazards.

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, plus 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). If hazmat is involved in an aircraft accident, FS inspectors who normally arrive before AIR personnel must work with the incident commander or other first responders to coordinate 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. Further clarification of these levels is provided in appendix C.

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 AIR participation in aircraft accident investigations based on information gathered from FS completed safety hazard analyses as noted in appendix B.

Hard hats, safety toe boots (refer to the *AVS Standard Operating Procedure (SOP) for Selecting and Obtaining Foot Protection*, and eye protection (safety glasses or goggles) are included in all four ensembles.

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.

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

(b) Trained AIR 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. Appendix C contains the appropriate Levels for noted hazards.

(c) AIR accident site employees usually work in Level D ensembles, but they will be trained, equipped, and prepared to work in Level C ensembles. The AIR 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. AIR employees must wait to enter the area until an authorized person has appropriately mitigated the electrical hazards.

(1) While working at field investigation sites, AIR employees 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, AIR employees must 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. AIR employees may encounter fall hazards at field sites and forensic reconstruction facilities. Employees associated with aircraft investigations will complete AIR Fall Protection Program training. Prior to using fall protection PPE provided by host employers, AIR employees will visually inspect the PPE using the procedures stipulated in the AIR Fall Protection IR Order 3900.72, and the Fall Protection User level training. AIR employees may inquire about fall protection PPE from the AIR OSH Program Office.

e. Hearing Conservation. AIR employees commonly encounter noise hazards with sound pressure levels capable of damaging hearing at aircraft accident investigation sites. Whether enrolled in the AIR Hearing Conservation Program or not, all AIR employees 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, employees should don their earplugs or muffs when noise levels require a raised voice in order to be heard.

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. Course enrollment process will be a combined effort between AIR Workforce Development Branch management, and AAIS-PM.

a. AIR-Specific Training Courses. AIR employees involved with aircraft accident investigations must complete the following AIR-specific user-level instructor-led training courses for OSH purposes: (FS sponsored AAIS training is also accepted.)

(1) Initial only AAIS Program training, this includes:

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

(b) Hazmat awareness,

(c) Radiation awareness,

(d) Respiratory protection, and

(e) Processes and AIR-specific procedures for site safety.

(2) BBP training per the AIR Bloodborne Pathogen Program Order 3900.74.

(3) AIR sponsored Fall Protection training, Order 3900.72.

(4) AIR sponsored Hearing Conservation training Order 3900.75.

b. First Aid and CPR Training. The FAA will provide First Aid and CPR training courses for all employees who volunteer for such training. If suffocation, electrocution, fall, or amputation hazards are present at the aircraft accident site, the employee must delay their entry into the site until a person with first aid training is on site.

c. Documentation of Training. All training must be properly documented in the student's learning history in the electronic Learning Management System (eLMS). Documentation of training must also include a sign-in sheet that contains the course number, printed name and signature of the employee, the date of training, and the signature of the qualified person who performed the instructor-led training. Completed sign-in sheets are to be provided to AIR Workforce Development Branch.

8. Aircraft Accident Investigation Site PPE.

a. PPE Procurement. It is the responsibility of branch office management, with consultation from the AIR OSH Program Office and local AIR OSH POC, to determine the need for and acquisition of AAIS protective equipment for their employees. For AIR, AAIS PPE is purchased for office usage for already trained employees instead of assigned individual AAIS go-kits. The only exception is if an employee's roles and responsibilities involve frequent AAIS activities such as an AIR Go-Team member under the direction of Safety Program Management–Incident Response Team. As noted above, no AAIS PPE should be used until appropriately trained along with being medically cleared and fit-tested for respirator usage.

b. Obtaining Go-Kits and Replacements. Branch offices must work with the AAIS-PM and/or the Local AIR OSH POC to obtain the standardized go-kits and replacement items.

c. OSHA and American National Standards Institute (ANSI) Standards. All equipment selected must meet applicable OSHA and ANSI standards and must be suitable for the work intended. The AIR OSH Program Office and the Local AIR OSH POC should be consulted to aid in the selection of AAIS equipment.

Chapter 4. Respiratory Protection Requirements

1. General.

- This chapter addresses respiratory protection of AIR employees at aircraft accident sites and areas related to accident investigation.
- AIR has made a commitment to establish and maintain a Respiratory Protection Program (RPP) for the protection of employees where respirators are used.
- 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 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 as disposable like filtering face piece 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. Disposable tight-fitting respirator requiring medical evaluation and PLHCP approval, training, fit testing, and user seal checks.	
P100 Respirator	Good for more dangerous particulate hazards, including composite aircraft fibers, and also protects against biohazard contact and aerosol hazards. Disposable tight-fitting respirator requiring medical evaluation and PLHCP approval, training, fit testing, and user seal checks.	
Half-Face APR	• 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. • Tight-fitting respirator requiring medical evaluation and PLHCP approval, training, fit testing, and user seal checks. • More expensive than filtering facepiece.	
Hooded PAPR	• Available for applicable employees. • Most protective of these four types. • Blows filtered air into a mask or hood. • Heavy. • Does not require fit testing medical evaluation and PLHCP approval prior to occupational use.	

b. Respirator Selection.

(1) AIR 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 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 must contain P100 filtering facepiece respirators that can be used for most air contaminants at an accident scene. Applicable branch 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 must be certified by the National Institute for Occupational Safety and Health (NIOSH), and all filters, cartridges, and other media must have the appropriate NIOSH approval label.

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

3. Authorized Respirators and Medical Evaluation Requirements.

a. Authorized Respirators.

(1) The following types of respirators are authorized for use by AIR:

(a) N95 for BBP protection filtering facepieces.

(b) P100 filtering facepieces for aircraft accidents.

(c) Half-face APRs,

(d) Hooded PAPRs.

(2) An office must not assign or procure any other type of respirator unless the office notifies the AIR OSH Program Office and receives written AIR OSH Office authorization, and if authorized, it will require employees are medically cleared and properly fit tested with that make and model respirator prior to use.

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

(4) AIR employees must not engage in an operation or enter an area where atmosphere-supplying respiratory protection is required.

(5) APRs must not be used:

(a) In potentially oxygen-deficient atmospheres,

(b) In immediately dangerous to life or health (IDLH) conditions,

(c) When hazards could be present for which the respirator or its cartridges/canisters are not approved (e.g., carbon monoxide exposure), or

(d) When airborne concentrations may result in exposures that exceed the respirator's protection factor.

(6) The Local AIR OSH POC must ensure adequate quantities of filtering facepiece respirators and other respirator components are available.

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) AIR managers must not assign aircraft accident investigation duty to any AIR employees who are not properly trained, who are not medically cleared for respirator usage, who do not have a current medical clearance, and who do not have a current respirator fit test on their assigned respirators.

(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 manager will identify their employees who will be assigned aircraft accident duty which may require respirator use and share this list with the AIR AAIS-PM who will coordinate with the AIR Workforce Development Branch for training purposes.

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

(6) The online medical questionnaire is compliant with the questions in the OSHA respiratory protection regulation.

(7) The employee's manager must 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 of the authorized respirators to be used, models, hazards requiring respirator use, and any other pertinent factors.

(10) After evaluation, the PLHCP must provide the employee and the AAIS-PM with a copy of 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, the PLHCP may require or recommend further medical examination or have a follow up phone call to determine the employee's ability to wear a respirator.

(12) Medical evaluations vary per person based on the PLHCP's determination.

(13) 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 and their manager is emailed about 45 days prior to the employee's medical evaluation due date with instructions to follow on completing their online respirator medical questionnaire. This email is sent by AIR AAIS-PM.

(c) If the employee has not completed their online respirator medical questionnaire approximately 15 days after the first reminder email, a second reminder email is sent to the employee, along with their manager.

(d) If the employee becomes overdue, an email is sent to the manager stating that the employee has to be removed from aircraft accident investigation duties until they complete the online medical questionnaire. If present, 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 AIR AAIS-PM. There is a cost to the agency each time the questionnaire is completed and reviewed by physician/nurse.

(14) The AIR OSH Program Office will 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 their manager related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing, or when the employee has a medical change such as an asthma diagnosis, or a heart attack.

(b) The medical provider or employee's manager informs the AIR AAIS-PM 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 their original respirator profile.

(15) 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) AIR will utilize a combination of contract services, trained OSH POCs, and/or trained AIR AAIS-PM to perform the required respirator fit testing. The AAIS-PM 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 must be conducted using the make, model, and size of respirator that the respirator user will wear. A minimum of two respirator models of each type will be made available for employees, plus a variety of sizes to afford an optimal fit.

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

(5) Fit testing must 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 must not be conducted until medical evaluation is completed 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 as per OSHA. Examples include facial hair, facial deformities, and jewelry or other objects that protrude under the facepiece seal.

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

(8) For employees that cannot be fit tested and cannot use tight-fitting facepieces for reasons other than facial hair, the hooded PAPR will be the alternative for use, if approved by the AAIS-PM.

(9) Whoever performs the fit testing must 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 Occ Med mailbox (9-FAA-OCCMED-Rec-Submit@faa.gov) and maintained in the employee's medical file.

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

d. Voluntary Use. AIR does not allow the voluntary use of respirators. AIR 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 AIR employers conduct aviation safety inspections) to ensure work areas are at or below the OSHA Permissible Exposure Limits (PELs) prior to entering an area where respirable hazards may be present.

A temporary exception to this prohibition on voluntary use may be issued temporarily to address national emergencies, on a case-by-case basis. Must first be coordinated with the AIR OSH Program Manager.

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

(1) Filtering facepiece respirators (e.g., N95s and P100s) are disposable. For biohazards, the filtering facepiece respirators must be disposed of after each use. For other agents (e.g., nuisance or toxic dusts), N95s and other filtering facepiece respirators must 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 branch office must establish a process for respirator cleaning, maintenance, storage, change, and disposal, with responsibilities delineated for the Local AIR OSH POC and respirator users. This process should include adequate supply of parts, cartridges, etc.

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

Chapter 5. Administrative Information

1. Distribution. This order is distributed to AIR management; all AIR Divisions and AIR employees involved with aircraft accident investigations.

2. Authority to Change This Order. The issuance, revision, or cancellation of the material in this order is the responsibility of the AIR Enterprise Operations Division (AIR-900).

3. Definitions. Appendix A.

4. Suggestions for Improvements. Please forward all comments on deficiencies, clarifications, or improvements regarding the contents of this order to:

The AIR Directives Management Officer (DMO) to AIR DMO Mailbox.

Your suggestions are welcome. FAA Form 1320-19, *Directive Feedback Information*, is located in appendix E to this order for your convenience.

5. Records Management. Refer to FAA Order 0000.1, *FAA Standard Subject Classification System*; FAA Order 1350.14, *Records Management*; or your office Records Management Officer (RMO)/Directives Management Officer (DMO) for guidance regarding retention or disposition of records.

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.

3. Emergency Response Guidebook (ERG). A North American hazardous materials (hazmat) emergency response guide (ERG), 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).

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 as follows:

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 AIR employee/inspector 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. This product filters at least 95% of airborne particles but is not resistant to oil. See Table 4-1 of this order.

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. This product filters at least 99.97% of airborne particles and is strongly resistant to oil. See Table 4-1 of this order.

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. Respiratory Hazards. Respiratory hazards may be present in the workplace in the following physical forms:

a. Dusts and fibers are solid particles that are formed or generated from solid materials through mechanical processes such as crushing, grinding, drilling, abrading or blasting. Examples are lead, silica, and asbestos.

b. Fumes are solid particles that are formed when a metal or other solid vaporizes and the molecules condense (or solidify) in cool air. Examples are metal fumes from smelting or welding. Fumes also may be formed from processes such as plastic injection or extrusion molding.

c. Mists are tiny droplets of liquid suspended in the air. Examples are oil mist produced from lubricants used in metal cutting operations, acid mists from electroplating, and paint spray mist from spraying operations.

d. Gases are materials that exist as individual molecules in the air at room temperature. Examples are welding gases such as acetylene and nitrogen, and carbon monoxide produced from internal combustion engines.

e. Vapors are the gaseous form of substances that are normally in the solid or liquid state at room temperature and pressure. They are formed by evaporation. Most solvents produce vapors. Examples include toluene and methylene chloride.

f. Biological hazards include bacteria, viruses, fungi, and other living organisms that are respirable and can cause acute and chronic infections. Examples include Legionnaire's Disease and animal waste products (for example, feces).

18. Self-Contained Breathing Apparatus (SCBA). An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user. AIR personnel are prohibited from using SCBA.

19. Unsatisfactory Condition Report (UCR). Provides all agency employees with direct means for advising management of an existing unsatisfactory condition per the current edition of 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.

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

21. 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 Safety and Health 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.

Table B-1 Hazard Analysis

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, 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 packages or aircraft components)
Chemical	DOT Class 8 corrosive substances (e.g., acids and bases, including corrosive firefighting chemicals)
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

OSHA Job Hazard Category	Potential Aircraft Accident Investigation Site Hazards
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 associated with altitude
Temperature	Heat injuries: heat exhaustion or heat stroke
Visibility	Night investigations, fog, or rain: limit visibility of hazards
Weather	Rain or snow: altitude, 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 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, alligators, livestock, bears, cougars, or rabid mammals)	Request assistance from law enforcement, animal control, or wildlife management officers.	Site fencing.	Boots, chaps, boats, 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) Emergency Response Guidebook (ERG) #112 (explosives) or #114 (ammunition).	None
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).

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Nonflammable gases (e.g., oxygen cylinders, compressed air tanks, or boiling liquid expanding vapor explosion (BLEVE) hazards)	Check shipping manifest. Wait until fires extinguished. Hazmat team checks and removes cylinders before investigation.	ERG #120, 121, 126.	None
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.
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.

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
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.
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 #124 (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.

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
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.	None
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 and stairways, 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. 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.

Hazard	Elimination and Administrative Controls	Engineering Control	PPE
Ladders: field sites or forensic reconstruction facilities	Use binoculars or zoom lens cameras and remain on ground.	Handrails on ladders.	Hard hats and PFAS.
Parachutes or aircraft in trees, power poles, or towers	Use binoculars or zoom lens cameras and remain on ground.	Mechanically lift personnel up to the wreckage, or lift the wreckage down to the AIR employees.	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 mod acrylic) 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. If possible, mark protruding jagged edges with caution tape. Use caution tape to indicate areas where jagged edges are present particularly if they are overhead.	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.	Non-FAA personnel - Pull down overhead debris hazards.	Hard hats.
Temperature			
Cold injuries: hypothermia or frostbite	Schedule frequent warming breaks into work day.	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. Stay hydrated.

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	Inspection Date
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 over pack, 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	
Ear plugs	Clean, pair intact, extra pair(s)	
Water bottles/bladders (2–4 quarts)	Clean, no leaks	

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.
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.

Item	Directions
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.
Ear plugs, 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, requirements, and orders are applicable to the Aircraft Certification Service (AIR) Aircraft Accident Investigation Safety (AAIS) Program:

Federal Aviation Administration (FAA) Order 3900.19, FAA Occupational Safety and Health (OSH) Policy – current edition.

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

Section 1910.22, General Requirements.

Section 1910.23, Ladders.

Section 1910.25, Stairways.

Section 1910.27, Scaffolds and Rope Descent Systems.

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

Section 1910.29, Fall Protection Systems and Falling Object Protection Criteria and Procedures.

Section 1910.30, Training Requirements.

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

Section 1910.95, Occupational Noise Exposure.

Section 1910.120, Hazardous Waste Operations and Emergency Response.

Subpart I, Personal Protective Equipment:

Section 1910.132, General Requirements.

Section 1910.133, Eye and Face Protection.

Section 1910.134, Respiratory Protection.

Section 1910.135, Head Protection.

Section 1910.136, Foot Protection.

Section 1910.137, Electrical Protective Equipment.

Section 1910.138, Hand Protection.

Section 1910.140, Personal Fall Protection Systems.

Section 1910.151, Medical Services and First Aid.

Section 1910.1030, Bloodborne Pathogens.

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

Section 1926.451, General Requirements (Scaffolds).

Section 1926.453, Aerial Lifts.

Section 1926.501, Duty to Have Fall Protection.

Section 1926.502, Fall Protection Systems Criteria and Practices.

Section 1926.503, Training Requirements.

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

Section 1960.8, Agency Responsibilities.

Section 1960.59, Training of Employees and Employee Representatives.

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

ANSI Z87.1, Eye and Face Protection.

ANSI Z89.1, Head Protection.

ANSI/American Society of Safety Engineers (ASSE) Z359, Fall Protection Code Package v3.0.

American Society for Testing and Materials (ASTM) Standards and Publications (current edition). ASTM F2412, Standard Test Methods for Foot Protection.

FAA Order 8020.11, Aircraft Accident and Incident Notification, Investigation, and Reporting.

AVS Standard Operating Procedures for Selection and Obtaining Foot Protection.

Emergency Response Guidebook (ERG) associated with Pipeline Hazardous Material Safety Administration (PHMSA).

AIR Fall Protection Order – IR Order 3900.72

AIR Bloodborne Pathogens (BBP) Order – IR Order 3900.74

Unsatisfactory Condition Report (UCR) – FAA Order 1800.6

Appendix F. Program Self-Evaluation Checklist

Introduction.

This questionnaire is intended for use by during the periodic evaluation of program effectiveness. The purpose of the evaluation is to determine the effectiveness of the program in reducing and preventing personal injuries associated with aircraft accident investigations.

Program Administration.

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

Are necessary materials and PPE being ordered with a minimum of delay?

Safety and Training.

Has the failure to wear appropriate PPE tied to any accidents or injuries? If so, have remedial steps been taken?

Have key personnel associated with this program been provided with the knowledge required to properly use, store, inspect, and maintain available AAIS PPE?

Have affected employees completed the appropriate initial training?

COMMENTS:

Date of annual completion: _____

Appendix G. Directive Feedback Information

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 IR 3900.73A, Aircraft Certification Service (AIR) Aircraft Accident Investigation Safety (AAIS) Program – Occupational Safety and Health (OSH)

To: Directive Management Officer, AIR DMO Mailbox

(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 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: _____

Telephone Number: _____ Routing Symbol: _____

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