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This instruction provides guidance that is common to investigating and reporting all US Air Force mishaps. It applies to all US Air Force (USAF), Air Force Reserve Command (AFRC), and Air National Guard (ANG) military and civilian personnel. Four safety manuals supplement this AFI and provide detailed guidance to discipline-specific mishaps. AFMAN 91-221, *Weapons Safety Investigations and Reports*, provides additional guidance for investigating and reporting nuclear, guided missile, explosives and chemical agents, and directed energy mishaps. AFMAN 91-222, *Space Safety Investigations and Reports*, provides additional guidance for investigating and reporting space mishaps. AFMAN 91-223, *Aviation Safety Investigations and Reports*, provides additional guidance for investigating and reporting aviation mishaps. AFMAN 91-224, *Ground Safety Investigations and Reports*, provides additional guidance for investigating and reporting afloat, ground, and motor vehicle mishaps. AFI 91-204 implements AFPD 91-2, *Safety Programs*, and DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*. AFI 91-204 applies to commanders, managers, supervisors, and safety staffs at all levels, all persons who investigate and report Air Force mishaps, and those persons who handle

such reports. This instruction provides guidance regarding the control and use of privileged safety reports and information. **Failure to observe the prohibitions and mandatory provisions in paragraph 3.3.1 by active duty Air Force members, AFRC members on active duty or inactive duty for training, and ANG members in federal status is a violation of Article 92, Uniform Code of Military Justice (UCMJ). Violations by civilian and State (Title 5) employees may result in administrative disciplinary actions without regard to otherwise applicable criminal or civil sanctions for violations of related laws.** This regulation implements North Atlantic Treaty Organization (NATO) Standardization Agreements (STANAG) 3101, *Exchange of Safety Information Concerning Aircraft and Missiles*, 3102, *Flight Safety Co-operation in Common Ground/Air Space*; 3318, *Aeromedical Aspects of Aircraft Accident and/or Investigation*; 3531, *Safety investigation and Reporting of Accident/Incidents Involving Military Aircraft, Missiles, And/Or UAVs*. It also implements Air and Space Interoperability Council Air Standard (AIR STD) 85/2A, *Investigation of Aircraft/Missile Accidents/Incidents* (with US reservations). This AFI may be supplemented at any level, but all supplements that directly implement this publication must be routed to AFSEC/SEFO for coordination prior to certification and approval. Waivers to this instruction will be requested through the MAJCOM/SE to AF/SE, and considered Tier-1, unless otherwise specified in this instruction. See AFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located in the Air Force Information Management System (AFRIMS).

Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF IMT 847, *Recommendation for Change of Publication*; route AF IMT 847s from the field through the appropriate chain of command. Send major command (MAJCOM) supplements to AFSEC/SEFO, 9700 G Avenue SE, Kirtland AFB NM 87117-5670, for approval before publication. **Note:** For purposes of this instruction, the term "MAJCOM" includes ANG, Direct Reporting Units (DRUs), and Forward Operating Agencies (FOAs).

See Attachment 1 for a Glossary of References and Supporting Information.

(USAFA) This supplement provides procedures for the United States Air Force Academy (USAFA) Safety Investigations and Reports. It applies to all Air Force personnel including Air Force Reserve and Air National Guard Members assigned or activated to USAFA. Refer recommended changes and conflicts between this and other publications to HQ USAFA/SE 8110 Security Drive Door 18, USAF Academy, CO 80840, on Air Force (AF) Form 847, *Recommendation for Change of Publication*. The authorities to waive requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following each compliance statement. See AFI 33-360, Publications and Forms Management, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority. The waiver authority for non-tiered requirements in this publication is USAFA/SE. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the AFRIMS Records Disposition Schedule (RDS).

(USAFA) This supplement requires collecting and maintaining information protected by the *Privacy Act of 1974* authorized by Title 10 United States Code, Section 8013 and Executive Order 9397.

SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed.

(USAFA) Supplement paragraphs are updated to align with the revised parent publication. With the publication of the AF Form 978, *Supervisor's Mishap Report*, the USAFA Form 49, *Supervisor's Report of Mishap*, was rescinded and all references to the Form 49 in this supplement have been removed. USAF Academy (USAFA) unique roles, responsibilities and relationships have been defined to include safety reporting, investigation support and investigative convening authority. Investigation timeline extension authority has been delegated from USAFA Superintendent (USAFA/CC) to USAFA Safety (USAFA/SE). AFI 33-360, *Publications and Forms Management*, prescribed tiers have been added.

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Chapter 1

GENERAL INFORMATION

1.1. Purpose of Safety Investigations and Reports.

1.1.1. Safety investigations and reports are conducted and written solely to prevent future mishaps. Safety investigations take priority over any accident investigation boards. If initiated, criminal investigations take precedence over safety investigations until criminal activity, natural causes, and suicide have been ruled out as possible causes of damage, injury, or death (for criminal investigations, see paragraph 4.11.2.). Conduct safety and legal investigations separately to protect privileged safety information in the safety report. If necessary and directed by the convening authority (CA), safety investigations can be done concurrently with other applicable investigations. Privileged safety information resulting from a safety investigation will be used solely for mishap prevention (See Chapter 3).

1.1.2. Legal investigations provide a publicly releasable report of the facts and circumstances surrounding a mishap. The purpose of a legal investigation is to inquire into all the facts and circumstances surrounding mishaps as well as to obtain and preserve all available evidence for use in litigation, claims, disciplinary action, adverse administrative action, and for public disclosure in accordance with (IAW) DoD 5400.7-R, *DoD Freedom of Information Act.*

1.1.2.1. An Accident Investigation Board (AIB) is one type of legal investigation and is convened for many space, aircraft, remotely piloted aircraft/unmanned aerial vehicle (RPA/UAV), and missile mishaps IAW AFI 51-503, *Aerospace Accident Investigations*. Ground Accident Investigation Boards are convened for many ground accidents IAW AFI 51-507, *Ground Accident Investigations*. A Commander-Directed Investigation (CDI) is another type of legal investigation that may be convened. A CDI may not be used in lieu of a safety investigation. To ensure continued effectiveness of safety investigations, other investigations should not be done concurrently unless determined necessary IAW paragraph 1.1.1.

1.2. Waivers to this Instruction. Waivers to this instruction will be requested through the MAJCOM/SE to AF/SE, and considered Tier-1, unless otherwise specified in this instruction. **Note:** For purposes of this instruction, the term "MAJCOM" includes ANG, Direct Reporting Units (DRUs), and Forward Operating Agencies (FOAs).

1.3. Mishaps and Events Requiring Safety Investigations and Reports.

1.3.1. A mishap is an unplanned occurrence, or series of occurrences, that results in damage or injury as described in paragraph 1.3.1.1. and/or meets Class A, B, C, or D mishap reporting criteria IAW paragraph 1.10.

1.3.1.1. Damage or injury includes: damage to DoD property; occupational illness to DoD military or civilian personnel; injury to on- or off-duty DoD active military (e.g. Title 10 and all AGRs) status; injury to on-duty DoD civilian or inactive military (e.g. Title 32) personnel; damage to public or private property, or injury or illness to non-DoD personnel caused by Air Force operations. Volunteers (uncompensated staff working under the supervision of an agency) in the federal sector are considered employees and

covered by Part 1960, including the injury and illness recordkeeping requirements from 29 CFR 1904.

1.3.1.2. Although motor vehicle mishaps often result from some form of misconduct (e.g., speeding, driving while intoxicated, and reckless driving) required data elements from these mishaps will be reported in accordance with this instruction.

1.3.2. An event is an unplanned occurrence, or series of occurrences, that does not meet mishap reporting criteria as defined in paragraph 1.3.1. Class E events require an investigation and report (see paragraph 1.10.5.). Reference AFMAN 91-22X for specifics on events that meet reporting requirements.

1.3.3. Mishap Reporting. AF Form 978, *Supervisor's Mishap Report*, will be used to document a Ground mishap to the Unit Commander and Wing Safety. The installation Ground Safety Manager will review the form to determine reportability and ensure appropriate documentation. **Exception:** Tenant units with full-time safety staffs will review mishap data for their personnel. Aviation, Weapons, and Space disciplines have the option to use this form for mishap reporting.

1.3.3.1. An AF Form 978 will be completed by the injured personnel's supervisor and returned to the appropriate safety office within five (5) workdays following the mishap or notification of the mishap, whichever is earlier.

1.3.3.2. **(Added-USAFA)** Commanders and supervisors may use Block 41 of the AF Form 978 to address interim measures, corrective actions and/or recommendations.

1.4. Exceptions to mandatory reporting requirements for this AFI. The following occurrences do not need to be reported under this instruction.

1.4.1. Damage or injury by direct action of an enemy or hostile force. This does not include suspected cases of Friendly Fire, which will include a safety investigation and report in accordance with paragraph 4.11.1.

1.4.2. Intentional, controlled, in-flight jettison of external stores or release of canopies, cargo, doors, drag chutes, hatches, life rafts, auxiliary fuel tanks, aerial refueling hoses/drogues, missiles, drones, rockets, payload fairings, explosive munitions, and externally carried equipment nonessential to flight unless ensuing reportable damage occurs. This includes intentional activation of flares, manually or by automatic countermeasure systems, with normal system function and no damage to property on the ground. **Note:** Report intentional jettison of missiles, drones, rockets, aerial refueling hoses/drogues, and munitions when the reason for jettison is their malfunction and the damage meets reporting criteria. **Note:** Emergency jettison of external stores does not need to be reported unless the resulting jettison causes property damage.

1.4.3. Intentional or anticipated damage to DoD equipment or property incurred during authorized testing or combat training, including missile and ordnance firing or destruction of DoD property to prevent capture by an enemy or hostile force, to include the following:

1.4.3.1. Intentional electro-explosive device activation when part of a normal missile test or launch sequence, the launch is aborted, and there is no other reportable damage.

1.4.3.2. Expected damage or destruction of equipment, pallets, parachutes, etc., during airdrop operations.

1.4.3.3. Damage to, or destruction of, DoD equipment or property during authorized testing, including missile and ordnance firing, and RPA/UAVs used as targets or on critical profile missions, provided all of the following conditions exist:

1.4.3.3.1. The extent of the damage or destruction was an expected or desired result of the test.

1.4.3.3.2. The damage or destruction occurred at planned times and for anticipated reasons.

1.4.3.4. For mishaps involving unmanned Full Scale Aerial Targets (FSATs), the interim safety board will conduct a preliminary review of telemetry and/or control system data from the Gulf Range Drone Control System (GRDCS) or the Drone Formation Control System (DFCS). If the preliminary review indicates the event was related to target specific systems or drone modifications, the mishap may be investigated according to AFI 99-151, *Air Launched Munition Analysis Group (ALMAG)*. In all other cases, the mishap will be investigated under this instruction and AFMAN 91-223, *Aviation Safety Investigations and Reports*.

1.4.4. Damage or destruction of an RPA resulting from a deliberative risk acceptance decision by an appropriate command authority to employ the vehicle in an environment or condition where the risk of loss of the vehicle is outweighed by operational requirements.

1.4.4.1. Although not a reportable mishap, the accountable MAJCOM safety office will report this loss to HQ AF/SEI via e-mail. The report will contain the date, location (when available), object identifier, short narrative, and the approval authority who accepted the risk.

1.4.5. Except when required to be reported as a Class E event, a safety report is not required when <u>all</u> of the following three conditions are true:

1.4.5.1. The failed item is a component part or line-replaceable unit (LRU). Examples include flight line replaceable engine components, electronic boxes, air cycle machines, pumps, tires, and drag braces. The following are major assemblies and not component parts nor LRUs: aircraft subsystems such as engines, engine modules, landing gear, and gearboxes. **Note:** auxiliary power units are major assemblies unless identified by the mission design series (MDS) program manager as an LRU.

1.4.5.2. All damage and/or wear is confined to that component part or LRU (if not confined, all associated damage costs must be added to determine if the occurrence is a reportable mishap).

1.4.5.3. The failed item is maintained as fly-to-fail (or normally used until they fail) or reached pre-determined wear limits due to normal wear and tear (as defined by the applicable technical order or program manager for aviation items).

1.4.6. Engine foreign object damage (FOD), when discovered outside of base-level management (such as during depot-level engine system maintenance, not for known or suspected FOD), to aircraft, air-breathing missiles, or drone/UAV/UAS engines. See AFMAN 91-223, *Aviation Safety Investigations and Reports*, for detailed investigative guidance. **Note:** FOD may be reportable under TO 00-35D-54, *USAF Materiel Deficiency Reporting and Investigating System*.

1.4.7. Property damage, death, or injury as a result of vandalism, riots, civil disorders, sabotage, terrorist activities, or criminal acts (e.g., arson). **Note:** Injury or death resulting from workplace violence or terrorist acts at work will be recorded (see paragraph 1.13.4.).

1.4.8. Natural phenomena ground mishaps where adequate preparation, forecasting, and communication actions were taken and there were no injuries to DoD personnel. In order to determine if adequate actions were taken, an investigation must be initiated.

1.4.9. Normal residual damage as a result of a missile launch.

1.4.10. Pre-existing injuries or illnesses sustained before entry into military service or employment by the US Government, unless significantly aggravated by current tenure of service. See Occupational Safety and Health Administration (OSHA) Recordkeeping Handbook, Section 1904.5 to determine work-relatedness and paragraph 1.5. as applicable.

1.4.11. Injuries or fatalities to persons in the act of escaping from or eluding military or civilian custody or arrest.

1.4.12. Pre-existing musculoskeletal disorders unless aggravated or accelerated by U.S. Government employment. See OSHA Recordkeeping Handbook, Section 1904.5 to determine work-relatedness.

1.4.13. Injury or occupational illness to contractor personnel or damage to contractor property or equipment not under direct supervision of DoD personnel, unless caused by DoD operations.

1.4.14. ANG state activated military and ANG state employees on- or off-duty injury or illness unless their injury or illness involved Air Force personnel, contractor operations, or property.

1.4.15. Adverse bodily reactions resulting directly from the use of drugs under the direction of competent medical authority unless the drugs were prescribed for an injury or illness that is work-related.

1.4.16. Hospitalization beyond the day of admission when:

1.4.16.1. Hospitalization is for observation, counseling, diagnostic testing, or administrative reasons not related to the immediate injury or occupational illness.

1.4.16.2. Observation and/or Diagnostic Procedures. Hospitalization or restriction from assigned work activities for observation or diagnosis is not a "lost time case," "no lost time case," or "first aid case" provided no treatment or medication is given for the suspected injury or occupational illness. If diagnostic equipment (i.e. X-rays, MRI, CATScan, etc.) is used, and competent medical authority determines the individual could have returned to his or her normal job without impairment or disability, do not consider this as a "greater than first aid case." This classification also applies where an individual is temporarily restricted from regularly assigned duties to prevent exceeding time-weighted exposure limits.

1.4.17. Death due to natural causes unrelated to strenuous acts performed at work or to physical training associated with the requirement to pass physical standards. **Note:** However, the following deaths by natural causes must be reported under this AFI:

1.4.17.1. An aircrew member during flight.

1.4.17.2. A missile crewmember on alert.

1.4.17.3. A combat support and training related death.

1.4.18. Death or injury resulting directly from the illegal use of drugs or other substance abuse.

1.4.19. Attempted or consummated suicide or intentionally self-inflicted injuries.

1.4.20. Injuries resulting from minimum stress and strain (simple, natural, and nonviolent body positions or actions, as in dressing, sleeping, coughing, or sneezing). Those are injuries unrelated to mishap-producing agents or environments normally associated with active participation in daily work or recreation. **Note:** These injuries may be recordable IAW 29 CFR 1904 and AFI 91-204, paragraph 1.13.4.

1.4.21. Injury or illness to foreign nationals working for the AF as indirect hire personnel.

1.4.22. Injuries associated with non-occupational diseases, when the disease, not the injury, is the proximate cause of the lost time, such as diabetes and its resultant complications like loss of vision; but not including complications of the injury (such as the infection of a cut aggravated by a work-related activity) that result in lost time.

1.4.23. Injuries resulting from altercations, attack, or assault, unless injuries of this type were incurred in the performance of official duties. Injuries resulting from these events require recording on the OSHA Log 300 (see paragraph 1.13.4.)

1.5. Work-Relatedness. You must consider an injury or illness to be work-related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment, unless an exception in 29 CFR 1904.5(b)(2) specifically applies.

1.5.1. Injuries or illnesses will not be considered work-related if, at the time of the injury or illness, the employee was present in the work environment as a member of the general public rather than as an employee.

1.5.2. Injuries or illnesses will not be considered work-related if they involve symptoms that surface at work but result solely from a non-work-related event or exposure that occurs outside the work environment.

1.5.3. Injuries and illnesses will not be considered work-related if they are solely the result of employees doing personal tasks (unrelated to their employment) at the work establishment outside of their assigned working hours.

1.5.4. Injuries and illnesses will not be considered work-related if they are solely the result of personal grooming, self-medication for a non-work-related condition, or are intentionally self-inflicted.

1.5.5. Common colds and flu will not be considered work-related even if contracted while the employee was at work. However, in the case of other infectious diseases such as tuberculosis, brucellosis, and hepatitis C, employers must evaluate reports of such illnesses for work relationship, just as they would any other type of injury or illness.

1.5.6. Mental illness will not be considered work-related unless the employee voluntarily provides the employer with an opinion from a physician or other licensed health care professional with appropriate training and experience (psychiatrist, psychologist, psychiatric nurse practitioner, etc.) stating that the employee has a mental illness that is work-related.

1.5.7. Injuries or illnesses will not be considered work-related if they are solely the result of an employee eating, drinking, or preparing food or drink for personal consumption (whether bought on the employer's premises or brought in). For example, if the employee is injured by choking on a sandwich while in the employer's establishment, the case would not be considered work-related. **Note:** 1. Injuries and illness of this nature that are experienced by military members will be reported as off-duty mishaps. 2. If the employee is made ill by ingesting food contaminated by workplace contaminants (such as lead), or gets food poisoning from food supplied by the employer, the case would be considered work-related.

1.6. Acting on Critical Safety Information. If safety personnel or investigators discover information that seriously impacts the operations of a weapons system, the continuation of an exercise, or other operations, they must immediately notify the CA by telephone and follow up with a confirming e-mail, regardless of whether such information is associated with a mishap currently under investigation. CA Safety Offices will take action IAW paragraph 2.6.7.

1.7. Accounting for Losses. The Air Force records each mishap to the MAJCOM that experienced the loss or a majority of the loss of an owned asset (personnel or property). For statistical purposes, the occurrence is recorded as a mishap in that command (or in the Air Force at Large, when applicable) regardless of any determination as to the responsibility for the mishap. Generally, the mishap is recorded in the command that has investigative responsibility for the mishap (Chapter 4). Mishap accounting in no way implies blame or mishap responsibility.

1.7.1. For all engine-confined Domestic Object Damage (DOD) mishaps, the mishap accounting organization is assigned to the "Air Force at Large."

1.7.2. Record a military or civilian injury/loss to the command the individual is assigned to at the time of a mishap. Use military personnel data records and civilian payroll records to make determinations. Air Reserve Component (ARC) personnel who are activated under Title 10 of the U.S. Code are accounted to their parent unit.

1.7.3. Record a mishap occurring to an individual in any permanent change of station (PCS) status to the losing command until the individual signs in at the new duty station. The "transfer effective date" is not criteria for determining the unit of assignment.

1.7.4. Record a mishap involving an individual in PCS status with temporary duty pending further orders to the organization originating the initial orders until the individual signs in at the next permanent duty station.

1.7.5. Record mishaps involving foreign exchange students and military members in non-pay status while awaiting an appellate review (appellate leave) or court martial to the Air Force at Large. For mishap reporting purposes, personnel in a non-pay status are returned to active duty when notified (written or verbal) to return to an Air Force installation.

1.7.6. When a unit makes an Air Force Government Motor Vehicle (GMV) or Government Vehicle Other (GVO) available to another unit on a recurring or permanent dispatch, the

using organization is the owning command. Vehicles assigned to non-appropriate units are not considered GMV or GVO.

Note: Vehicles on receipt to, and operated by, non-DoD persons or agencies and activities such as the U.S. Postal Service or the American Red Cross are not GMVs.

1.7.7. For all mishaps and incidents, ensure the unit's/member's home station safety office (and deployed safety representative, if applicable) is notified and receives all pertinent information as soon as possible.

1.8. Mishap Categories. The Air Force categorizes mishaps based upon the material involved (e.g., space systems, weapons, aircraft, motor vehicles, etc.) and the state of the involved material (e.g., launch, orbit, existence of intent for flight, on- or off-duty, etc.) when the mishap occurs. Mishap categories and subcategories are defined below and diagramed in Figure 1.1. For the purposes of reporting and data collection, select the one category and subcategory that best defines the mishap under investigation using the order of precedence in paragraph 1.8.1. Normally mishaps involve only one category and subcategory (see paragraph 1.8.3.).

1.8.1. Specific Mishap Categories.

1.8.1.1. Nuclear. An Air Force mishap involving a nuclear weapon system, nuclear reactor, or other radioactive material. Nuclear accidents and incidents will be reported using flagwords only (e.g. BROKEN ARROW, BENT SPEAR, etc.). There is no associated mishap class (i.e., Class A, B, C, or D) with a flagword mishap report. When investigating BROKEN ARROW or BENT SPEAR events, follow Class A mishap procedures for board composition, mishap reporting timelines, and investigation procedures in accordance with this AFI and AFMAN 91-221, *Weapons Safety Investigations and Reports.*

1.8.1.1.1. Nuclear Weapon System. A mishap that involves destruction of, or serious damage to, nuclear weapons, nuclear weapons systems, or nuclear weapons components resulting in an actual or potential threat to national security or life and property. Nuclear deficiencies (surety violations and failure/damage to support equipment listed in the Air Force Master Nuclear Certification Listing -MNCL) will be reported as required and in accordance with AFMAN 91-221, *Weapons Safety Investigations and Reports*. A DULL SWORD report may be associated with any class mishap.

1.8.1.1.2. Radiological. A mishap involving radioactive material not related to a nuclear weapon such as reactors, Radioisotope Thermoelectric Generators, Stirling Radioisotope Generators, etc. used as a power source system in ground, aquatic and space applications, or any instrumental setups used for research and development purposes in ground, aquatic and space environments.

1.8.1.2. Space. An Air Force mishap involving space systems and/or their unique support equipment and systems. Refer to AFMAN 91-222, *Space Safety Investigations and Reports*, for reporting and investigation requirements.

1.8.1.2.1. Development/Testing/Pre-Launch. Space mishaps occurring during development, pre-operational testing, ground handling, processing, transportation operations, or involving launch vehicles or spacecraft prior to launch (T=0).

1.8.1.2.2. Launch/Range. Space mishaps involving launch vehicle operations (after T=0), including upper stages, or involving range support equipment. This includes payloads that do not obtain orbit, range safety system failures, and range support failures.

1.8.1.2.3. Orbital. All mishaps that occur after successful separation from all launch vehicle components, including upper stages and transfer/kick motors, are considered orbital mishaps. Refer to AFMAN 91-222, *Space Safety Investigations and Reports*, for reporting and investigation requirements.

1.8.1.2.4. Re-Entry. The Re-Entry subcategory will be used for space mishaps involving re-entry NOT associated with launch. This includes the re-entry of ballistic payloads, reusable space vehicles, planned re-entry of payloads, and associated debris.

1.8.1.2.5. Ground Based Space Systems. Space mishaps involving ground based space systems not involved with supporting launch or solely dedicated to supporting orbital operations. This includes systems supporting space situational awareness, command and control, launch detection, missile tracking, offensive space control and defensive space control.

1.8.1.2.6. Cross Categories.

1.8.1.2.6.1. High Altitude Operations (HAO). HAO are typically operations occurring at or above 50,000 feet above ground level (AGL). Due to similarities with small satellite payloads, a mishap involving an HAO payload may be investigated as a joint aviation/space mishap.

1.8.1.2.6.2. Directed Energy (DE). Mishaps involving DE systems that illuminate, interfere, damage or destroy a space system should be investigated as a joint directed energy/space mishap.

1.8.1.3. Aviation. An Air Force mishap involving a DoD aircraft or DoD RPA/unmanned aerial system (UAS). **Note:** Class E events are categorized as "Aviation" with no subcategory.

1.8.1.3.1. Flight. Any mishap in which there is intent for flight and reportable damage to a DoD aircraft while being operated on Air Force missions. Explosives and chemical agents or guided missile mishaps that cause damage in excess of $20,000 to a DoD aircraft with intent for flight, as defined in this instruction, are categorized as aviation flight mishaps to avoid dual reporting. This is the only aviation mishap subcategory that contributes to the flight mishap rate.

1.8.1.3.2. Flight-Related. Any mishap in which there is intent for flight and no reportable damage to the DoD aircraft itself, but the mishap involves a fatality, reportable injury, or reportable property damage. Parachuting injuries fall under this subcategory (refer to paragraph 4.4. and Attachment 8 for mishaps involving multiple services). A missile or RPA/UAV that is launched from a DoD aircraft, departs without damaging the aircraft, and is subsequently involved in a DoD mishap is reportable as a guided missile mishap or RPA/UAV mishap, respectively.

1.8.1.3.3. Aviation Ground Operations (AGO) mishap. Any mishap that involves DoD aircraft with no intent for flight that results in reportable damage, injury, or fatality is an AGO mishap. All AGO mishaps will be investigated using AFMAN 91-223, *Aviation Safety Investigations and Reports*, guidance and procedures. These investigations will be cross-categorized as Ground, Industrial, and Occupational mishaps.

1.8.1.3.3.1. Damage to a missile prior to the completion of weapons upload procedures, or after initiation of weapons download, is a Missile mishap.

1.8.1.3.3.2. Damage to an aircraft, when it is being handled as a commodity or cargo, is not reportable as an aviation mishap.

1.8.1.3.4. Remotely Piloted Aircraft (RPA). Any mishap involving a DoD RPA/UAS as defined in this instruction, but not involving another DoD manned aircraft. Damage to a DoD RPA/UAS, when it is being handled as cargo, is a Ground, Industrial and Occupational mishap. **Note:** If damage is first discovered during inspection or maintenance, determine the most likely time of occurrence and corresponding subcategory.

1.8.1.4. Weapons. Any mishap involving explosives, small arms, guided missiles, chemical agents, or directed energy weapons.

1.8.1.4.1. Guided Missile, including Ground Launched Missile. An Air Force mishap involving guided missiles or unique missile support equipment. Missiles that are unintentionally damaged or destroyed after launch from an aircraft, but cause no aircraft damage, will be classified as a guided missile mishap.

1.8.1.4.2. Explosives. An on-duty mishap involving DoD-owned explosive items resulting in damage or injury meeting reportable criteria caused by:

1.8.1.4.2.1. An explosion or functioning of explosive materials or devices (except as a result of enemy action). For example: carts fire with no damage, however the investigation reveals a bad micro-switch or needed procedural changes.

1.8.1.4.2.2. Inadvertent actuation, jettisoning, releasing or launching of explosive devices.

1.8.1.4.2.3. Impacts of ordnance off-range.

1.8.1.4.2.4. A mishap in which explosives are involved, even if there is no explosion.

1.8.1.4.3. Small Arms. A mishap resulting from the use of small arms. Unintentional discharges of small arms ammunition where the round and weapon functioned as designed and no injuries or property damage were involved are not reportable under this instruction unless circumstances support a Class E high accident potential (HAP).

1.8.1.4.4. Chemical Agent. Any unintentional or uncontrolled release of a chemical agent where:

1.8.1.4.4.1. Reportable damage occurs to property from contamination or costs are incurred for decontamination.

1.8.1.4.4.2. Individuals exhibit physiological symptoms of agent exposure.

1.8.1.4.4.3. The agent quantity released to the atmosphere is such that a serious potential for exposure is created by exceeding the applicable maximum allowable concentration-time levels for exposure of unprotected workers or the general population or property.

1.8.1.4.5. Directed Energy Weapon. A mishap involving a directed energy weapon and/or unique directed energy weapon support equipment. Includes the application of directed energy primarily as a weapon to damage, disrupt, or destroy enemy resources.

1.8.1.4.5.1. Directed energy weapons include, but are not limited to: high-power laser and microwave systems, and sonic and ultrasonic beam weapon systems. **Note:** Mishaps involving directed energy devices that are not weapons should be reported under the Ground, Industrial and Occupational category.

1.8.1.5. Afloat. An Air Force mishap occurring on board or resulting from or during the operation of a DoD vessel, including mishaps during DoD diving or swimmer operations; mishaps occurring while loading, off-loading, or receiving services at dockside; and mishaps occurring up to the high water mark during amphibious or inshore warfare training operations. It applies to all injuries to DoD personnel occurring on board, whether or not job related. A mishap occurring on board that results from shipyard, repair facility, or private contractor operations is a ground (industrial) mishap, not an afloat mishap.

1.8.1.5.1. Industrial And Occupational. An afloat mishap occurring on a vessel involving operations similar to those performed in private industry (such as boiler maintenance). Includes, but is not limited to, equipment maintenance, facility construction and maintenance, health care provision, laboratory research, and administrative and clerical tasks. A mishap that occurs on board that results from shipyard, repair facility, or private contractor operations are ground (industrial) mishaps.

1.8.1.5.2. Sports, Recreation, and Individual Fitness. An afloat mishap associated with an activity that requires physical exertion and skill that is governed by a set of rules or customs and often undertaken competitively and/or refreshes one’s mind or body through activity that amuses or stimulates. Involves the activity of exerting muscles in various ways to keep fit through the performance of exercise. This includes all fitness activities that do not meet the criteria for command-directed or organized fitness programs.

1.8.1.5.3. Combat Support and Training. An afloat mishap associated with a non-combat military exercise or training activity designed to develop a military member's physical ability, maintain or increase individual or collective combat and peacekeeping skills, and is due to either a mishap or the result of natural causes when the medical event occurs during or within 1 hour after any training activity where the exercise or activity could be a contributing factor. This includes all training activities, including command-directed or compulsory physical fitness training, which do not meet the definition or are not included as values in sports, recreations, and

individual fitness. The cause of death must be attributed to the mandatory physical exercise as determined by a competent medical authority

1.8.1.5.4. Miscellaneous. An afloat mishap not assigned to another subcategory.

1.8.1.6. Motor Vehicle. An Air Force mishap involving the operation of a motorized land vehicle operated by Air Force personnel. An Air Force mishap involving the operation of a DoD-owned or leased motorized land vehicle by Air Force personnel while operationally controlled by a DoD component. The above are all categorized as motor vehicle mishaps. Fatalities or injuries to pedestrians or bicyclists involving moving motor vehicles are included in this category. This category does not include ground industrial and occupational mishaps such as injuries occurring while loading or unloading, mounting or dismounting a non-moving vehicle; cargo damaged by weather; or damage to a properly parked DoD vehicle, unless caused by an operating DoD vehicle. Additionally, damage to an Air Force vehicle caused by objects thrown or propelled into it by weather or natural phenomena, or by fire when no collision occurred or damage to an Air Force vehicle when it is being handled as cargo and not operating under its own power and is properly parked, is not categorized as a motor vehicle mishap. Motor vehicle mishaps are divided into the following subcategories:

1.8.1.6.1. Government Motor Vehicle (GMV). A motor vehicle mishap involving the operation of a GMV as defined in this instruction and in DoDI 6055.04, *DoD Traffic Safety Program*. **Note:** For the purpose of this instruction, IAW DoDI 6055.04, *DoD Traffic Safety Program*, low speed vehicles, mopeds, and scooters are considered motor vehicles when operated on highways.

1.8.1.6.2. Private Motor Vehicle (PMV). A motor vehicle mishap, regardless of the identity of the operator, that does not involve a GMV or government vehicle, other (GVO) but results in a fatality or lost time case injury (involving days away from work) to military personnel on- or off-duty or to on-duty civilian personnel, or reportable damage to DoD property. Fatalities and injuries to bicyclists and pedestrians in the traffic environment are included in this category.

1.8.1.6.3. Government Vehicle, Other (GVO). A motor vehicle mishap involving the operation of a GVO as defined in this instruction and in DoDI 6055.04, *DoD Traffic Safety Program*.

1.8.1.7. Ground. An Air Force mishap that occurs to an on-duty DoD civilian or on- or off-duty active DoD military personnel (e.g. Title 10) and on-duty inactive (e.g. Title 32) military or DoD civilian personnel that does not meet the mishap category definition of nuclear, space, aviation (except as required in paragraph 1.8.1.3.3.), guided missile, explosives and chemical agents, directed energy, afloat, or motor vehicle as defined by this instruction. This category also includes ground mishaps previously categorized as fire, contractor, and natural phenomena. These categories have been replaced with questions in the Air Force Safety Automated System (AFSAS). **Note:** A mishap involving both on- and off-duty military personnel is categorized as an on-duty mishap.

1.8.1.7.1. Industrial and Occupational. A ground mishap involving operations similar to those performed in private industry. Includes, but is not limited to, equipment maintenance, facility construction and maintenance, health care provision,

laboratory research, and administrative and clerical tasks. **Note:** Natural phenomena mishaps are categorized as industrial mishaps.

1.8.1.7.2. Sports, Recreation, and Individual Fitness. A mishap associated with an activity that requires physical exertion and skill that is governed by a set of rules or customs and often undertaken competitively and/or refreshes one's mind or body through activity that amuses or stimulates. Involves the activity of exerting muscles in various ways to keep fit through the performance of exercise. This includes all fitness activities that do not meet the criteria for command-directed or organized fitness programs.

1.8.1.7.3. Combat Support and Training. A mishap associated with a non-combat military exercise or training activity designed to develop a military member's physical ability, maintain or increase individual or collective combat and peacekeeping skills, and is due to either a mishap or the result of natural causes when the medical event occurs during or within 1 hour after any training activity where the exercise or activity could be a contributing factor. This includes all training activities, including command-directed or compulsory physical fitness training, which do not meet the definition or are not included as values in sports, recreations, and individual fitness. The cause of death must be attributed to the mandatory physical exercise as determined by a competent medical authority.

1.8.1.7.4. Miscellaneous. A ground mishap not assigned to another subcategory. Also included in this subcategory are reportable mishaps occurring while using a commercial carrier such as a commercial bus, airplane, or taxicab.

Figure 1.1. USAF Mishap categories.

The figure above illustrates the mishap categories IAW DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping* and amplified to further describe USAF mishap categories.

1.8.2. Multiple Occurrence Mishaps. Damaging occurrences that happen in logical succession are considered to be a single mishap and will result in a single safety investigation, unless there is clearly no possible initiating or sustaining relationship between occurrences. For example, an emergency vehicle responding to a mishap that collides with another motor vehicle is a separate mishap. MAJCOM/SE should contact AF/SE for resolution of questions regarding whether occurrences constitute a single or separate mishaps.

1.8.3. USAF Mishaps Involving Multiple Categories. Occasionally mishaps have characteristics that relate to two or more mishap categories. For the primary category/subcategory, the mishap must meet the category definition in its entirety. For mishaps that completely meet more than one category definition, use the hierarchy in paragraph 1.8. and Figure 1.1. to select the primary category, and select the other categories as cross-categories. If a mishap relates to a category definition, but does not completely meet the definition, up to two related cross-categories/subcategories may be selected. For example, a government vehicle that hits and damages an aircraft on the flightline would be categorized as an AGO mishap with motor vehicle as a cross category.

1.9. Non-USAF Mishaps. Periodically the Air Force investigates mishaps that do not fit the definition of an Air Force mishap. The Air Force generally investigates non-USAF mishaps because of an existing agreement with the involved party or because it has unique expertise or interest in the mishap, and has agreed to lead an investigation. For example, the Air Force, by way of an existing Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU), may have previously agreed to investigate any mishap involving the equipment of a foreign nation occurring on US soil. Non-USAF mishap categories are defined below and diagramed in Figure 1.2. For the purposes of reporting and data collection, select the one category that best defines the mishap under investigation. **Note:** Non-USAF mishaps fall into one of three categories while USAF mishaps fall into one of seven DoD categories previously discussed in paragraph 1.8. and diagramed in Figure 1.1.

1.9.1. Non-USAF Aviation. Aviation mishaps involving:

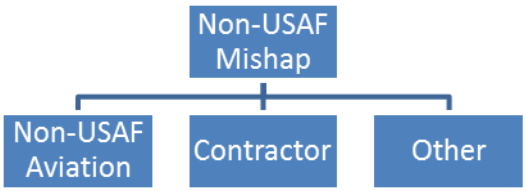
1.9.1.1. A non-DoD aircraft or non-DoD RPA/UAS, regardless of the existence of intent for flight, which only results in damage to non-USAF equipment or injury to non-USAF personnel. An Air Force pilot who is uninjured during a successful ejection from a foreign-owned, single-seat fighter that is subsequently destroyed is categorized as a non-USAF aviation mishap since there was no damage to Air Force equipment or injury to Air Force personnel. However, if the foreign-owned aircraft is leased by the DoD and is operated by AF personnel, it would be a USAF Aviation Flight Mishap.

1.9.1.2. A DoD aircraft or DoD RPA/UAS, regardless of the existence of intent for flight, resulting in damage or injury to the Air Force (paragraph 1.3.1.1.) and another DoD component is responsible for reporting. An Air Force person killed in an aircraft belonging to another DoD component typically would be investigated and reported by the DoD component owning the aircraft. However, if the Air Force wrote its own limited report, usually to document and report the loss of life, it would be categorized as a non-USAF aviation mishap.

1.9.2. Contractor. Instances where contractor operations on government property during the execution of a government contract result in significant damage to contractor-owned equipment or injury to contract employees but not reportable damage to DoD property or injury to DoD personnel.

1.9.3. Other. Mishaps that do not fit into the non-USAF aviation or contractor categories.

Figure 1.2. Non-USAF Mishap categories.



1.10. Mishap and Event Classifications. Classify mishaps by total direct mishap cost and the severity of injury/occupational illness. **Exception:** Classify Class E events according to the definitions below. Calculate direct cost of a mishap IAW paragraph 1.11. On initial response, use the highest reasonably-expected cost estimate to determine the mishap class and downgrade if additional cost information indicates a lower class is warranted. **Note:** Severity of injury/occupational illness, not injury/occupational cost, is used to classify mishaps.

1.10.1. Class A Mishap. A mishap resulting in one or more of the following:

1.10.1.1. Direct mishap cost totaling $2,000,000 or more.

1.10.1.2. A fatality or permanent total disability.

1.10.1.3. Destruction of a DoD aircraft (Attachment 1). **Note:** A destroyed Group 1, 2, or 3 RPA/UAS is not a Class A mishap unless the criteria in paragraphs 1.10.1.1. or 1.10.1.2. are met.

1.10.1.4. Permanent loss of primary mission capability of a space vehicle.

1.10.2. Class B Mishap. A mishap resulting in one or more of the following:

1.10.2.1. Direct mishap cost totaling $500,000 or more but less than $2,000,000.

1.10.2.2. A permanent partial disability.

1.10.2.3. Inpatient hospitalization of three or more personnel. Do not count or include individuals hospitalized for observation, diagnostic, or administrative purposes that were treated and released.

1.10.2.4. Permanent degradation of primary or secondary mission capability of a space vehicle or the permanent loss of secondary mission capability of a space vehicle.

1.10.3. Class C Mishap. A mishap resulting in one or more of the following:

1.10.3.1. Direct mishap cost totaling $50,000 or more but less than $500,000.

1.10.3.2. Any injury or occupational illness that causes loss of one or more days away from work not including the day or shift it occurred. When determining if the mishap is a Lost Time Case, you must count the number of days the employee was unable to work as a result of the injury or illness, regardless of whether the person was scheduled to work

on those days. Weekend days, holidays, vacation days, or other days off are included in the total number of days, if the employee would not have been able to work on those days.

1.10.3.3. An occupational injury or illness resulting in permanent change of job.

1.10.3.4. Permanent loss or degradation of tertiary mission capability of a space vehicle.

1.10.4. Class D Mishap. A mishap resulting in one or more of the following:

1.10.4.1. Direct mishap cost totaling $20,000 or more but less than $50,000.

1.10.4.2. Any mishap resulting in a recordable injury or illness not otherwise classified as a Class A, B, or C mishap. These are cases where, because of injury or occupational illness, the employee only works partial days, has restricted duties (does not include medical restriction from flying or special operational duties (DNIF) by AF Form 1042) or was transferred to another job, required medical treatment greater than first aid, or experienced loss of consciousness (does not include GLOC). In addition, a significant injury (e.g. fractured/cracked bone, punctured eardrum) or occupational illness (e.g. occupational cancer (mesothelioma), chronic irreversible disease (beryllium disease)) diagnosed by a physician or other licensed health care professional must be reported even if it does not result in death, days away from work, restricted work, job transfer, medical treatment greater than first aid, or loss of consciousness. **Note:** Occurrences that result from voluntary participation in wellness and fitness programs, or recreational activities such as exercise class, racquetball, or baseball will be reported to comply with DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, Enclosure 6, Tables 5 & 6, and Enclosure 8.

1.10.5. Class E Events. Certain occurrences do not meet reportable mishap classification criteria, but are deemed important to investigate/report for hazard identification and mishap prevention. Class E reports provide an expeditious way to disseminate valuable mishap prevention information. Findings and recommendations for Class E events are optional. MAJCOMs and host installation chiefs of safety will determine depth of reporting in AFSAS. See specific AFMAN 91-22X for Class E categories.

1.11. Mishap Costs. It is DoD policy to determine the total direct mishap cost in order to provide a factual basis for the allocation of resources in support of DoD mishap prevention programs. Direct mishap costs ONLY include property damage costs (DoD and Non-DoD), associated repair labor costs, and environmental cleanup costs. The direct cost does not include the cost of implementing corrective actions. All other costs (e.g., investigation and transportation costs) are indirect costs. Report costs that would have been charged to the government if the Air Force was reimbursed or if the repair was accomplished under warranty.

1.11.1. Determining DoD Property Damage Costs. This includes damage or loss of material and the cost of labor to repair material. See DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, for detailed costing information.

1.11.1.1. Field Level Repair.

1.11.1.1.1. Materiel Cost. If an item is repaired locally by unit personnel, calculate the cost of the materiel used to repair the item.

1.11.1.1.2. DoD Labor Costs (DoD military and civilian personnel). Determine the number of hours of labor to repair the damaged materiel. Obtain the field level hourly rate from the AFSEC Portal Website or contact AFSEC technical support for assistance. To calculate the labor rates for safety reporting, multiply the number of hours of labor expended by DoD personnel by the hourly rate.

1.11.1.1.3. Contractor Repairs. Use the actual cost charged to the government for repairs performed by contractors. If the contractor considers itemized costs to be proprietary information, request and report only the sum total. Contact the Program Manager (PM) for assistance in obtaining contractor repair costs.

1.11.1.2. Depot Level Repair.

1.11.1.2.1. Materiel. Obtain the exchange cost for each stock listed item requiring depot level repair from the Air Force Master Item Identification Data Base (D043A). If the item is not stock listed, contact the PM. If the sum total of the exchange costs is equal to or greater than $500,000, obtain an estimated cost of repair based upon actual damage from the depot/repair facility. Report this estimated cost. If the depot/repair facility cannot provide an estimated cost of repair based upon actual damage, revert to using exchange cost from D043A. If the sum total of the exchange costs is less than $500,000 report this cost. The Logistics Readiness Squadron Material Management Customer Support Section has access to D043A. **Exception:** If the sum total of the exchange costs for FOD is equal to or greater than $500,000, a depot/repair facility estimated cost based on field damage description may be reported.

1.11.1.2.2. Depot Labor Costs. Determine the number of hours of labor to repair the damaged materiel. Obtain the depot level hourly rate from the AFSEC portal website or contact AFSEC technical support for assistance. Multiply the number of hours of labor expended by depot personnel by the hourly rate.

1.11.1.2.3. Contractor Repairs. Use the actual cost charged to the government for repairs performed by contractors. If the contractor considers itemized costs to be proprietary information, request and report only the sum total. Contact the PM for assistance in obtaining contractor repair costs.

1.11.2. Destroyed Assets.

1.11.2.1. Determining destroyed conventional/aircraft RPA/UAS cost. If the aircraft/RPA/UAS is destroyed, obtain flyaway cost from the Air Force Cost Analysis Agency (AFCAA/FMS) at DSN 986-5416 or Commercial 937-656-5416. Contact the PM to get the cost of all modifications done to the aircraft/RPA/UAS up to the mishap date. **Note:** An aircraft/RPA/UAS that is damaged but will not be repaired is not automatically a destroyed aircraft/RPA/UAS. In this case, calculate repair cost IAW paragraphs 1.11.1.1. and/or 1.11.1.2.

1.11.2.2. Other destroyed or lost assets with no item to exchange. Use the standard (unit) cost from D043A or the PM. The Logistics Readiness Squadron Material Management Customer Support Section has access to D043A.

1.11.3. Determining Costs to Non-DoD Property Damage. If Air Force operations result in damage of non-DoD property, calculate and report the damage cost. Determine non-DoD property damage costs using official estimates from agencies such as, but not limited to, logistics readiness offices or licensed/credentialed estimators.

1.11.4. Determining Environmental Clean-Up Costs. Obtain these costs from the local civil engineering environmental section. The end cost of this type of clean up may not be available inside the normal 30-day investigation timeframe. Use the best estimate available at the time of the final message. Environmental clean-up costs include costs for:

1.11.4.1. Clean up.

1.11.4.2. Environmental decontamination.

1.11.4.3. Restoration of private and government property.

1.12. Mishap Injury, Occupational Illnesses, and Property Damage. Report the type of person (paragraph 1.12.1.) and the severity of injury/occupational illness (paragraph 1.12.2.) and/or the severity of property damage (paragraph 1.12.3.). MAJCOMs will ensure units use the AF Form 978, *Supervisors Mishap Report*, for this documentation. Mishaps involving an Air Force Foreign National (AFFN) employee who is a direct hire will be investigated and reported via AFSAS. Indirect hire employee mishaps will normally be investigated by the host nation safety office. However, the applicable Air Force safety office will work with the host nation safety office to ensure violations or hazards that are identified as causal are corrected.

1.12.1. Type of person. Rated officer, nonrated officer, enlisted, cadet, DoD civilian, DoD contractor, foreign national, or non-DoD civilian. **Note:** Foreign nationals include military (rated or non-rated) officer, military enlisted, or civilian.

1.12.2. Severity of injury or occupational illnesses. Includes fatality, permanent total disability, permanent partial disability, lost time case, or no lost time case (see Attachment 1). For lost time cases, also report the number of days hospitalized and the number of days of lost time beyond the days hospitalized. In cases when the actual number of days hospitalized or lost time is not known at the time the safety report is submitted, the best official estimates made by a competent medical authority will be used.

1.12.3. Severity of property damage. Includes facilities, equipment, property, materiel, or resources. If the occurrence meets mishap reporting criteria, then the cost of environmental cleanup shall be included in property damage costs.

1.13. Recording Injuries and Occupational Illnesses. Use AFSAS to create the OSHA Form 300, *Log of Work-Related Injuries and Illnesses*, for recording injuries and occupational illnesses to civilian and military personnel meeting Class A, B, C, or D criteria. See AFMAN 91-224, *Ground Safety Investigations and Reports*, Chapter 6, for specific guidance.

1.13.1. Contractor employees hired by the Air Force via a non-personal services contract, as defined by Federal Acquisition Regulation (FAR) 37.101, are under the contractor's day-to-day supervision. The contractor, not the Air Force, will be responsible for reporting contractor injuries and illnesses to OSHA, even if the contractor's employees are co-located with an Air Force organization.

1.13.2. Contractor employees hired under a personal services contract, as defined by FAR 37.104, are under the day-to-day supervision of the government and its employees. The Air Force will be responsible for reporting injuries of these contractor employees.

1.13.3. If uncertain as to the type of contract employee, contact the Contracting Officer.

1.13.4. OSHA Recordable Event inputs in AFSAS are driven by 29 CFR 1904, *OSHA Recording and Reporting Occupational Injuries*. These are injuries incurred that are duty related and required by OSHA to be recorded, but are not required to be reported by DoD or USAF safety guidance. The following are examples: Workplace Violence, Terrorist Act, and Minimum Stress and Strain injuries. When all information is loaded into AFSAS, the system will automatically populate the OSHA 300 Log.

1.13.4.1. Workplace Violence. Injuries and illness that resulted from any act of physical violence, (e.g., physical assaults, homicide, or disruptive behavior) that occurred at the work site.

1.13.4.2. Terrorist Act. Injuries and illness that resulted from a terrorist event or exposure in the work environment (e.g. release of anthrax) are considered work-related for OSHA recordkeeping purposes.

1.14. Obtaining and Using Health Information.

1.14.1. Health Insurance Portability and Accountability Act of 1996 (HIPAA). DoD Regulation 6025.18-R, *DoD Health Information Privacy Regulation*, implements Public Law 104-191, HIPAA within the DoD. DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, governs the protection, use, and release of safety records. Mishap investigation and reporting requires acquisition of protected health information from the medical community.

1.14.1.1. Safety officials at all levels are responsible for establishing a liaison with installation medical agencies to ensure an information flow has been established (see paragraph 2.3.). DoD Regulation 6025.18-R permits a covered entity to make a use or disclosure of protected health information as required by law. Safety personnel should consult AFSEC/JA or AFSEC/SEH for questions on subsequent release.

1.14.1.2. The safety investigation board (SIB) process and members, to include appointed medical members and human factors additional members, function under the auspices of this AFI and are not “covered entities” under HIPAA. As such, once the SIB receives health information from a covered entity the information ceases to be protected by HIPAA, but remains subject to the Privacy Act as personally identifiable information (PII). The SIB shall protect PII with prudent safeguards to prevent unauthorized release. Medical personnel assigned to the SIB shall inform interviewees HIPAA does not apply, but that safeguards are in place to protect PII.

1.14.2. The requirement to comply with HIPAA applies only to individuals or organizations meeting the definition of a covered entity. A covered entity may use or disclose protected health information as authorized by the individual to whom the information pertains, or as otherwise permitted by DoD 6025.18-R. HIPAA does not preclude an employee from providing medical information to their supervisor, management, or the installation Compensation Program Administrator. For questions on medical information release,

medical personnel should consult DoD Regulation 6025.18-R paragraph DL1.1.31 and the servicing Medical Law Consultant.

1.14.3. The appropriate level Compensation Program Administrator, deemed by the AFPC Injury Compensation Office, will provide injury and illness information to the host installation safety offices in a prompt fashion using appropriate, secure electronic systems such as Safety and Fitness Electronic Records (SaFER).

1.15. Delegation. Unless specifically prohibited, all DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, safety responsibilities assigned to the Secretary of the Air Force are delegated to the Air Force Chief of Safety.

Chapter 2

RESPONSIBILITIES

2.1. General Information. The guidelines in this chapter establish investigating and reporting responsibilities for Air Force mishaps and events.

2.2. The Air Force Chief of Safety (AF/SE) will:

2.2.1. Establish requirements and policies to ensure Air Force mishaps are reported and investigated IAW AFPD 91-2, *Safety Programs*.

2.2.2. Establish requirements and policies to ensure Air Force mishaps, events, and other information that may serve as mishap precursors are reported and investigated sufficiently to serve the needs of a robust mishap prevention program.

2.2.3. Provide technical and investigative expertise to safety investigations as directed by this instruction.

2.2.4. Establish policies and programs to validate the results of safety investigations and to manage Class A and B safety investigation recommendations to their appropriate conclusions. Determine if the OPR has addressed the hazard and completed the actions of the recommendation when submitted for closure.

2.2.5. Maintain records of Air Force safety investigations as directed by Public Law and as necessary for Air Force mishap prevention purposes.

2.2.6. Establish policies and procedures to release safety investigation information to agencies outside Air Force safety channels.

2.2.7. Prepare a Memorandum of Final Evaluation (MOFE) for on-duty Class A and select Class B mishaps and ensure they are disseminated to MAJCOM/SEs.

2.2.8. Develop joint and combined investigation policy or doctrine in coordination with other services and nations.

2.2.9. Respond to requests for privileged safety information in accordance with current safety mission directives.

2.3. The Air Force Surgeon General (AF/SG) will: Ensure medical personnel provide, to appropriate individuals investigating a mishap, medical information related and relevant to the investigation, in support of Air Force mishap investigations.

2.4. MAJCOM Commanders will:

2.4. (USAFA)MAJCOM Commanders will: For the purpose of defining roles and responsibilities under this instruction, USAFA/CC has designated the USAFA/SE as: the Headquarters safety office for Headquarters, United States Air Force Academy; as higher headquarters to the USAFA Commandant of Cadets (USAFA/CW); and as the installation safety office for the 10th Air Base Wing (10 ABW), the Dean of Faculty (USAFA/DF), the Athletic Department (USAFA/AD), the Preparatory School (USAFA/PL) and tenant units without an assigned safety staff.

2.4.1. Establish policies and procedures to ensure mishaps assigned under the provisions of this instruction are properly investigated and reported.

2.4.2. Establish policies and programs to validate the results of safety investigations and track safety investigation recommendations to their appropriate conclusions.

2.4.2. **(USAFA)** For all reportable mishaps accountable to USAFA, the USAFA Director of Safety will ensure reports are reviewed, approved and released and track mishap recommendations through to closure.

2.4.3. Ensure action is taken on all open recommendations on which the command (including subordinate units) is the action agency.

2.4.4. Ensure safety staffs advise all appropriate agencies and organizations within their command to review applicable mishaps to determine whether any of the deficiencies leading to the mishap apply to operations in their unit.

2.4.5. Ensure all mishaps that occur from operations of government contractors which result in reportable damage or injury to the Air Force (paragraph 1.3.), even if the government is wholly or partially repaid, are investigated and reported according to this instruction, AFI 10-220(I), *Contractor's Flight and Ground Operations,* and AFPAM 91-210, *Contract Safety.* This includes non-accepted equipment (non-delivered equipment for which the Government has assumed responsibility) where a DD Form 250, *Material Inspection and Receiving Report*, has not been executed.

2.4.6. Ensure government contracts/lease agreements specify the following prior to executing the contract/lease agreement. **Note:** For AMC-contracted airlift, ensure an MOU is in place with the National Transportation Safety Board (NTSB) and/or Federal Aviation Administration (FAA) for investigative responsibility.

2.4.6.1. The contract/lease agreement will ensure:

2.4.6.1.1. The contractor will notify the Air Force and the contract management authority when reportable damage or injury to the Air Force (paragraph 1.3.) occurs.

2.4.6.1.2. The contractor and subcontractors will support and comply with the safety investigation and formal safety report requirements of this instruction.

2.4.6.1.3. A record of all mishaps involving Air Force resources will be entered into AFSAS. This record includes required safety reports submitted IAW this instruction.

2.4.6.1.4. A record of mishaps involving other DoD resources will be forwarded to the involved agencies with an information copy to AF/SE. This record includes all mishap information.

2.4.6.1.5. When a mishap involves a contract managed by the Defense Contract Management Agency (DCMA), DCMA safety personnel will review the final message safety report and send their response back to AFSEC (paragraphs 7.3. and 7.3.3.).

2.4.6.1.6. The contractors and subcontractors will immediately comply with required toxicology testing and provide required medical information/records to the Medical Officer in the event of an Air Force mishap.

2.4.7. Ensure contract/lease agreements for aerospace vehicles state: "The Air Force is responsible for the investigation of mishaps involving aerospace vehicles. The Air Force is authorized to investigate mishaps involving non-accepted Air Force aerospace vehicles."

2.4.8. Notify the Air Force Nuclear Weapons Center (AFNWC) and the Defense Threat Reduction Agency (DTRA) Nuclear Surety Office if nuclear weapon mishaps require design agency evaluation.

2.4.9. Report significant events or trends that could have adverse effects on the safety, security, or reliability of nuclear weapons systems.

2.4.10. Ensure joint base memoranda of agreement/understanding are developed to comply with this instruction.

2.5. The AFMC and AFSPC Commanders (in addition to MAJCOM/CC requirements) will:

2.5.1. Provide cost analysis data to support Air Force safety investigations. Ensure engine, engine module, and shop replacement unit mishap cost data (material and labor) is provided to the safety investigator within 15 days for Class A mishaps and within 30 days for all other mishap classes. The 15- and 30-day timelines begin when the depot receives the requested information/material.

2.5.2. Provide verbal and written technical assistance in response to Mishap/High Accident Potential (MHAP) Deficiency Reports (DRs) to support Air Force safety investigations. Ensure all exhibit teardown and/or technical reports are provided to the safety investigator within 15 days for a Category I MHAP DR and 30 days for a Category II MHAP DR. The 15- and 30-day timelines begin upon depot induction of the exhibit. Category I MHAP DRs are normally submitted for Class A mishaps and Category II MHAP DRs are normally submitted for Class B and C mishaps. See TO 00-35D-54, *USAF Deficiency Reporting, Investigation and Resolution*, for more information.

2.5.3. Ensure the appropriate PM for the weapon system or items involved receives and reviews MOFEs applicable to their systems and initiates publications or hardware changes as required. Maximize mishap prevention by transferring useful information from one weapon system to another.

2.6. The Convening Authority chosen IAW Chapter 4 will:

2.6.1. Appoint and direct the safety investigation.

2.6.2. Ensure ongoing safety investigations issue required safety reports IAW Table 6.1.

2.6.3. Ensure all safety reports prepared and transmitted when AFSAS is not available (paragraph 6.1.) are entered into AFSAS as soon as possible. This includes changes made to safety reports.

2.6.4. Ensure safety investigations cover all relevant mishap factors and meet the requirements of the Air Force mishap prevention program. Convening Authorities will provide any applicable SIB support materials to all Class A and B Board Presidents/Single Investigating Officers (SIOs).

2.6.5. Forward formal safety reports. Ensure formal safety reports are submitted in AFSAS. If more information is found after a formal report has been submitted, the CA will reopen the investigation or send this information to the AFSEC.

2.6.6. Authorize the release of non-privileged, non-Privacy Act information to news media, relatives, and other agencies through the legal board president, Survivor Assistance Program point of contact, Family Liaison Officer, or Public Affairs representative as appropriate.

2.6.7. Upon receiving notification of a critical safety concern (paragraph 1.6.), take the following actions:

2.6.7.1. Notify other action agencies, the appropriate PM for the weapon system or items involved, the weapons system lead command, (AFPD 10-9, *Lead Command Designation and Responsibilities For Weapon Systems)* and AFSEC. These action agencies must evaluate the nature and seriousness of the information, determine the proper response, and issue required instructions.

2.6.7.2. Ensure the PM has access to specific technical information and other critical information as it becomes available so the PM can meet Operational Safety, Suitability, and Effectiveness (OSS&E) responsibilities required by AFI 63-101/20-101, *Integrated Life Cycle Management.*

2.6.7.3. Ensure originating units send critical safety hazard information to appropriate agencies IAW AFI 11-215, *Flight Manuals Program (FMP)*, and TO 00-5-1, *AF Technical Order System*.

2.6.7.4. Forward to AFSEC/SEF as quickly as practical all critical safety information related to military variants of civil aircraft and commercial off-the-shelf aircraft and equipment. AFSEC/SEF will ensure all such information contributing to the promotion of aviation safety is forwarded to the Administrator of the FAA and/or the Chairperson of the NTSB for appropriate action.

2.7. The Commander of the Active Duty Air Force installation to include Air Force led Joint Bases nearest a mishap (or alternate organization as designated by the CA) will:

2.7. (USAFA)The Commander of the Active Duty Air Force installation to include Air Force led Joint Bases nearest a mishap (or alternate organization as designated by the CA) will: In the cases where the Air Force Academy is the nearest installation, the 10th ABW Commander (10 ABW/CC) is the OPR for roles and responsibilities outlined in 2.7.1. – 2.7.3. USAFA/CC is the OPR for 2.7.4. – 2.7.6.

2.7.1. Respond to a mishap involving DoD assets IAW AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations* and AFMAN 10-2504, *Air Force Incident Management Guidance for Major Accidents and Natural Disasters.*

2.7.2. Provide logistical and investigative support as required. Air Reserve Component (ARC) installations, if nearest the mishap, will respond with available resources to the maximum extent possible, in coordination with the responding active duty installation. **Note:** When mishap response and SIB support MOAs/MOUs between active duty and ARC units are established, they will be initiated by the active duty installation and maintained by the MAJCOM/SE, HQ AFRC/SE, and NGB/SE. In cases where airfields are predominantly non-Air Force, logistical and investigative support would be applicable to the commander of

an active duty Air Force Wing with an SE office nearest the mishap. Contingency funds may be available to reimburse the shipping agency that handles evidence for a mishap that occurred while supporting a contingency operation. To ensure reimbursement the shipping agency must use the appropriate emergency and special program code based on its MAJCOM and the area of responsibility (AOR).

2.7.3. Appoint an Interim Safety Board (ISB) to preserve evidence and gather factual data related to the mishap until the CA appointed safety investigation board or single investigating officer can conduct an investigation. Depending on the mishap, an ISB may consist of one individual or several depending on the judgment of the installation commander.

2.7.3.1. In the event of fatalities, great care must be taken to ensure a positive chain of custody for all human remains. If any chain of custody issues arise, contact the CA immediately.

2.7.3.2. Do not appoint personnel involved in the mishap to the ISB.

2.7.4. Ensure toxicology testing is immediately accomplished following a mishap, if required or deemed necessary. Evidence gathering and toxicology testing should be balanced with operational requirements. For example, during RPA/UAS scenarios where one crew is controlling multiple vehicles, operational need may delay replacement of the crew and toxicology testing until remaining vehicles are safely recovered. A legally defensible chain of custody must be maintained. At a minimum, direct observation and documentation of the sample collection (i.e., name of observer, date/time of collection) should be maintained by the submitting base. Guidelines for the collection and shipment of specimens for toxicological analysis are available at **http://www.afmes.mi** l/. Toxicological analyses should be directed toward controlled substances, any medications as indicated by the medical history, and environmental substances (such as carbon monoxide) as indicated by the nature of the mishap or event. Samples should be sent to the Armed Forces Medical Examiner System (AFMES), Division of Forensic Toxicology (see Attachment 2) to the maximum extent possible. Blood testing is superior and the preferred method for all categories of safety investigations over urine testing since it provides an opportunity to determine the concentration of the substance and thus the expected performance decrement. Also, not all substances are excreted in the urine. Coordinate with the Civilian Personnel Office or Contracting Officer before requiring blood samples from DoD civilian or contractor employees, since they may only be required to complete a urinalysis.

2.7.4.1. Military Members. For all Class A and B aviation mishaps, commanders must test all military crewmembers on the flight orders (see paragraph 2.7.4.1.1. for RPA exceptions). For all on-duty Class A and B mishaps, commanders must test all military members in primary control of the involved equipment or environment; including on-scene instructors if a student is involved. For all classes and categories of mishaps, commanders have the discretion to test any additional involved military members whose actions or inactions, in their judgment, may have been factors in the mishap sequence. Because the evidence is perishable, commanders should test all involved personnel (see paragraph 2.7.4.1.1. for RPA exceptions) for aviation mishaps that have the potential of meeting the Class B threshold. When ARC personnel are involved in a mishap, coordinate with the ARC unit commander and/or AFRC/NGB SE offices to resolve any issues that may arise due to duty status issues (i.e., ARC personnel flying in civilian or

Inactive Duty for Training status). Blood will be used for toxicological testing of military members for aviation safety investigations and is the preferred method for all safety investigations.

2.7.4.1.1. Toxicology testing of military crewmembers involved in a Class A or B RPA/UAS mishap is mandatory only for the crew or crews (including instructors or evaluators performing "over the shoulder" duties) which operated the aircraft during and immediately preceding the mishap sequence. This is defined as the last two crews to operate the aircraft. Additionally, toxicology testing is mandatory for any technician who performed maintenance on the ground control station or aircraft during this period.

2.7.4.1.2. Directed medical examinations and 72-hour/7-day histories of crewmembers involved in a Class A or B RPA/UAS mishap are only mandatory for the RPA/UAS crew or crews (including instructors or evaluators performing "over the shoulder" duties) which operated the aircraft during and immediately preceding the mishap sequence. This is defined as the last two crews to operate the aircraft. Additionally, medical examinations and 72-hour/7-day histories are mandatory for any technician who performed maintenance on the ground control station during this period.

2.7.4.2. DoD Civilians. DoD civilians will be subject to testing when their action or inaction may have contributed to the mishap. Coordinate with the Civilian Personnel Office to assist as needed.

2.7.4.3. Government Contract Employees. Government Contract Employees (includes RPA/UAS crew) will be tested by consent or IAW the terms and conditions of the applicable contract, when their actions or inaction in the commander's judgment may have been a factor in the mishap sequence. Coordinate with the Contracting Office to assist as needed.

2.7.5. Ensure the appropriate military notifications are accomplished:

2.7.5.1. When requested by public affairs (PA) office for mishap information, ensure only non-privileged information is released. Release safety information only as authorized by this instruction.

2.7.5.2. Notify the home installation commander of all casualties, both military and civilian, and ensure the casualties are reported as outlined in AFI 36-3002, *Casualty Services*.

2.7.5.3. Notify the departure and destination bases for aviation mishaps (or the departure base for missile mishaps) and the commander of the unit that had the mishap.

2.7.5.4. Notify the home installation of the persons involved in a United States Army, United States Navy, United States Marine Corps, or United States Coast Guard mishap or, if the home installation is unknown, the nearest installation of the responsible service.

2.7.5.5. Notify the AFMES whenever there is a fatality of an Air Force member.

2.7.5.6. Notify the Air Force Space Command's Hammer Adaptive Communications Element (ACE) if communications support is deemed necessary. Hammer ACE is

funded to provide services to safety investigations at no cost to MAJCOMs or Air Force wings.

2.7.5.7. Notify the Military Surface Deployment and Distribution Command's Defense Transportation Tracking System (Attachment 2) when a mishap involves explosives or other dangerous articles being transported or handled by a commercial motor or rail carrier under Department of Transportation (DOT) regulations.

2.7.5.8. Notify local Command Post (Command Post may have reporting requirements IAW AFI 10-206, *Operational Reporting*). The responding Air Force installation safety office should coordinate with the Command Post on OPREPs generated as a result of a mishap to ensure no inaccurate or privileged information is released.

2.7.6. In the United States, ensure the appropriate civilian notifications are accomplished:

2.7.6.1. Notify the nearest NTSB regional or field office or the nearest FAA Air Traffic facility if a civil aircraft is involved in a mishap on their installation (see contact information in AFMAN 91-223, *Aviation Safety Investigations and Reports*).

2.7.6.2. Notify the FAA Office of Commercial Space Transportation (FAA/AST) Combined Operations Center (Attachment 2) if licensed commercial space systems are involved in the mishap. During launch of a commercial space vehicle from an Air Force facility, the on-site FAA/AST representative will fulfill this notification requirement and up-channel as required.

2.7.6.3. Notify the nearest OSHA area or regional office within 8 hours of an on-duty mishap when the mishap results in an Air Force civilian employee fatality, to include heart attack victims, or involves the inpatient hospitalization of three or more people (one of which must be a DoD civilian employee). If unable to contact the nearest OSHA area or regional office within the required 8-hour time frame, contact the OSHA 24-hour toll-free hot line (Attachment 2). Although outside OSHA's investigative jurisdiction, overseas locations are required to notify AFSEC/SEG of these types of incidents.

2.7.6.4. Notify federal, state, and local environmental officials, as required, of environmental hazards and spills associated with the mishap.

2.7.6.5. Notify appropriate medical or law enforcement authorities as soon as possible in case of non-Air Force injury or property damage.

2.8. The Interim Safety Board (ISB) President or Investigating Officer will:

2.8.1. Preserve evidence.

2.8.2. Identify witnesses and conduct interviews, if required (Attachment 3).

2.8.3. Gather factual data.

2.8.4. Receive a briefing from the on-scene commander/incident commander/recovery operations chief (ROC) on all known hazards (including bloodborne pathogens) and personnel protective equipment requirements for the mishap site.

2.8.5. Accept control of the wreckage and/or evidence, as applicable. The ISB President, Investigating Officer or Chief of Safety will not perform duties as ROC.

2.8.6. Submit a non-privileged preliminary message within 24 hours in AFSAS.

2.9. The Commander of the mishap unit will: (applies when the mishap unit and the mishap location are not co-located)

2.9.1. Coordinate with the commander of the Air Force installation nearest to the mishap to ensure the appropriate notifications in paragraphs 2.7.5. and 2.7.6. are accomplished.

2.9.2. Assist ISB as required/requested. For RPA/UAS mishaps, the commander of the mishap unit will appoint an ISB to complete initial data gathering and preserve evidence for the SIB.

2.9.3. Ensure toxicology testing is performed IAW paragraph 2.7.4.

2.10. Chiefs of Safety or Equivalent will:

2.10.1. Ensure individuals with access to safety or mishap information, privileged or otherwise, know the limitations placed on their uses and are trained on the proper procedures for protecting such materials before receiving any safety or mishap information. Ensure individuals appointed to investigate mishaps are trained on the proper handling procedures of privileged safety information before receiving any safety or mishap information. Annually train all personnel with access to privileged safety information on the proper handling procedures and document their training.

2.10.2. Maintain a current roster of personnel trained and qualified to perform ISB/SIB duties for weapons, space, aviation, and ground mishaps as applicable.

2.10.2.1. Annually provide potential primary interim and safety board members training on the basics of mishap investigation (AFRC will only train personnel for interim board participation per MOAs/MOUs with the closest active duty AF installation).

2.10.2.2. Include in annual training (paragraph 2.10.2.1.) available human factors experts who have been through or will be attending the Aircraft Mishap Investigation and Prevention (AMIP) Course, or the Aircraft Mishap Investigation Course (AMIC), or the Mishap Investigation Non-Aviation (MINA) course, or the legacy Flight Safety Officer (FSO) course. Annually track human factors experts for completion of training and availability to support ISB/SIBs.

2.10.2.3. Annually verify that the Installation Chief of Aerospace/Aviation Medicine (SGP) provides a list to the MAJCOM SGP of all Flight Surgeons, Aerospace and Operational Physiologists, and Psychologists who have completed or require AMIP, AMIC, MINA, or legacy FSO courses. The list will include dates of original formal course training and most recent annual refresher training (paragraph 2.10.2.2.).

2.11. The Deployed Unit Safety Officers (safety personnel deployed with DoD assets or an established safety office overseas in an AOR) will:

2.11.1. Gather evidence and initiate an AFSAS report. This office will coordinate with the appointed safety investigator to compile the mishap data that will be collected locally and forward it to the owning unit for mishap report completion.

2.11.2. Notify the Commander, Air Force Forces (COMAFFOR) safety office, who will, in turn, notify and coordinate with the MAJCOM that owns the asset (property) or personnel involved in the mishap.

2.11.3. Ensure compliance with the requirements set forth in this instruction (paragraph 2.7.) as the "nearest Air Force installation" with regards to responding to a mishap. **Note:** Ultimate investigating and reporting responsibilities remain with the owning CA.

2.11.4. Coordinate with the appointed safety investigator to compile and complete as much of the mishap investigation report that can be accomplished at the mishap location, and then forward to the owning organization for final entry into AFSAS for proper accountability.

2.12. The Responsible Contracting Office will: Ensure contracts and lease agreements require contractors and subcontractors (e.g., contract aircraft maintenance) to promptly report pertinent facts regarding mishaps involving reportable damage or injury to the Air Force and to cooperate IAW this instruction, in any Air Force safety investigation. Cooperation will include toxicology testing (paragraph 2.7.4.). For additional guidance on contracts see AFI 91-202, *The US Air Force Mishap Prevention Program.*

2.12. (USAFA)The Responsible Contracting Office will: The 10th Contracting Squadron (10 CONS) will ensure contract performance work statements direct the contractor to report government property damage or serious injury to contractor personnel to USAFA/SE within one duty day of the mishap or event. (T-3)

2.13. The Safety Investigation Board (SIB) will: Work solely for the CA while accomplishing the requirements outlined in Chapters 5 and 6 of this instruction.

2.14. The Single Investigating Officer (SIO) will: Work solely for the CA while accomplishing the requirements outlined in Chapters 5 and 6 of this instruction.

2.15. The System Program Offices (SPO) will: Analyze (for Class A and B mishaps involving the system(s) they are responsible for) the hazards that contributed to the mishap and recommend materiel risk mitigation measures, especially those that can minimize potential human errors.

2.16. The Installation Fire Chief will: Determine the most probable cause for Class C fire-related mishaps. For Class A and B mishaps, as prescribed in paragraph 4.11.3., SIB Presidents will coordinate fire-related probable cause assessments through MAJCOM Fire Emergency Services (FES) staffs. Any time FES tactics or competency is at issue, the convening authority will request investigative support from the MAJCOM FES staff.

2.17. The Investigating Agency (Security Forces Commander or OSI) will: Provide minimum mandatory data to complete OSHA recordkeeping requirements for all terrorist and workplace violence acts.

2.18. Public Health (PH) Offices will: IAW AFI 48-145, *Occupational and Environmental Health Program*, PH will ensure all occupational and environmental illnesses are investigated in a timely manner and documented in AFSAS. PH will report, monitor, and track occupational illness investigations until completion via the AFSAS Occupational Illness Module. After the provider makes the final determination on the illness report, and prior to closing an investigation, PH will review each illness record to ensure internal (within individual report) and external (compared with other similar illness reports) consistency and that quality data has been captured and documented. PH will forward occupational illness information to the OSHA 300 log via AFSAS (illness reports which are closed as occupationally-related illnesses are automatically included on the OSHA 300 log).

2.19. (Added-USAFA) Unit commanders and Mission Element commanders will: develop written mishap reporting procedures for their units following the guidance set forth in this instruction. The procedures must cover on-duty and off-duty mishap reporting for military and on-duty mishap reporting for civilians. (T-3)

2.20. (Added-USAFA) USAFA/AD & PL athletic trainers will: maintain a log of cadet/cadet candidates of all injuries sustained during intercollegiate practice, intercollegiate competition or physical education classes which may be reviewed by safety mishap investigators upon request. **Note**: Athletic trainers are not responsible for completion of AF Form 978, *Supervisor's Mishap Report*. (T-3)

2.21. (Added-USAFA) 10th Logistic Readiness Squadron (10 LRS) will: notify USAFA/SE of any damage to government-owned/leased vehicles within one duty day of the report of damage; and provide report of damage (i.e. Report of Survey and cost estimates). (T-3)

2.22. (Added-USAFA) All personnel, including cadets, will: immediately notify their commander or supervisor of injury or occupational illness IAW AFI 91-202. (T-3)

2.22.1. **(Added-USAFA)** Mishap reporting is the mishap individual's responsibility. The squadron Air Office Commanding (AOC) and/or Academy Military Training NCO (AMT) and the cadet squadron commander will ensure the AF Form 978, *Supervisor's Mishap Report*, is submitted to the Commandant of Cadets Safety Office (USAFA/CWDS) within five work days of the mishap. (T-3)

2.22.2. **(Added-USAFA)** All personnel, including cadets, sustaining injuries while participating in Airmanship programs will also immediately notify the Flight Safety Officer or Unit Safety Representative for that respective flying squadron. Injuries sustained while participating in Airmanship programs, but realized after leaving the airfield, will be immediately reported to the 306th Flight Training Group Safety (306th FTG/SE). After duty hours reporting will be made to the standby Flight Safety Officer through Command Post. (T-3)

2.23. (Added-USAFA) Commandant of Cadets Safety Office will: immediately forward a copy of all AF Forms 978, *Supervisor's Mishap Report*, that involve an injury related to an Airmanship program (mishaps classified as Aviation mishaps IAW paragraph 1.8.1.3. of this instruction) to the 306th Flying Training Group Safety Office (306 FTG/SE) for investigation and reporting. (T-3)

2.24. (Added-USAFA) 10 Security Forces Squadron (10 SFS) will: assist the safety offices to provide police report involving motor vehicle accidents; both on and off-base. (T-3)

Chapter 3

PRIVILEGED SAFETY INFORMATION

3.1. General Information. Note: Safety privilege is based on a national defense need for rapid and accurate assessment of the causes of mishaps to prevent a recurrence and maintain mission readiness. This privilege creates restrictions on handling and releasing information in safety investigation reports.

3.1.1. Violations of the prohibitions in paragraph 3.3.1. of this instruction are punishable under Article 92, UCMJ and may be grounds for disciplinary actions according to civilian personnel regulations, or may lead to contract actions.

3.1.2. Almost all safety reports contain privileged safety information, but not all information in a safety report is privileged. Preliminary messages, hazardous air traffic reports (HATRs), controlled movement area violation (CMAVs), wildlife strike Class E reports, and non-DoD aviation safety reports do not contain privileged safety information. In addition, ground category Industrial and Occupational, and weapons category Explosive and Chemical Agent safety reports for mishaps that occurred before 3 Oct 00 do not contain privileged safety information (paragraph 3.9.).

3.2. Identifying Privileged Safety Information. Privileged safety information refers to information that is exempt by case law from disclosure outside the Air Force safety community. The military safety privilege is judicially recognized and protects the investigative process. The Air Force treats this information as limited use/limited access. Safety privilege assures commanders obtain critical information expeditiously during a safety investigation and ensures that completed final reports are protected, thereby proactively promoting safety, combat readiness, and mission accomplishment.

3.2.1. Privileged information includes:

3.2.1.1. Findings, conclusions, causes, recommendations, other findings and recommendations of significance, analysis, and the deliberative process of safety investigators. Diagrams and exhibits are privileged if they contain information which depicts the analysis of safety investigators. This includes draft versions of the above material and notes taken by safety investigators in the course of their investigation, whether they are incorporated either directly or by reference, in the final safety report. (See paragraph 3.1.2. for exceptions).

3.2.1.2. Information given to safety investigators pursuant to a promise of confidentiality and any information derived from that information to include direct or indirect references to that information (paragraph 3.4).

3.2.1.3. Computer generated animations, simulations, or simulator reenactments in which safety investigator analysis or privileged testimony is incorporated. Animations made exclusively from recorder data (including Military Flight Operations Quality Assurance data) are not privileged. **Note:** Although not privileged, actual intra-cockpit voice communication has legal protection as private communication and any request for access must be coordinated through legal channels. Requests to any safety office for intra-cockpit voice communications should be directed to the AFSEC/JA.

3.2.1.4. Photographs, imagery, and animations that reveal the deliberative process of the board, including photographs with markings. However, photographs depicting a measuring device or object contracted against mishap evidence for the sole purpose of demonstrating the size or scale of the evidence are not considered privileged safety information.

3.2.1.5. Life Sciences material that contain analysis by a safety or life sciences investigator. **Note:** 72-hour histories, 7-day histories and interview narratives are only privileged if a promise of confidentiality was granted.

3.3. Prohibited Uses of Privileged Safety Reports and Information. Privileged safety information may only be released as provided elsewhere in this instruction or upon specific authorization by the Secretary of Defense. The following prohibitions apply to Part 2 of formal safety reports, status and final safety messages, and any other reports or documents containing privileged safety information.

3.3.1. Air Force civilian employees, military members, and government contractors will not wrongfully use, permit the use of, gain access to, or allow access to the privileged information in any safety report, or portions thereof, for other than officially authorized mishap prevention purposes.

3.3.2. The Air Force does not use privileged safety information as evidence for punitive, disciplinary, or adverse administrative actions, for determining the misconduct or line-of-duty status of any person, in flying evaluation board hearings/reviews, to determine liability or liability in claims for or against the United States, or in any other manner as part of any action by or against the United States.

3.3.2.1. Adverse administrative actions include, but are not limited to, letters of reprimand, counseling, or admonishment, referral EPRs/OPRs, promotion propriety actions (not qualified for promotion, delay and/or denial), administrative separations, selective reenlistment denials, or evidence before any evaluation board and other similar actions. Commanders and supervisors will use other sources of information which are not privileged to take punitive or adverse administrative actions.

3.3.2.2. While privileged safety information may not be used as evidence for punitive, disciplinary, or adverse administrative actions, information from other sources may be used. Sources include information from AIB reports under AFI 51-503, *Aerospace Accident Investigations* and AFI 51-507, *Ground Accident Investigations*, safety mishap participant interviews when promises of confidentiality are not authorized (Article 31, UCMJ, rights advisement may be necessary), Security Forces and/or AFOSI information gathered for criminal matters. Consult your local JA for further guidance on the use of information from legal investigations.

3.3.2.3. The Air Force does not release privileged safety information in response to:

3.3.2.3.1. Requests pursuant to DoD 5400.7-R and Title 5, United States Code, section 552, *DoD Freedom of Information Act* (also known and hereinafter referred to as "FOIA").

3.3.2.3.1.1. Send FOIA requests for all safety reports to AFSEC/JA (Attachment 2).

3.3.3. Controlling and Handling Safety Reports and Information. Personnel having access (both authorized and unauthorized access) to privileged safety reports and information have a duty to control the reports to prevent their use for anything other than mishap prevention. When these reports and information are no longer needed for mishap prevention purposes, dispose of IAW the Air Force *Records Disposition Schedule (RDS).*

3.3.3.1. All requests for release of safety reports and information outside of Air Force safety channels should be immediately forwarded to AFSEC/JA. **Exception**: Transfer of information to a corresponding legal investigation upon completion of a safety investigation.

3.3.3.2. All persons (except the CA, their staff, safety office staff, and AFSEC personnel) given or provided access to privileged safety information by the ISB or SIB prior to the CA briefing must have a Safety Investigation Non-Disclosure Agreement, Witness Promise of Confidentiality and Non-Disclosure Agreement, or Promise of Confidentiality and Non-Disclosure Agreement for Contractor Representatives Serving as Technical Experts to Safety Investigations (See Attachment 3 for examples) on file with the ISB or SIB.

3.4. Promise of Confidentiality.

3.4.1. Purpose. The Air Force gives a promise of confidentiality to encourage frank and open communication with individuals who provide witness statements to a safety investigator and with government contractors who built, designed, or maintained the equipment and participate in the safety investigation. However, if an individual provides a false statement to a safety investigator under a promise of confidentiality, that statement (and any other information that witness gave to the safety investigator) loses its privileged status and can be used to support disciplinary and/or adverse administrative actions.

3.4.2. Promises of Confidentiality Authorized. Promises of confidentiality are only authorized in investigations of Air Force nuclear, space, aviation, guided missile, directed energy, and friendly fire mishaps.

3.4.2.1. Promises of Confidentiality Not Authorized. Promises of confidentiality are not authorized for explosives and chemical agents, afloat, motor vehicle, off-duty military, all ground mishaps, and HATRs.

3.4.2.2. During the investigation of a mishap outside of the categories described in paragraph 3.4.2., there may be occasions when a witness or involved contractor will not provide a statement or information without a promise of confidentiality. An exception may be allowed in circumstances involving complex systems, military unique items, or military unique operations or exercises. All requests for exception should be forwarded through AFSEC/SEG and AFSEC/JA to AF/SE or AFSEC/CD for approval to grant confidentiality to those witnesses.

3.4.3. Persons Authorized to Make Promises of Confidentiality. Only the ISB President, ISB IO, SIB President, SIB IO, or an SIO may offer promises of confidentiality and only during safety investigations where promises of confidentiality are authorized. When conducting safety investigations in which promises of confidentiality are authorized, the SIB President/SIO has the discretion to decide who will be offered a promise of confidentiality. The decision should be based upon a witness or contractor's reluctance to cooperate or

apparent self-interest in not disclosing information. The SIB President may authorize other SIB members to offer the promise of confidentiality in the SIB President's absence.

3.4.4. Persons to Whom Promises of Confidentiality May be Offered. Promises of confidentiality will only be given as needed to ensure forthright cooperation of the witness and may not be given on a blanket basis to all witnesses.

3.4.5. Non-privileged Witness Statements. If witnesses provide statements without a promise of confidentiality, ensure they are informed that their statement will be provided to the AIB (if applicable) and/or may be released to the public pursuant to a FOIA request. Non-privileged witness statements are placed in Part 1 of the safety report. Consult the Host Installation Staff Judge Advocate (SJA) or a labor relations officer for guidance before interviewing any federal civilian employees covered by a bargaining unit. Include a signed **Non-privileged Witness Statement** (Figure A3.3.) with the statement.

3.5. Marking and Documenting Safety Information.

3.5.1. The cover and individual pages of documents containing privileged information will be clearly marked with the privileged warning statement (Figure A3.8.). All media containing privileged information (audiotapes, videotapes, animations, simulations, computer generated profiles, etc.) will be clearly marked with the warning statement (Figure A3.8.). See paragraph 3.6.1. for further information on email. Part 1 (Factual Information and Releasable Material) of a formal report will not be marked with the privileged warning statement.

3.5.2. Safety reports are for official use only (FOUO), DoD 5200.1-R, *Information Security Program*. However, not each document in the report is FOUO. The factual documents in Part 1 of formal safety reports are not typically considered FOUO by this AFI, and should not be marked as such. However, documents from other sources included in Part 1 may already be marked FOUO. For instance, Part 1 documents may warrant protection based on Privacy Act, the Export Control Act, or because they contain proprietary information from a contractor. Only the OPR for the document may authorize removal of FOUO markings.

3.5.3. Promises of Confidentiality (Witness and Contractor Personnel). If a promise of confidentiality is offered and accepted, it must be documented. Use the **Witness Promise of Confidentiality and Non-Disclosure Agreement (**Figure A3.6.) or **Memorandum for Contractor Representatives Serving as Technical Experts to Safety Investigations (**Figure A3.9.) where applicable. Read, record, and transcribe the **Privileged Witness Interview Script** (Figure A3.5.) for recorded interviews of witnesses.

3.5.4. Non-privileged Witness Statements. If witnesses provide statements (written or verbal) without a promise of confidentiality, it must be documented by using the **Non-Privileged Witness Statement** (Figure A3.3.). Read, record, and transcribe the **Non-Privileged Witness Interview Script** (Figure A3.2.) for recorded interviews of witnesses.

3.6. Transmitting Safety Information.

3.6.1. To protect the privileged status and to ensure the correct handling of safety reports, originating organizations will use the AFSAS reporting system to transmit messages. AFSAS is a CAC-enabled system that ensures the protection of privileged information.

When transmitting or sharing privileged safety information outside of AFSAS follow the below procedures:

3.6.1.1. Ensure no privileged information is included in the body of the email.

3.6.1.2. Annotate safety reports and messages or portions of reports and messages as FOUO following paragraph 3.5.2. guidance, save as a password-protected document, and send encrypted.

3.6.1.3. Send the applicable password in a separate message or by another mode of transmission.

3.6.1.4. If neither AFSAS nor email are available for transmission, a facsimile machine (FAX) may be used. Follow the labeling procedures described above. Take precautions to ensure the recipient will receive the FAX immediately upon receipt and verify receipt once transmitted.

3.6.2. Classified Mishap Reporting, Weapons Safety Investigations and Reports. Submit all classified mishap reports (e.g. DULL SWORD, BROKEN ARROW, etc.) via SIPRNET or other appropriate classified transmission method for mishap reporting, tracking and prevention to the appropriate office for coordination and dissemination. Submit unclassified portions of the mishap report in AFSAS as appropriate.

3.7. Authorized Use and Release of Privileged Safety Reports and Information. In order to help ensure courts honor the assertion of privilege, the rules described in this paragraph must be followed. The Air Force ensures privileged safety reports and information are used only by persons and agencies whose duties include relevant mishap prevention responsibilities (paragraphs 3.7.2. and 3.7.3.). All personnel and agencies authorized access to privileged safety reports and information will follow the policy in paragraph 3.3. Unique circumstances described in paragraphs below allow designated individuals to release privileged information outside the Air Force. Privileged safety information remains Air Force property. Questions regarding access to privileged safety information should be referred to AFSEC/JA. If an agency outside the Air Force needs a copy of any safety related documents for mishap prevention, corrective actions or other purpose, regardless of whether they are privileged, coordinate through AFSEC/JA and the AFSEC safety specific discipline (SEF/SEG/SEW/SES) by message or telephone before releasing statements to the requestor. Access is limited to information that is necessary for and consistent with mishap prevention. Whenever privileged safety information is requested, first determine whether mishap prevention goals can be met by sanitizing the information (paragraph 3.7.1.). If the answer is no, then provide only the necessary information to the authorized persons or agencies with the restrictive markings affixed.

3.7.1. Sanitizing Privileged Safety Reports. Sanitizing reports or extracts from reports means obscuring the relationship between the identity of a mishap and the findings, conclusions, causes, recommendations, deliberative processes resulting from the investigation, and statements made under a promise of confidentiality. Wing safety officers or their designated representatives (that are properly trained) may sanitize privileged safety reports and other media for unit use and for use by authorized contractor personnel. Some mishaps, because of widespread publicity or unique circumstances, cannot be fully sanitized. After a report has been sanitized, the remaining portions of the findings, causes, recommendations, conclusions, or opinions of the investigation are no longer privileged.

Note: Sanitized reports are not necessarily releasable to the public since they may still contain contractor proprietary information or information protected by the Privacy Act, Arms Export Control Act, or Export Administration Act. Ensure sanitized reports are appropriately labeled. Sanitizing a report involves separating the following identifying information from related safety investigation findings, causes, recommendations, conclusions, or opinions:

3.7.1.1. Date and place of the mishap.

3.7.1.2. Aircraft, RPA/UAS, missile, vehicle, or weapon serial number.

3.7.1.3. Names and social security numbers (SSN), if included, of participants, witnesses, and investigators.

3.7.1.4. Any other detail that directly, indirectly, or in aggregate identifies the mishap or any individual who has given information pursuant to a promise of confidentiality.

3.7.1.5. Remove identifying information and markings identifying the documents as privileged or FOUO before reproducing sanitized reports or extracts of reports.

3.7.1.6. Do not release statements or contractor reports obtained with a promise of confidentiality.

3.7.2. Limiting Release within the Air Force. Safety officers and their staffs, duly appointed safety investigators, AFSEC personnel and AF/SE and his/her staff, are authorized access to, and use of, privileged safety information based on their safety duties. Other Air Force officials, when their duties include mishap prevention and when it is necessary to develop, take, or review preventive actions, may obtain access to privileged safety information. AF/SE, AFSEC/CD and division chiefs, MAJCOM, NAF/Center or unit Chiefs of Safety, SIB Presidents or SIOs are authorized, when sanitized information is inadequate, to provide privileged safety information as lessons learned to Air Force members on a need-to-know basis and solely for mishap prevention. They will ensure members are instructed on properly protecting information, their responsibilities to prevent unauthorized release, and that they sign non-disclosure agreements. Lessons learned will not include confidential statements or contractor reports.

3.7.2.1. Each organizational SE will be responsible for determining and granting AFSAS accounts for personnel within their own organization. SE's will ensure that those granted an AFSAS account fully understand the handling and protection of privileged information and maintain documentation of annual privileged training for each account holder (excluding those with MUSTT only accounts). Account access will be limited to mishap prevention purposes.

3.7.2.1.1. Authorized medical personnel only needing access to the Occupational Illness module may gain an AFSAS account through their public health office.

3.7.2.2. AIB investigators with a safety need to know (e.g., pilots, commanders, operations personnel) may have access to privileged safety information from the corresponding safety investigation only after final approval of the AIB report. AIB investigators must first coordinate with the CA, JA, and SE if the AIB report has not been released to the public. The CA will determine if access is appropriate before next-of-kin are briefed following a fatal mishap.

3.7.2.3. Part 1 of the two-part formal safety report and certain factual information is given to the AIB president (see paragraph 5.14. and the discipline specific safety manual AFMAN 91-22X).

3.7.2.4. ANG and AF Reserve Personnel. Apply the test for releasing privileged safety information that is described in paragraph 3.7. Do not withhold privileged safety reports from ANG and AF Reserve personnel who have a need to know when sanitized information is not adequate to develop, take, or review corrective action. Persons having a need to know include, but are not limited to, those involved in mishap prevention; whose duties include the preparation, dispatch, or internal distribution of safety reports; and those who act in response to mishap prevention recommendations. Releasing information under this paragraph does not constitute release outside the Air Force.

3.7.2.5. Other Air Force officials such as a Staff Judge Advocate (other than AFSEC/JA), Historians, Public Affairs, criminal investigative agencies such as the Air Force Office of Special Investigations (OSI), and Security Forces do not receive privileged safety information because of possible conflicts of interest and because use of such information by these officials would not be for mishap prevention purposes.

3.7.3. Limiting Release Outside the Air Force. In certain cases, the Air Force has agreed to exchange privileged safety information with other DoD agencies solely for mishap prevention purposes. Also, the Air Force shares certain mishap prevention information with other entities in the interests of the general safety community. In all cases, contact HQ AFSEC/JA for approval to release.

3.7.3.1. Responding to Subpoenas and Legal Process (discovery requests, subpoenas, court orders, depositions, or other legal processes except as provided in paragraph 3.12).

3.7.3.1.1. Upon receipt of a legal process requiring participation in a court proceeding, including depositions and requests for production of documents, contact AFSEC/JA and the nearest Air Force base legal office. Fax a copy of the legal process to AFLOA/JACC (DSN 426-9009; commercial (703) 696-9009). Encourage requesters to ask the MAJCOM/JA for the AFI 51-503, *Aerospace Accident Investigations*, accident investigation report if one has been prepared.

3.7.3.2. Historical Safety Reports. AF/SE or AFSEC/CD may release the findings of a Safety Board, contained in historical safety reports prepared IAW DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping* (or its predecessors), provided no national defense or safety interest exists. For the purpose of this provision, historical reports shall be defined as those concerning mishaps more than 30 years old. **Note:** Safety Reports on pre-1956 mishaps are not protected by the safety privilege and are stored at the Air Force Historical Research Agency, Maxwell AFB.

3.7.3.3. Limiting Release to Contractors. Contractors may need access to privileged safety information when they are performing an Air Force function involving mishap prevention. Contractors may also need access to privileged safety information if they designed, built, maintained, or operated Air Force weapon systems, their components, or other Air Force equipment, in order to correct defects or other problems and help prevent future mishaps. When contractors need access to privileged safety information either the **Safety Investigation Non-Disclosure Agreement (**Figure A3.1.), or **Memorandum for**

Contractor Representatives Serving as Technical Experts to Safety Investigations (Figure A3.9.) must be signed and stored at the safety office. Access will be limited to what is needed to prevent future mishaps. Contractors will not release the information to personnel who do not have safety responsibilities; for example, privileged safety information will not be released to the general counsel's office or public relations personnel. The number of contractor employees who have access to the information shall be strictly limited to only those individuals who have a need to know the information in order to enhance the safety of the Air Force weapon systems. After a project is complete, contractors will not maintain the information in their files and will ensure all items are destroyed. Contractors must understand and agree to their responsibilities to treat such information as confidential (paragraphs 3.3., 3.3.3., and 3.7.). Under no circumstances shall an AF contractor not working in direct support of a safety investigation have access to information (the witness statement) given to a safety investigator pursuant to a promise of confidentiality or to any direct references to that information or to any information that could be used to identify the source who provided the information.

3.7.3.3.1. Contractors who built, designed, or maintained equipment involved in mishaps send representatives to support Air Force SIBs at the request of the Air Force. SIB presidents and safety investigators will ensure those representatives understand that the Air Force may, at the contractor's request, extend a claim of privilege over documents provided by the contractor representatives to the SIB when the Air Force maintains sole possession or control. A claim of privilege may not be sustained over notes, documents, and other matter produced during the SIB investigation by the contractor but retained by the contractor representatives. The SIB president grants these contractors access to privileged safety information only if it is essential to assist the SIB.

3.7.3.3.2. Contractors providing weapon system maintenance support are performing an Air Force function. The wing Chief of Safety, NAF/SE, MAJCOM/SE, or AFSEC may provide the contractors safety information for AF safety purposes.

3.7.3.3.3. Air Force operations conducted at contractors' facilities require privileged safety information handling.

3.7.3.3.4. Contractors providing weapon system crew training are performing an Air Force function, and need privilege safety information from safety reports, videos, and other similar media to build training scenarios. The wing Chief of Safety, NAF/SE, MAJCOM/SE, or AFSEC may provide the contractors privileged safety reports for this function.

3.7.3.3.5. Contractors who instruct safety programs in mishap investigation or safety program management contracted by the Air Force or ARC require access to privileged safety information. The wing Chief of Safety, NAF/SE, MAJCOM/SE, or AFSEC may provide the contractors safety reports for this function.

3.7.3.3.6. Contractors who build, design, maintain, or operate Air Force weapon systems, their components, or other Air Force equipment may need privileged safety information to correct defects or other problems and prevent future mishaps. The wing Chief of Safety, NAF/SE, MAJCOM/SE, System Program Office safety officer or equivalent, or AF/SE or AFSEC/CD may provide contractors privileged safety

information for this function. This includes Space System Contractors, Space Technical Support Contractors, Advisory & Assistance Services, and Federally Funded Research & Development Centers when they are performing an Air Force function.

3.7.3.3.7. Contractors performing AF safety functions may require privileged safety information. Wing Chief of Safety, NAF/SE, MAJCOM/SE, or AFSEC/JA may authorize access to privileged safety information for this function.

3.7.3.3.8. Any other release of privileged safety information to contractors must first be approved by AF/SE or AFSEC/CD.

3.7.3.4. Limiting Release to Other Services and DoD Agencies. Approval authority for exchanging formal safety reports with other military services is AF/SE, AFSEC/CD or AFSEC/JA. Other US military services and DoD agencies responsible for flying, supporting or maintaining Air Force aircraft may request privileged safety information when needed for mishap prevention. Joint project or program offices may share privileged safety information with members of other DoD agencies working on the same project or program without prior approval.

3.7.3.5. Limiting Release to Foreign Military Organizations. All agreements regarding the release of safety information to foreign military organizations are subject to the limitations and guidance found in DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping* and DoDD 5530.3, *International Agreements*. Release of safety information to NATO military organizations is governed by NATO STANAGs 3101, *Exchange of Safety Information Concerning Aircraft and Missiles*, and 3531, *Safety Investigation and Reporting of Accident/Incidents Involving Military Aircraft, Missiles, And/Or UAVs*.

3.7.3.5.1. Foreign Nationals Flying USAF Aircraft or Participating in USAF Training. Release of safety information to foreign nationals is governed by DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*. Note that foreign national military personnel assigned to the DoD Components are defined as DoD military personnel by DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*. **Note:** Foreign nationals in student status are not authorized access to privileged safety information.

3.7.3.5.2. Comparable persons and offices within European Participating Air Forces countries may have access to privileged information pertaining to F-16 mishaps only. These countries are participants in the multinational fighter program of co-production of the F-16 with the United States. The release authority is the AF/SE. This information is for mishap prevention purposes only.

3.7.3.6. Limiting Release of Nuclear Safety Reports to Agencies outside the Air Force. AF/SE may approve the release of extracts of nuclear safety reports to US governmental agencies with statutory jurisdiction, such as the DTRA; and operations offices or authorized contractors of the Department of Energy. The MAJCOM commander may provide DULL SWORD reports about weapons and common equipment deficiencies to the unified commander as deemed appropriate and necessary for the theater commander to accomplish his or her role in nuclear surety. Send this information by inclusion of the

appropriate unified command address in the message report as provided by the MAJCOM supplement to this instruction. The unified commander ensures the information is treated as privileged information and not released or distributed outside the respective headquarters without first obtaining permission from AF/SE. The Air Force releases this information only to reach its nuclear surety goals.

3.7.3.7. Limiting Release to NTSB and FAA. AFI 91-206, *Participation in a Military or Civil Aircraft Accident Safety Investigation*, governs the release of safety information to the NTSB and FAA for aviation mishaps. For other mishaps, use AFI 91-206, *Participation in a Military or Civil Aircraft Accident Safety Investigation*, as a guide.

3.7.3.8. Limiting Release to the National Aeronautics and Space Administration (NASA) and National Reconnaissance Office (NRO). Applicable space safety reports will be distributed to NASA and NRO upon completion.

3.7.3.9. Sharing privileged safety information with non-DoD US Government Agencies. AF/SE may establish reciprocal formal agreements for sharing relevant safety information with other federal agencies regarding similar airframes or systems for mishap prevention purposes, but only where adequate protection of privileged safety information exists to maintain the safety privilege, and where the recipient agency agrees to provide similar safety information to the Air Force. All such reciprocal agreements must meet the requirements of DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*. Whenever appropriate the AF should share non-privileged safety information such as aggregate data or sanitized reports in lieu of privileged reports.

3.8. Authorized Use and Release of Non-Privileged Safety Reports and Information. Safety Reports may contain non-privileged information (e.g., Part 1 of Class A and B Aviation Safety Reports) and some reports are non-privileged in their entirety. The purpose of these reports is mishap prevention. These reports can be released outside the Air Force safety community and outside the Air Force once protected information, including Privacy Act information and Export Control Act information, is removed.

3.8.1. Do not disclose the identities of involved personnel in educational or promotional materials.

3.8.2. When release will be made outside the AF, AFSEC/JA or their delegated representative is the release authority. AFSEC personnel or the installation chief of safety is the release authority for providing these reports to other Air Force personnel. The reports may not be used for any purpose other than mishap prevention.

3.8.3. To control reports, do not retain copies at the local level. Access to non-privileged reports will be through AFSAS, and all copies will be destroyed when no longer needed for mishap prevention purposes.

3.9. Handling and Disclosing Reports on Ground and Industrial, and Explosives and Chemical Agents Mishaps that occurred before 3 Oct 00.

3.9.1. The purpose of these reports is mishap prevention. The reports were normally considered general-use reports in that witnesses were not promised confidentiality, and the reports were not considered privileged. However, they are FOUO and are handled according to DoD Regulation 5400.7-R/AF Supplement, *DoD Freedom of Information Act Program*.

3.9.2. Do not disclose the identities of involved personnel in educational or promotional materials.

3.9.3. These reports can be released outside the Air Force safety community and outside the Air Force once protected information, including Privacy Act information, findings, and recommendations are removed. When release will be made outside the AF, AFSEC/JA is the release authority. The installation chief of safety is the release authority for providing these reports to other Air Force personnel. The reports may not be used for any purpose other than mishap prevention, with the exception that the complete report may be released to Air Force claims personnel to assist them in evaluating claims for damages filed against the Air Force.

3.9.4. To control reports retain only one copy of each safety report at wing or base, intermediate command, and MAJCOM safety offices. Air Force and unified command agencies may view these reports for official purposes, but they do not release copies without approval of the appropriate disclosure authority. Advise personnel viewing these reports that findings of cause, conclusions, recommendations, corrective actions, and witness statements taken by safety investigators in the course of the investigation are used primarily for mishap prevention purposes. Refer all requests for release to AFSEC/JA.

3.9.5. Upon written request, AFSEC/JA provides the releasable portions of ground and explosive safety reports to the requester.

3.10. Technical Orders (TOs) and Time Compliance Technical Orders (TCTOs). TOs and TCTOs, including maintenance manuals and flights manuals, are usually limited release documents. They are often protected by Section 38 of the Arms Export Control Act (AECA) (22 U.S.C. 2778); the Export Administration Act of 1979 (50 U.S.C app. 2401-2420); or the International Emergency Economic Powers Act (50 U.S.C. 1701-1706). Written approval (e-mail is acceptable) must be obtained from the technical content manager prior to including these documents in Part 1 SIB reports. Include a copy of the approval in the formal report.

3.11. Actual or Potential Compromise of Privileged Safety Information

3.11.1. Policy.

3.11.1.1. It is Air Force policy that unauthorized releases of privileged information will be thoroughly investigated to minimize any possible damage to national security and to continue to ensure safety privilege is protected. The investigation will identify appropriate corrective actions that will be immediately implemented to prevent future unauthorized releases.

3.11.1.2. Suspected instances of unauthorized public disclosure of privileged safety information shall be reported promptly and investigated to determine the nature and circumstances of the unauthorized disclosure, the extent of the disclosure, and any ramifications on protecting it from further release, and the corrective and disciplinary action to be taken.

3.11.1.3. A compromise of privileged safety information occurs when unauthorized individuals are knowingly, willfully, or negligently given access to privileged safety information. Unauthorized individuals include those individuals who do not have a safety need-to-know. Refer to paragraph 3.7.

3.11.2. Reporting and Notifications.

3.11.2.1. Personnel who learn of an unauthorized release of privileged safety information should immediately report it to their MAJCOM Safety office, who will in-turn report the incident to AFSEC/JA.

3.12. Protection of Privileged Safety Information from Use in Court Proceedings.

3.12.1. The procedures in this section are used to protect privileged safety information when parties to civil litigation or criminal trials attempt to compel its release.

3.12.2. A copy of the releasable portions of the safety investigation report shall be provided to a party of a court proceeding upon request. Information that is protected from release to the public only by the Privacy Act is releasable for this purpose. All such requests must be forwarded to AFSEC/JA for action.

3.12.3. Requests for privileged safety information will be processed in accordance with DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping* and the delegation of authority provided in AF Mission Directive 1-45. Copies of any court orders seeking to compel release of privileged safety information should be immediately forwarded to AFSEC/JA.

Chapter 4

DETERMINING INVESTIGATIVE RESPONSIBILITY

4.1. General Information. The Air Force generally assigns mishap investigative responsibilities to the MAJCOM that experienced the loss of an assigned/owned asset (personnel or property). The MAJCOM with investigative responsibility may or may not have Operation Control over the asset (property). In some cases, mishaps may involve assets or individuals from multiple agencies. Follow the guidance in this chapter and DoDI 6055.07 *Mishap Notification, Investigation, Reporting, and Record Keeping*, Enclosure 8 to determine mishap notification, investigation, and reporting procedures.

4.2. Convening Authority Determination. The CA is the individual who has the authority to order a safety investigation. The MAJCOM/CC of the organization that owns the asset is considered to be the CA unless: AF/SE assumes investigative responsibility, another MAJCOM/CC assumes investigative responsibility (with the concurrence of the owning organization and AF/SE), or investigative responsibility is delegated to a lower level of command.

4.2. (USAFA)Convening Authority Determination. The USAFA/CC is the convening authority for all ground and explosives mishaps involving USAFA resources. For flight mishaps, follow guidance in applicable MOAs and AFI 91-204 chapter 4.

4.2.1. For all on-duty Class A and all NUCFLASH, BROKEN ARROW, EMPTY QUIVER, or BENT SPEAR mishaps, the MAJCOM/CC is the CA. This authority will not be delegated to a subordinate commander. **Exception:** For ARC Class A mishaps see paragraph 4.5.

4.2.2. For all other mishaps and events, the CA may be delegated to an appropriate level of command. This delegation will be made in writing within the MAJCOM supplement.

4.2.3. The Owning Unit is that unit which has permanent possession and mishap reporting accountability for the assets and personnel involved in the mishap. For mishaps involving multiple “owning” units within the same command, the units involved will mutually agree who will assume CA and mishap reporting responsibilities. In cases where agreement cannot be reached, the MAJCOM/CC will determine the accountable organization.

4.2.4. For RPA mishaps where damage is confined to the RPA, the owning MAJCOM is the organization that owns the RPA, regardless of the controlling organization.

4.3. Mishaps Involving Multiple Commands. Involved MAJCOM/CCs will determine which command will assume investigative responsibility and advise AF/SE within 24 hours. In general, the command whose asset initiated the mishap will assume investigative responsibility. If mishap initiation is initially unclear, the command sustaining the highest level of loss in the mishap will assume investigative responsibility. The MAJCOM/CC may determine other compelling reasons exist for assigning investigative responsibility differently. If MAJCOMs cannot reach agreement, AF/SE will determine mishap investigation responsibility.

4.4. Mishaps Involving Multiple Services. For a multi-service or joint operational mishap, follow most current MOU among the US Army, Air Force and Naval Safety Centers, Headquarters Marine Corps (Safety Division) and the US Coast Guard Health and Safety Directorate for Safety Investigation and Reporting of Joint Service Mishaps (see Attachment 8).

The MAJCOM/SE should contact the applicable AFSEC safety discipline division to determine investigative responsibility.

4.5. Mishaps Involving Air Reserve Component Assets. The CA for all ARC Class A aviation mishaps is the gaining MAJCOM/CC. For all other mishaps and events, convening authority is determined by the AFRC/CC or NGB/CF as applicable.

4.6. Mishaps Involving NATO Systems or Personnel. Investigate and report mishaps involving Air Force aircraft, space vehicles, or missiles according to this instruction. Comply with NATO STANAG 3102, *Flight Safety Co-operation in Common Ground/Air Space*, 3318, *Aeromedical Aspects of Aircraft Accident/Incident Investigation*, 3531, *Safety investigation and Reporting of Accident/Incidents Involving Military Aircraft and/or Missiles*, and AIR STD 85/02A, *Investigation of Aircraft/Missile Accidents/Incidents* (with US reservations). The investigation required under STANAG 3531, *Safety investigation and Reporting of Accident/Incidents Involving Military Aircraft, Missiles, And/Or UAVs* is in addition to, and conducted separately from, the investigation required by this instruction.

4.6.1. When a ground mishap/event involves only NATO military assets and/or personnel, the NATO nation military authorities are responsible for the investigation. The USAF generally reserves the right to participate as an observer on the NATO safety investigation or, if no investigation is conducted, the right to conduct its own safety investigation.

4.6.2. When an on-duty ground mishap/event involves both USAF and NATO assets and/or personnel (military or civilian), the Air Force will conduct a safety investigation.

4.7. Mishaps Involving Non-NATO Foreign Military Equipment or Personnel in the Continental United States (CONUS). It is desirable to conduct only one safety investigation that has the full support and participation of all involved nations. However, separate investigations are authorized if necessary due to law, agreement, or procedure.

4.7.1. When a mishap/event involves only foreign military assets and/or personnel, the foreign nation military authorities are responsible for the investigation to include off-duty mishap/events. The USAF generally reserves the right to participate as an observer on the foreign safety investigation or, if no investigation is conducted, the right to conduct its own safety investigation.

4.7.2. When a mishap/event involves a foreign military aircraft and a US civilian aircraft in the CONUS, the NTSB has priority over the investigation (paragraph 4.8.).

4.7.3. When an on-duty mishap/event involves both USAF and foreign assets and/or personnel (military or civilian), the Air Force will conduct a safety investigation. Depending on the circumstances the NTSB may take priority over the investigation.

4.8. Mishaps Involving Civil Aviation, Commercial Spacelift, Civil Air Patrol and USAF Aero Clubs, and USAF Flight Screening Students.

4.8.1. The NTSB investigates mishaps involving both Air Force and civil aircraft that occur within US jurisdiction. The Air Force may send an observer to the NTSB investigation and/or may conduct a separate investigation. However, the NTSB has priority over all evidence. See AFI 91-206, *Participation in a Military or Civil Aircraft Accident Safety Investigations*, for guidance on NTSB, FAA, and Air Force cooperation in these investigations.

4.8.2. Air Force mishaps that occur within US jurisdiction involving commercial spacelift may be investigated by the NTSB, the FAA/AST, and the commercial vendor depending on the extent of the mishap. The Air Force may send an observer to any of these investigations and/or may conduct a separate investigation. If the NTSB leads the investigation, the NTSB has priority over all evidence. See AFMAN 91-222, *Space Safety Investigations and Reports*, for more information.

4.8.3. For mishaps involving Civil Air Patrol (CAP), USAF active duty, or government civilians flying CAP-owned assets on approved AF missions, follow the procedures in paragraph 4.8.1. and AFMAN 91-223, *Aviation Safety Investigations and Reports.* Mishaps involving CAP volunteers or CAP Corporation employees will be handled by the NTSB/FAA.

4.8.4. USAF Aero Club Mishaps. For mishaps involving Air Force Aero Clubs, the NTSB is the lead investigating agency. If the NTSB or designated representative agency does not investigate, the host wing commander will direct the wing safety office to conduct an investigation. **Exception:** For mishaps occurring outside the United States, the host nation civil aviation authority may have jurisdiction and investigative authority.

4.8.4.1. If an Aero Club aircraft is on a USAF-directed mission, investigate IAW this AFI and AFMAN 91-223, *Aviation Safety Investigations and Reports* (i.e., Air Force personnel using an Aero Club aircraft to conduct an airfield assessment for certification purposes).

4.8.5. Civil Aviation mishaps resulting in injury to Air Force students participating in Initial Flight Screening (IFS), Navigator Introductory Flight Training (NIFT), and other contracted flight training are considered Aircraft Flight mishaps and investigations of these mishaps will also be conducted IAW this AFI and AFMAN 91-223, *Aviation Safety Investigations and Reports*.

4.9. Mishaps Involving Contractors.

4.9.1. Government contractor involvement. Mishaps considered "in the open" means the aircraft is outside the contractor's facility while mishaps "under cover" means the aircraft is inside the contractor facility undergoing modification or is undergoing production. (See AFI 10-220, *Contractor's Flight and Ground Operations*).

4.9.1.1. If the Air Force administers the contract and the mishap involves reportable damage or injury to the Air Force (paragraph 1.3.1.1.), the MAJCOM/CC administering the contract is the CA. CA may be transferred based on preponderance of loss, operational control, equity in the mishap, or IAW paragraph 4.2. The CA will ensure the mishap is investigated and reported IAW this instruction and the terms of the contract.

4.9.1.2. If the Air Force administers the contract and the mishap involves reportable damage or injury to another DoD agency (paragraph 1.3.1.1.), the CA will ensure all mishap information is sent to the involved agency with an information copy to AFSEC.

4.9.1.3. If another DoD agency administers the contract and the mishap involves reportable damage or injury to the Air Force (paragraph 1.3.1.1.), the MAJCOM who suffered the preponderance of loss will ensure the mishap is investigated and reported according to this instruction.

4.9.2. Mishaps Involving Non-Accepted Air Force Aerospace Vehicles. The MAJCOM/CC who negotiates the contract for the aerospace vehicle is the CA. The CA may be delegated IAW paragraph 4.2. Non-accepted aerospace vehicle mishaps may be investigated at the discretion of the CA. These losses (non-DoD aircraft) are recorded as mishaps to the Air Force at Large.

4.9.3. Mishaps involving aerospace vehicles leased to a Non-DoD organization for modification, maintenance, repair, test, contract training, or experimental project for a DoD Component, when the government has assumed ground and flight risk. The MAJCOM/CC who negotiates the contract for the aerospace vehicle is the convening CA. The CA may be delegated IAW paragraph 4.2. The CA is responsible for the safety investigation and reporting, although the aerospace vehicle may not be under the operational control of the Air Force. The aerospace vehicle loss is recorded as a mishap to the Air Force at Large.

4.9.3.1. AFMC centers normally negotiate all aircraft and engine leases. If another agency negotiates a lease, the agency and HQ AFMC/SE shall determine who the CA will be prior to executing the lease.

4.9.4. Other Aerospace Vehicle Contractor Mishaps. If a mishap involves government-furnished or leased aerospace vehicles, or new production aerospace vehicles (accepted by the Air Force on a DD Form 250, *Material Inspection and Receiving Report*, but not yet delivered), the MAJCOM/CC of the command negotiating the contract/lease is the CA unless otherwise specified in the contract/lease agreement. In cases where contract/lease agreements specify investigative jurisdiction, follow the terms of such agreements. In no case will a non-Air Force agency have safety investigation jurisdiction.

4.9.5. Aerospace Vehicle Contractor Mishaps Involving Air Force Indemnification. For operations involving unusual hazardous safety risks that are indemnified by the Air Force, such as contractor provided launch services for Air Force or National Security Space payloads, the MAJCOM that acquired the operational service is the CA for the mishap.

4.10. Civilian Occupational Mishaps.

4.10.1. OSHA will be notified of an on-duty mishap resulting in an Air Force civilian employee fatality, to include heart attack victims, or involving the inpatient hospitalization of three or more people (one of which must be a DoD civilian employee) within 8 hours of an on-duty mishap (paragraph 2.7.6.3.).

4.10.2. OSHA officials may accompany Air Force safety investigators as observers, or they may conduct a separate investigation of occupational mishaps involving either a DoD civilian fatality or the inpatient hospitalizations of three or more civilian personnel (one of which must be an on-duty DoD civilian employee). Ensure Air Force personnel accompany OSHA officials.

4.11. Special Circumstances.

4.11.1. Mishaps Involving Friendly Fire. Unless otherwise agreed, the Service whose forces suffer the preponderance of loss or injury will conduct a safety investigation at the discretion of the Combatant Commander and, after consultation and coordination with the Combatant Commander, through the Combatant Commander's Service Component. For mishaps involving other friendly nations, the involved Service Safety Chief shall consult with the

Deputy Under secretary of Defense for Installations and Environment (DUSD) and the Combatant Commander to determine what role the other involved nations will play in the investigation. In those circumstances where the only forces lost or injured are those of other friendly nations, the Service conducting the safety investigation will be determined at the discretion of the Combatant Commander. Refer to DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, and the Joint Service MOU (Attachment 8) for specific guidance on command relationships and reporting requirements.

4.11.2. Mishaps Involving Potential Criminal Acts. If safety investigators discover evidence of criminal acts causal to the mishap, they must immediately stop the investigation and notify the CA. The CA shall notify the responsible Military Criminal Investigative Organization or Federal or local law enforcement, depending on jurisdiction at the location of the mishap, IAW DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, paragraphs E3.3 and E4.3.b(1), when they determine there is credible evidence of criminal activity. The CA will, after coordinating with AF/SE, determine whether the safety investigation should continue or be suspended pending the criminal investigation. In the investigation of a fatal mishap (if initiated), an OSI investigation will take precedence over the safety investigation until criminal activity, natural causes, and suicide have been ruled out as possible causes of damage, injury, or death.

4.11.2.1. If the CA decides to suspend the safety investigation, investigators will give all non-privileged material to the legal investigators, provide them with the names of all known witnesses, and safeguard all privileged material. If the safety investigation is suspended, it may be resumed and completed after the criminal investigation or when determined by the CA, as appropriate.

4.11.3. Mishaps Involving Fire Loss. For fire losses meeting the Class A or B mishap threshold involving real property, wildlands from wildland fires, or personal property (excluding military aircraft flight-related operations), provide an independent fire investigation and report. The fire investigation and report shall identify point of origin and cause of fire (the circumstances, conditions, or agencies that bring together a fuel, ignition source, and oxidizer, such as air or oxygen) for inclusion in subsequent legal or safety investigations. See AFI 32-2001, *Fire Emergency Services Program*, paragraph 5.1.7. for support provided by FES for mishap investigations and reports. Fire reports will be loaded in the appropriate tab when applicable.

Chapter 5

SAFETY INVESTIGATIONS

5.1. General Information. The CA determines the depth of investigative effort required for each mishap, subject to this instruction and the appropriate discipline specific safety manual (AFMAN 91-22X). Several factors influence the depth of investigative effort required: severity of injury or occupational illness, future mishap potential, and whether another agency's investigation will produce a report the Air Force can use for mishap prevention. Other agencies, such as the local police or NTSB, may investigate mishaps that occur within their jurisdiction. A separate Air Force investigation will be completed when required by this instruction. However, the safety investigator may use the other agencies' reports and information when applicable.

5.2. Investigation Timeline. The safety investigation should be completed within 30 days of the mishap (See Table 6.1. for reporting timelines and exceptions). The investigation should place a greater priority on a thorough, complete, and accurate safety report than on trying to finish in the 30-day timeline. If the investigation cannot be completed within this 30-day period, the SIB/SIO will request an extension from the CA. The SIB/SIO will annotate the extension and approval by the CA in each status message. The SIB should remain convened until all aspects of the investigation are completed (the SIB may temporarily de-convene while waiting to outbrief the CA).

5.2. (USAFA)Investigation Timeline: Requests for extensions of USAFA convened mishap investigations are processed via AFSAS to USAFA/SE for approval. USAFA convening authority grants USAFA/SE investigation extension approval authority.

5.3. Investigation Funding.

5.3.1. Local Support. The commander of the Air Force installation hosting the SIB funds all in-house support even if the host installation is not assigned to the investigating MAJCOM. (See paragraph 5.3.5. for expenses that exceed the resources of the host installation.) Occasionally, SIBs are required to work in areas where military support is not available. When civilian services are required, the Mission Support Group Commander at the installation supporting the SIB should assign loan and contracting officers. The loan officer will have authority and funds to pay for all support requirements (DoD Financial Management Regulation 7000.14-R, Volume 5, Disbursing Policy & Procedure, Chapter 2, Section 0204, Imprest Funds). The contracting officer must have a warrant (authority) to purchase equipment and services for the board.

5.3.2. Temporary Duty (TDY) Travel. Each MAJCOM, via their respective wings/units, funds TDY of its assigned personnel who are Air Force SIB members or technical experts. TDY SIB members should be placed on full per diem for the duration of the SIB (unless directed otherwise by MAJCOM guidance) since the schedule that SIB members may work won't necessarily align with the schedule of the base dining facility. **Exception:** If the SIB convenes at a location under "field conditions" (i.e., AOR location with billeting and meals provided) they will receive the same per diem as other personnel deployed to that location. Variations and rental cars should be authorized, dual billeting at the discretion of the CA. For joint service boards, each service funds its own members' TDY. The investigating MAJCOM funds travel costs of members from another service appointed to an Air Force

SIB. Observers to an Air Force SIB fund their own TDY. AFSEC SIB representatives also travel via their own funding.

5.3.3. Contractor support. Normally contractors travel via their own funding. To provide easier access to the base and its facilities required during the investigation, the contractor may request a Letter of Identification from the Contracting Officer. The CA will honor these requests. The Letter of Identification will not have a fund cite (i.e., no cost to the government). Joint Travel Regulations, Volume 2, Appendix E, Part I, paragraph D and E are applicable.

5.3.4. Other Support. The CA funds leasing of special equipment/vehicles, leased communications, and other contractual services. For technical assistance and laboratory analysis (paragraph 5.5.) from non-Air Force specialists, the CA or PM may have to provide funding to obtain support.

5.3.5. Cost Overruns. Request an operating budget authority (OBA) adjustment per AFI 65-601, Volume 2, *Budget Management for Operations*, if investigation costs cannot be financed through reprogramming within the OBA.

5.4. Investigation Options. The size and membership of the investigation depends on the category and complexity of the mishap being investigated. The investigation must have the correct complement of members to properly complete the investigation. Investigations may be made up of multiple members (SIB), or a single member (SIO). Refer to the discipline specific safety manual (AFMAN 91-22X) for requirements. The SIB Board President (BP) will coordinate with the CA regarding requests for additional SIB member, observers, and technical experts.

5.4.1. Safety Investigation Boards (SIB). SIBs are made up of multiple members assigned to investigate a mishap. Contractor representatives will not be primary members of a SIB. They are technical experts providing assistance to the SIB.

5.4.1.1. At least one SIB member must be equal to or senior in rank to the senior person directly involved in the mishap. Normally, the SIB president is the senior SIB member.

5.4.1.2. Select SIB members who do not have a personal interest in the investigation and who are able to act impartially. See AFMAN 91-22X for SIB personnel limitations and restrictions.

5.4.1.3. Select a SIB member qualified in safety investigations (see AFMAN 91-22X for exceptions) for each safety discipline involved in the mishap. A system safety engineer should be included in all Class A and B mishap investigations involving material, weapons, or information systems.

5.4.1.4. Do not assign foreign exchange officers or other foreign officers serving with the USAF as formal SIB members. This exclusion does not apply to AFSEC SIB representatives. Comply with provisions in standing international agreements.

5.4.1.5. ARC participation in SIBs. The CA may appoint Reservists/Air National Guardsmen to SIBs with the concurrence of the AFRC/National Guard Bureau (NGB). Ensure SIB duties do not create a conflict of interest with the individual's civilian occupation or interests. MAJCOMs may execute MOAs/MOUs with AFRC and NGB to outline processes for nominating SIB members as needed on ARC-involved mishaps.

5.4.1.5.1. AFRC. Air Reserve Technicians may elect to participate in either military or civilian status, as appropriate. Traditional reservists will be in a military status.

5.4.1.5.2. ANG. ANG personnel may elect to participate in either military or technician status, as appropriate.

5.4.1.6. AFSEC/SEG has the option to provide a representative to the SIB for on-duty Class A mishaps, unusual high interest off-duty Class A mishaps, and complex Class B mishaps, as determined by AFSEC/SEG and CA. AFSEC will fund the representative. AFSEC/SEG will offer telephonic support for all Class A mishaps.

5.4.2. Single Investigating Officer (SIO). Depending on the circumstances of the mishap, an individual investigator may be appointed to conduct the investigation.

5.4.3. Air Force Participation in Non-Air Force Investigations. When Air Force representation to another Service's or government agency's investigation is desired, AFSEC will contact the MAJCOM(s) that can best meet the requirement. The MAJCOM/SE will coordinate the selection with AFSEC. Once AF/SE approves the nominee, AFSEC will provide a fund site to the MAJCOM and establish direct communication with the individual. Air Force representatives to Joint Safety Investigations should be graduates of formal Air Force safety training courses.

5.4.4. Participation in Air Force Investigations by Non-Air Force Personnel. Sometimes a mishap involves weapon systems or equipment common to another US military service or agency (FAA, NASA, etc.). In these cases personnel from the other service or agency may request to observe the Air Force investigation. AFSEC forwards these requests to the CA. Refer to AFI 91-206, *Participation in a Military or Civil Aircraft Accident Safety Investigation,* and applicable MOAs/MOUs for interagency involvement. If approved by the CA, observers are authorized to observe SIB activities and may participate to the extent authorized by the SIB president and published guidance. An observer is not a member of the Air Force SIB. Non-DoD observers may participate to the extent authorized by the SIB president. This should not include non-DoD observers' participation in or access to direct confidential testimony. **Exception:** For NTSB and FAA observers, see AFI 91-206, *Participation in a Military or Civil Aircraft Accident Safety Investigation.*

5.4.5. RPA/UAS operations often require the creation of two or more ISBs to preserve evidence especially when operating overseas. The primary ISB is located at the base with the aircrew controlling the mission of the aircraft. A second ISB will be located at the launch and recovery ground control station. Additional ISB's will be added at other locations for the protection of evidence as deemed necessary by the CA. The primary ISB will collect all of the supporting evidence from all other ISB's.

5.5. Obtaining and Using Technical Assistance and Laboratory Analysis. When the investigation is beyond the expertise of the SIB/SIO, they will request technical assistance.

5.5.1. For all Class A and B mishaps, technical assistance and laboratory analysis will be requested through AFSEC. For all other mishap classes, technical assistance and laboratory analysis may also be available through AFSEC. **Note:** See Attachment 2 for technical assistance contact information.

5.5.2. Using Technical Experts.

5.5.2.1. Technical experts supporting an investigation are bound to follow SIB president/SIO guidance while directly working and serving the SIB. This applies to DoD military and civilian personnel as well as contractor representatives. The SIB president or SIO should involve technical experts as early in the investigation as possible, ideally at the start of the investigation with the ISB hand-off brief. The SIB president/SIO should also include technical experts in deliberations to formulate valid findings and viable recommendations.

5.5.2.2. Upon completion of their investigations, technical experts must provide a written report detailing results of their work (See Attachment 4).

5.5.2.3. SIB presidents and SIOs must ensure a **Safety Investigation Non-Disclosure Agreement** (Figure A3.1.) on protection of privileged data is prepared and endorsed by all non-Air Force SIB members (e.g., contractors, NTSB, FAA, etc.) offered a promise of confidentiality or provided access to privileged information. **Note:** See paragraph 3.4. for safety investigations where a promise of confidentiality is authorized.

5.5.3. Reports from Technical Experts.

5.5.3.1. Reports from technical experts will be written for Part 1, Part 2, or both parts of the SIB report.

5.5.3.1.1. A technical report written for Part 1 will contain observations, analysis, and conclusions based solely on physical evidence, other factual information, and statements provided without a promise of confidentiality. This includes factual information presented during SIB discussions where the technical expert is present. This also includes focus on key factual data, detailed system descriptions or background information when it supports a technical expert's conclusion. Conclusions may address causes of the observed or documented conditions, but will NOT address the causes of the mishap. This does not preclude stating an opinion that a failure would likely create a certain condition, even if the mishap was inevitable under such a condition. Recommendations which relate to preventing the observed conditions may be included, but they will NOT address preventing the mishap. The SIB/SIO will thoroughly review all Part 1 reports from technical experts to ensure they do not contain privileged information. See Attachment 4 for the example Technical Expert Report Format, Part 1.

5.5.3.1.2. A technical report written for Part 2 may contain analysis, conclusions and recommendations based on privileged information to include confidential statements, appointed SIB member deliberations, or proprietary company information. Part 2 of the technical report is not meant to duplicate information provided in Part 1, but to provide supplemental analysis and conclusions to assist the SIB in determining causes and recommendations. A Part 2 report is not required if technical expert analysis and conclusions can be based solely on physical evidence, other factual data, and statements made without a promise of confidentiality. A signed **Memorandum For Contractor Representatives Serving As Technical Experts To Safety Investigations** (Figure A3.9.) will be placed in Tab W with any privileged technical reports.

5.5.3.1.3. Contractor representatives requesting a claim of privilege/confidentiality of technical reports may submit a Part 2 only report, provided the Air Force maintains sole possession or control (paragraph 3.3.3.). In this case, see Attachment 4 and mark the entire document as a privileged report.

5.5.3.2. If conflicting reports from different technical experts or laboratories are received, include both reports in the formal report. In the investigative narrative provide rationale explaining why one report is more applicable and why opposing views were discounted.

5.6. Controlling Information Collected by the SIB/SIO. SIB presidents/SIOs will ensure that all information, privileged or not, collected by safety investigators is not released outside safety channels except in accordance with this instruction.

5.6.1. SIB presidents/SIOs will ensure that everyone working on their team is briefed on the restrictions. Every member of a safety investigation that produces a formal report will sign a **Memorandum Documenting Guidance To Investigators On Controlling Information** (Figure A3.11.) acknowledging the guidance and restrictions placed on information gathered during a safety investigation. The memorandum will be filed in Tab A of the formal report.

5.6.2. The SIB/SIO is not prohibited from sharing information with technical experts who, although not members of a board, analyze information or wreckage on behalf of safety investigators.

5.6.3. Part 1 information is releasable to the AIB. However, portions of Part 1 may not be releasable to the public since it may include information protected by the Privacy Act or Export Control Act contained in Part 1.

5.7. Investigative Evidence.

5.7.1. Impounding Air Force Materiel/Wreckage. ISB/SIB/SIO activities have inherent priorities over other activities and investigations connected to the mishap (except criminal), including the right to impound Air Force property involved in the mishap. Group commanders or higher are required to act on their impoundment requests. However, safety of personnel (to include emergency response forces) and control of hazardous materials always take precedence over safety investigations, even at the risk of losing evidence. An installation commander in coordination with the ISB president, SIB president, or SIO may choose to remove wreckage interfering with essential mission activities or causing a hazard at the mishap scene. Wreckage may need to be removed or destroyed to prevent interference with operations or vital civil functions. If wreckage must be moved prior to the arrival of the SIB/SIO, thoroughly document the site (photographs, video) prior to moving.

5.7.1.1. If there is potential for Nuclear Weapons Related Materiel (NWRM) (ref AFI 20-110, *Nuclear Weapons-Related Materiel Management*) to be recovered as part of wreckage, the owning Nuclear Weapons Related Materiel Accountable Officer (NWRMAO) will notify the ISB/SIB/SIO and provide a list of NSNs, Nomenclatures, and Serial Numbers. The NWRMAO will assist with identifying any NWRM in wreckage.

5.7.1.2. If impounding any material/wreckage, it is imperative to notify the local NWRMAO (ref AFI 20-110, *Nuclear Weapons-Related Materiel Management*) of any

NWRM assets identifiable in the material/wreckage. A listing of all NWRM assets recovered and in ISB/SIB/SIO custody must be provided to the NWRMAO detailing NSN, part number, location, and quantity of the assets identified.

5.7.1.3. NWRM assets in custody of the ISB/SIB/SIO will not be shipped or transported to any other location unless coordinated through the NWRMAO.

5.7.1.4. If transferring NWRM assets, the ISB/SIB/SIO must notify the NWRMAO when transferring NWRM assets to legal representatives. NWRM assets will be clearly identified and segregated while transferring custody.

5.7.2. Life Sciences Evidence. The ISB/SIB/SIO will have access to many forms of Life Sciences evidence, including personal and protected health information. The ISB/SIB/SIO will comply with safety privilege and with the Privacy Act of 1974 to protect this information. Include only that medical and personal information that is relevant to the mishap or incident to avoid an unnecessary privacy violation of the individual(s). This includes physical exams, laboratory and radiological testing of survivors, personal equipment, aircrew flight equipment, medical/dental/mental health/substance abuse/family advocacy charts and past histories, initial medical interviews, and other information which points to the mental and physical capability of the personnel involved in the mishap. Human remains are also evidence. The SIB medical member should be aware of where all remains are and their status (i.e., awaiting autopsy, returned to family, etc.). Great care must be taken to ensure a positive chain of custody for all human remains. If any chain of custody issues arise, contact the CA immediately. Consult the mortuary officer of the supporting base to determine if civil authorities have jurisdiction over human remains. The mortuary officer should have an MOA/MOU with civil authorities according to AFI 34-242, *Mortuary Affairs Program*. Safety personnel, ISB and SIB medical members shall ensure AFMES is notified and given contact information for civil authorities exercising jurisdiction over human remains when a fatal mishap occurs.

5.7.3. Shipping Investigative Evidence. Combat zones present unique challenges and, in certain cases such as RPA mishaps, evidence (e.g. data recorders, aircraft components, airframes or sections of airframes) may need to be shipped to a suitable location for analysis. The key to accomplishing this task is to treat all mishap evidence needing shipment for analysis as time-critical investigative evidence. Most investigative evidence will be shipped via the nearest (local) Traffic Management Office (TMO) or Distribution Flight, utilizing Air Force organizations and assets to the maximum extent possible. The shipping agency will set the priority of the cargo for channel flights IAW AFI 24-203, *Preparation and Movement of Air Force Cargo*, Chapter 3. Investigative evidence will be priority coded TP-1. In some instances, the shipping agency may also need to provide a priority shipping letter to accompany the request. Time-critical investigative evidence, such as data recorders or suspect components, should be shipped via the most expedient method available, including the United States Postal Service or contractors such as FedEx, UPS, or DHL.

5.7.4. Witnesses. Use the following guidelines for witnesses:

5.7.4.1. Ensure witness interviews and statements are conducted in a manner that is free of inappropriate influence or coercion and encourages disclosure of accurate information. Contact AFSEC/JA with questions regarding whether a particular interview technique is

appropriate. If a witness provides a statement while under medication, add a notation of what medications they are taking to their statement.

5.7.4.2. If a witness refuses to be interviewed, contact their commander, CA safety office, or AFSEC/JA.

5.7.4.3. Do not have witnesses testify under oath. Ensure witnesses understand that they are obliged to give honest, good faith testimony. See paragraph 3.4. for a discussion on the promise of confidentiality.

5.7.4.4. If a safety investigator believes Air Force personnel questioned in the investigation may be guilty of criminal misconduct, refer to paragraph 4.11.2.

5.7.4.5. Interviewing witnesses suspected of criminal misconduct. If, after suspending a safety investigation because of potential criminal acts, the CA decides to continue the safety investigation, safety investigators may have to interview witnesses suspected of criminal misconduct. Contact AFSEC/JA if the SIB is required to interview suspected criminals.

5.7.4.6. Retaining Access to Participants. Safety investigators may need frequent access to participants in a mishap. Commanders will make all participants available to the investigation upon request of the SIB president/SIO. The SIB president/SIO will advise the commander when participants are no longer needed.

5.7.4.7. Returning Participants to Duty. Safety investigators make no determinations regarding the fitness of participants to be returned to normal duties. Commanders decide if and when participants are to be returned to duty.

5.7.4.8. Commercial Space Launch Mishap. Refrain from interviewing witnesses until the NSTB investigator (or FAA investigator where the FAA is the lead) has arrived, unless there is a compelling reason to take the witness' statement(s) immediately (i.e., transient witnesses).

5.7.4.9. This instruction requires collecting and maintaining information protected by the *Privacy Act of 1974* as amended at Title 5, United States Code, Section 552a.

5.7.4.9.1. Safety investigators will request the SSN of military members and civilian employees involved in reportable mishaps. Inform individuals that the *Privacy Act of 1974* as amended at Title 5, United States Code, Section 552a, is the legal authority for requesting the SSN and that the SSN will only be used for safety mishap investigating and reporting.

5.7.5. Disposing of Evidence.

5.7.5.1. Operational assets. Once the investigation has recovered all necessary evidence from the asset involved in the mishap, the safety investigator will, at an appropriate time, advise the CA (after coordinating with the legal board if required) when the asset can be turned over to the owning unit. The legal board is responsible for operational assets given to them by the SIB. The CA is the final authority to release the asset to the owning unit. **Exception:** All wreckage from Class A space, aviation, and guided missile mishaps require a formal release from AFLOA/JACC before being released to the owning unit (paragraph 5.7.5.2.).

5.7.5.2. Wreckage.

5.7.5.2.1. After the SIB has gathered all necessary information from the wreckage, and there is a legal investigation, transfer custody of the wreckage to the legal board president in writing IAW AFMAN 91-22X.

5.7.5.2.2. Release wreckage not needed in support of depot, laboratory, or the legal investigation to the host installation commander, in writing, for storage until the wreckage is released for disposal. AFLOA/JACC is the release authority for Class A space, aviation, and guided missile mishaps. The host legal office is the release authority for all other mishaps.

5.7.5.2.3. All reasonable actions must be made to remove and properly dispose of wreckage. Special care must be given to the removal of all wreckage on private or state owned property.

5.7.5.3. Other Evidence.

5.7.5.3.1. For Class A mishaps, or when notified there will be a legal board for other mishaps, provide all non-privileged evidence (photographs, videotapes, data, documentation, and other evidence) to the legal board in writing IAW AFMAN 91-22X. The legal board will be responsible for final disposition of all material released to them by the SIB. For other than Class A mishaps, or when there is no legal board, contact the host installation staff judge advocate for guidance on disposing of materials that may be needed in potential claims or litigation. If there are no such requirements, reproduce enough copies for the safety report and then return the original documents and records used by the SIB to their proper custodian.

5.7.5.3.2. In the case of fatalities, the disposition of human bodies and human tissue is dependent on who has legal jurisdiction over the remains; often this may be a local civilian coroner or medical examiner. Work with Mortuary Affairs and the local JA to clarify jurisdiction and disposition of human remains.

5.8. Hazard Analysis. Identify and document hazards that played a role in the mishap sequence. Hazards are defined as "any real or potential condition that can cause injury or occupational illness to personnel; damage to or loss of a system, equipment or property; or damage to the environment". Determine whether individuals or management addressed these hazards with the appropriate level of risk acceptance authority during preparation and execution of the mishap sequence. The end result of a mishap investigation is the identification and mitigation of hazards.

5.9. Determining and Documenting Factors.

5.9.1. Factors. A factor is any deviation, out-of-the-ordinary, or deficient action or condition discovered in the course of a mishap investigation that in the board's opinion contributed to the eventual outcome. Determining mishap factors (and eliminating non-factors) enables the investigators to focus the investigation from all the issues under examination to those specific areas that are significant in the mishap sequence. Factors explain why causes, such as pilot error, supervision, or equipment failure occurred. Factors are not mutually exclusive but are often interrelated and in some cases influence each other. When applicable, include a discussion of related Human Factors using DoD Human Factors Analysis and Classification

System (HFACS) (see Attachment 6). For example, in a spatial disorientation mishap include the human factors that contributed to the disorientation, such as channelized attention or distraction and how these were manifested. **Note:** The human factors codes in the Tab T, narrative, and AFSAS must all match. Factors are the basis for findings and recommendations. Most mishaps involve multiple factors which may be causal or non-causal.

5.9.2. Non-Factors Worthy of Discussion (NFWOD). NFWODs typically fall into one of three categories: areas uncovered during the investigation that did not cause the mishap or influence the outcome but should be fixed due to the potential to be a factor in a future mishap (e.g., incorrect information in a maintenance TO), areas that were thoroughly investigated and subsequently ruled out as factors (in order to provide context to the audience on why these areas are not factors), and areas that may be considered an interest item to the CA (e.g., risk management, crew resource management, etc.). NFWODs are the source for Other Findings and Recommendations of Significance.

5.9.3. Non-Factors. Non-factors are a list of those areas/items the SIB considered, but determined not to be a factor in the mishap and not worthy of additional discussion. It is not an all-encompassing list, but rather a list of areas/items the SIB investigated and ruled out.

5.9.4. For system-related mishaps, determine whether the SPO previously identified the hazards that played a role in the mishap sequence and had included those hazards in its OSS&E (Operational Safety, Suitability and Effectiveness) risk management efforts. All system-related Class A and B mishaps should include a SPO analysis of hazards that contributed to the mishap and recommendations for materiel risk mitigation measures, especially those that minimize potential human errors.

5.9.5. See Attachment 7 for factors, findings, and recommendations relationships.

5.10. Determining and Documenting Findings.

5.10.1. Findings are based on the weight of evidence, professional knowledge, and good judgment. All mishaps will have findings. **Exception:** For those mishaps which fall exclusively under the descriptions outlined in paragraphs 1.10.3.2., 1.10.4.2., and 1.10.5. findings are optional.

5.10.2. Each finding is a single event or condition. Each finding is an essential step in the mishap sequence, but each finding is not necessarily causal. Findings must be concise (one sentence) and will not include any more information than is necessary to explain the event.

5.10.3. Each finding must have a logical connection to preceding findings. If no logical relationship exists, the sequence of the mishap has not been correctly described.

5.10.4. Ensure critical events required to sustain the mishap sequence have not been omitted. Conversely, do not include events interesting to the reader, but not necessary to sustain the mishap sequence.

5.10.5. In some cases the sequence begins long before the actual mishap sequence with such things as design problems, improperly written directives, or an inadequate training program.

5.10.6. Ensure the sequence continues to the point where all damage or injury has occurred and the initial rescue or recovery actions are completed.

5.10.7. Include injuries occurring in the mishap at the appropriate chronological point in the event sequence. For example, insert ejection injury events occurring before the aircraft-ground impact finding at the proper chronological point. Injuries or fatalities suffered by persons on the ground following a crash would be at the end of the main sequence (e.g., "the Range Safety Officer successfully initiated the self-destruct sequence; debris from the launch booster crashed into a fishing boat, fatally injuring two people" or "the pilot ejected successfully; the aircraft crashed in a parking lot adjacent to the runway, fatally injuring two persons").

5.10.8. Findings are arranged in chronological order. Number the findings consecutively. Precede each number with the word "Finding" (e.g., Finding 1, Finding 2, etc.).

5.10.9. Write each finding as a full sentence, not bullet points. Use past tense, since the events occurred in the past. (Example: Incorrect – Crew chief clears pilot from chocks and the pilot taxis to runway. Correct – The crew chief cleared the pilot from the chocks and the pilot taxied to the runway.)

5.10.10. When the safety investigator cannot pinpoint a correctable event in a sequence, list as much of the sequence as can be supported and insert a statement relating to the undetermined area. If there are supportable alternatives identify them as such and list them. Show them as subordinate to the applicable finding by using a format such as "event X most likely occurred due to one or more of the following reasons".

5.10.10.1. The reasons should be listed from most probable to least probable.

5.10.10.2. Do not list all of the possible alternatives that could have existed merely because they cannot be eliminated. Place this sort of conjecture in the analysis and narrative.

5.10.11. Do not include people’s names, call signs, names of Air Force bases or companies in the findings. Use terms such as "the mishap aircraft," "the mishap flight lead," "the mishap wingman," "the mishap pilot," "the mishap crew," "the mishap instructor loadmaster," "the mishap evaluator boom operator," or "the mishap crew chief." Be specific, but do not include supporting evidence in the findings. The report narrative includes supporting evidence and conclusions.

5.10.12. Findings shall not include new material not addressed in the narrative. If the finding is not identifiable in the narrative, the narrative was not written completely.

5.10.13. After developing the findings, apply the following "Findings Test" for validation:

5.10.13.1. Is the Finding necessary to sustain the mishap sequence?

5.10.13.2. Is the Finding a single event or condition?

5.10.13.3. Is the Finding specific enough without including supporting evidence?

5.10.13.4. Does the Finding logically connect to the preceding finding? Read the last finding; ask "why?" then read the finding above, does it answer the "why?", continue for each finding.

5.10.13.5. Is the Finding relevant or simply interesting to the reader?

5.11. Determining and Documenting Causes.

5.11.1. A cause is a deficiency, which if corrected, eliminated, or avoided, would likely have prevented or mitigated the mishap damage or injury. Cause does not imply blame. The intent is to identify the root cause(s) where corrective action is needed.

5.11.2. Findings that sustained the mishap sequence, but were normal to the situation as it developed are not causal. In most instances a causal finding is correctable by commanders, supervisors, or individuals.

5.11.3. Apply the reasonable person concept when determining a cause. If a person's performance or judgment was reasonable considering the mishap circumstances, do not assign cause. It is not appropriate to expect extraordinary or unique superior performance in such cases. Human factors (physiological or psychological) may be causal even though they are reasonable. These are often the unavoidable effects of a preceding cause.

5.11.4. Do not list a party as causal for not taking an action unless they should reasonably have been expected to take such action, but they did not. Similar rationale applies to lack of a system or procedure. Do not list failure to provide a system or procedure as causal unless a party should reasonably have been expected to do so given the information available prior to the mishap.

5.11.5. Risk management is an expected function for all organizations, and improper risk management is considered a deficiency that can be causal in a mishap. (See guidance in AFI 91-202, *The US Air Force Mishap Prevention Program*, and AFI 90-802, *Risk Management*). In cases where a mishap has identified hazards there is a responsibility to assess the associated risks, evaluate risk mitigation options, implement risk management measures, evaluate the residual risks, document approval at the appropriate level (see AFI 91-202, *The US Air Force Mishap Prevention Program*, Chapter 11) to accept the expected residual risks in terms of consequences and probability of occurrence, and monitor the effectiveness of the risk control measures implemented. Each recurrence of a mishap requires a reassessment of the prior risk management decisions. Do not cite risk acceptance as a causal finding when all risk management functions were properly accomplished and a quantified level of risk was accepted at the appropriate level.

5.11.6. Not every finding is causal. Some are effects or the expected result of a previously identified cause even though their inclusion sustains the sequence leading to the mishap. An engine flameout precipitated by a fuel boost pump failure is the expected result of the boost pump failure and is not causal. The boost pump failure may have been a result of an even earlier cause such as a bearing failure. Likewise, the initiating event may not be causal if the SIB determines that a safe recovery with existing procedures was reasonable, but deficient follow-on decisions, actions, or events caused the damage/injury (i.e., an in-flight emergency the crew should have been reasonably expected to safely recover).

5.11.7. Environmental conditions such as a bird strike, lightning, high wind, solar wind, meteorites, or flood may be causal only if all reasonable avoidance and damage/injury mitigation actions were taken.

5.11.8. The action that could have prevented a failure resides within the human realm and not on an object or publication. Publications or objects should almost never be found causal. Rather, the party responsible for ensuring the publications are correct or the party responsible

for ensuring an object does not fail with catastrophic consequences is causal, unless the party took all reasonably expected actions. In such cases, there may be process or organizational failures, and appropriate parties may be identified as responsible for these failures.

5.11.8.1. The intent of identifying causal parties in an investigation is to identify the point where corrective action is needed, not to place blame. As such, safety investigators need to ensure they identify the correct causal agent. This can be done by asking "why" something occurred until the investigator comes to a "dead end".

5.11.9. Occasionally an investigator may not be able to conclusively determine a specific causal event. In these special cases, the investigator may choose to list two or three of the most probable causes for each option. In rare instances the causal event may be unknown.

5.11.10. Causal findings should always be worded in active voice, clearly identifying the actor(s) and causal action (deficiency), along with any necessary explanation. Examples: Passive – No safety pins were installed in the widget. Active – The mishap crew chief failed to install safety pins in the widget as required by tech orders due to inattention. Passive – Mission planning did not cover en-route obstacles. Active – The mishap crew failed to address en-route obstacles in mission planning as required due to complacency.

5.11.11. Identify causal findings by adding the word "Causal" to the beginning of the finding statement or by selecting the “Causal” button in AFSAS when entering findings. Do not list causes under a separate heading. Word a causal finding as a clear and simple statement of a single condition or event. Causal findings must have a supporting factor detailed in the analysis/formal report.

5.11.12. Causal findings should identify the causal agent (who), the action taken (what), and (why) the reason for the deficiency. Why the action (or lack of action) occurred should be fully explained in the narrative and may be included in the causal finding. For example “Due to complacency, the mishap pilot failed to extend the landing gear prior to touchdown.”

5.11.12.1. Only the overarching causal human factor should be included in the causal finding. Contributing human factors should be explained in the narrative and input to AFSAS.

5.11.13. After determining the causal findings, apply the following "Cause Test" for validation:

5.11.13.1. Is the causal finding correctable by commanders, supervisors or individuals?

5.11.13.2. Is the causal finding a clear and simple statement of a single condition or event?

5.11.13.3. Is the causal finding in the active voice and does it follow the format: Who did what to whom/what and why?

5.11.13.4. Is the causal finding an effect or an expected result of a previously identified cause, even though its inclusion sustains the mishap sequence? If so, it is not causal.

5.11.14. See Attachment 7 for factors, findings, and recommendations relationships.

5.12. Determining and Documenting Recommendations.

5.12.1. Recommendations are feasible and effective solutions to eliminate identified hazards, or if the hazard cannot be eliminated, to mitigate the hazard's potential consequences. If no recommendations are made in an on-duty Class A or B investigation, investigators will explain their rationale in the report narrative. Ensure the investigation supports the recommendations. Do not make recommendations for the sole purpose of having recommendations.

5.12.2. Developing feasible and effective recommendations is a methodical process, which seeks to identify risk mitigation alternatives. It is essential to know precisely what deficiency, or identified hazard, is being addressed and to stay focused on it.

5.12.3. All recommendations should target one or more of the hazards identified and documented during the investigation. It is also sometimes prudent to make two or more recommendations against one hazard. Developing sound recommendations also requires recognition of the "order of precedence" concept, which recognizes that not all risk mitigation alternatives are equal. Design fixes is the most preferable solution because they can often completely eliminate the hazard, but these types of fixes often have the highest upfront costs. In all cases use the order of precedence to develop risk mitigation alternatives. As an example, to eliminate or mitigate the identified hazard of "pilot's failure to command landing gear extension," which results in a gear-up landing of a training aircraft, one might consider the following:

5.12.3.1. Design: Implement a fixed gear.

5.12.3.2. Incorporate Safety Devices: Implement an auto-extend system.

5.12.3.3. Provide Warning Devices: Implement cockpit warning lights, warning tone or voice.

5.12.3.4. Develop Training and Procedures: Improve the written checklist, or its use via training with instructors and in simulators.

5.12.4. Based upon the specific information discovered during the investigation, selected alternatives should be formulated into feasible and effective recommendations and other alternatives discarded. The purpose of using the "order of precedence" is to ensure investigators consider the entire range of available options and not just the cheap and easy ones – which usually have the least mishap prevention value.

5.12.5. A great deal of debate usually surrounds what is feasible and effective. Sometimes a risk mitigation alternative is technically feasible and effective, but it is clearly not economically feasible or has unacceptable mission consequences. In this case, discard the alternative. In other cases it may not be clear that an alternative is either technically feasible or economically feasible. In these cases, include a recommendation for formal evaluation.

5.12.6. Most recommendations will be associated with causal findings, but not all causal findings will have recommendations. For example, a causal finding may not have a recommendation if the deficiency is already prohibited in command guidance (AFI, TO, etc.). Likewise, findings that are not causal may also have recommendations written against them.

5.12.7. Recommendations may also vary in scope. Some actions can be taken at unit level. Other recommendations require MAJCOM or other agency actions.

5.12.8. If a recommendation depends on tests or analyses that are incomplete when the report is transmitted, explain this and provide a reference to the tests or analyses (e.g. deficiency report, study, or contract number).

5.12.9. Recommendations should require the action agency to correct a deficiency rather than to implement a particular solution. The action agency normally has greater expertise than the investigators and should be given the opportunity to develop the optimal solution for a problem. The following examples illustrate this point: Poor – Move the right engine fire pushbutton to the right side of the cockpit. Better – Implement changes to the engine fire pushbuttons to help preclude engine shutdown errors.

5.12.10. Avoid recommendations that only require a study or evaluation. Action should be required based upon results of any recommended study. In most cases it is not necessary to recommend a study or evaluation since studies or evaluations are implicit in the process. The recommendation can simply require corrective action. Examples: Poor – Evaluate the feasibility of changes to the anti-lock system. Better – Implement changes to the anti-lock system to prevent loss of feedback.

5.12.11. General, vague, sweeping, or open-ended recommendations that cannot be closed by the action agency are not appropriate. Write recommendations that have a definitive closing action.

5.12.12. Do not recommend briefing personnel on the mishap. Such a briefing is a basic commander responsibility and a normal function of safety offices at all levels of command.

5.12.13. Do not recommend reminding (or commanders reminding/briefing/publishing an FCIF to remind) personnel of the importance of simply doing their jobs properly. However, recommendations to place CAUTIONS and WARNINGS in TO guidance relating the adverse consequences of not doing one's job properly may be appropriate. Recommendations for specific action such as refresher training, implementing in-process inspections, etc., to ensure job duties are being properly performed may also be appropriate since they are specific and can be closed.

5.12.14. Include only one statement for each recommendation. Rather than sub-grouping recommendations (e.g., 1a, 1b, 1c, etc.), use a new recommendation number. Do not create a recommendation in AFSAS to state that there are no recommendations.

5.12.15. Recommendations to Change Publications.

5.12.15.1. Recommendations may be made to change publications, technical orders, flight manuals, or checklists. Submit AF Form 847, *Recommendation for Change of Publication* (flight publications), according to AFI 11-215, *Flight Manuals Program (FMP)*. Submit AFTO Form 22, *Technical Manual Change Recommendation and Reply*, according to TO 00-5-1, *Air Force Technical Order System*. Use local base support personnel (Stan Eval and/or Quality Assurance (QA)) for assistance in completing the forms. If the proposed change is time sensitive, use the emergency critical safety hazard message format in AFI 11-215, *Flight Manuals Program (FMP)*, or the emergency report format in TO 00-5-1.

5.12.15.2. If applicable, obtain the tracking number from MAJCOM Stan Eval for AF Forms 847, *Recommendation for Change of Publication*, and unit QA for AFTO Forms 22, *Technical Manual Change Recommendation and Reply*. Place the tracking number and the mishap's AFSAS number on the submitted forms to ensure these recommendations receive the appropriate levels of review. Also, place the tracking number after corresponding recommendation in the final message/report. Submit completed forms to the MAJCOM Stan Eval or LG Command Control Point (CCP), as applicable after the investigation is complete (paragraph 6.5.).

5.12.15.3. In all cases, protect privileged safety information by sanitizing (paragraph 3.7.1.) the "reason for recommended change" section of AFTO Form 22, *Technical Manual Change Recommendation and Reply* or AF Form 847, *Recommendation for Change of Publication*. The SIB/SIO will place copies of the submitted forms in the applicable formal report tab.

5.12.16. Determining the appropriate action agencies for each recommendation.

5.12.16.1. Assign action agencies for all recommendations. An OPR is required for every recommendation. Although an office of collateral responsibility (OCR) is not required, they are appropriate for many recommendations. List only one OPR per recommendation. More than one OCR may be listed for an individual recommendation. Limit OPR and OCR assignment to two or three-digit organizational levels to ensure proper management level attention.

5.12.16.2. Assign OPRs and OCRs based upon the lead command and user command philosophy. The Air Force assigns responsibility for overall management of each system to a "lead command" to ensure that all requirements associated with every system receive comprehensive and equitable consideration. This lead command provides primary input into the process of developing and maintaining a force structure with a balance of complementary capabilities, and it establishes a basis for rational allocation of scarce resources among competing requirements. See AFPD 10-9, *Lead Command Designation and Responsibilities for Weapon Systems*, for more information.

5.12.16.3. Normally, if a recommendation requires funding to effect changes to a weapon system (e.g., performing risk analyses or engineering studies, developing aircraft or component modifications, obtaining new test or support equipment, etc.), assign the appropriate office for the mishap weapon system within the lead command as OPR. If the lead command only provides funds for the effort and another organization is responsible for performing or managing the work, assign these organizations as OCRs. For example: Implement changes to the B-1 to reduce the probability of encountering "hot brake" temperatures. OPR: ACC/A8A, OCR: AFLCMC/WWN. In this example ACC/A8A is assigned as OPR because, as the appropriate office in the lead command, they would be responsible to arrange for the funding required to effect changes to the aircraft. Assuming that funding is provided, the B-1 system program office at AFLCMC/WWN is assigned as OCR since they would either perform the required work in-house or manage the contracted effort.

5.12.16.4. Not all funding comes from the lead command. Sometimes it is possible for a system program office, item management office, laboratory or other organization to fund efforts through separate budgets. If a recommendation does not require funding from the

lead command to effect changes to a weapon system (e.g., performing risk analyses or engineering studies, developing and obtaining preferred spares, developing inspection techniques and procedures, simple modifications and testing of software in conjunction with scheduled updates, limited flight and ground testing, etc.), assign the appropriate office that has the funding as OPR. Assign OCRs as required. Should the OPR choose not to implement the recommendation, the recommendation will be transferred to the lead command for risk acceptance during the Mishap Review Panel (MRP).

5.12.16.5. Although changes to training programs, training equipment, and publishing new or changed paper documents (e.g., Air Force Policy Directives, AFIs, flight manuals, TOs, etc.) require funding, assign the organization responsible for controlling the content of these products as OPR. Assign OCRs as required. For any change requested to AETC Technical Training courses, the appropriate Air Force Specialty Code Career Field Manager is the appropriate OPR.

5.12.16.6. Sometimes the responsibility for a recommendation lies outside the Air Force (e.g., the FAA for various air traffic control issues). Since the Air Force may not have the authority to task such agencies to perform recommended actions, do not assign non-Air Force agencies as OPRs or OCRs. In these cases, write the recommendation as an Air Force action and assign the appropriate Air Force organization as OPR. This Air Force organization is typically responsible for interaction with or contractual oversight of the outside agency and will ensure proper recommendation evaluation and disposition. Assign OCRs as required.

5.12.16.7. Field Operating Agencies (FOA) normally accomplish Air Force-level actions. For example, air traffic issues are managed by the Air Force Flight Standards Agency (AFFSA), not the Deputy Chief of Staff for Air and Space Operations (AF/A3/5). However, the Air Staff may be tasked as an OPR/OCR, where appropriate.

5.12.16.8. SIB/SIO is responsible for coordinating all recommendations with their proposed action agencies (OPR and OCR). Ensure the correct OPR and OCR(s) are identified through positive contact (call or email them) prior to publishing the formal report or final message. Include the name, office symbol, telephone number, and email address of one OPR action officer for each recommendation. Place this information in the dedicated data field provided by AFSAS. The CA safety staff will ensure the SIB/SIO has made positive contact with the OPR and OCR(s).

5.12.17. See Attachment 7 for factors, findings, and recommendations relationships.

5.13. Determining and Documenting Other Findings and Recommendations of Significance (OFS, ORS). Guidance for developing and documenting primary findings and recommendations applies similarly to OFSs and ORSs.

5.13.1. OFS are findings that the safety investigators believe could contribute to future mishaps and/or warrant command attention, but were not part of the mishap sequence. OFS should be listed following the mishap recommendations in message and formal reports.

5.13.2. ORS are recommendations resulting from OFS. Each OFS will be followed by one or more corresponding ORS. Assign an OPR and OCR(s) to each ORS.

5.14. Releasing Investigative Information During an Active Safety Investigation. It is Air Force policy to keep the public informed of Air Force mishaps and safety investigations and to release non-privileged information, both favorable and unfavorable. Air Force policy complies with the requirements of Title 10, United States Code, Section 2254(b) regarding the public disclosure of certain non-privileged aircraft accident investigation information. The SIB president approves the release of all information (including electronic/digital media, photographs, etc.) from the SIB, but will not communicate directly with the media or other members of the public. The release of non-privileged information to news media, relatives, and other agencies is through the AIB president, Survivor Assistance Program point of contact, Family Liaison Officer, or Public Affairs representative as appropriate.

5.14.1. The CA or designated information officer releases factual information about a mishap, including photographs, only as directed in AFI 35-104, *Media Operations*, AFI 35-109, *Visual Information*, AFI 51-503, *Aerospace Accident Investigations*, and AFI 51-507, *Ground Accident Investigations*. Officials involved in the safety investigation are not permitted to be the officials releasing the information to the media or other members of the public.

5.14.2. The AIB, IAW AFI 51-503, *Aerospace Accident Investigations*, or Ground AIB, in IAW AFI 51-507, *Ground Accident Investigations*, can release factual mishap information upon request. If an AIB is not formed, the local commander, through the public affairs or legal office, may release factual information. Information will not be released if it will jeopardize national defense, impede an ongoing or pending investigation (including the SIB or AIB), or if it is privileged safety information. The SIB president will coordinate with the AIB president as to whether the release of information will impede the SIB's investigation.

5.14.3. Following mishaps where AFI 51-503, *Aerospace Accident Investigations*, does not apply (nuclear, explosives and chemical agents, and directed energy) the CA through the public affairs or legal office may release factual information. Information will not be released if it will jeopardize national defense, impede an ongoing or pending investigation (including the SIB or legal investigation) or if it is privileged safety information. The SIB president will coordinate with the legal release authority as to whether the release of information will impede the SIB's investigation.

5.15. Coordinating with the Legal Board.

5.15.1. The SIB president provides Part 1 of the formal report and certain factual information to the AIB president as soon as possible (prior to completion of the investigation). See discipline specific safety manual for further guidance.

5.15.1.1. Examples of information given to the legal board president include (this list contains examples only): a list of witnesses, cockpit and tower audio recordings, data recorders, coroner's report, autopsy report, toxicology test results, police reports, personnel and medical records. **Note:** Transferred records should be the whole, original source record (hard copy) and not printouts from AFSAS or documents that have been screened, selected, edited, or marked by the SIB.

5.15.2. Persons occupying full-time safety positions routinely examine privileged documents. They are not permitted to serve on legal investigations as long as they are performing full-time safety duties. Legal investigators will not attend SIB/SIO proceedings,

or meetings, or have access to or discuss any Part 2 privileged information with the SIB/SIO or Air Force safety officials. This prohibition also applies to the briefing given to the CA on the safety investigation results.

5.15.3. ISB/SIB members, or SIO, will not be witnesses for other boards investigating the same mishap except to provide Part 1 factual information or to provide purely factual information within their knowledge that is not otherwise available.

5.15.4. ISB/SIB members, or SIO, and technical advisors will not act as investigators or technical advisors for a legal investigation of the same mishap.

5.15.5. Ensure the AIB president knows the disposition of all non-privileged evidence, to include wreckage and components shipped for analysis. The AIB must acknowledge their custodial responsibility in writing which is included in Tab Q of the formal report. Provide all non-privileged evidence (photographs, videotapes, data, documentation, and other evidence) to the legal board in writing IAW AFMAN 91-22X. The legal board will be responsible for final disposition of all material released to them by the SIB. If the AIB president is not available and the SIB is prepared to release the evidence, release it to the host installation SJA, who will maintain custody until the AIB president is able to accept.

5.15.6. For fatalities, see paragraph 5.7.5.3.2.

Chapter 6

REPORTS AND BRIEFINGS

6.1. General Information. Safety reports include messages (preliminary, 10-day, status, final, and final supplemental), formal reports, and injury and occupational illness forms and logs. Safety reporting will be via the Air Force Safety Automated System (AFSAS). Use the following URL for AFSAS: **https://afsas.kirtland.af.mil**. If AFSAS is not available, see paragraph 3.6. for transmission alternatives. Once the SIB/SIO completes the investigation and finalizes the formal report and the final message, the SIB/SIO will normally provide a briefing to the CA. Aviation mishaps involving fatalities, or other mishaps when requested, require a briefing to the CSAF and SECAF. AF/SEI will be the focal point for scheduling all briefings to the CSAF and SECAF.

6.1.1. Make every effort to keep investigative reports and briefings unclassified to ensure the widest dissemination possible. Report the unclassified portion of the report (One liner/Date/Time/Location/Investigating Officer/Objects) using AFSAS. Do NOT input DoD Unclassified Controlled Nuclear Information (DCNI) into AFSAS. Report classified mishap information (narrative/recommendations/findings) via SIPRnet using discipline-specific formatting IAW applicable AFMAN 91-22X.

6.2. Safety Messages.

Table 6.1. Reporting Schedule.

	Class A Mishap			**Class B Mishap**			**Class C Mishap**			**Class D Mishap**			**Class E Event**		
	Prelim	**Status**	**Final**	**Prelim**	**Status**	**Final**	**Prelim**	**Status**	**Final**	**Prelim**	**Status**	**Final**	**Prelim**	**Status**	**Final**
Aviation	24 hr[5]	10 day[1]	48 day[6]	24 hr[5]	10 day[1]	48 day[2,6]	--	--[3,4]	30 day[2]	--	--[3,4]	30 day	--	--[3]	30 day
Ground	24 hr[5]	10 day[1]	48 day[6]	24 hr[5]	10 day[1]	48 day[2,6]	--	--[3,4,5]	30 day[2]	--	--[3,4,5]	30 day	--	--[3]	30 day
Weapons	24 hr[5]	10 day[1]	30 day	24 hr[5]	10 day[1]	30 day	72 hr[5]	--[3,4]	30 day	--	--[3,4]	30 day	--	--[3]	30 day
Space	24 hr[5,7]	10 day[1]	90 day	24 hr[5,7]	10 day[1]	90 day	--	--[3,4]	45 day	--	--[3,4]	45 day	--	--[3]	45 day

1 = Status reports required at day 10, 30, and every 30 days thereafter until complete.
2 = 90 days if engine or engine module is processed through depot.
3 = Status reports required at day 30 and every 30 days thereafter until complete.
4 = Input of OSHA injury information required by day 7 of receiving information that a

recordable injury or illness has occurred.
5 = If there is a delay in reporting the mishap, the reporting time will begin upon notification to the safety office.
6 = This timeline includes 30 days to complete the investigation, up to 15 days to outbrief, and 3 days to release the final message. In all mishaps, if the SIB outbriefs the CA earlier, then the final message is due within 3 days of the brief. RPA timelines to release final messages are 63 days for CONUS mishaps, 78 days for outside the continental United States mishaps.
7 = If a Space mishap involves personnel (i.e., manned spaceflight) or nuclear material, preliminary reporting timeline will be 8 hours.

6.2.1. Guidelines.

6.2.1.1. Table 6.1 provides message reporting timelines.

6.2.1.2. Do not include Privacy Act information in messages, to include but not limited to, names and social security numbers.

6.2.2. Preliminary Message. The first electronically transmitted safety message advising of a non-nuclear mishap or event is entitled Preliminary Message. Preliminary messages are fully releasable. They will contain factual information only and will not contain safety-protected or privileged information. A preliminary message requires a narrative which includes enough detail so that the reader can get a grasp of the significant events of the mishap. Although OPREP-3 reports do not satisfy this requirement, safety personnel should coordinate with the Command Post on OPREPs generated as a result of a mishap to ensure no inaccurate or privileged information is released.

6.2.3. 10-Day Message. For Class A and B mishaps, this is usually the first privileged report released by the appointed SIB. The intent is for the SIB to communicate the status of the investigation and to relay any pertinent information, privileged or not, the SIB deems necessary to report at this time.

6.2.4. Status Messages. Status messages are sent to explain report delays/extensions, a SIB temporarily deconvening, relocating, or to relay new information discovered since the previous message. If the status message is explaining a safety report delay/extension, explain the reason for the delay, the expected completion date, and extension approval from the CA. Safety investigators may send status messages as they deem necessary. Required status messages are listed in Table 6.1.

6.2.4.1. The CA's safety staff will closely follow mishaps that have damage estimates close to the threshold limits or injuries/occupational illnesses that have the potential for improving or worsening.

6.2.4.2. A status message is required as soon as a mishap class or category changes, e.g., due to updated damage cost figures, a subsequent death from mishap injuries, or erroneous initial categorization.

6.2.5. Final Message. The final message will be released in AFSAS within 3 duty days after the CA accepts the briefing. This message provides a narrative of the mishap/event sequence, states the mishap cause, and recommends preventive actions. It contains the investigation, analysis, and conclusions of the safety investigator. It is written so the reader

clearly understands how the findings and causes were determined and clearly states the role of the individuals found causal in the mishap sequence. Include logic in how the recommendations were chosen as well as OPR/OCRs for the recommendations. The message may also include OFS and ORS, which do not relate directly to the causes of the mishap, but can be of value in risk management and mishap prevention. The final message is privileged. Complete the investigation and prepare the final message within the time limits specified in Table 6.1. The CA safety staff will release the final message after the investigation is complete (paragraph 6.6.). DO NOT delay release of the final message for staffing internal command comments or cost/injury analysis. DO NOT release the final message before completion of the formal report (tabs), unless the formal report is waived.

6.2.5.1. If a final message needs to be changed after it is completed, all primary SIB members must coordinate on all changes, as only the primary SIB members are authorized to change the report. The discipline specific safety manuals (AFMAN 91-22X) provide guidance on primary SIB members.

6.2.6. Final Supplemental Message. A final supplemental message is released whenever the SIB/SIO has to make changes to the final message (e.g. final message was returned, new information uncovered, identified errors, or tab errors). Include in the summary of changes a short description of what was altered in the report.

6.2.7. Comments for Memorandum of Final Evaluation (MOFE) Message. Individuals or organizations will submit a Comments for MOFE message in AFSAS within 45 calendar days of Class A or B final message (or final supplemental message) release (paragraph 7.3.). See Attachment 5 for format requirements.

6.2.8. MOFE Message. The MOFE message is released within 90 days of an on-duty Class A or select Class B final message (or final supplemental message). It contains the AF/SE's final position on the mishap.

6.3. Formal Reports. Formal reports present detailed factual and analytical information about mishaps. AFSAS is the only acceptable method for mishap reporting. Formal reports will be uploaded as tabs into AFSAS. All Class A and B mishaps require a formal report unless exempted by AFMAN 91-22X or waived by the Air Force Chief of Safety (AF/SE). The CA or AF/SE may also require a formal report for any other mishap if determined necessary. **Note:** Class A and B off-duty military mishaps normally do not require a formal report. See AFMAN 91-224, *Ground Safety Investigations and Reports*, for additional guidance.

6.3.1. Privileged formal reports contain three parts: Part 1, Factual Information and Releasable Material, Part 2, Board Conclusions and Non-releasable Material, and Part 3, Other Material. See discipline specific safety manual (AFMAN 91-22X) for tab waiver procedures and authority.

6.3.1.1. Part 1 contains factual information that may be disclosed outside the Air Force; Part 2 contains privileged safety information and will not be displayed/disclosed outside Air Force Safety channels (see Chapter 3), and Part 3 contains the final briefing in various formats (e.g. with and without privacy and privileged information included). Questions about handling and/or distribution of safety report information should be referred to AFSEC/JA.

6.3.1.2. Tabs. Table 6.2. contains tab designations for Parts 1, 2, and 3. See discipline specific safety manual (AFMAN 91-22X) for specific guidance on tab usage and contents.

Table 6.2. USAF Mishap Report Tabs.

TAB	USAF SAFETY REPORT
	Part 1 – Factual Information and Releasable Material
A	Safety Investigator Information
B	Not Used
C	Not Used
D	Maintenance Report, Records, and Data
E	Not Used
F	Weather and Environmental Records and Data
G	Personnel Records
H	Egress, Aircrew Flight Equipment (AFE), Impact, and Crashworthiness Analysis
I	Deficiency Reports
J	Releasable Technical Reports and Engineering Evaluations
K	Mission Records and Data
L	Factual Parametric, Audio, and Video Data From On-Board Recorders
M	Data from Ground Radar and Other Sources
N	Transcripts of Voice Communications
O	Any Additional Substantiating Data and Reports
P	Damage Summaries
Q	AIB Transfer Documents
R	Releasable Witness Testimony
S	Releasable Photographs, Videos, Diagrams, and Animations
	Part 2 – Board Conclusions and Non-Releasable Material
T	Investigation, Analysis, and Conclusions
U	Witness Testimony Provided Under a Promise of Confidentiality
V	Other Supporting Privileged Products
W	Privileged Technical Reports and Engineering Evaluations
X	Privileged Photographs, Videos, Diagrams, and Animations
Y1	Human Factors Analysis

Y2	Protected Medical Documents
Z	SIB Proceedings and BP Comments
	Part 3 – Other Material
1A	SIO/SIB Final Briefing (Actual)
1B	SIO/SIB Final Briefing with Privacy Information Removed
1C	SIO/SIB Final Briefing with Privacy and Privileged Information Removed

6.3.2. MAJCOMs or AF/SE may direct preparation of a formal report for any mishap, even under circumstances where this instruction does not specifically require one.

6.3.3. Distributing the Formal Report.

6.3.3.1. The CA will ensure all non-waivered formal reports are uploaded into AFSAS. All Air Force agencies with a need to know will be able to access the tabs or request tab access via AFSAS. Do not provide copies or extracts to agencies outside the Air Force. If an agency outside the Air Force needs a copy of the formal report for mishap prevention, corrective actions, or other purpose, notify AFSEC/JA. For the AIB handover, Part 1 of the formal report will be provided electronically (CD, DVD, secured shared drive, etc.).

6.3.3.2. Do not produce "information only" copies of formal reports.

6.3.3.3. The SIB president may keep a complete copy of the formal report until all briefings are completed.

6.3.3.4. The uploading of formal report tab files into AFSAS will be as a single .pdf document. See discipline specific safety manual (AFMAN 91-22X) for specific guidance on tab contents and exceptions.

6.4. Convening Authority Formal Report Quality Control. The CA safety staff will assess the entire report, including AFSAS database field entries, final message, and completed tabs to determine overall adequacy and to ensure the SIB/SIO followed formatting and investigative guidance established in both AFI 91-204 and AFMAN 91-22X. Additionally, although AFSAS has an error check capability, CA SEs will review AFSAS data fields prior to the release of the final message for accuracy (i.e., mishap category, mishap class, mishap cost, one-liner, etc.). The review will also include verifying the DoD HFACS codes entered into AFSAS are supported by the SIB's analysis in the Tab T and final message, which ensures the validity of the AFSAS database and subsequent trend analysis. If any portion of the report, particularly the narrative, findings, causes, recommendations, OPR/OCR assignments and Tab T, do not meet requirements in this AFI and AFMAN 91-22X, the CA safety office will work with the SIB/SIO to return and revise the report.

6.5. Briefing Investigation Results. For on-duty Class A, B, and other investigations requiring a formal report, the CA briefing should be delivered not later than 15 days after completing the investigation.

6.5. (USAFA)Briefing Investigation Results. The SIB Board President (BP) or Single Investigating Officer (SIO) will brief the USAFA/CC on the results of all USAFA convened

Class A mishaps. All other mishaps will be briefed at the discretion of the convening authority. Following is minimum attendance at the briefing: the unit commander experiencing the mishap, USAFA/SE, and other staff as designated by USAFA/CC. USAFA/SE will schedule the briefing.

6.5.1. Board independence is critical to the integrity of the SIB process. Historically, SIB independence is a Congressional interest item, periodically reviewed by the Government Accountability Office and DoD/Inspector General. The CA will dictate and control briefing attendance, including any audio or video-teleconference (VTC) participation. Regardless of assignment of CA, any MAJCOM owning assets (personnel or property) involved in that mishap and incurred damage or loss should be invited to the CA outbrief. Prior to this briefing, the MAJCOM/NAF Chief of Safety will ensure attendance is limited and will brief the CA on rules set forth in paragraphs 3.7., 6.5., and 6.6. No pre-briefing or informational slides will be distributed prior to the CA out-brief. However, a read-ahead copy of the briefing may be forwarded directly to the CA provided this copy is not coordinated or shared with staff members outside the safety staff. Extending attendance to those outside the mishap prevention chain is prohibited. Personnel identified in paragraph 3.7.2.5. will not attend the briefing.

6.5.1.1. When the briefing is accomplished via VTC the MAJCOM/NAF Chief of Safety will ensure security of the privileged information by:

6.5.1.2. Arranging for an appropriate safety professional to be present at each VTC location to ensure attendance is limited to those directed by the CA.

6.5.1.3. Ensuring all attendees have been properly briefed on the limited-use nature of the information being provided and responsibilities and obligations of those personnel who receive privileged safety information.

6.5.2. When the MAJCOM is the CA and with MAJCOM/CC approval, the SIB may brief the NAF/CC (or equivalent such as the USAF Warfare Center Commander) and the affected COMAFFOR for a contingency mishap, for INFORMATIONAL PURPOSES ONLY, prior to briefing the MAJCOM/CC. All other investigation outbriefs or disclosures of the report content to the affected squadron, group, or wing are prohibited and cannot be waived by the MAJCOM/CC. Prior to this briefing, the NAF Chief of Safety will brief the NAF/CC on rules set forth in paragraph 6.5. of this instruction. Under no circumstances will JA personnel be allowed to participate in the NAF informational briefing. Briefing slide templates are available through the CA SE or via the AFSEC SIB SUPPORT page on the AF portal (also see AFSAS Pubs & Refs tab).

6.5.2. **(USAFA)** For USAFA, the Superintendent (as convening authority) may authorize the SIB to brief Mission Element (ME) Commanders as outlined in the parent paragraph and the related sub-paragraphs. Prior to the brief, USAFA/SE will brief the ME Commander on rules set forth in paragraph 6.5. of this instruction.

6.5.2.1. The NAF/CC (and COMAFFOR) and those invited per this instruction to the informational briefing will not direct changes to the SIB report or direct further investigation. The briefing must be free from the appearance of undue command influence that advice and directions can sometimes create.

6.5.2.2. Except as noted below, the only personnel authorized to attend the informational NAF/CC briefing are the NAF/CC, NAF/CV, and with NAF/CC concurrence, the NAF/SE and the mishap Wing Commander. In the case of an ANG mishap, in addition to the above authorized attendees, the Director of the Air National Guard, and the mishap unit's state Adjutant General may attend. For COMAFFOR information briefings, authorized attendees are the COMAFFOR, and with COMAFFOR concurrence, the AFFOR/SE, and the mishap air expeditionary wing commander.

6.5.2.3. In instances where the CA has been delegated, there will be no intermediate or informational briefings prior to briefing the CA.

6.5.3. Safety investigation briefings will be afforded the same protection given the formal report.

6.6. Convening Authority Actions. The CA has two options after receiving the results of a safety investigation:

6.6.1. Option 1. Accept the investigation as reported, publish the formal report (i.e. if a formal report was required, upload tabs to AFSAS) and release the final message. At this time, any causal letter notifications should be uploaded into Tab V. Do not staff the final message or formal report before release. It is important the SIB results remain free from any appearance of influence.

6.6.2. Option 2. Direct the SIB president and its members to conduct additional safety investigation. The CA will provide additional guidance to the SIB to ensure the investigation fulfills the purpose, intent, and requirements of the Air Force Mishap Prevention Program.

6.6.2.1. After the SIB re-examines the areas identified by the CA and completes their reinvestigation, the CA will have the same two options outlined above. Once this sequence is completed, the CA will release the final message. Do not delay release of the final message or formal report for internal command staffing or final costing/injury determination. DO NOT release the final message before completion (uploaded tabs) of the formal report, unless the formal report is waived.

6.6.3. The investigation is considered complete when the final message, formal report (if required), and briefing to the CA (if required) are accomplished and the final message is released in AFSAS and subsequently accepted by the AFSEC administrator after a quality control review.

6.7. Notifying Person(s) Found Causal in Formal Reports. When a formal report mentions a USAF individual (military member or civilian employee) as causal in the findings, that individual (i.e., causal individual) will be given an opportunity to submit a statement commenting on the findings (see paragraph 7.4.1. for causal individual procedures identified during the MOFE). This statement is in addition to any other witness statements or testimony provided by the individual. Both the notification and rebuttal statement are considered privileged safety information and will be handled and protected IAW this instruction. Notification letters will include non-disclosure agreements. Use the guidelines below to notify causal individuals and forward their comments:

6.7.1. The SIB president/SIO will provide the CA safety office with the notification memorandum for individuals found causal in their investigation. Once the CA accepts the

formal report and releases the final message, the CA will send a copy of the memorandum to the mishap unit safety office. Individuals must not be notified until after the SIB outbriefs the CA and the final message is released. The mishap unit (wing or equivalent) Chief of Safety will notify the causal individual(s) and respective leadership. Use the memorandum on the AF Safety Portal page or in AFSAS, Pubs & Refs tab to notify the causal individual(s).

6.7.2. The causal individual(s) may use only the final message to make additional comments. The individual(s) will not be allowed access to the formal report (i.e. tabs in AFSAS). The individual(s) may not remove the final message from the safety office nor copy portions of any of the safety reports pertaining to the mishap naming that individual causal.

6.7.3. The individual(s) has 15 calendar days to submit the statement to the AFSEC/SEFO mailbox. The individual(s) must submit a statement, though the statement may simply acknowledge the opportunity to comment and decline to do so.

6.7.4. If the causal individual(s) is attached or assigned to another MAJCOM, the CA SE sends a copy of the completed memorandum to that MAJCOM/SE for action IAW para 6.7.1. Additionally, follow guidance in paragraphs 6.7.2. and 6.7.3. for notification process, timeline, and routing.

6.7.5. Notifying Non-Air Force Military Personnel and Civilians Outside Air Force Jurisdiction. Non-Air Force personnel are not offered the opportunity to review Air Force safety investigation messages or formal reports, nor to submit witness statements in these cases. This includes Air Force personnel serving outside the Air Force, such as with the Defense Logistics Agency or NATO. **Exception:** Those Non-Air Force personnel assigned to fly Air Force aircraft and afforded safety privilege IAW paragraph 3.4. are authorized to submit a witness statement as long as they still meet the previously mentioned criteria.

Chapter 7

FOLLOW-UP ACTIONS

7.1. General Information. Follow-up actions conducted by reviewing authorities, convening authorities, and AFSEC are required to ensure program compliance, hazard mitigation, and trending validity. These three areas are core safety functions required at every level. Convening authority safety staffs will review messages and formal reports prior to release in AFSAS for AFI compliance, completeness, and accuracy. Although SIB/SIOs retain authority for all substantive report changes, the report must be compliant with this AFI and AFMAN 91-22X series manuals or be returned for corrections. Return criteria include logic trails to ensure that actionable recommendations are supported by findings justified by sound factor analysis. Safety offices will use AFSAS to monitor the status of open mishaps, recommendations, mishaps requiring comments for the MOFE, and in preparation for mishap review panels (MRPs) presented to MAJCOM commanders. The MOFE is the Air Force's independent final evaluation and position on causes, findings, and recommendations. The MOFE message is a distinct and separate message from the SIB's final message and released via AFSAS. The SIB/SIO's final message remains in AFSAS unaltered regardless of the final evaluation. AFSEC will normally publish a MOFE on all on-duty Class A and select B safety reports within 90 days after release and acceptance of the final or final supplemental message.

7.2. AFSEC Review. In order to maintain SIB/SIO independence, AFSEC conducts a quality review following final message release to ensure AFI/AFMAN compliance. Non-compliance items (e.g. unsupported conclusions, incomplete investigation, tab content/format) will be addressed by the SIB through the CA. The AFSEC review process will be accomplished within 10 business days of the final message release. This urgency is required to ensure SIB members are still available for corrections and or clarifications IAW this AFI. The CA will ensure the SIB addresses the results of the AFSEC review within 15 business days after AFSAS notification.

7.2.1. The Tab T explains how the SIB determined the factors, findings, and recommendations of the investigation. The factors should be supported by the narrative, the findings should be supported by the factors, and the recommendations should be supported by the findings. A simple test for the Tab T is: recommendations are derived from findings, findings are derived from factors, and factors are supported in the narrative. AFSEC will also review and compare the Tab T, narrative, and HFACS nanocodes to ensure concurrence of human factors/causal factors between each source.

7.3. MOFE Comment Messages. Follow-up review actions start when the final message (or final supplemental message) is released and continue until the recommendations are acted upon and closed. All comments for the MOFE should be accomplished using AFSAS (See Attachment 5).

7.3.1. The following individuals/organizations will review Class A and B final messages/formal reports and input their comments, if applicable, into AFSAS within 45 calendar days after each final or final supplemental message release by the CA. If no comments are received, AFSEC will assume those eligible to comment concur with the results of the investigation. The CA staff should provide comments even if "concur as written" is the only applicable evaluation.

7.3.1.1. CA.

7.3.1.2. Lead command of weapons system (AFPD 10-9, *Lead Command Designation and Responsibilities for Weapons Systems*).

7.3.1.3. Air component commanders of unified commands when the mishap occurred during contingency operations. **Note:** The unified command staff offices must agree to safeguard the information according to rules contained in this instruction.

7.3.1.4. AFRC or ANG for all mishaps that involve their personnel, property, or equipment.

7.3.1.5. Designated action agencies (OPR/OCRs).

7.3.1.6. Commander of the mishap wing.

7.3.1.7. Individual(s) found causal in the formal report may review the final message.

7.3.1.8. Air Force agencies outside the investigating command if their functions were involved in the mishap (i.e. HQ AFFSA/A3A for air traffic services and airfield management, DCMA for mishaps involving contracts managed by DCMA).

7.3.1.9. Unsolicited comments. Agencies and organizations reviewing the final message report may comment on the findings, human factors, and recommendations even though they are neither in the chain of command nor a designated action agency.

7.3.2. If during the review process the CA, or higher authority, learns facts that were not available to safety investigators or that shed new light on the published findings, causes, and recommendations, he or she may do one of the following:

7.3.2.1. Reopen the safety investigation.

7.3.2.2. Include the new facts as a Comments for MOFE message submitted by SE staffs via AFSAS by selecting the "Provide Comments for MOFE" link on the mishap of interest. The comment period is open for 45 calendar days following the release of the final message or final supplemental message.

7.3.3. Comments received after the 45 calendar day deadline cannot be input into AFSAS and may not be considered in the MOFE process. Request waivers through the appropriate AFSEC division or discipline (e.g. SEFO, SEGR).

7.3.3.1. The MOFE comments will only address findings, human factors, and recommendations.

7.3.3.2. Provide comments about findings to address procedural errors (see Chapter 5), changes to causal/not causal, additions/deletions, or to add information not available to the SIB. Provide specific information to support the requested changes.

7.3.3.3. Provide comments about recommendations to address procedural errors (see Chapter 5), changes to OPR/OCRs, or to make additions/deletions. Additionally, comments may address the recommendation narrative to clarify intent or correct errors. If the actions directed in the recommendation have already been accomplished, provide actions taken (paragraph 7.5.4.), and the MOFE team will close the recommendation during the MOFE process. Provide specific information to support the requested changes.

7.4. MOFE Message. The MOFE is AF/SE's independent evaluation of the SIB's report. This is AF/SE's direct communication to the CSAF on what happened in the mishap. It is published in AFSAS with other messages related to the mishap and does not replace the SIB's final message or final supplemental message. The SIB's final message (or final supplemental message) and all tabs remain available in AFSAS as part of the official record.

7.4.1. If the MOFE adds a person to a causal finding or significantly changes an individual's role in the findings, the AFSEC division's process owner (i.e. SEFO for Aviation and SEGR for Ground) will prepare a causal letter for the respective division chief's signature. The division's process owner will notify the CA safety office, who in turn will notify the mishap unit (wing or equivalent) Chief of Safety and must provide the individual an opportunity to submit comments, following the procedures in paragraphs 6.6. through 6.7. If the individuals are outside the CA's command, follow procedures in paragraph 6.7.5. In addition to these procedures, a draft MOFE will also be provided solely for the individual to review (not for further comments by reviewing authorities). The MOFE will not be released by AFSEC until after the individual has had an opportunity to respond (usually 15 calendar days) but no later than 30 calendar days after the MAJCOM has been notified unless a delay is requested.

7.4.2. AF/SE is the releasing authority of the MOFE. AFSEC will release the MOFE via AFSAS. When transmitted, the MOFE becomes the official Air Force position on findings, causes, and recommendations.

7.4.3. A MOFE is not prepared for engine-confined FOD mishaps unless a formal report is required and/or significant human factors or procedural errors are involved.

7.5. Managing Recommendations.

7.5.1. Release of the final message is an official tasking for agencies identified as OPRs and OCRs for corrective actions. Safety offices will use AFSAS to effectively manage updates and final disposition of recommendations and ORSs resulting from mishaps and events. For those mishaps that are selected for MOFE, provide comments/justification for adding, modifying, or deleting appropriate recommendations during the 45 calendar day comment period.

7.5.1.1. The lead MAJCOM/A3 will brief and advocate SIB recommendations at the flight manual and technical order review boards. For Aviation Class A and B mishaps, if recommended changes are disapproved by the flight manual or technical order review boards, the appropriate directorate will brief MAJCOM/CV on disapproval rationale at the mishap review panel (MRP) and the MAJCOM/CC or CV will accept the risk of not implementing the safety recommendation. However, the MAJCOM/CC or CV may direct the implementation of a safety recommendation regardless of the flight manual or technical order review board's decision.

7.5.2. The OPR must provide recommendation updates in AFSAS every six months until closed. **Note:** Some recommendation OPR(s), especially at or below the wing level, do not have AFSAS accounts to provide semi-annual updates or closure requests. In these cases, it is the responsibility of the accountable wing/NAF/MAJCOM SE to ensure these actions are taken. Elements of an acceptable recommendation update include:

7.5.2.1. Actions planned or taken.

7.5.2.2. Results of development or testing.

7.5.2.3. Significant problems encountered.

7.5.2.4. Delays experienced.

7.5.2.5. Rationale and any supporting risk analysis to justify decisions made.

7.5.2.6. Concurrence and non-concurrence by other agencies.

7.5.2.7. Percentage of aircraft, equipment, etc., modified.

7.5.3. To request closure of a recommendation the following must be accomplished:

7.5.3.1. The OPR must request closure from the approval authority who determines if the closing action is acceptable. To determine closure approval authority for primary recommendations and other recommendations of significance, use Tables 7.1. and 7.2. For on-duty Class A and B recommendations, AFSEC is the approval authority for closure of primary recommendations.

7.5.3.2. For Class A and B mishap recommendations, if the action taken is different from the proposed actions of the recommendation, the OPR's MAJCOM CC/CV (or Materiel Safety Task Group Chair/System Safety Group Chair/Center Commander in AFMC) must approve the request for closure. For Class C and D mishaps, and Class E events, if action taken is different from the proposed actions of the recommendation, the OPR's commander (or 2-letter director for recommendations at MAJCOM/NAF level) must approve the closing action. **Example:** If the OPR for a Class C recommendation is the MAJCOM/A4M and they choose an alternate method of mitigating the hazard, the MAJCOM/A4 must approve the closing action. If the OPR is in the Maintenance Group, the Wing/CC must approve the closing action.

Table 7.1. Closure Approval Authority for Primary Recommendations.

<table>
<tr><th colspan="2"></th><th colspan="6">OPR:</th></tr>
<tr><th colspan="2"></th><th>HAF</th><th>MAJCOM</th><th>NAF</th><th>Wing</th><th>Group</th><th>Squadron</th></tr>
<tr><td rowspan="5">Mishap/Event Class</td><td>A</td><td rowspan="5">AFSEC</td><td colspan="5" rowspan="2">AFSEC if On-Duty Mishap
MAJCOM if Off-Duty Mishap</td></tr>
<tr><td>B</td></tr>
<tr><td>C</td><td rowspan="3">MAJCOM/SE</td><td rowspan="3">NAF/SE</td><td colspan="3" rowspan="3">Wing/SE</td></tr>
<tr><td>D</td></tr>
<tr><td>E</td></tr>
</table>

Table 7.2. Closure Approval Authority for ORSs.

<table>
<tr><th colspan="2"></th><th colspan="6">OPR:</th></tr>
<tr><th colspan="2"></th><th>HAF</th><th>MAJCOM</th><th>NAF</th><th>Wing</th><th>Group</th><th>Squadron</th></tr>
<tr><td rowspan="1">hap
/Ev
ent
Cla</td><td>A</td><td>AFSEC</td><td colspan="5">MAJCOM</td></tr>
</table>

	B				
	C		**MAJCOM/SE**	**NAF/SE**	**Wing/SE**
	D				
	E				

7.5.4. The following examples are acceptable closing actions with proper annotation:

7.5.4.1. Recommended changes to all applicable publications were issued/fielded. Corrective action annotations must include, as a minimum, the name and/or designation of the publication changed (i.e. 1B-2A-1), the date of the publication, and the affected page numbers. **Note:** The AFSAS "Attach File" function may be used to upload files if needed for clarity to further justify recommendation closure.

7.5.4.2. Recommended modifications to all applicable systems or items were completed. Since effective mishap prevention requires identifying and tracking existing hazards, recommendation closure should not be requested for open TCTO actions until the TCTO is complete. In most cases, the design change must have been implemented on all affected systems to warrant closure.

7.5.4.3. Recommended studies or evaluations were completed, conclusions were validated, and actions on all validated requirements were completed. In these cases, the OPR shall include detailed rationale, to include a risk analysis, to support their conclusions.

7.5.4.4. Recommended changes to training were completed. If the training changes were captured in a publication, see paragraph 7.5.4.1. Otherwise, corrective action annotations must include, as a minimum, the implementation method of the new training, the date implemented, and the currency requirement for the training.

7.5.4.5. For recommendations closed without action taken, risk acceptance is required (see paragraph 7.5.4.5.1.). Document the risk analysis and acceptance at the appropriate level in AFSAS. For example, "In lieu of a software update, the MAJCOM/CV accepted the risk associated with not implementing this recommendation during the MRP on 13 Oct XX. See attached risk analysis under "attached files" for supporting details."

7.5.4.5.1. For Class A and B mishap recommendations, risk acceptance is normally obtained through the MRP staffing process. If the lead MAJCOM is not the OPR, the current OPR will coordinate and reassign the recommendation to the lead MAJCOM with an appropriate risk analysis and recommendation to allow the lead MAJCOM/SE office to brief the commander and gain risk acceptance.

7.5.4.6. If the recommendation is not implemented due to a completed programmed removal/retirement of the system or item from service, then the completion date of the removal/retirement must be annotated. If the system is not completely removed from service at the time of the closure request then a risk analysis and risk acceptance statement is required.

7.5.5. Other safety offices are afforded the opportunity in AFSAS to coordinate on a recommendation's closing action. Coordination must occur within 30 calendar days of the OPR requesting closure.

7.5.6. The approval authority will approve closure only after all actions have been completed and properly annotated.

7.5.7. Each MAJCOM/DRU/FOA/NGB will establish a MRP. MRPs will include all open Class A and B recommendations assigned to an OPR within the specific command, not just at the command level. The purpose of an MRP is to address Class A and B hazards throughout the command regardless of the organizational level of the OPR. AFSAS can be used by MAJCOM safety offices to find these open recommendations by including "subordinate units" in the recommendation search criteria data fields.

7.5.7.1. The MRP will meet no less than once every six months. All recommendation updates approved at the MRP will be input into AFSAS within 30 calendar days.

7.5.7.2. At a minimum, the MAJCOM/SE will provide the CC or CV the following information through the MRP process:

7.5.7.2.1. All open Class A and B recommendations to include latest status updates and changes since previous MRP report to AFSEC. The MRP should also include recommendations from mishaps that have not yet been through the MOFE process.

7.5.7.2.2. A risk analysis for recommendations requiring a risk acceptance.

7.5.7.2.3. Identify recommendations open over two years with rationale.

7.5.7.2.4. Closure actions since the last MRP report to AFSEC.

7.5.7.2.5. Summary of recommendations closed without action per MDS where risk was accepted.

7.5.7.3. MAJCOMs will forward a memorandum signed by the MAJCOM SE to the AFSEC on 15 April and 15 October every year. Regardless of the dates of the MRPs, the report to AFSEC will cover the first and second half of the fiscal year, respectively. There is no requirement to send the actual MRP briefing. The memorandum will contain:

7.5.7.3.1. Number of recommendations closed since last MRP report to AFSEC.

7.5.7.3.2. Number of open recommendations.

7.5.7.3.3. Number of recommendations open for longer than two years.

7.5.7.3.4. Number of recommendations closed with accepted risk per MDS.

7.5.7.4. AFMC is exempt from conducting an MRP at the MAJCOM level. Centers under AFMC shall provide results to AFMC/SE not later than 1 April and 1 October every year. AFMC/SE will comply with paragraph 7.5.7.3.

KURT F. NEUBAUER
Major General, USAF
Chief of Safety

(USAFA)

RICARDO L. ARAGON, Lt Col, USAF
Director of Safety

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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5 USC 552, *Freedom of Information Act*

5 USC 552a, *Privacy Act*

10 USC 2254, *Treatment of Reports of Aircraft Accident Investigations*

(Added-USAFA) Title 10 United States Code, Section 8013 and Executive Order 9397

22 USC 2751 *et seq.*, *Arms Export Control Act*

29 USC 657 *et seq.*, *Inspections, Investigations, Recordkeeping*

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Abbreviations and Acronyms

AF—Air Force

AFFN—Air Force Foreign Nationals

AFFOR—Air Force Forces

AFFSA—Air Force Flight Standards Agency

AFI—Air Force Instruction

AFLOA—Air Force Legal Operations Agency

AFLOA/JACC—Air Force Legal Operations Agency Tort Claims and Litigation Division

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFMES—Armed Forces Medical Examiner System

AFPAM—Air Force Pamphlet

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFSAS—Air Force Safety Automated System

AFSEC—Air Force Safety Center

AFSPC—Air Force Space Command

AIB—Accident Investigation Board

AIR STD—Air Standard

AMIC—Aircraft Mishap Investigation Course

(Added-USAFA) AMT—Academy Military Trainer

ANG—Air National Guard

(Added-USAFA) AOC—Air Officer Commanding

AOR—Area of Responsibility

ARC—Air Reserve Component

ATC—Air Traffic Control

BP—Board President

CA—Convening Authority

CC—Commander

CDI—Commander Directed Investigation

CFR—Code of Federal Regulations

CMA—Controlled Movement Area

CMAV—Controlled Movement Area Violation

COMAFFOR—Commander, Air Force Forces

CONUS—Continental United States

CSAF—Chief of Staff, United States Air Force

CSFDR—Crash-Survivable Flight Data Recorder

DAF—Department of the Air Force

DCMA—Defense Contract Management Agency

DD FORM—Department of Defense Form

DNIF—Duties Not Including Flying

DoD—Department of Defense

DOD—Domestic Object Damage

DoD XX—R—Department of Defense Regulation

DODD—Department of Defense Directive

DoDI—Department of Defense Instruction

DOT—Department of Transportation

DR—Deficiency Report

DRU—Direct Reporting Unit

DSN—Defense Switched Network

DTRA—Defense Threat Reduction Agency

FAA—Federal Aviation Administration

FAA/AST—Federal Aviation Administration/Office of Commercial Space Transportation

FAX—Facsimile Machine

FES—Fire Emergency Services

FOA—Field Operating Agency

FOD—Foreign Object Damage

FOIA—Freedom of Information Act

FOUO—For Official Use Only

FSAT—Full Scale Aerial Target

FSO—Flight Safety Officer

FY—Fiscal Year

GMV—Government Motor Vehicle

GS—General Schedule

GSA—General Services Administration

GVO—Government Vehicle Other

HAP—High Accident Potential

HATR—Hazardous Air Traffic Report

HFACS—Human Factors Analysis and Classification System

HIPAA—Health Insurance Portability and Accountability Act

HQ—Headquarters

HQ AF/SE—Air Force Chief of Safety

HQ AFSEC/JA—Assistant for Legal Matters

HQ AFSEC/SEF—Aviation Safety Division

HQ AFSEC/SEG—Ground Safety Division

HQ AF/SEI—Issues Division, Office of the Chief of Safety

HQ AFSEC/SEW—Weapons Safety Division

IAW—In Accordance With

ISB—Interim Safety Board

JA—Judge Advocate

LRU—Line-Replaceable Unit

MAJCOM—Major Command

MDS—Mission Design Series

(Added-USAFA) ME—Mission Element

MHAP—Mishap / High Accident Potential

MINA—Mishap Investigation Non-Aviation

MOA—Memorandum of Agreement

MOFE—Memorandum of Final Evaluation

MOU—Memorandum of Understanding

MRP—Mishap Review Panel

MSE—Missile Support Equipment

NAF—Nonappropriated Fund or Numbered Air Force

NASA—National Aeronautics and Space Administration

NATO—North Atlantic Treaty Organization

NFWOD—Non-Factors Worthy of Discussion

NGB—National Guard Bureau

NGB/CF—Director, Air National Guard

NRO—National Reconnaissance Office

NTSB—National Transportation Safety Board

NWRM—Nuclear Weapons Related Materiel

NWRMAO—Nuclear Weapons Related Materiel Accountable Officer

OBA—Operating Budget Authority

OCR—Office of Collateral Responsibility

OFS—Other Findings of Significance

OPR—Office of Primary Responsibility

OPREP—Operational Report

ORS—Other Recommendations of Significance

OSI—Office of Special Investigations

OSHA—Occupational Safety and Health Administration

OSS&E—Operational Safety, Suitability, and Effectiveness

PA—Public Affairs

PH—Public Health

PM—Program Manager

PME—Professional Military Education

PMV—Private Motor Vehicle

QA—Quality Assurance

RDS—Records Disposition Schedule

ROA—Remotely Operated Aircraft

ROC—Recovery Operations Chief

RPA—Remotely Piloted Aircraft

RPV—Remotely Piloted Vehicle

SAF—Secretary of the Air Force

SE—Chief of Safety

SECAF—Secretary of the Air Force

SGP—Chief of Aerospace/Aviation Medicine

SIB—Safety Investigation Board

SIO—Single Investigation Officer

SJA—Staff Judge Advocate

SPO—System Program Office

SSE—Space Support Equipment

SSN—Social Security Number

STANAG—Standardization Agreement

TCTO—Time Compliance Technical Order

TDY—Temporary Duty

TO—Technical Order

UAS—Unmanned Aerial System

UAV—Unmanned Aerial Vehicle

UCMJ—Uniform Code of Military Justice

URL—Universal Resource Locator

US—United States

USAF—United States Air Force

USC—United States Code

Terms

Aero Club Aircraft—These are all aircraft assigned to the respective Aero Club. The Aero Club through purchase, lease, or loan from the government may have acquired these aircraft. Aero Clubs are authorized excess DoD and General Service Administration (GSA) aircraft on a loan basis.

Aerospace Vehicles—DoD aircraft, RPA/UASs, missiles, and space vehicles.

Afloat Mishap—An Air Force mishap occurring on board or resulting from or during the operation of a DoD vessel, including mishaps during DoD diving or swimmer operations; mishaps occurring while loading, off-loading, or receiving services at dockside; and mishaps occurring up to the high water mark during amphibious or inshore warfare training operations. It applies to all injuries to DoD personnel occurring on board, whether or not job related. A mishap occurring on board that results from shipyard, repair facility, or private contractor operations is a ground (industrial) mishap, not an afloat mishap.

Afloat Combat Support And Training Mishap—An afloat mishap associated with a non-combat military exercise or training activity designed to develop a military member's physical ability, maintain or increase individual or collective combat and peacekeeping skills, and is due to either a mishap or the result of natural causes when the medical event occurs during or within 1 hour after any training activity where the exercise or activity could be a contributing factor. This includes all training activities that do not meet the definition or are not included as values in sports, recreation, and individual fitness.

Afloat Industrial And Occupational Mishap—An afloat mishap occurring on a vessel involving operations similar to those performed in private industry (such as boiler maintenance). Includes, but is not limited to, equipment maintenance, facility construction and maintenance, health care provision, laboratory research, and administrative and clerical tasks. A mishap that occurs on board that results from shipyard, repair facility, or private contractor operations are ground (industrial) mishaps.

Afloat Miscellaneous Mishap—An afloat mishap not assigned to another subcategory.

Afloat Sports, Recreation, And Individual Fitness Mishap—An afloat mishap associated with an activity that:

• Requires physical exertion and skill that is governed by a set of rules or customs and often undertaken competitively.
• Refreshes one's mind or body through activity that amuses or stimulates.

Involves the activity of exerting muscles in various ways to keep fit through the performance of exercise. This includes all fitness activities that do not meet the criteria for command—directed or organized fitness programs.

Aviation Flight Mishap—Any mishap in which there is intent for flight and reportable damage to a DoD aircraft. Explosives and chemical agents or guided missile mishaps that cause damage in excess of $20,000 to a DoD aircraft with intent for flight are categorized as aircraft flight mishaps to avoid dual reporting. This is the only aviation mishap subcategory that contributes to the flight mishap rate.

Aviation Flight—Related Mishap—Any mishap in which there is intent for flight and no reportable damage to the DoD aircraft itself, but the mishap involves a fatality, reportable injury, or reportable property damage. A missile or RPA/UAS that is launched from a DoD aircraft, departs without damaging the aircraft, and is subsequently involved in a DoD mishap is reportable as a guided missile mishap or RPA/UAS, respectively.

Aviation Ground Operations Mishap—Aviation Ground Operations are mishaps that involve DoD aircraft with no intent for flight that result in reportable damage to DoD aircraft, injury, or fatality. Damage to an aircraft when it is being handled as a commodity or cargo is not reportable as an aircraft mishap.

Air Force At Large—Used for recording losses. Mishaps involving exchange students, military members in a non-pay status while waiting for appellate review if they have no written or verbal orders to return to an Air Force installation, prior service personnel on leave before reporting to initial permanent duty assignment, etc., are recorded to the Air Force at Large. Also used for recording losses of non-accepted Air Force aerospace vehicles (paragraph 4.9.2.), engine-confined non-FOD mishaps (paragraph 1.7.1.), and aerospace vehicles leased to a non-DoD organization for modification, maintenance, repair, test, contract training, or experimental ground mishaps and includes non-Air Force personnel when Air Force property or equipment fires cause injury.

Air Force Launch—Any space launch operation conducted with significant oversight or insight by the Air Force and not subject to licensing requirements of 14 CFR Part 415. The Air Force may or may not be the space system owner.

Air Reserve Components (Arc)—All units, organizations, and members of the ANG and AFRC on active duty, on active duty for training, or inactive duty for training, and ANG and AFRC technicians; include ANG and AFRC property and equipment.

Airfield Operations Personnel—Air traffic control (ATC) and airfield management personnel.

Aviation Mishap—An Air Force mishap involving a DoD aircraft or DoD RPA/UAS.

Causal Finding—Causal findings are those, which, singly or in combination with other causal findings, logically result in damage or injury. They are identified with the word "Causal" at the start of the text of the finding and supported by factors within the analysis.

Cause—A cause is a deficiency, which if corrected, eliminated, or avoided, would likely have prevented or mitigated the mishap damage or significant injury.

Chemical Agents—A chemical compound intended for use in military operations to kill, seriously injure, or incapacitate persons through its chemical properties. Excluded are riot control agents, chemical herbicides, smoke, and flame producing devices. Pesticides, insecticides, and industrial chemicals, unless selected by the DoD Components for chemical warfare purposes, are also excluded.

Chemical Agent Mishap—Any unintentional or uncontrolled release of a chemical agent when: reportable damage to property results from contamination or costs are incurred for decontamination; or individuals exhibit physiological symptoms of agent exposure; or the agent quantity released to the atmosphere is such that a serious potential for exposure is created by exceeding the applicable maximum allowable concentration-time levels for exposure of unprotected workers or the general population or property.

Class A Mishap—The resulting total cost of damages to Government and other property is $2 million or more, a DoD aircraft is destroyed (excluding UAS Groups 1, 2, or 3), or an injury or occupational illness results in a fatality or permanent total disability.

Class B Mishap—The resulting total cost of damages to Government and other property is $500,000 or more, but less than $2 million. An injury or occupational illness results in permanent partial disability, or when three or more personnel are hospitalized for inpatient care (which, for mishap reporting purposes only, does not include just observation or diagnostic care) as a result of a single mishap.

Class C Mishap—The resulting total cost of property damages to Government and other property is $50,000 or more, but less than $500,000; or a nonfatal injury or illness that results in 1 or more days away from work, not including the day of the injury.

Class D Mishap—The resulting total cost of property damage is $20,000 or more, but less than $50,000; or a recordable injury or illness not otherwise classified as a Class A, B, or C mishap. A Class D mishap is any nonfatal injury or occupational illness that does not meet the definition of Lost Time. These are cases where, because of injury or occupational illness, the employee only works partial days, has restricted duties or was transferred to another job, required medical treatment greater than first aid. Loss of consciousness (not including G-induced loss of consciousness, which are considered Class E) is considered a Class D Mishap when they are direct result of a nonfatal injury or occupational illness.

Class E Event—An unplanned occurrence, or series of occurrences, that does not meet the reporting criteria of a mishap.

Combat Support And Training—A mishap associated with a non-combat military exercise or training activity designed to develop a military member's physical ability, maintain or increase individual or collective combat and peacekeeping skills, and is due to either a mishap or the result of natural causes when the medical event occurs during or within 1 hour after any training activity where the exercise or activity could be a contributing factor. This includes all training activities that do not meet the definition or are not included as values in sports, recreation, and individual fitness.

Competent Medical Authority—A licensed healthcare provider awarded with regular clinical privileges for independent practice within the scope of their practice by the healthcare facility responsible for the provider's place of duty. Competent medical authority also includes nurse practitioners and physician assistants under supervision of licensed medical practitioners.

Contractor Mishap—A mishap resulting from contractor operations that involves injury to DoD personnel and/or damage to DoD resources. **Note:** When determining if a contractor employee's injury or illness requires reporting for recordkeeping requirements under 29 CFR 1904 refer to Chapter 1 of this instruction.

Controlled Movement Area (Cma)—As defined in Airfield Operation Instructions, any portion of the airfield requiring aircraft (including RPA/UAS), vehicles and pedestrians to obtain specific Air Traffic Control approval for access (normally via two-way radio contact with the control tower). Controlled Movement Areas include but are not limited to areas used for takeoff, landing and as required taxiing of aircraft. **Note:** This definition is used in lieu of "movement area" as defined in the FAA Pilot Controller Glossary, also called CMA.

Convening Authority (Ca)—The individual who has the authority to order a safety investigation.

Critical Profile—A mission profile exceeding system limitations based on system specifications or other program documentation.

Days Away From Work—Those days when a person loses 1 or more work days as a result of an injury or illness, starting with the day after the injury occurred or the illness began and including calendar days the person was unable to work, regardless of whether the person was scheduled to work on those days. (See section 1904.7(b)(3) of Reference (h).) For military personnel, days away from work for on- and off-duty injuries and occupational illnesses include inpatient hospitalization, medical restrictions to quarters, and convalescent leave.

Days Of Restricted Work Or Transfer To Another Job—Days on which a person is working but restricted from completing assigned tasks, works less than a full day or shift, or is transferred to another task to accommodate the injury or illness. Calendar days not scheduled to work are included in the count of days. Count of days is stopped when the person is either returned to their pre-injury or pre-illness job or permanently assigned to a job that has been modified or permanently changed to eliminate the routine functions the person was restricted from performing. For military personnel, restricted work or transfer to another job includes limited- and light-duty assignments.

Deficiency—A characteristic or condition that fails to meet a standard, or is not in compliance with a requirement, specification, instruction or manual.

Department Of Defense Aircraft—All manned weight-carrying devices supported in flight by buoyancy or dynamic action and are owned or leased by the DoD Components (including Reserve forces and National Guard) that are, as follows: operated and exclusively controlled or directed by a DoD Component; furnished by the Government, loaned, or on bailment to a non-DoD organization for modification, maintenance, repair, test, contractor training, or experimental project for a DoD Component, when the Government has assumed ground and flight risk. Includes aircraft under test by a DoD Component. (This includes aircraft furnished by a contractor or another Government Agency when operated by a DoD aircrew in official status and a DD Form 250, *Material Inspection and Receiving Report*, has been executed to certify that the Department of Defense has accepted the aircraft.) Excludes aircraft leased, on bailment, or loaned to contractors, commercial airlines, other Government Agencies, or foreign governments, when the lessee has assumed risk of loss. Excludes civil aircraft owned by civil operators and accomplishing contract air missions for the DoD Components. Excludes factory-new production

aircraft until successful completion of the post-production acceptance flight (mishaps that involve such aircraft are reported as contractor mishaps). Excludes flying club aircraft or privately owned aircraft on DoD installations.

Department Of Defense Civilian Personnel—DoD Civil Service System employees (including Reserve component military technicians (dual status), unless in a military duty status), non-dual status technicians, and non-appropriated fund employees. To avoid dual reporting this excludes military personnel working part-time; Corps of Engineers Civil Works employees; Youth or Student Assistance Program employees; foreign nationals employed by the DoD Components; and Army-Air Force Exchange Service employees. Foreign national employees fall into two categories: 1) Direct Hire – Under the direct hire system, the U.S. Forces are the legal employer of the foreign national and assumes responsibility for all administrative and management functions with foreign national employment; 2) Indirect Hire – The host government serves as the legal employer of U. S. Forces' foreign nationals. Although the host government is the official employer for the foreign national personnel, it grants operational control to the U. S. Forces for the day-to-day management of such personnel. See DoD 1400.25-M, Sub-Chapter 1231 for additional information.

Department Of Defense Military Personnel—All US military personnel on active duty or Reserve status under the provisions of Title 10 of the US Code; National Guard personnel under the provisions of Title 32 of the US Code; Service Academy cadets; Reserve Officer Training Corps cadets when engaged in directed training activities; foreign national military personnel assigned to the DoD Components.

Department Of The Air Force (Daf) Civilian Personnel— Includes Senior Executive Service, general schedule (GS), wage board, and NSPS employees, including ANG and AFRC technicians, unless in military duty status. Includes non-appropriated fund (NAF) employees who are not military personnel working part time. This includes Youth Opportunity Program and Student Assistance Program employees. This includes foreign-national civilians employed by Air Force (Air Force Foreign Nationals (AFFN)). This includes Air Force responsibility for any compensation claims arising from employment injury. Air Force Foreign National employees fall into two categories (see **Department of Defense Civilian Personnel)**.

Department Of The Air Force (Daf) Military Personnel—These are Air Force personnel on active duty with the Air Force or ANG and AFRC personnel on military duty status. Includes US Air Force Academy cadets, US Air Force Academy Preparatory School cadet candidates and Reserve Officer Training Corps (ROTC) cadets engaged in directed training activities. Includes members of other US military services serving on extended active duty with the Air Force or foreign-national military personnel assigned to the Air Force.

Destroyed Aircraft/Rpa/Uas—A damaged aircraft/RPA/UAS not repaired is not automatically a "destroyed" aircraft/RPA/UAS. The decision not to return a damaged aircraft/RPA/UAS to service is independent of the mishap class. When the aircraft/RPA/UAS will not be returned to service, classify the mishap damage according to the total estimated repair cost as if it had been returned to service. Detailed procedures for obtaining disposition recommendations from the program manager can be found in AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*.

Directed Energy—An umbrella term covering technologies that relate to the production of a beam of concentrated electromagnetic energy or atomic or subatomic particles.

Directed Energy Device—A system using directed energy primarily for a purpose other than as a weapon.

Directed Energy Device Mishap—A mishap involving a directed energy device. An example would be damage to an optical device by an aircraft laser range finder.

Directed ENERGY MISHAP—A directed energy weapon mishap or a directed energy device mishap.

Directed Energy Weapon—A system using directed energy primarily as a direct means to deny, disrupt, damage or destroy enemy equipment, facilities, and personnel.

Directed Energy Weapon Mishap—A mishap involving a directed energy weapon and/or unique directed energy weapon support equipment.

Disability—See permanent partial disability or permanent total disability.

Domestic Object Damage (Dod)—Damage to an aircraft component or assembly, including engines, due to an inherent internal failure of a component or assembly. Domestic Object Damage does NOT include damage caused from the ingestion or presence of an object foreign or external to the component or assembly.

Ejection Attempt—Completion of the action by the aircrew to initiate the ejection system, regardless of the outcome. For single motion systems, this only requires pulling the handle. For dual motion systems, both raising the sidearm and squeezing the trigger must be accomplished.

Ejection System—A mechanical device designed to forcefully separate the crew from the aircraft and return them to the earth's surface. Examples are an ejection seat, and extraction system, or a crew module.

Engine—Thrust or torque producing machinery for manned and unmanned aerial vehicles to include cases, rotational and static hardware for turbo-machinery. The term "engine" also includes "internal combustion" reciprocating machinery. The "engine" includes attached gearboxes and accessories necessary for operation and control of the thrust or torque producing machinery and any thrust augmentation systems. The term "engine" does not include reduction gearboxes, propellers or propeller control devices.

Engine—Confined—Applies when an aircraft or RPA/UAS turbine engine experiences reportable damage (Class C or higher) that is confined to the engine and integral engine components. Damage is considered confined to the engine if there is less than Class C damage external to the engine. If the total cost of all damage external to the engine is equal to or greater than the Class C damage cost threshold, then the mishap is not engine-confined, regardless of the comparative extent of engine damage cost.

Engine—Confined Fod Mishap—A mishap in which an aircraft or RPA/UAS turbine engine experiences reportable foreign object damage (Class C or higher) that is confined to the engine and integral engine components. Damage is considered FOD if it is caused by inanimate objects external to the engine (i.e. rocks, tools, safety wire, ice, etc.). Damage is considered confined to the engine if there is less than Class C damage external to the engine. If the total cost of all damage external to the engine is equal to or greater than the Class C damage cost threshold, then the mishap is not engine-confined, regardless of the comparative extent of engine damage cost.

Event—An unplanned occurrence, or series of occurrences, that does not meet the reporting criteria of a mishap.

Explosives—All items of ammunition; propellants (solid and liquid); pyrotechnics; explosives; warheads; explosive devices; and chemical agent substances and associated components presenting real or potential hazards to life, property, or the environment. Excluded are wholly inert items and nuclear warheads and associated devices, except for considerations of storage and stowage compatibility; and for considerations of blast, fire, and non-nuclear fragment hazards associated with the explosives.

Explosives And Chemical Agents Mishap—An Air Force mishap involving an explosive or chemical agent.

Explosives Mishap—Mishaps resulting in damage or injury from: an explosion or functioning of explosive materials or devices (except as a result of enemy action); inadvertent actuation, jettisoning, and releasing or launching explosive devices; impacts of ordnance off-range.

Faa Licensed Launch—Any commercial launch that is not indemnified by the government and has been issued a license by FAA/AST.

Fatal Injury—(Class A)—Injuries resulting in death.

Findings—Findings are the conclusions of the safety investigator. They are statements, in chronological order, of each significant event or condition sustaining the sequence leading to the mishap.

Fire Related Mishap—A mishap with reportable damage to real property or equipment or reportable injury to Air Force personnel resulting from fire, but does not involve a DoD aircraft, DoD RPA/UAS weapon system, or explosives. Fire mishaps are categorized as industrial mishaps and include non-Air Force personnel when Air Force property or equipment fires cause injury.

First Aid—Any initial one-time treatment and any follow-up visit for observation of minor scratches, cuts, burns, and splinters, etc., that does not ordinarily require medical care. Such one-time treatment and follow-up visit for observation is considered first aid, even though provided by a physician or medical professional. The following information describes those cases that would be considered first aid. Treatment outside this finite list is considered medical treatment greater than first aid:

Using a non—prescription medication at non-prescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment);

1. Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);
2. Cleaning, flushing or soaking wounds on the surface of the skin;

Using wound coverings such as bandages, Band—Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment);

3. Using oxygen per protocol for suspected conditions or events (chemical exposure, smoke in a cockpit, decompression sickness, etc.). Note: Oxygen prescribed by a physician or medical professional for confirmed conditions constitutes more than first aid;
4. Using politzer bag or comparable device for ear and sinus block;
5. Using hot or cold therapy;

Using any non—rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment);

Using temporary immobilization devices while transporting an accident victim (*e.g.*, splints, slings, neck collars, back boards, etc.).

Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;

Using eye patches;

Removing foreign bodies from the eye using only irrigation or a cotton swab;

Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;

Using finger guards;

Using massages (physical therapy or chiropractic treatment are considered medical treatment); or

Drinking fluids for relief of heat stress.

Note: See 29 CFR 1904, *Recording and Reporting Occupational Injuries and Illness,* for further guidance for injury and illness classifications.

Foreign Object Damage—Damage is considered FOD if it is caused by inanimate objects external to the engine (i.e. rocks, tools, safety wire, ice, etc.).

Formal Report—The factual and analytical information about mishaps that are uploaded as tabs in AFSAS. The formal report also includes data uploaded into AFSAS, not included in the tabs.

Friendly Fire—A circumstance in which authorized members of a US or friendly military force, U.S. or friendly official government employees, U.S. DoD or friendly nation contractor personnel, and nongovernmental organizations or private volunteer organizations, are, while accompanying or operating with the U.S. Armed Forces, are mistakenly or accidentally killed or injured in action by US or friendly forces actively engaged with an enemy or directing fire at a hostile force or what is thought to be a hostile force. This also includes incidents that result in only damage or destruction of U.S. or friendly nation's military property mistakenly or accidentally damaged in action by U.S. or friendly forces actively engaged with an enemy, or directing fire at a hostile force or what is thought to be a hostile force.

Government Motor Vehicle (Gmv)—A motor vehicle that is owned, leased, or rented by a DoD Component (not individuals) primarily designed for over-the-road operations; and whose general purpose is the transportation of cargo or personnel. Examples of GMVs are passenger cars, station wagons, sport utility vehicles, vans, ambulances, buses, motorcycles, trucks, tractor-trailers, rental vehicles authorized by official travel orders, and General Service Administration (GSA) vehicles leased on a long- or short-term basis. Vehicles on receipt to, and operated by,

non-DoD persons or agencies and activities such as the US Postal Service or the American Red Cross are not GMVs.

Government Motor Vehicle (Gmv) Mishap—A motor vehicle mishap involving the operation of a GMV as defined in this instruction.

Government Vehicle Other (Gvo)—Vehicles designed primarily for off-the-highway operation such as construction-tracked vehicles, forklifts, road graders, agricultural-type wheeled tractors, and aircraft tugs. Includes military combat and tactical vehicles that are owned, leased, or rented by a DoD Component (not individuals) (e.g., tanks, self-propelled weapons, armored personnel carriers, amphibious vehicles ashore, and high-mobility multipurpose wheeled vehicles).

Greater Than First Aid—Any action in excess of First Aid (see FIRST AID definition).

Ground (Occuring On Land)—An Air Force mishap that occurs to on-duty DoD civilian and on- or off-duty DoD military personnel and does not meet the mishap category definition of nuclear, space, aviation, guided missile, explosives and chemical agents, directed energy, afloat, or motor vehicle as defined by this instruction. This category also includes ground mishaps previously categorized as fire, contractor, and natural phenomena which were replaced with questions in AFSAS.

Ground Mishap—For the purposes of this instruction, a mishap that falls into one of the following mishap categories: afloat, or motor vehicle, or ground (occurring on land). **Note:** A ground mishap may involve materiel/equipment that is not traditionally thought of as happening on the ground (e.g., an off-duty military person flying a private plane). Former category Off-Duty Military and sub-categories of fire, contractor, and natural phenomena have been replaced with questions in AFSAS. Damage to public or private property or injury or illness to non-DoD personnel caused by DoD operations are ground mishaps.

Guided Missile—All missiles propelled through air or water that are unmanned, guided by internal or external systems, and self-propelled. This term includes individual major missile components such as stages, guidance and control sections, payloads other than nuclear reentry vehicles; system equipment required to place the missile in an operational status while at the launch or launch control facility or on the launching aircraft; and system equipment required to launch and control the missile. Examples are intercontinental ballistic missiles; surface-to-air, air-to-air, and air-to-surface guided missiles, and torpedoes. This term includes all missiles that are: owned in whole or in part by a DoD Component; operationally controlled by a DoD Component; on bailment or loan to a non-DoD Agency for modification, testing, or as an experimental project for a DoD Component; or under test by a DoD Component. Drones (e.g., target, decoy, surveillance), ballistic or semi ballistic vehicles, and artillery projectiles are not considered guided missiles.

Guided Missile Mishap—An Air Force mishap involving guided missiles or unique missile support equipment. Missiles that are unintentionally damaged or destroyed after launch from an aircraft but cause no aircraft damage, will be classified as a guided missile mishap.

Hazard—Any real or potential condition that can cause injury or occupational illness to personnel; damage to or loss of a system, equipment or property; or damage to the environment.

High Accident Potential (Hap) Event—Any hazardous occurrence that has a high potential for becoming a mishap that does not fit the definition of a HATR.

Illness And/Or Disease—A non-traumatic physiological harm or loss of capacity produced by systemic, continued, or repeated stress or strain; exposure to toxins, poisons, fumes, etc., or other continued and repeated exposures to conditions of the environment over a long period of time. For practical purposes, an occupational illness and/or disease is any reported condition that does not meet the definition of injury.

Industrial And Occupational Mishap—A ground mishap involving operations similar to those performed in private industry. Includes, but is not limited to, equipment maintenance, facility construction and maintenance, health care provision, laboratory research, and administrative and clerical tasks.

In—Flight Shutdown—Any engine shutdown in-flight, either due to an engine malfunction or by the aircrew following flight manual procedures.

Injury—A traumatic wound or other condition of the body caused by external force or deprivation (fractures, lacerations, sprains, dislocations, concussions, compressions, drowning, suffocation, exposure, cold injury, and dehydration), including stress or strain, which results from an unplanned event. The injury is identifiable as to the time and place of occurrence and member or function of the body affected, and is caused by a specific event or incident or series of events or incidents in a single day or work shift.

Intent For Flight—Intent for flight is considered to exist when aircraft brakes are released and/or takeoff power is applied for commencing an authorized flight. Intent for flight continues until either the fixed-wing aircraft taxies clear of the runway or, for helicopters and/or vertical takeoff and landing aircraft, the aircraft has alighted and the aircraft weight is supported by the landing gear. Clear of the runway means the entire aircraft is physically off the active runway. Hover taxi is considered flight.

Joint Service Mishap—A single mishap involving two or more Services in which one or more Services experiences reportable injuries or damages.

Launch Mishap—Space mishaps occurring during launch vehicle operations, including upper stages. This includes payloads that do not obtain orbit and range safety system failures.

Launch Operator—A person or entity who conducts or proposes to conduct the launch of a launch vehicle. AFSPC often refers to a launch operator as one of its range users.

Lost Time Case—(Class C)—Any injury or occupational illness or disease that causes loss of one or more days away from work beyond the day or shift it occurred. When determining if the mishap is a Lost Time Case, you must count the number of days the employee was unable to work as a result of the injury or illness, regardless of whether or not the person was scheduled to work on those days. Weekend days, holidays, vacation days, or other days off are included in the total number of days lost, if the employee would not have been able to work on those days. Don’t count the day of the injury/illness or the day the individual returns to work.

Low Speed Vehicle— Any 4-wheeled motor vehicle whose top speed is greater than 20 miles per hour but less than 25 miles per hour, and whose gross vehicle weight rating is less than 3,000 pounds.

Majcom—The term "MAJCOM" as used in this instruction includes ANG, DRUs, and FOAs.

Miscellaneous Mishap—A ground and industrial mishap that is on- or off-duty and does not fit into the industrial or sport and recreational subcategory. Also included in this subcategory are

reportable mishaps occurring while using a commercial carrier such as a commercial bus, airplane, or taxicab.

Mishap—A mishap is an unplanned occurrence, or series of occurrences, that results in damage or injury and meets Class A, B, C, or D reporting criteria IAW paragraph 1.10. Damage or injury includes: damage to DoD property (excluding normal wear and tear or aging); occupational illness to DoD military or civilian personnel; injury to DoD military personnel on- or off-duty; injury to on-duty DoD civilian personnel; damage to public or private property, or injury or illness to non-DoD personnel caused by Air Force operations.

Mishap Costs—Mishap costs consist of two parts: Direct mishap costs ONLY include property damage costs (DoD and Non-DoD) and environmental cleanup costs. Injury and illness costs are part of the TOTAL mishap costs and are automatically calculated in AFSAS.

Missile Support Equipment (Mse)—Any component of ground launched missile systems used to handle or transport missiles or missile components. MSE includes, but is not limited to, system unique vehicles, such as, payload transporters, transporter-erectors, and all equipment below grade in the launch facility.

Mission Capability—This term encompasses the purpose and functions of the space system (sensors, transponders, etc.) throughout its intended system mean mission duration (the expected life of the spacecraft).

Motor Vehicle Mishap—An Air Force mishap involving the operation of a motorized land vehicle operated by Air Force personnel. An Air Force mishap involving the operation of a DOD-owned or leased or rented motorized land vehicle by non-Air Force personnel while operationally controlled by a DOD component. Fatalities or injuries to pedestrians or bicyclists involving moving motor vehicles are included in this category. This category does not include ground, sports and recreational off-road motorcycle and ATV mishaps. This category also does not include ground and industrial mishaps such as injuries occurring while loading or unloading, mounting or dismounting a non-moving vehicle; cargo damaged by weather; damage to a properly parked DOD vehicle, unless caused by an operating DOD vehicle. Additionally, damage to an Air Force vehicle caused by objects thrown or propelled into it by weather or natural phenomena, or by fire when no collision occurred; or damage to an Air Force vehicle when it is being handled as cargo and not operating under its own power and is properly parked, are not categorized as motor vehicle mishaps. Motor vehicle mishaps are divided into the following subcategories: Government Motor Vehicle (GMV) and Private Motor Vehicle (PMV).

Musculoskeletal Disorders—Injuries or disorders of the muscles, nerves, tendons, joints, cartilage, an disorders of the nerves, tendons, muscles and supporting structures of the upper and lower limbs, neck, and lower back that are caused, precipitated or exacerbated by sudden exertion or prolonged exposure to physical factors such as repetition, force, vibration, or awkward posture. (This definition specifically excludes those conditions such as fractures, contusions, abrasions, and lacerations resulting from sudden physical contact of the body with external objects.)

Natural Phenomena Related—Injury to persons or damage to DoD property resulting from wildlife or environmental conditions of such a magnitude that they could not have been predicted or prepared for or for which all reasonable preparations had been taken.

No Lost Time Case—(Class D)—Any on-duty injury or occupational illness or disease that restricts work activities and does not meet the definition of **Lost Time**. These are cases where, because of injury or occupational illness or disease, Air Force personnel only worked partial days, were placed on restricted work, were transferred to another job, required medical treatment greater than first aid, lost consciousness, were struck by a contaminated needle sticks/sharps, or were diagnosed with a significant injury or illness/disease by a physician or other licensed health care professional. Significant injuries or illnesses include those that do not result in death, days away from work, restricted work or job transfer, medical treatment greater than first aid, or loss of consciousness.

Non—Accepted Equipment/Vehicles—Non-delivered equipment/vehicles for which the Government has assumed responsibility; DD Form 250, *Material Inspection and Receiving Report*, HAS NOT been executed.

Non—Daf Civilian Personnel—Persons employed by host-nation agencies, and doing work such as public works or general engineering on Air Force installations, are not Air Force employees. Their employer is the host-nation agency paying them, supervising them, and handling employee benefits. Indirect-hire employees are not the same persons as DAF civilian employees when a host government has supervisory control. This includes the host government's responsibility for insurance, compensation costs, and the like.

Non—Recoverable In-Flight Shutdown—Any engine shutdown in-flight, either due to an engine malfunction or by the aircrew following flight manual procedures whereby: the engine is unable to restart, or further investigation determines that a restart attempt would not have been successful, or further investigation determines that continued operation would have caused the engine to fail, or the aircraft cannot maintain level flight at a safe altitude as determined by the situation.

Nucflash—Includes accidental, unauthorized, or unexplained occurrences that could create the risk of war meeting any of the following criteria: accidental, unauthorized, or unexplained actual or possible nuclear detonation by US forces or US-supported allied forces; accidental or unauthorized launch of a nuclear-armed or nuclear-capable missile by US forces or US-supported allied forces; or unauthorized flight or deviation from an approved flight plan by a nuclear-armed or nuclear-capable aircraft of US forces or US-supported allied forces that could be perceived as a hostile act.

Nuclear Capable Unit—A unit or an activity assigned responsibilities for employing, assembling, maintaining, transporting, or storing war reserve nuclear weapons, their associated components and ancillary equipment.

Nuclear Mishap—An Air Force mishap involving radioactive material.

Nuclear Weapon—A complete assembly, in its intended ultimate configuration which, upon completion of the prescribed arming, fusing, and firing sequence, is capable of producing the intended nuclear reaction and release of energy. For the purpose of mishap categorization, also include unique support equipment associated with nuclear weapons.

Nuclear Weapon Components—Weapon components composed of fissionable materials that contribute substantially to nuclear energy release during detonation.

Nuclear Weapon Mishap—A mishap that involves destruction of, or serious damage to, nuclear weapons, nuclear weapons systems, or nuclear weapons components resulting in an actual or potential threat to national security or life and property. Reportable nuclear surety violations and damage to support equipment unique to a nuclear weapon system will be reported under this subcategory.

Nuclear Weapons Surety—Materiel, personnel, and procedures which contribute to the safety, security, and reliability of nuclear weapons and to the assurance that there will be no nuclear weapon accidents, incidents, unauthorized weapon detonations, or degradation in performance at the target.

Nuclear Weapon System—A combat delivery vehicle with its nuclear weapon or weapons and associated support equipment, non-combat delivery vehicles, facilities, and services.

Observation Or Diagnostic Care—Inpatient hospitalization or restriction from assigned work activities for observation or diagnosis provided no treatment or medication is given for the suspected injury or occupational illness, and a competent medical authority determines the individual could have returned to his or her normal job without impairment or disability, or where an individual is temporarily restricted from regularly assigned duties to prevent exceeding time-weighted exposure limits. This care does not create a "lost-time case," "no lost-time case," or "first-aid case."

Occupational Illness—Any reported condition that does not meet the definition of injury. Any abnormal physical condition or disorder, other than one resulting from an occupational injury, resulting in adverse consequences and caused by occupational factors associated with employment. Includes all confirmed cases of acute and chronic illnesses or diseases caused by inhalation, absorption, ingestion or direct contact with suspect substances.

Off-Duty—DoD personnel are off-duty when they are not on-duty (see on-duty definition). Personnel participating in base team sporting activities or in a permissive temporary duty (TDY) status are off-duty. Air Force Academy Cadets participating in inter-collegiate, intramural sports, and club activities are off-duty. Reserve and National Guard personnel performing inactive duty training will be considered off-duty: when traveling to or from the place at which such duty is performed; or while remaining overnight, immediately before the commencement of inactive-duty training; or while remaining overnight between successive periods of inactive-duty training, at or in the vicinity of the site of the inactive-duty training, if the site of the inactive-duty training is outside reasonable commuting distance of the member's residence. **Note:** This definition is for mishap reporting purposes only and has no relation to compensability or line-of-duty determination. Personnel driving their private motor vehicle prior to or after their duty day are considered off-duty for mishap reporting purposes. **Note:** A mishap involving both on- and off-duty military personnel in the same mishap will be categorized as an on-duty mishap.

On-Duty—DoD personnel are on-duty when: Physically present at any location where they are to perform their officially assigned work. Officially assigned work includes organization-sponsored events an employee is permitted to attend, regardless of location. This includes those activities incident to normal work activities that occur on DoD installations, such as lunch, coffee, or rest breaks, and all activities aboard military vessels. **Note:** Personnel walking to and from work place parking areas at the start and end of the duty day are in an on-duty status. Personnel who eat lunch and then deviate from normal lunch activities (example shopping) are considered off-duty. Being transported by DoD or commercial conveyance to perform officially

assigned work. (This includes travel in PMVs or commercial conveyances while performing official duty, but not routine travel to and from work).

On temporary duty, personnel on assignment away from the regular place of employment are covered 24 hours a day for any injury or occupational illness that results from activities essential or incidental to the temporary assignment. Essential or incidental activities include travel between places of business or lodging and eating establishments, drugstores, barbershops, places of worship, cleaning establishments, bowling centers, officer and enlisted clubs, gymnasiums, and similar on—base non-appropriated fund (NAF) facilities and similar places required for the health or comfort of the member, are considered on-duty. However, when personnel deviate from the normal incidents of the trip and become involved in activities, personal or otherwise, that are not reasonably incidental to the duties of the temporary assignment contemplated by the employer, the person ceases to be considered on-duty for investigation and reporting purposes of injuries or occupational illnesses. Injuries or occupational illnesses to personnel resulting from activities unrelated to the temporary duty assignment or non-commander directed sports and recreation activities (e.g. jogging, golfing, basketball) will be reported as off-duty mishaps.

Taking part in compulsory physical fitness training, sporting events, and physical fitness evaluation activities (including cycle ergometric testing when permitted). On—duty compulsory fitness training and activities include directed sports activities at professional military education (PME) and formal training courses such as Basic Military Training, Technical Training Schools, Airman Leadership School, and Squadron Officer School. These activities are considered on-duty when a superior directs participation at a specific location and time. This includes supervision directed physical conditioning activities when a mandatory location and time are designated. Air Force civilian employees authorized to participate in physical fitness activities during normal duty hours are also on-duty.

Military members working part—time Non-appropriated Fund (NAF) positions. **Note:** Use the NAF position series instead of the military Air Force Specialty Code (AFSEC) for safety reporting

Note: The definitions above are for mishap reporting purposes only and are not related to compensability or line—of-duty determination.

(Added-USAFA) On-Duty—For AF Academy Cadets and Cadet Candidates the following further clarifies duty status for the purposes of mishap reporting. Cadets and Cadet Candidates are considered on-duty when participating in all required academic activities, non-academic activities when such participation is required for graduation. Examples include, but are not limited to, academic classes, Basic Cadet Training, Ops Air Force, Transition Exercise, Airmanship Programs/teams, squadron physical fitness activities, Physical Education class. Additionally, they are considered on-duty when representing the Academy in an official capacity, regardless of location, when formally (i.e. mandatory) assembled to participate either in practice or competition.

Orbit Mishap—Space mishaps occurring during spacecraft operation after separation from all launch vehicle components, including upper stages and transfer motors.

Permanent Partial Disability—(Class B) An injury or occupational illness that does not result in death or permanent total disability, but in the opinion of competent medical authority, results

in permanent impairment through loss or loss of use of any part of the body. EXCEPTIONS: Loss of teeth, fingernails, toenails; loss of fingertips or toe tips without bone involvement; repairable inguinal hernia; disfigurement; sprains or strains that do not cause permanent limitation of motion.

Permanent Total Disability—(Class A) Any nonfatal injury or occupational illness that, in the opinion of competent medical authority, permanently and totally incapacitates a person to the extent that he or she cannot follow any gainful occupation and results in a medical discharge, retirement, separation. The loss, or the loss of use of both hands, both feet, both eyes, or a combination of any of those body parts as a result of a single mishap will be considered as a permanent total disability.

Pre—Launch Mishap—Space mishaps occurring during ground handling, processing, and transportation operations.

Preexisting Injury Or Illness—An injury or illness is a preexisting condition if it resulted solely from a non-work-related event or exposure that occurred outside the work environment.

Private Motor Vehicle (Pmv)—A non-commercial vehicle that is neither a GMV nor GVO. A vehicle normally registered for highway use.

Private Motor Vehicle (Pmv) Mishap—A motor vehicle mishap, regardless of the identity of the operator, that does not involve a GMV or GVO, but results in a fatality or lost time case injury (involving days away from work) to military personnel on- or off-duty or to on-duty civilian personnel, or reportable damage to DoD property. Fatalities and injuries caused by PMV(s) to bicyclists and pedestrians in the traffic environment are included in this category.

Privilege—A common law doctrine or statutory rule of evidence that protects certain communications and products from being used as evidence in court or otherwise released.

Privileged Safety Information—Information that is reflective of a deliberative process in the safety investigation or given to a safety investigator pursuant to a promise of confidentiality, which the safety privilege protects from being released outside safety channels or from being used for any purpose except mishap prevention. It includes products such as draft and final findings, evaluations, opinions, preliminary discussions, conclusions, mishap causes, recommendations, analyses, and other material that would reveal the deliberations of safety investigators, including reviews and endorsements. It also includes information given to a safety investigator pursuant to a promise of confidentiality and any information derived from that information or direct or indirect references to that information.

Program Manager (Pm)—The PM is the designated individual with the responsibility for and authority to accomplish program objectives for development, production, and sustainment to meet the user's operational needs. The PM shall be accountable for credible cost, schedule, and performance reporting and analysis to the milestone decision authority, and have responsibility and authority to accomplish objectives for the total life cycle of the program.

Property Damage—Damage to facilities, equipment, property, materiel, or resources. If the occurrence meets mishap reporting criteria, then the cost of environmental cleanup shall be included in property damage costs.

Propulsion System—A system that provides a propelling force to the aircraft. This includes reciprocating and turbo-machinery engines whose primary purpose is for propulsion, reduction gearboxes, propellers, propeller control devices and ducted or un-ducted fans or prop-fans.

Protected Health Information—Any individually identifiable health information that is maintained or transmitted in any form or medium (paper, electronic, etc.), as specified in 45 CFR 160.103 and DoD Directive 6025.18-R.

Radiological Mishap—See reactor and radiological mishap.

Reactor And Radiological Mishap—Mishaps involving fissile material used in a self-supporting chain reaction (i.e., nuclear fission) to produce heat and/or radiation for both practical application and research and development.

Reactor System—A nuclear reactor with any associated nuclear or non-nuclear systems.

Recommendations—Recommendations are feasible and effective solutions to eliminate identified hazards, or if the hazard cannot be eliminated, to mitigate the hazard's potential consequences. Actions taken to likely prevent a similar mishap or reduce its effects.

Recordable Injury Or Illness—For civilian personnel, an occupational injury or illness meeting the recording requirements of part 1904 of Reference (h). For military personnel, an on-duty injury or occupational illness meeting the recording requirements of part 1904 of Reference (h) or an off-duty injury resulting in death or 1 or more days away from work.

Recovery Operations Chief (Roc)—Individual in charge of recovering mishap wreckage.

Remotely Piloted Aircraft (Rpa)—All unmanned DoD weight-carrying devices supported in flight by buoyancy or dynamic action and are owned or leased by the DoD Components, including aerostat balloons, that are, as follows: operated and exclusively controlled or directed by a DoD Component; furnished by the Government or on bailment to a non-DoD organization for modification, maintenance, repair, test, contract training, or experimental project for a DoD Component, when the Government has assumed ground and flight risk; under test by a DoD Component. (This includes RPAs furnished by a contractor or another Government Agency when operated by a DoD crew in official status and a DD Form 250, Material Inspection and Receiving Report, has been executed to certify that the DoD has accepted the vehicle.) RPAs covered by this instruction include, but are not limited to, the following: Tactical RPAs, such as the MQ-1 Predator or RQ-4 Global Hawk; Full Scale Aerial Target Remotely Piloted Vehicles (FSAT RPVs), such as the QF-4, Subscale RPVs, such as the BQM-34 Firebee or MQM 107 Streaker; Buoyant RPA, such as a tethered aerostat; Remotely Operated Aircraft (ROA), and Unmanned Combat Aerial Vehicles. When an FSAT RPV is carrying a person, it is a DoD aircraft, not a RPA.

Remotely Piloted Aircraft Mishap—Any mishap involving a DoD RPA/UAS as defined in this instruction, but not involving a DoD aircraft. Damage to a DoD RPA/UAS, when it is being handled as a commodity or cargo, is a ground and industrial, industrial aviation mishap. See AFI 99-151, Air-Launched Munition Analysis Group (ALMAG), for additional guidance on investigating specific types of air-launched missile anomalies and failures

Restricted Work—A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work.

Safety Investigation—A thorough assessment of the hazards, cause(s), and outcome of circumstances leading to a mishap or event.

Safety Investigator—An individual authorized and qualified to investigate a safety mishap or event. Examples include members of an ISB or SIB, an SIO, and members of a safety staff.

Safety Privilege—The term the Air Force uses to describe privileges recognized by the courts that protect safety information from release. It is an executive privilege afforded a head of an agency to protect information from release that would hamper the efficient operation of an important Government program and perhaps impair the national defense or security.

Safety Report—Safety reports include message reports (preliminary, status, and final), formal reports, and injury and occupational illness forms and logs.

Significant Injury Or Illness—Work related cases involving conditions such as cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum, among others. Severity is determined by a competent medical authority.

Space Anomaly—An on-orbit malfunction of a space system, or a deviation from what is consistent with normal operations, that does not meet the criteria of a mishap. An anomaly will be initially investigated using the anomaly resolution process.

Space Booster—A space vehicle designed to propel or carry another space vehicle from the earth's surface or from orbit to a desired point and velocity in space. This term includes engines, rocket motors, upper stages, fuel tanks, and guidance and control sections.

Space Command And Control Systems (Sccs)—Systems required to provide telemetry, tracking, commanding, mission data dissemination, data processing, communication and range support for space vehicles. SCCS examples include the common user Air Force Satellite Control Network (AFSCN) and other program-dedicated networks.

Space Mishap—An Air Force mishap involving a space system and/or unique space support equipment.

Space Systems—Any system used for space operations or support. Space system is a generic term used to encompass all ground, space and link segment systems and their components. This includes space vehicles, unique space support equipment, and space command and control systems.

Space Vehicle—A vehicle designed to orbit or travel beyond the earth's atmosphere or a system designed to lift other space vehicles into orbit. Examples of space vehicles include boosters (launch vehicles), spacecraft (satellites, orbiters, payloads) and reusable spacecraft. Intercontinental Ballistic Missiles are not considered space vehicles.

Spacecraft—A space vehicle designed to operate in space and launched by a booster. The term includes satellites, orbiters and payloads and their associated subsystems.

Sports, Recreation, And Individual Fitness—A mishap associated with an activity that requires physical exertion and skill that is governed by a set of rules or customs and often undertaken competitively and/or refreshes one's mind or body through activity that amuses or stimulates. Involves the activity of exerting muscles in various ways to keep fit through the performance of exercise. This includes all fitness activities that do not meet the criteria for command-directed or organized fitness programs.

Technical Expert—An individual authorized and qualified to investigate a safety occurrence for a specific aircraft, system, or process for which he or she possesses unique knowledge or skills. Examples include government and contractor engineers, investigators, and equipment specialists.

Terrorist Act—Terrorist act/incident is a premeditated, unlawful act, dangerous to human life that is intended to further political or social objectives.

Unique Space Support Equipment (Sse)—Systems, equipment and facilities required for processing, handling or transporting space systems and their components. SSE examples include space-unique support vehicles, payload or launch vehicle ground transporters, vehicle assembly equipment, launch pad facility and its associated equipment, equipment required for test and checkout, and equipment for space system recovery. Components or equipment commonly used in non-space applications, and not specifically configured for space related use, are not considered SSE.

Unmanned Aerial System (Uas)—The system whose components include the necessary equipment, network, and personnel to control a remotely piloted vehicle as defined above.

Weapons Mishap—For the purposes of this instruction, a mishap that falls into one of the following mishap categories: nuclear, guided missile, explosives, small arms, and chemical agents, or directed energy.

Work Environment—The establishment and other locations where one or more employees are working or are present as a condition of their employment. The work environment includes not only physical locations, but also the equipment or materials used by the employee during the course of his or her work.

Workplace Violence—Injuries and illness that result from any act or threat of physical violence, harassment, intimidation, or other threatening, disruptive behavior that occurred at the work site.

Work-Relatedness—An injury or illness is work-related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment, unless an exception in 29 CFR 1904.5(b)(2) specifically applies.

Attachment 2

ORGANIZATION CONTACT INFORMATION

A2.1. Contact Information within AFSEC. AFSEC/JA (Staff Judge Advocate)

9700 G Avenue SE
Kirtland AFB NM 87117-5670
DSN 246-0626/1193 or (505) 846-0626/1193
FAX DSN 263-5798 or (505) 853-5798

AFSEC/SEH (Human Factors)
9700 G Avenue SE
Kirtland AFB NM 87117-5670
DSN 263-4868 or (505) 853-4868
DSN 246-0880/3763/0853 or (505) 846-0880/3763/0853

AFSEC Technical Assistance
DSN 246-5867 or (505)-846-5867
After hours (505) 220-0183
Alternatively, call the Kirtland AFB
operator at : 877-809-6989 (toll free), ask to be connected to the Command Post and then ask for the AFSEC Technical Assistance Duty Officer.

A2.2. Contact Information outside AFSEC. AFMES

Armed Forces Medical Examiner System
Office of the Armed Forces Medical Examiner
115 Purple Heart Drive
Dover Air Force Base, DE 19902
http://www.afmes.mil
DSN: 366-8648 Phone: (302) 346-8648 Fax: (302) 346-8637

AFLOA/JACC
DSN 426-9055 or (703) 696-9055
FAX DSN 426-9009 or (703) 696-9009 afloa.jacc@pentagon.af.mil

Air Force Nuclear Weapons Center (AFNWC)
1551 Wyoming Blvd SE Kirtland AFB, NM 87117
DSN 246-6567 or (505) 846-6567 http://www.nwc.kirtland.af.mil/

Defense Contract Management Agency (DCMA)
HA SCMA Aircraft Operations
6350 Walker Lane, Suite 300
Alexandria, VA 22310
DSN 328-1309 or (703) 428-1309

Defense Threat Reduction Agency NSO (DTRA)
1680 Texas St SE
Kirtland AFB, NM 87118
(505) 846-8436

FAA (FAA Combined Operations Center)
(202) 267-3333

SAF/FMC (Air Force Cost Analysis Agency)
http://www.e-publishing.af.mil/, AFI 65-503, Table A10-1
DSN 222-6001 or (703) 692-6001
DSN 224-0453

51 CBCS/SCHA (Hammer ACE)
811 Fourteenth St., Bldg 1347
Robins AFB, GA 31098
NIPR: HammerACE@Robins.AF.Mil
SIPR: 51CBCSSCHA.Hammerace@AFMC.AF.Smil.Mil
During Duty hours (0730-1630) contact Hammer ACE directly at DSN 472-5785, or commercial (478) 222-5785
Emergency Support & after duty hours: Contact Robins Command Post: DSN 497-2612 or Commercial (478) 327-2612

Military Surface Deployment and Distribution Command (SDDC)
709 Ward Drive, Bldg 1990, ATTN: SDDC-SA
Scott AFB, IL 62225
Organizational email address: sddc.safety@sddc.army.mil
DSN 770-5035 or (618) 220-5035
Military Surface Deployment and Distribution Command (SDDC) Defense Transportation Tracking System (DTTS) Program Office Hot-line: 1-800-826-0794
Military Surface Deployment and Distribution Command (SDDC) Operations Center Hotline: Commercial: 757 878-7555/8141 or DSN: 826-7555/8141.

OSHA
24-hour toll-free hot line 1-800-321-OSHA (1-800-321-6742)

Attachment 3

PRIVILEGED SAFETY INFORMATION

Figure A3.1. Privilege Warning Statement (Mandatory for all media containing privileged information).

FOR OFFICIAL USE ONLY.

This contains privileged, limited-use safety information. Unauthorized use or disclosure can subject you to criminal prosecution, termination of employment, civil liability, or other adverse actions. See AFI 91-204, **Chapter 3** for restrictions. Destroy in accordance with AFMAN 33-360 when no longer needed for mishap prevention purposes

Figure A3.2. Safety Investigation Non-Disclosure Agreement.

Safety Investigation Non-Disclosure Agreement

(Date)

1. Protection of privileged safety information acquired during safety investigations of Air Force mishaps is important in order to prevent future mishaps. I am performing services in support of an Air Force safety investigation.

2. As a result I have access to privileged safety information. Access is solely for the purpose of mishap prevention and no other use of safety privileged information by me or my sponsoring organization (company or military organization) is authorized access to this information. I understand I am not to make copies (typed, photo, etc) of any information or disseminate any information to anyone or organization not directly providing services to the safety investigation. I am expressly prohibited from providing any privileged safety investigation information to my general counsel's office, legal staff, or any personnel involved in litigation.

3. After I am finished with any information provided on any media, I am required to return it to Air Force safety channels. Retaining copies is not authorized. I am not to discuss privileged safety information with anyone other than personnel directly involved with the Air Force safety investigation.

4. I understand that information obtained through a safety investigation is considered official Air Force information.

5. I understand the above terms and agree to abide by the conditions set forth.

_____

Signature Block

Figure A3.3. Witness Promise of Confidentiality and Non-Disclosure Agreement

Witness Promise of Confidentiality and Non-Disclosure Agreement

(Date)

1. I, (Name of Witness), (Grade), (Organization), have been advised by (Name of Investigator), a safety investigator of the mishap that occurred on (Date of Mishap) involving an (aircraft/space vehicle/missile type) of the following:

a. This investigation is being conducted under the provisions of AFI 91-204 solely for the purpose of mishap prevention within the United States Air Force and to determine all factors relating to the mishap in order to prevent recurrence.

b. I understand I am providing statement(s) (written and/or verbal) for a safety investigation and I acknowledge that a promise of confidentiality has been extended to me.

c. I understand that my confidential statement(s) (written and/or verbal) will not be made public and it will only be used by authorized officials solely for mishap prevention purposes. Additionally, my confidential statement will not be used as evidence to support any claims, litigation, disciplinary action or any adverse administrative action such as a Flying Evaluation Board, line-of-duty status determination, pecuniary liability determination, or elimination from military service. I understand, however, that my statement can be released pursuant to a valid court order on behalf of the defendant in a criminal trial. I further understand that if my statement contains an intentional misrepresentation, then my statement will no longer be considered confidential and can be used to support disciplinary and/or administrative actions against myself and/or others.

d. Non-confidential witness statements may be released to the public pursuant to a Freedom of Information Act request. Only statements given under a promise of confidentiality are protected from release outside safety channels.

e. I understand that the chain of command will review the final mishap report, to include my confidential statement, but the chain of command may only use my statement for safety and mishap prevention purposes.

f. Witness statements (written and/or verbal) provided to non-safety investigators are not covered by a Promise of Confidentiality.

g. I understand that information obtained through a safety investigation is considered official Air Force information. Additionally, I understand all official Air Force information, relating to this mishap, is considered “close hold.”

2. I understand the effect of this promise of confidentiality and I understand my statements (written or verbal), given under this promise of confidentiality, will be treated as privileged information.

_____

Witness Signature Block

Figure A3.4. Non-Privileged Witness Statement(s).

Non-Privileged Witness Statement

(Date)

1. I, (Name of Witness), (Grade), (Organization), have been advised by (Name of Investigator), a safety investigator of the mishap that occurred on (Date of Mishap) involving an (aircraft/space vehicle/missile type) of the following:

a. This investigation is being conducted under the provisions of AFI 91-204 solely for the purpose of mishap prevention within the United States Air Force and to determine all factors relating to the mishap in order to prevent recurrence. I understand I am being interviewed as a witness in a safety investigation and I acknowledge that a promise of confidentiality has not been extended to me.

b. My witness statements (written or verbal) may be utilized for any valid purpose and be released to any subsequent investigation of this mishap and may be released to the public pursuant to a Freedom of Information Act request.

_____

Witness Signature Block

Figure A3.5. Memorandum for Contractor Representatives Serving as Technical Experts to Safety Investigations

MEMORANDUM FOR (Non-Air Force technical expert's name and company/organization)

FROM: (SIB President)

SUBJECT: Protection of USAF Privileged Safety Information

1. In response to my request for technical assistance, the Air Force and your employer have agreed that you will serve as a technical expert for the Safety Investigation Board (SIB) over which I preside. Unless you specifically identify information in any technical report you provide to the SIB as proprietary data or confidential analysis or opinion, it will be included in the releasable portion (Part 1) of the SIB's final report. If you want us to treat any part of your report as privileged information so we can protect it from disclosure outside the Department of Defense, you must specifically request such protection. In such case it will be included in the privileged portion (Part 2) of the formal safety report and will be used solely for mishap-prevention purposes.

2. The military safety privilege protects information provided under a promise of confidentiality and the deliberative process of the SIB. It enhances the SIB's ability to identify potential causes of mishaps quickly and accurately so we can prevent their recurrence. This process must have the highest degree of reliability to maintain combat readiness, national security, and public safety.

3. In accepting your appointment to serve as technical expert, you must also agree to safeguard our safety privilege. You may be given access to privileged information and you must not disclose to anyone, including your employer, any privileged information derived from our investigation. You will prepare only one copy of your technical report for the SIB. You will destroy or surrender to me any notes, documents, computer files, or other materials, produced or obtained during this investigation, if they contain privileged information. You must not make copies of any privileged documents (including analytical computer products, confidential tape recordings, and staged photographs) for use outside the proceedings of this board. You may not have a copy of Part 2 of the Board's final report or any part of a draft thereof. You must report to me (or, after the SIB is dissolved, to HQ Air Force Safety Center) any attempt by anyone, other than a SIB member or other duly authorized person, to obtain any confidential or deliberative information from you about this investigation.

4. Before beginning your service to this SIB, please sign and date the endorsement below. I will give you a copy of this memorandum.

(SIB President's signature block)

1st Endorsement

To:(SIB President)

I acknowledge understanding of the contents of this memorandum and receipt of a copy thereof, and I agree to comply with the duties and responsibilities stated therein.

(Technical expert's signature block)

(Date)

Figure A3.6. Notice to Witness Documenting Promise of Confidentiality of Recorded Statements.

"I am (name) investigating the mishap involving (aircraft/space vehicle/missile type) that occurred on (date). This investigation is being conducted under the provisions of AFI 91-204 solely for the purpose of mishap prevention and to determine all factors relating to the mishap in order to prevent recurrence. You are hereby advised that, as a witness to this investigation, your statement is confidential and will not be made public. Only authorized officials will use your statement for the sole purpose of mishap prevention. Your statement may not be used as evidence by the Government to support any disciplinary actions or adverse administrative actions, such as a Flying Evaluation Board, a determination of line-of-duty status or pecuniary liability, or elimination from military service. The only exceptions to this would be that your statement could be released pursuant to a valid court order on behalf of a defendant in a criminal trial. If you make an intentional misrepresentation, then your statement will no longer be considered confidential and can be used to support disciplinary and/or administrative actions against yourself or others. Further you are advised that the chain of command will review the final mishap report, to include your confidential statement, but the chain of command may only use your statement for safety and mishap prevention purposes."

Transcripts of complete interviews must contain this advisory. In cases where witness testimony is summarized by the interviewer, it must be clear that the witness was advised of and understood this advisory.

Figure A3.7. Notice to Witness that Recorded Statement is not Confidential.

"I am (Name of Investigator), a safety investigator of the mishap that occurred on (Date of Mishap) involving an (aircraft/space vehicle/missile type). This investigation is being conducted under the provisions of AFI 91-204 solely for the purpose of mishap prevention within the United States Air Force and to determine all factors relating to the mishap in order to prevent recurrence.

A promise of confidentiality is not being extended to you. Your statement can be released to any subsequent investigation of this mishap and may be released to the public pursuant to a Freedom of Information Act request."

Figure A3.8. Cover Sheet Documenting Promises of Confidentiality to Contractors.

(Name of contractor) requests the Air Force safety investigation board/single investigating officer investigating the mishap involving an (mishap vehicle) on (date of mishap) handle the attached report and any supplemental information provided by our technical experts confidentially.

(Contractor's signature block)

(Date)

I hereby extend (name of contractor) a promise of confidentiality for the attached report and any supplemental information provided by your technical experts.

(SIB member/SIOs name)

Attachment 4

EXAMPLE OF TECHNICAL EXPERT REPORTS

NON-PRIVILEGED REPORT

Mishap System: Equipment and serial number
Mishap Date:
Investigator: Name, organizational address, and phone numbers.
INTRODUCTION: Factual Report of (state the intent of the report or analysis; purpose).
BACKGROUND: Not always required. If used, a statement of the mishap scenario, limited to facts.

OBSERVATIONS: Investigator observations of physical evidence, other factual data, and statements made without a promise of confidentiality.

ANALYSIS: Investigator evaluation of physical evidence, other factual data and statements made without a promise of confidentiality. Describe strong and weak points of analysis if appropriate.

CONCLUSIONS: Investigator conclusions and opinions based on analysis of physical evidence, other factual data and statements made without a promise of confidentiality. Do not include any opinion as to whether a particular failure contributed to or caused the mishap. This does not preclude stating an opinion that a failure would likely create a certain condition, even if the mishap was inevitable under such a condition. For example, an opinion could be expressed that a widget failure would have caused trim to move to the full nose up position, without making the connecting statement that such a trim position would inevitably cause a crash.

RECOMMENDATIONS: Investigator recommendations, to include recommendations to prevent the mishap, related to the investigator's area of expertise.

Example 1

OBSERVATIONS: Three of the four right wing leading edge flap (LEF) actuators were recovered intact but separated from the wing. Measurement of each actuator's angular position revealed the following: 19.2 degrees down, 20.3 degrees down, and 19.8 degrees down.

ANALYSIS: The right wing LEF actuator positions correlated well with the expected LEF position of 19.6 degrees down based on the Mach, altitude, and AOA recorded by the CSFDR system just prior to impact.

CONCLUSION: The LEF on the right wing was properly positioned.

Example 2

OBSERVATIONS: The radome was found separated from the fuselage with relatively minor impact damage. The right AOA probe was bent; however, the slots appeared to be rotated up farther than normal, even taking into account impact damage. The left AOA probe sustained only minor damage and rotated freely. The left probe mid-range positioning differed significantly from what is expected of a correctly aligned probe. The pitot probe was not recovered.

ANALYSIS: The left and right AOA transmitters were removed to determine the actual mid-range (boresight) angle. The right AOA transmitter mid-range angle, as determined by alignment ring location, was 25.5° up; this is approximately 45° higher than the required mid-range value of 20° down. The right AOA alignment ring was incorrectly positioned. Removal of the left transmitter revealed it was also improperly installed. Only one of the two dowel pins was seated into the alignment ring. In addition, the left AOA alignment ring was also incorrectly positioned. The mid-travel angle of the left probe, as boresighted, was determined to be approximately 117° down, producing a positioning error of 97° down. The alignment and installation errors combined to produce a mid-travel range of approximately 55° up or a total position error of 75°.

CONCLUSIONS: Both AOA transmitters were incorrectly installed. The position of the right AOA transmitter would cause an erroneously large AOA signal to be supplied to the flight control computer. The position of the left AOA transmitter would also cause an erroneously large AOA signal to be supplied to the flight control computer. Since a mid-value AOA selection process is used by the flight control computer, an erroneously large AOA signal was used by the flight control computer.

RECOMMENDATIONS:
Sample Recommendation 1: Redesign AOA transmitters, incorporating design features, to ensure proper installation orientation.
Sample Recommendation 2: Update flight control computer logic to detect abnormal AOA inputs during system initialization during ground operations and issue appropriate maintenance faults and cockpit warnings.

PRIVILEGED REPORT

Mishap System: Equipment and serial number
Mishap Date:
Investigator: Name, organizational address, and phone numbers.
INTRODUCTION: Part 2 Supplement to Factual Report of (state the intent of the report or analysis; purpose, identical to the Part 1 factual report statement).
OBSERVATIONS: Not required if the Part 2 report is a supplement to a Part 1 report that contains observations. Otherwise, investigator observations of physical evidence, other factual or privileged data, and statements made with or without a promise of confidentiality.
ANALYSIS: Investigator evaluation of physical evidence, other data, statements made with or without a promise of confidentiality, proprietary company data, and appointed SIB member deliberations. Describe strong and weak points of analysis if appropriate.
CONCLUSIONS: Investigator conclusions and opinions based on analysis of physical evidence, other data, statements made with or without a promise of confidentiality, proprietary company data, and appointed SIB member deliberations.
RECOMMENDATIONS: Investigator recommendations, to include recommendations to prevent the mishap, related to the investigator's area of expertise.

Attachment 5

EXAMPLE MOFE COMMENTS

Use this format when responding to the AFSEC/AFSAS request for comments.

SUBJ//HQ (MAJCOM, ALC, etc.) Comments for Class X Mishap, F-16CJ, AFSAS #123456

If commenting on Findings then include only those Findings that require attention. If commenting on Recommendations, then include only those recommendations that require attention. If no comments are received, concurrence is implied.

Findings: If non-concur, or concur-in-part, then add the following:

Finding 1. (Original Finding)

Position. (Non-concur or concur-in-part). The individual providing comments will then reword, separate into multiple findings, or renumber, etc. the Finding.

Rationale. (Provide specific information on why the Finding should be changed/deleted).

Recommendations: If non-concur, or concur-in-part, then add the following:

Recommendation 1. (Original Recommendation)

Position. (Non-concur or concur-in-part). The individual providing comments will then reword, separate into multiple recommendations, etc. the recommendation.

Rationale. (Provide specific information on why the recommendation should be changed/deleted).

Added Recommendations: To add a recommendation, include a hazard statement, narrative, OPR/OCR, and a point of contact for the OPR and OCR organization.

Attachment 6

DEPARTMENT OF DEFENSE HUMAN FACTORS ANALYSIS AND CLASSIFICATION SYSTEM (DOD HFACS)

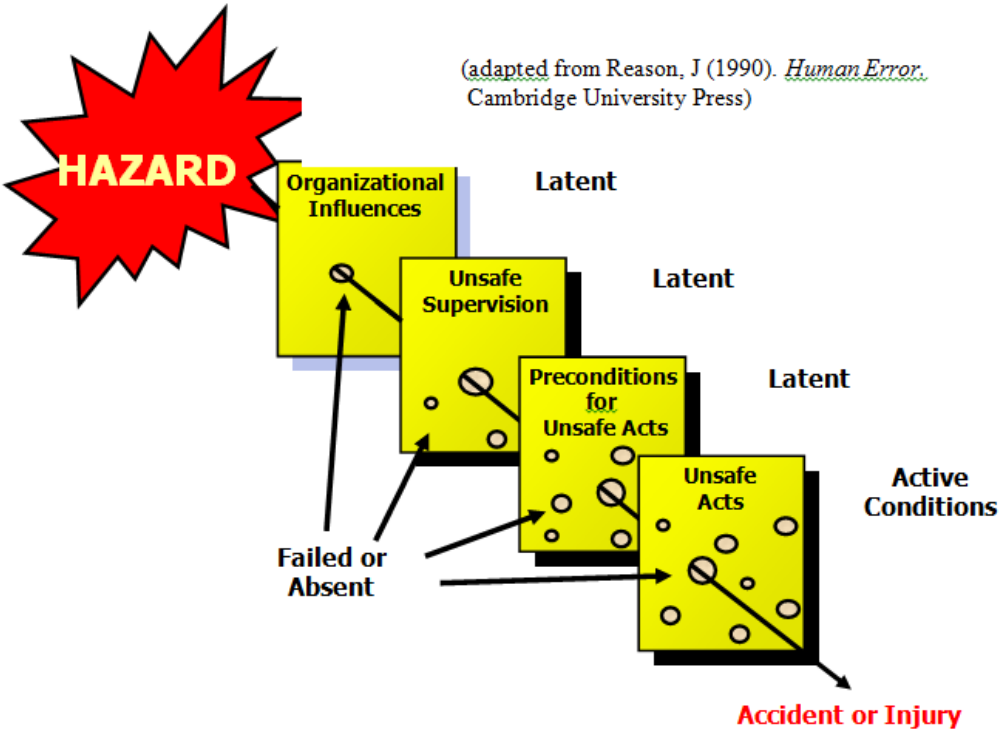
A6.1. Introduction. This information applies to all safety disciplines. Department of Defense Human Factors Analysis and Classification System (DoD HFACS) implements portions of DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*. The DoDI directs DoD components to "Establish procedures to provide for the cross-feed of human error data using a common human error categorization system that involves human factors taxonomy accepted among the DoD Components and U.S. Coast Guard." All investigators who report and analyze DoD mishaps will use DoD HFACS and insert the applicable HFACS nanocodes into the appropriate Tabs (usually T and Y) for all Findings in the mishap sequence. Human Factors is not just about humans. It is about how features of people's tools, tasks and working environment systemically influence human performance. This model is designed to present a systematic, multidimensional approach to error analysis.

A6.2. Purpose. A thorough mishap investigation is absolutely necessary to determine the cascading events causal to a mishap, and to recommend corrective actions to prevent recurrence. This guide provides the mishap investigator with a template that aids in organizing the investigation. Mishaps are rarely attributed to a single cause, or in most instances, even a single individual. The goal of a mishap or event investigation is to identify these failures and conditions in order to understand why the mishap occurred and how it might be prevented from happening again. This attachment is designed for use by all members of an investigation board in order to accurately capture the complex layers of human error in context with the individual and mishap or event.

A6.3. Description. As described by James Reason (1990), *active failures* are the actions or inactions of operators that are believed to cause the mishap. Traditionally referred to as "error," they are the last "acts" committed by individuals, often with immediate and tragic consequences. For example, an aviator forgetting to lower the landing gear before touch down will yield relatively immediate, and potentially grave, consequences. In contrast, *latent failures* or c*onditions* are errors that exist within the organization or in the chain of command that affect the sequence of events characteristic of a mishap. For example, it is not difficult to understand how tasking Security Forces crews or teams at the expense of quality rest can lead to fatigue and ultimately errors (active failures). Viewed from this perspective then, the actions of individuals are the end result of a chain of factors originating in other parts (often the upper echelons) of the organization. These latent failures or conditions may lie dormant or undetected for some period of time prior to their manifestation as a mishap. The question for mishap investigators is how to identify and mitigate these active and latent failures or conditions. Reason's "Swiss Cheese" model describes the levels at which active failures and latent failures/conditions may occur within complex operations (see Figure A6.1.). Organizations implement controls to mitigate hazards. Dr. Reason philosophized four layers of controls in an organization. The holes in the layers represent failed or absent controls. Working backward from the mishap, the first level of Reason's model depicts those *Unsafe Acts of Operators* (operator, maintainers, facility personnel, etc.) that ultimately lead to a mishap. Traditionally, this is where most mishap investigations have focused their examination of human error, and consequently where most causal factors are uncovered. After all, it is typically the actions or inactions of individuals that can be directly

linked to the mishap. What makes Reason's model particularly useful in mishap investigation is it forces investigators to address latent failures and conditions within the causal sequence of events. Latent failures or conditions such as fatigue, complacency, illness, and the physical/technological environment all affect individual performance, but can be overlooked by investigators with even the best of intentions. These particular latent failures and conditions are described within the context of Reason's model as *Preconditions for Unsafe Acts*. Likewise, *Supervision* can promote unsafe conditions of operators and ultimately unsafe acts will occur. For example, if an Operations Officer were to pair a below average team leader with a very junior/inexperienced crew, the result is increased risk of mission failure. Reason's model does not stop at supervision; it also considers *Organizational Influences* that can impact performance at all levels. For instance, in times of fiscal constraints, funding may be short and may lead to limited training opportunities. The investigation process endeavors to detect and identify the "holes (*failed or absent defenses*) in the cheese" (see Figure A6.1.). Each mishap is not unique from its predecessors. In fact, most mishaps have very similar causes. If we know what the failures or "holes" are, we can better identify their roles in mishaps -- or better yet, detect their presence and develop a risk mitigation strategy correcting them before a mishap occurs.

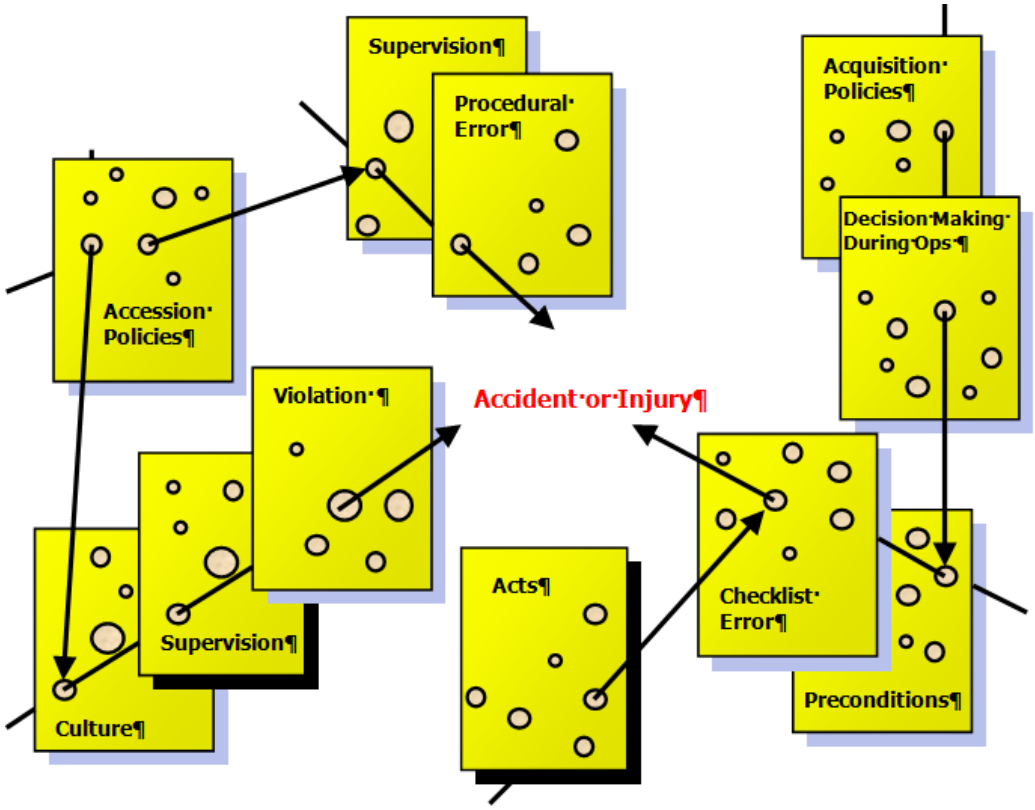
Figure A6.1. The Swiss Cheese Model.



A6.4. Application. When we analyze a mishap with this framework we get a system that can identify the acts of the mishap individual, but acts of others (wingman, team/crew member, dispatcher, etc.) end up being Preconditions or Supervisory/Organizational factors. This can lead to a poor analysis of individual failures outside those of the mishap individual. When we look at real mishaps we find the dynamic looks more like a complex web of failures/errors and contributing failures/errors of multiple individual as well as failures in the "system." (See Figure A6.2.). Chain of events models encourage notions of linear causality and do not account for the

indirect, non-linear, and feedback relationships common for accidents in complex systems. When the mishap is investigated as an interdependent system, any person whose actions or inactions impacted the outcome of the mishap should be investigated as a mishap person. Those individuals will have their acts and preconditions identified. The context in which these acts and preconditions occurred will be captured in the supervisory and organizational factors. The supervisory and organizational factors will be identified against the mishap or event and not a specific person. Mishap factors can cross all four tiers of the model and the investigator can apply this model by entering at any tier. DoD HFACS is based on human error causation models in systems and will be used to investigate Weapons, Ground, Space, and Aviation mishaps.

Figure A6.2. Diagram of Complex Factors within a Mishap.



A6.4.1. **Person Level.** The Acts and Preconditions Tiers are defined as the Person Level within the AFSAS. If a person's actions or inactions directly impacted the outcome of the mishap, capture this person's Acts and Preconditions. These are the actions or inactions of operators that tend to be close in time and space to the mishap occurrence. Traditionally referred to as "error," they are the last "acts" committed by individuals, often with immediate and tragic consequences. Capture the Preconditions for each individual who led to that person's actions or inactions.

A6.4.2. **Mishap Level.** Supervision and Organization Tiers are captured at the Mishap Level within AFSAS and are not coded against a specific person; they are assigned against the mishap or event. Actions or inactions at these tiers are conditions that exist within the organization or elsewhere in the supervisory chain of command that affect the mishap. For

example, inadequate or non-existent technical order guidance which contributes to the mishap sequence is captured at the mishap level.

A6.4.3. **Rating.** Each human factor code identified must be rated for its influence on the mishap as causal, contributory or outcome.

A6.4.3.1. **Causes** are deficiencies which if corrected would likely have prevented or mitigated damage and/or injury. Cause does not imply blame. Events/conditions that are highly probable results of other events/conditions are not causes. They should be rated as either contributors or outcomes.

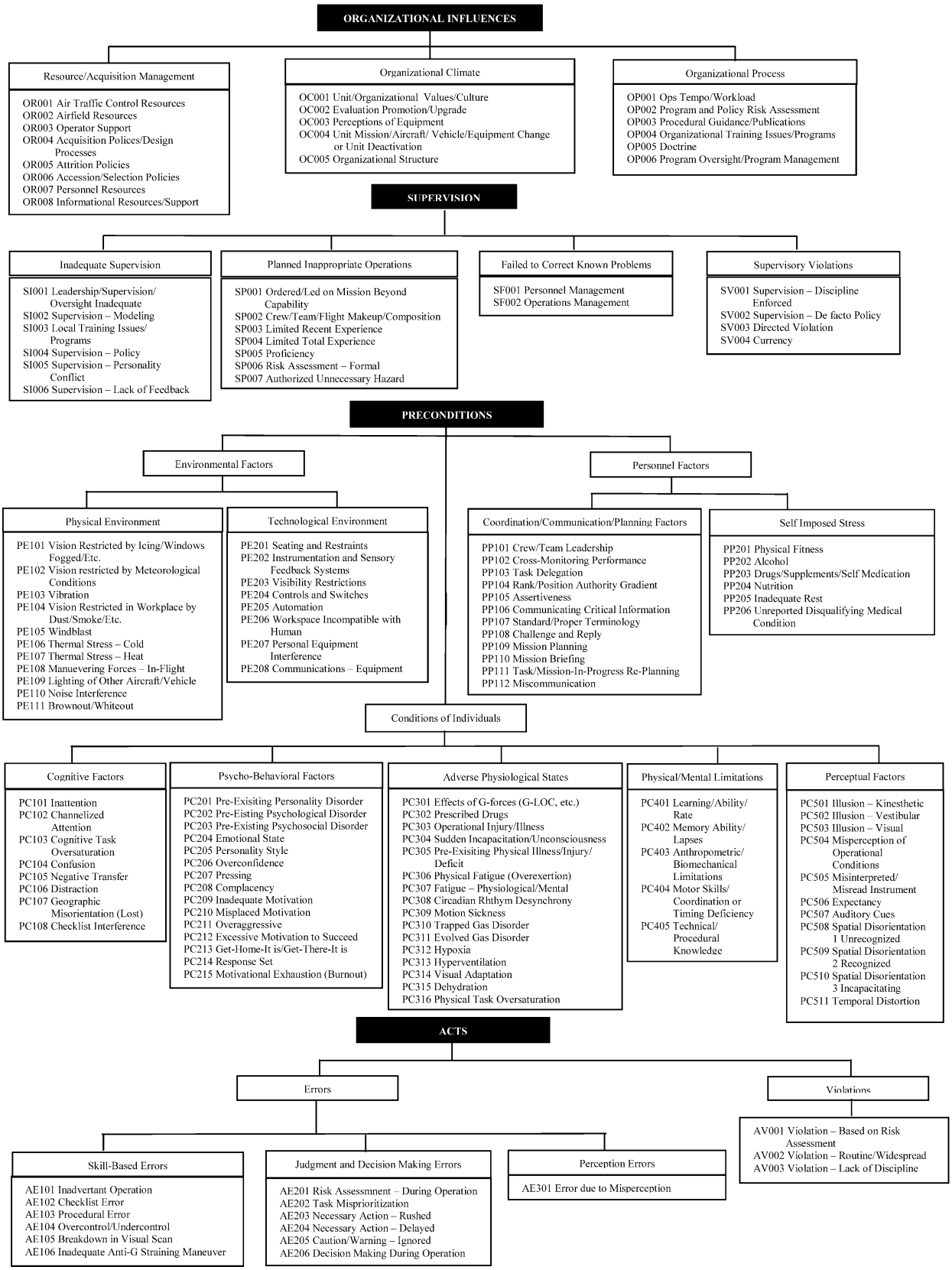
A6.4.3.2. **Contributors** are single events/conditions that are essential to the mishap sequence. They offer an independent contribution or allow the progression of other events/conditions. If an event/condition is both contributory and causal, rate it only as causal.

A6.4.3.3. **Outcomes** are single events or conditions that are present during the mishap and are highly probable results of one or more contributors/causes. All outcomes are not findings – some are present but have no material effect upon the progression of the mishap sequence. If an outcome is also a contributor or cause, rate it only as a contributor or cause.

A6.4.4. **Relationships.** Within the context of this model, failed or absent controls at one level led to failed or absent controls at another level. For example, fatigue can lead to a procedural error. If the investigator identifies that one code contributed to another code, then that relationship will be identified in AFSAS. Usually a code at a higher tier will relate to the code at the lower tier. For instance, in the example above, the investigator would relate fatigue to the procedural error. The investigator does not need to identify a relationship both up and down the chain for two related codes. One relationship is all that is required. Relationships can exist between codes in the same tier and can skip tiers. For example, a code at the Supervision Tier can be related to a code at the Acts tiers.

A6.4.5. Figure A6.3. shows a graphical overview of the DoD-HFACS model, with each nanocode shown in its position within the hierarchy.

Figure A6.3. DOD HFACS.



DoD HFACS Nanocodes

ACTS

Acts are those factors that are most closely tied to the mishap, and can be described as active failures or actions committed by the operator that result in human error or unsafe situation.

Errors are factors in a mishap when mental or physical activities of the operator fail to achieve their intended outcome as a result of skill-based, perceptual, or judgment and decision making errors leading to an unsafe situation. Errors are unintended.

Skill-Based Errors are factors in a mishap when errors occur in the operator's execution of a routine, highly practiced task relating to procedure, training or proficiency and result in an unsafe situation.

AE101 Inadvertent Operation
Inadvertent Operation is a factor when individual's movements inadvertently activate or deactivate equipment, controls or switches when there is no intent to operate the control or device. This action may be noticed or unnoticed by the individual.

AE102 Checklist Error
Checklist Error is a factor when the individual, either through an act of commission or omission makes a checklist error or fails to run an appropriate checklist and this failure results in an unsafe situation.

AE103 Procedural Error
Procedural Error is a factor when a procedure is accomplished in the wrong sequence or using the wrong technique or when the wrong control or switch is used. This also captures errors in navigation, calculation or operation of automated systems.

AE104 Overcontrol/Undercontrol
Overcontrol/Undercontrol is a factor when an individual responds inappropriately to conditions by either overcontrolling or undercontrolling the aircraft/vehicle/system. The error may be a result of preconditions or a temporary failure of coordination.

AE105 Breakdown in Visual Scan
Breakdown in Visual Scan is a factor when the individual fails to effectively execute learned / practiced internal or external visual scan patterns leading to unsafe situation.

AE106 Inadequate Anti-G Straining Maneuver (AGSM)
Inadequate Anti-G Straining Maneuver is a factor when the individuals AGSM is improper, inadequate, poorly timed or non-existent and this leads to adverse neurocirculatory effects.

Judgment and Decision-Making Errors are factors in a mishap when behavior or actions of the individual proceed as intended yet the chosen plan proves inadequate to achieve the desired end-state and results in an unsafe situation.

AE201 Risk Assessment – During Operation
Risk Assessment – During Operation is a factor when the individual fails to adequately evaluate the risks associated with a particular course of action and this faulty evaluation leads to inappropriate decision and subsequent unsafe situation. This failure occurs in real-time when formal risk-assessment procedures are not possible.

AE202 Task Misprioritization
Task Misprioritization is a factor when the individual does not organize, based on accepted prioritization techniques, the tasks needed to manage the immediate situation.

AE203 Necessary Action – Rushed
Necessary Action – Rushed is a factor when the individual takes the necessary action as dictated by the situation but performs these actions too quickly and the rush in taking action leads to an unsafe situation.

AE204 Necessary Action – Delayed
Necessary Action – Delayed is a factor when the individual selects a course of action but elects to delay execution of the actions and the delay leads to an unsafe situation.

AE205 Caution/Warning – Ignored
Caution/Warning – Ignored is a factor when a caution or warning is perceived and understood by the individual but is ignored by the individual leading to an unsafe situation.

AE206 Decision-Making During Operation
Decision-Making During Operation is a factor when the individual through faulty logic selects the wrong course of action in a time-constrained environment.

Perception Errors are factors in a mishap when misperception of an object, threat or situation, (such as visual, auditory, proprioceptive, or vestibular illusions, cognitive or attention failures, etc), results in human error.

AE301 Error due to Misperception
Error due to Misperception is a factor when an individual acts or fails to act based on an illusion; misperception or disorientation state and this act or failure to act creates an unsafe situation.

Violations are factors in a mishap when the actions of the operator represent willful disregard for rules and instructions and lead to an unsafe situation. Violations are deliberate.

AV001 Violation - Based on Risk Assessment
Violation- Based on Risk Assessment is a factor when the consequences/risk of violating published procedures was recognized, consciously assessed and honestly determined by the individual, crew or team to be the best course of action. Routine “work-arounds” and unofficial procedures that are accepted by the community as necessary for operations are also captured under this code.

AV002 Violation - Routine/Widespread
Violation - Routine/Widespread is a factor when a procedure or policy violation is systemic in a unit/setting and not based on a risk assessment for a specific situation. It needlessly commits the individual, team, or crew to an unsafe course-of-action. These violations may have leadership sanction and may not routinely result in disciplinary/administrative action. Habitual violations of a single individual or small group of individuals within a unit can constitute a routine/widespread violation if the violation was not routinely disciplined or was condoned by supervisors. These violations may also be referred to as "Routine Violations."

AV003 Violation - Lack of Discipline
Violation - Lack of Discipline is a factor when an individual, crew or team intentionally violates procedures or policies without cause or need. These violations are unusual or isolated to specific individuals rather than larger groups. There is no evidence of these violations being condoned by leadership. These violations may also be referred to as "exceptional violations." (**Note:** These violations may also carry UCMJ consequences. Boards should consult the Judge Advocate of the CA.)

PRECONDITIONS

Preconditions are factors in a mishap if active and/or latent preconditions such as conditions of the operators, environmental or personnel factors affect practices, conditions or actions of individuals and result in human error or an unsafe situation.

Environmental Factors are factors in a mishap if physical or technological factors affect practices, conditions and actions of individual and result in human error or an unsafe situation.

Physical Environment is a factor in a mishap if environmental phenomena such as weather, climate, white-out or brown out conditions affect the actions of individuals and result in human error or an unsafe situation.

PE101 Vision Restricted by Icing/Windows Fogged/Etc
Vision Restricted by Icing/Windows Fogged/Etc is a factor when it is determined by the investigator that icing or fogging of the windshield/windscreen or canopy restricted the vision of the individual to a point where normal duties were affected.

PE102 Vision Restricted by Meteorological Conditions
Vision Restricted by Meteorological Conditions is a factor when weather, haze, or darkness restricted the vision of the individual to a point where normal duties were affected.

PE103 Vibration
Vibration is a factor when the intensity or duration of the vibration is sufficient to cause impairment of vision or adversely affect the perception of orientation.

PE104 Vision Restricted in Workspace by Dust/Smoke/Etc.
Vision restricted in workspace by dust/smoke/etc. is a factor when dust, smoke, etc. inside the cockpit, vehicle or workstation restricted the vision of the individual to a point where normal duties were affected.

PE105 Windblast
Windblast is a factor when the individual's ability to perform required duties is degraded during or after exposure to a windblast situation.

PE106 Thermal Stress – Cold
Thermal Stress – Cold is a factor when the individual is exposed to cold resulting in compromised function.

PE107 Thermal Stress – Heat
Thermal Stress – Heat is a factor when the individual is exposed to heat resulting in compromised function.

PE108 Maneuvering Forces – In-Flight
Maneuvering Forces – In-Flight is a factor when acceleration forces of longer than one second cause injury, prevent or interfere with the performance of normal duties. Do not use this code to capture G-induced loss of consciousness.

PE109 Lighting of Other Aircraft/Vehicle
Lighting of Other Aircraft/Vehicle is a factor when the absence, pattern, intensity or location of the lighting of other aircraft/vehicle prevents or interferes with safe task accomplishment.

PE110 Noise Interference
Noise Interference is a factor when any sound not directly related to information needed for task accomplishment interferes with the individual's ability to perform that task.

PE111 Brownout/Whiteout
Brownout/Whiteout is a factor when dust, snow, water, ash or other particulates in the environment are disturbed by the aircraft, vehicle or person and cause a restriction of vision to a point where normal duties are affected

Technological Environment is a factor in a mishap when cockpit/vehicle/control station/workspace design factors or automation affect the actions of individuals and result in human error or an unsafe situation.

PE201 Seating and Restraints
Seating and Restraints is a factor when the design of the seat or restraint system, the ejection system, seat comfort or poor impact-protection qualities of the seat create an unsafe situation.

PE202 Instrumentation and Sensory Feedback Systems
Instrumentation and Sensory Feedback Systems is a factor when instrument factors such as design, reliability, lighting, location, symbology or size are inadequate and create an unsafe situation. This includes Night Vision Displays, Heads-Up Display, off-bore-site and helmet-mounted display systems and inadequacies in auditory or tactile situational awareness or warning systems such as aural voice warnings or stick shakers.

PE203 Visibility Restrictions
Visibility Restrictions are a factor when the lighting system, windshield / windscreen / canopy design, or other obstructions prevent necessary visibility and create an unsafe situation. This includes glare or reflections on the canopy / windscreen / windshield. Visibility restrictions due to weather or environmental conditions are captured under PE101 or PE102.

PE204 Controls and Switches
Controls and Switches is a factor when the location, shape, size, design, reliability, lighting or other aspect of a control or switch is inadequate and this leads to an unsafe situation.

PE205 Automation
Automation is a factor when the design, function, reliability, use guidance, symbology, logic or other aspect of automated systems creates an unsafe situation.

PE206 Workspace Incompatible with Human
Workspace Incompatible with Human is a factor when the workspace is incompatible with the mission requirements and mission safety for this individual.

PE207 Personal Equipment Interference
Personal Equipment Interference is a factor when the individual's personal equipment interferes with normal duties or safety.

PE208 Communications – Equipment
Communications - Equipment is a factor when communications equipment is inadequate or unavailable to support mission demands (i.e., aircraft/vehicle with no intercom). This includes electronically or physically blocked transmissions. Communications can be voice, data or multi-sensory.

Condition of Individuals is a factor in a mishap if cognitive, psycho-behavioral, adverse physical state, or physical/mental limitations affect practices, conditions or actions of individuals and result in human error or an unsafe situation.

Cognitive Factors are factors in a mishap if cognitive or attention management conditions affect the perception or performance of individuals and result in human error or an unsafe situation.

PC101 Inattention
Inattention is a factor when the individual has a state of reduced conscious attention due to a sense of security, self-confidence, boredom or a perceived absence of threat from the environment which degrades crew performance. (This may often be a result of highly repetitive tasks. Lack of a state of alertness or readiness to process immediately available information.)

PC102 Channelized Attention
Channelized Attention is a factor when the individual is focusing all conscious attention on a limited number of environmental cues to the exclusion of others of a subjectively equal or higher or more immediate priority, leading to an unsafe situation. May be described as a tight focus of attention that leads to the exclusion of comprehensive situational information.

PC103 Cognitive Task Oversaturation
Cognitive Task Oversaturation is a factor when the quantity of information an individual must process exceeds their cognitive or mental resources in the amount of time available to process the information.

PC104 Confusion
Confusion is a factor when the individual is unable to maintain a cohesive and orderly awareness of events and required actions and experiences a state characterized by bewilderment, lack of clear thinking, or (sometimes) perceptual disorientation.

PC105 Negative Transfer
Negative Transfer is a factor when the individual reverts to a highly learned behavior used in a previous system or situation and that response is inappropriate or degrades mission performance.

PC106 Distraction
Distraction is a factor when the individual has an interruption of attention and/or inappropriate redirection of attention by an environmental cue or mental process that degrades performance.

PC107 Geographic Misorientation (Lost)
Geographic Misorientation (Lost) is a factor when the individual is at a latitude and/or longitude different from where he believes he is or at a lat/long unknown to the individual and this creates an unsafe situation.

PC108 Checklist Interference
Checklist Interference is a factor when an individual is performing a highly automated/learned task and is distracted by another cue/event that results in the interruption and subsequent failure to complete the original task or results in skipping steps in the original task.

Psycho-Behavioral Factors are factors when an individual's personality traits, psychosocial problems, psychological disorders or inappropriate motivation creates an unsafe situation.

PC201 Pre-Existing Personality Disorder
Pre-existing Personality Disorder is a factor when a qualified professional determines the individual met Diagnostic and Statistical Manual criteria for a personality disorder.

PC202 Pre-Existing Psychological Disorder
Pre-existing Psychological Disorder is a factor when a qualified professional determines the individual met Diagnostic and Statistical Manual criteria for a psychological disorder.

PC203 Pre-Existing Psychosocial Problem
Pre-existing Psychosocial Problem is a factor when a qualified professional determines the individual met Diagnostic and Statistical Manual criteria for a psychosocial problem.

PC204 Emotional State
Emotional State is a factor when the individual is under the influence of a strong positive or negative emotion and that emotion interferes with duties.

PC205 Personality Style
Personality style is a factor when the individual's personal interaction with others creates an unsafe situation. Examples are authoritarian, over-conservative, impulsive, invulnerable, submissive or other personality traits that result in degraded crew performance.

PC206 Overconfidence
Overconfidence is a factor when the individual overvalues or overestimates personal capability, the capability of others or the capability of aircraft/vehicles or equipment and this creates an unsafe situation.

PC207 Pressing
Pressing is a factor when the individual knowingly commits to a course of action that presses them and/or their equipment beyond reasonable limits.

PC208 Complacency
Complacency is a factor when the individual's state of reduced conscious attention due to an attitude of overconfidence, undermotivation or the sense that others "have the situation under control" leads to an unsafe situation.

PC209 Inadequate Motivation
Inadequate Motivation is a factor when the individual's motivation to accomplish a task or mission is weak or indecisive.

PC210 Misplaced Motivation
Misplaced Motivation is a factor when an individual or unit replaces the primary goal of a mission with a personal goal.

PC211 Overaggressive
Overaggressive is a factor when an individual or crew is excessive in the manner in which they conduct a mission.

PC212 Excessive Motivation to Succeed
Excessive Motivation to Succeed is a factor when the individual is preoccupied with success to the exclusion of other mission factors leading to an unsafe situation.

PC213 “Get-Home-Itis/Get-There-Itis"
“Get-Home-Itis/Get-There-Itis" is a factor when an individual or crew is motivated to complete a mission or reach a destination for personal reasons, thereby short cutting necessary procedures or exercising poor judgment, leading to an unsafe situation.

PC214 Response Set
Response set is a factor when the individual has a cognitive or mental framework of expectations that predispose them to a certain *course of action* regardless of other cues.

PC215 Motivational Exhaustion (Burnout)
Motivational Exhaustion (Burnout) is a factor when the individual has the type of exhaustion associated with the wearing effects of high operations and personal tempo where their operational requirements impinge on their ability to satisfy their personal requirements and leads to degraded cognitive or operational capability.

Adverse Physiological States are factors when an individual experiences a physiologic event that compromises human performance and this decreases performance and results in an unsafe situation.

PC301 Effects of G Forces (G-LOC, etc)
Effects of G Forces (G-LOC, etc) is a factor when the individual experiences G-induced loss of consciousness (GLOC), greyout, blackout or other neurocirculatory affects of sustained acceleration forces.

PC302 Prescribed Drugs
Prescribed Drugs are a factor when the individual uses a prescribed drug with measurable effect interfering with performance.

PC303 Operational Injury/Illness
Operational Injury/Illness is a factor when an injury is sustained or illness develops from the operational environment or *during* the mission and this injury or illness results in an unsafe situation. This includes toxic exposure. Details of injury, illness or toxic exposure should be captured in the medical investigation. Do not use this code to capture injury or illness that does not cause an unsafe situation or contribute to the mishap sequence.

PC304 Sudden Incapacitation/Unconsciousness
Sudden Incapacitation/Unconsciousness is a factor when the individual has an abrupt loss of functional capacity/conscious awareness (not GLOC). Capture medical causes for the incapacitation in the AFSAS medical module.

PC305 Pre-Existing Physical Illness/Injury/Deficit
Pre-Existing Physical Illness/Injury/Deficit is a factor when a physical illness, injury or deficit that existed at the time the individual boarded the aircraft or began the mission/task causes an unsafe situation. This includes situations where waivered physical defects contribute to an unsafe situation and situations where vision deficit or loss of prosthetic devices during the mission cause an unsafe situation. An individual must board the aircraft or begin the mission/task with prior knowledge of illness/injury/deficit otherwise mark and rate PC303. Details of injury, illness or deficit should be captured in the medical investigation. Do not use this code to capture injury or illness that does not cause an unsafe situation or contribute to the mishap sequence (i.e., medevac patient whose condition deteriorates during flight).

PC306 Physical Fatigue (Overexertion)
Physical Fatigue (Overexertion) is a factor when the individual's diminished physical capability is due to overuse (time/relative load) and it degrades task performance. It includes the effects of prolonged physical activity, or the effects of brief but relatively extreme physical activity, either of which taxes a person's physical endurance or strength beyond the individual's normal limits.

PC307 Fatigue - Physiological/Mental
Fatigue - Physiological/Mental is a factor when the individual's diminished physical or mental capability is due to an inadequate recovery, as a result of restricted or shortened sleep or physical or mental activity during prolonged wakefulness. Fatigue may additionally be described as acute, cumulative or chronic.

PC308 Circadian Rhythm Desynchrony
Circadian Rhythm Desynchrony is a factor when the individual's normal, 24-hour rhythmic biological cycle (circadian rhythm) is disturbed and it degrades task performance. This is caused typically by night work or rapid movement (such as one time zone per hour) across several time zones. Referred to as "shift lag" and "jet lag." Time in the new time zone will lead to adaptation and recovery; the amount of time depends on the number of time zones crossed and the direction of travel. Recovery from shift lag may never occur.

PC309 Motion Sickness
Motion Sickness is a factor when the symptoms of motion sickness impair normal performance. Motion sickness symptoms include nausea, sweating, flushing, vertigo, headache, stomach awareness, malaise, and vomiting.

PC310 Trapped Gas Disorders
Trapped Gas Disorders are a factor when gasses in the middle ear, sinuses, teeth, or intestinal tract expand or contract on ascent or descent causing an unsafe situation. Also capture alternobaric vertigo under this code. If the alternobaric vertigo induces spatial disorientation you must mark and rate PC508, PC509 or PC510.

PC311 Evolved Gas Disorders
Evolved gas disorders are a factor when inert-gas evolves in the blood causing an unsafe situation. This includes, chokes, CNS, bends or paresthesias or other conditions caused by inert-gas evolution.

PC312 Hypoxia
Hypoxia is a factor when the individual has insufficient oxygen supply to the body sufficient to cause an impairment of function.

PC313 Hyperventilation
Hyperventilation is a factor when the effect of ventilating above the physiological demands of the body causes the individual's performance capabilities to be degraded.

PC314 Visual Adaptation
Visual Adaptation is a factor when the normal human limitation of dark-adaptation rate affects safety, for example, when transitioning between aided and unaided night vision.

PC315 Dehydration
Dehydration is a factor when the performance of the operator is degraded due to dehydration as a result of excessive fluid losses due to heat stress or due to insufficient fluid intake.

PC316 Physical Task Oversaturation
Physical Task Oversaturation is a factor when the number or complexity of manual tasks in a compressed time period exceeds an individual's capacity to perform.

Physical/Mental Limitations are factors in a mishap when an individual, temporarily or permanently lacks the physical or mental capabilities to cope with a situation and this insufficiency causes an unsafe situation.

PC401 Learning Ability/Rate
Learning Ability/Rate is a factor when the individual's relative efficiency with which new information is acquired, and relatively permanent adjustments made in behavior or thinking, are not consistent with mission demands.

PC402 Memory Ability/Lapses
Memory Ability/Lapses are a factor when the individual is unable or has lapses in the ability to recall past experience needed for safe mission completion. (Experience includes any information a person receives through any means, any cognitive functions he or she performed on that information, and any response he or she made as a result of it.)

PC403 Anthropometric/Biomechanical Limitations
Anthropometric/Biomechanical limitations are a factor when the size, strength, dexterity, mobility or other biomechanical limitations of an individual creates an unsafe situation. It must be expected that the average individual qualified for that duty position could accomplish the task in question.

PC404 Motor Skill/Coordination or Timing Deficiency
Motor Skill/Coordination or Timing Deficiency is a factor when the individual lacks the required psychomotor skills, coordination or timing skills necessary to accomplish the task attempted.

PC405 Technical/Procedural Knowledge
Technical/Procedural Knowledge is a factor when an individual was adequately exposed to the information needed to perform the mission element but did not absorb it. Lack of knowledge implies no deficiency in the training program, but rather the failure of the individual to absorb or retain the information. (Exposure to information at a point in the past does not imply "knowledge" of it.)

Perceptual Factors are factors in a mishap when misperception of an object, threat or situation, (visual, auditory, proprioceptive, or vestibular conditions) creates an unsafe situation.

PC501 Illusion – Kinesthetic
Illusion – Kinesthetic is a factor when somatosensory stimuli of the ligaments, muscles, or joints cause the individual to have an erroneous perception of orientation, motion or acceleration leading to degraded performance. If this illusion leads to spatial disorientation you must mark and rate PC508, PC509 or PC510.

PC502 Illusion – Vestibular
Illusion – Vestibular is a factor when stimuli acting on the semicircular ducts or otolith organs of the vestibular apparatus cause the individual to have an erroneous perception of orientation, motion or acceleration leading to degraded performance. (If this illusion leads to spatial disorientation you must mark and rate PC508, PC509 or PC510.)

PC503 Illusion – Visual
Illusion – Visual is a factor when visual stimuli result in an erroneous perception of orientation, motion or acceleration, leading to degraded performance (if this illusion leads to spatial disorientation you must mark and rate PC508, PC509 or PC510.)

PC504 Misperception of Operational Conditions
Misperception of Operational Conditions is a factor when an individual misperceives or misjudges altitude, separation, speed, closure rate, road/sea conditions, aircraft/vehicle location within the performance envelope or other operational conditions and this leads to an unsafe situation.

PC505 Misinterpreted/Misread Instrument
Misinterpreted/Misread Instrument is a factor when the individual is presented with a correct instrument reading but its significance is not recognized, it is misread or is misinterpreted.

PC506 Expectancy
Expectancy is a factor when the individual expects to perceive a certain reality and those expectations are strong enough to create a *false perception* of the expectation.

PC507 Auditory Cues
Auditory Cues is a factor when the auditory inputs are correctly interpreted but are misleading or disorienting. Also when the inputs are incorrectly interpreted and cause an impairment of normal performance.

PC508 Spatial Disorientation (Type 1) Unrecognized
Spatial Disorientation is a failure to correctly sense a position, motion or attitude of the aircraft or of oneself within the fixed coordinate system provided by the surface of the earth and the gravitational vertical. Spatial Disorientation (Type 1) Unrecognized is a factor when a person's cognitive awareness of one or more of the following varies from reality: attitude; position; velocity; direction of motion or acceleration. Proper control inputs are not made because the need is unknown.

PC509 Spatial Disorientation (Type 2) Recognized
Spatial Disorientation is a failure to correctly sense a position, motion or attitude of the aircraft or of oneself within the fixed coordinate system provided by the surface of the earth and the gravitational vertical. Spatial Disorientation (Type 2) is a factor when recognized perceptual confusion is induced through one or more of the following senses: visual; vestibular; auditory; tactile; proprioception or kinesthetic. Proper control inputs are still possible.

PC510 Spatial Disorientation (Type 3) Incapacitating
Spatial Disorientation is a failure to correctly sense a position, motion or attitude of the aircraft or of oneself within the fixed coordinate system provided by the surface of the earth and the gravitational vertical. Spatial Disorientation (Type 3) Incapacitating is a factor when an individual is unable to make proper control inputs for safe operation of the aircraft or system due to a conflict (often extreme) between the sensory systems identified in type 2.

PC511 Temporal Distortion
Temporal Distortion is a factor when the individual experiences a compression or expansion of time relative to reality leading to an unsafe situation (often associated with a "fight or flight" response).

Personnel Factors are factors in a mishap if self-imposed stressors or crew resource management affect practices, conditions or actions of individuals and result in human error or an unsafe situation.

Coordination/Communication/Planning Factors refer to interactions among individuals, crews, and teams involved with the preparation and execution of a mission that resulted in human error or an unsafe situation.

PP101 Crew/Team Leadership
Crew/Team Leadership is a factor when the crew/team leadership techniques failed to facilitate a proper crew climate, to include establishing and maintaining an accurate and shared understanding of the evolving mission and plan on the part of all crew or team members.

PP102 Cross-Monitoring Performance
Cross-monitoring performance is a factor when crew or team members failed to monitor, assist or back-up each other's actions and decisions.

PP103 Task Delegation
Task delegation is a factor when the crew or team members failed to actively manage the distribution of mission tasks to prevent the overloading of any crewmember.

PP104 Rank/Position Authority Gradient
Rank/position authority gradient is a factor when the differences in rank of the team, crew or flight caused the mission performance capabilities to be degraded. Also conditions where formal or informal authority gradient is too steep or too flat across a crew, team or flight and this condition degrades collective or individual performance.

PP105 Assertiveness
Assertiveness is a factor when individuals failed to state critical information or solutions with appropriate persistence.

PP106 Communicating Critical Information
Communicating critical information is a factor when known critical information was not provided to appropriate individuals in an accurate or timely manner.

PP107 Standard/Proper Terminology
Standard/proper terminology is a factor when clear and concise terms, phrases hand signals, etc per service standards and training were not used.

PP108 Challenge and Reply
Challenge and reply is a factor when communications did not include supportive feedback or acknowledgement to ensure that personnel correctly understand announcements or directives.

PP109 Mission Planning
Mission planning is a factor when an individual, crew or team failed to complete all preparatory tasks associated with planning the mission, resulting in an unsafe situation. Planning tasks include information collection and analysis, coordinating activities within the crew or team and with appropriate external agencies, contingency planning, and risk assessment.

PP110 Mission Briefing
Mission briefing is a factor when information and instructions provided to individuals, crews, or teams were insufficient, or participants failed to discuss contingencies and strategies to cope with contingencies.

PP111 Task/Mission-In-Progress Re-Planning
Task/mission-in-progress re-planning is a factor when crew or team members fail to adequately reassess changes in their dynamic environment during mission execution and change their mission plan accordingly to ensure adequate management of risk.

PP112 Miscommunication
Miscommunication is a factor when correctly communicated information is misunderstood, misinterpreted, or disregarded.

Self-Imposed Stress is a factor in a mishap if the operator demonstrates disregard for rules and instructions that govern the individuals readiness to perform, or exhibits poor judgment when it comes to readiness and results in human error or an unsafe situation.

PP201 Physical Fitness
Physical Fitness is a factor when the relative physical state of the individual, in terms of a regular rigorous exercise program or a physically active lifestyle, is not adequate to support mission demands.

PP202 Alcohol
Alcohol is a factor when the acute or residual effects of alcohol impaired performance or created an unsafe situation.

PP203 Drugs/Supplements/Self medication
Drugs/Supplements/Self-medication is a factor when the individual takes any drug, other than prescribed, that interferes with performance. This includes nicotine or caffeine in sufficient quantities to cause impairment of normal function. This also includes any chemical compound taken for purposes of prevention of disease, treatment of disease, weight management, mood alteration, birth control or sleep management, etc. The effects may be direct or residual. Alcohol is captured under PP206.

PP204 Nutrition
Nutrition is a factor when the individual's nutritional state or poor dietary practices are inadequate to fuel the brain and body functions resulting in degraded performance

PP205 Inadequate Rest
Inadequate rest is a factor when the opportunity for rest was provided but the individual failed to take the opportunity to rest.

PP206 Unreported Disqualifying Medical Condition
Unreported Disqualifying Medical Condition is a factor when the operator intentionally operates/flies with a known disqualifying medical condition that results in an unsafe situation.

SUPERVISION

Supervision is a factor in a mishap if the methods, decisions or policies of the supervisory chain of command directly affect practices, conditions, or individual actions and result in human error or an unsafe situation.

Inadequate Supervision is a factor in a mishap when supervision proves inappropriate or improper and fails to identify hazard, recognize and control risk, provide guidance, training and/or oversight and results in human error or an unsafe situation.

SI001 Leadership/Supervision/Oversight Inadequate
Leadership/Supervision/Oversight Inadequate is a factor when the availability, competency, quality or timeliness of leadership, supervision or oversight does not meet task demands and creates an unsafe situation. Inappropriate supervisory pressures are also captured under this code.

SI002 Supervision – Modeling
Supervision – Modeling is a factor when the individual's learning is influenced by the behavior of peers and supervisors and when that learning manifests itself in actions that are either inappropriate to the individual's skill level or violate standard procedures and lead to an unsafe situation.

SI003 Local Training Issues/Programs
Local Training Issues/Programs are a factor when one-time or recurrent training programs, upgrade programs, transition programs or any other local training is inadequate or unavailable (etc) and this creates an unsafe situation. (Note: the failure of an individual to absorb the training material in an adequate training program does not indicate a training program problem. Capture these factors under PC401 "Learning ability/rate" or PC405 "Technical/Procedural Knowledge." The failure of an individual to recall learned information under stress or while fatigued despite attending an adequate training program does not indicate a training program problem. Capture these factors under PC402 "Memory/Ability lapses" or other cognitive factors such as PC104 "Confusion," PC106 "Distraction," PC105 "Negative Transfer," etc.)

SI004 Supervision – Policy
Supervision – Policy is a factor when policy or guidance or lack of a policy or guidance leads to an unsafe situation.

SI005 Supervision – Personality Conflict
Supervision – Personality Conflict is a factor when a supervisor and individual member experience a "personality conflict" that leads to a dangerous error in judgment / action.

SI006 Supervision – Lack of Feedback
Supervision – Lack of Feedback is a factor when information critical to a potential safety issue had been provided to supervisory or management personnel without feedback to the source (failure to close the loop).

Planned Inappropriate Operations is a factor in a mishap when supervision fails to adequately assess the hazards associated with an operation and allows for unnecessary risk. It is also a factor when supervision allows non-proficient or inexperienced personnel to attempt missions beyond their capability or when crew or flight makeup is inappropriate for the task or mission.

SP001 Ordered/Led on Mission Beyond Capability
Ordered/Led on Mission Beyond Capability is a factor when supervisor/management directs personnel to undertake a mission beyond their skill level or beyond the capabilities of their equipment.

SP002 Crew/Team/Flight Makeup/Composition
Crew/Team/Flight Makeup/Composition is a factor when, in the opinion of the investigator, the makeup of the crew or of the flight should have reasonably raised obvious safety concerns in the minds of crewmembers involved in the mission, or in any other individual directly related to the scheduling of this mission.

SP003 Limited Recent Experience
Limited Recent Experience is a factor when the supervisor selects an individual whose experience for a specific maneuver, event or scenario is not sufficiently current to permit safe mission execution.

SP004 Limited Total Experience
Limited Total Experience is a factor when a supervisor selects an individual who has performed a maneuver, or participated in a specific scenario, infrequently or rarely.

SP005 Proficiency
Proficiency is a factor when an individual is not proficient in a task, mission or event.

SP006 Risk Assessment – Formal
Risk Assessment – Formal is a factor when supervision does not adequately evaluate the risks associated with a mission or when pre-mission risk assessment tools or risk assessment programs are inadequate.

SP007 Authorized Unnecessary Hazard
Authorized Unnecessary Hazard is a factor when supervision authorizes a mission or mission element that is unnecessarily hazardous without sufficient cause or need. This includes intentionally scheduling personnel for a mission or operation that they are not qualified to perform.

Failure to Correct Known Problem is a factor in a mishap when supervision fails to correct known deficiencies in documents, processes or procedures, or fails to correct inappropriate or unsafe actions of individuals, and this lack of supervisory action creates an unsafe situation.

SF001 – Personnel Management
Personnel management is a factor when a supervisor fails to identify an operator or aviator who exhibits recognizable risky behaviors or unsafe tendencies or fails to institute remedial actions when an individual is identified with risky behaviors or unsafe tendencies.

SF002 – Operations Management
Operations management is a factor when a supervisor fails to correct known hazardous practices, conditions or guidance that allows for hazardous practices within the scope of his/her command.

Supervisory Violations is a factor in a mishap when supervision while managing organizational assets willfully disregards instructions, guidance, rules, or operating instructions and this lack of supervisory responsibility creates an unsafe situation.

SV001 Supervision – Discipline Enforcement (Supervisory act of omission)
Supervision – Discipline Enforcement is a factor when unit (organizational) and operating rules have not been enforced by the normally constituted authority.

SV002 Supervision – De Facto Policy
Supervision – De Facto Policy is a factor when unwritten or "unofficial" policy perceived and followed by the individual, which has not been formally established by the properly constituted authority, leads to an unsafe situation.

SV003 Directed Violation
Directed Violation is a factor when a supervisor directs a subordinate to violate existing regulations, instructions or technical guidance.

SV004 Currency
Currency is a factor when an individual has not met the general training requirements for his job/weapon system and is considered "non-current" and supervision/leadership inappropriately allows the individual to perform the mission element for which the individual is non-current.

ORGANIZATIONAL INFLUENCES

Organizational Influences are factors in a mishap if the communications, actions, omissions or policies of upper-level management directly or indirectly affect supervisory practices, conditions or actions of the operator(s) and result in system failure, human error or an unsafe situation.

Resource/Acquisition Management is a factor in a mishap if resource management and/or acquisition processes or policies, directly or indirectly, influence system safety and results in poor error management or creates an unsafe situation.

OR001 Air Traffic Control Resources
Air Traffic Control Resources is a factor when inadequate monitoring of airspace, enroute navigational aids and/or language barriers in air traffic controllers cause an unsafe situation. Note: If the unsafe acts of an individual air traffic controller are determined to be a factor in a mishap then the controller must be added and investigated as a mishap person.

OR002 Airfield Resources
Airfield Resources are a factor when runways, taxiways, ramps, terminal ATC resources or nav-aids, lighting systems, SOF/RSU resources or the environment surrounding the airfield are inadequate or unsafe. If the airfield or environment created a visual illusion that contributed to the mishap sequence you must also mark and rate PC503 "Illusion -Visual."

OR003 Operator Support
Operator Support is a factor when support facilities (dining, exercise, quarters, medical care, etc) or opportunity for recreation or rest are not available or adequate and this creates an unsafe situation. This includes situations where leave is not taken for reasons other than the individual's choice.

OR004 Acquisition Policies/Design Processes
Acquisition Policies/Design Processes is a factor when the processes through which aircraft, vehicle, equipment or logistical support are acquired allows inadequacies or when design deficiencies allow inadequacies in the acquisition and the inadequacies create an unsafe situation.

OR005 Attrition Policies
Attrition Policies is a factor when the process through which equipment is removed from service is inadequate and this inadequacy creates an unsafe situation**.**

OR006 Accession/Selection Policies
Accession/Selection Policies is a factor when the process through which individuals are screened, brought into the service or placed into specialties is inadequate and creates an unsafe situation.

OR007 Personnel Resources
Personnel Resources is a factor when the process through which manning, staffing or personnel placement or manning resource allocations are inadequate for mission demands and the inadequacy causes an unsafe situation.

OR008 Informational Resources/Support
Informational Resources/Support is a factor when weather, intelligence, operational planning material or other information necessary for safe operations planning are not available.

OR009 Financial Resources/Support
Financial Resources/Support is a factor when an organization or operation does not receive the financial resources to complete its assigned mission and this deficiency creates an unsafe situation.

Organizational Climate is a factor in a mishap if organizational variables including environment, structure, policies, and culture influence individual actions and results in human error or an unsafe situation.

OC001 Unit/Organizational Values/Culture
Unit/Organizational Values/Culture is a factor when explicit/implicit actions, statements or attitudes of unit leadership set unit/organizational values (culture) that allow an environment where unsafe mission demands or pressures exist.

OC002 Evaluation/Promotion/Upgrade
Evaluation/Promotion/Upgrade is a factor when an individual perceives that their performance on a task will inappropriately impact an evaluation, promotion or opportunity for upgrade and this pressure creates an unsafe situation. Other inappropriate supervisory pressures are captured under SI001 Supervision – Inadequate.

OC003 Perceptions of Equipment
Perceptions of Equipment is a factor when over or under confidence in an aircraft, vehicle, device, system or any other equipment creates an unsafe situation.

OC004 Unit Mission/Aircraft/Vehicle/Equipment Change or Unit Deactivation
Unit Mission/Aircraft/Vehicle/Equipment Change or Unit Deactivation is a factor when the process of changing missions/aircraft/vehicle/equipment or an impending unit deactivation creates an unsafe situation.

OC005 Organizational Structure
Organizational Structure is a factor when the chain of command of an individual or structure of an organization is confusing, non-standard or inadequate and this creates an unsafe situation.

Organizational Processes is a factor in a mishap if organizational processes such as operations, procedures, operational risk management and oversight negatively influence individual, supervisory, and/or organizational performance and results in unrecognized hazards and/or uncontrolled risk and leads to human error or an unsafe situation.

OP001 Ops Tempo/Workload
Ops Tempo/Workload is a factor when the pace of deployments, workload, additional duties, off-duty education, PME, or other workload-inducing condition of an individual or unit creates an unsafe situation.

OP002 Program and Policy Risk Assessment
Program and Policy Risk Assessment is a factor when the potential risks of a large program, operation, acquisition or process are not adequately assessed and this inadequacy leads to an unsafe situation.

OP003 Procedural Guidance/Publications
Procedural Guidance/Publications is a factor when written direction, checklists, graphic depictions, tables, charts or other published guidance is inadequate, misleading or inappropriate and this creates an unsafe situation.

OP004 Organizational Training Issues/Programs
Organizational Training Issues/Programs are a factor when one-time or initial training programs, upgrade programs, transition programs or other training that is conducted outside the local unit is inadequate or unavailable (etc) and this creates an unsafe situation. (Note: the failure of an individual to absorb the training material in an adequate training program does not indicate a training program problem. Capture these factors under PC401 “Learning Ability/Rate” or PC405 “Technical/Procedural Knowledge.” The failure of an individual to recall learned information under stress or while fatigued despite attending an adequate training program does not indicate a training program problem. Capture these factors under PC402 “Memory/ Ability lapses” or other cognitive factors such as PC104 “Confusion,” PC106 “Distraction,” PC105 “Negative Transfer” or one of the forms of Fatigue, etc.)

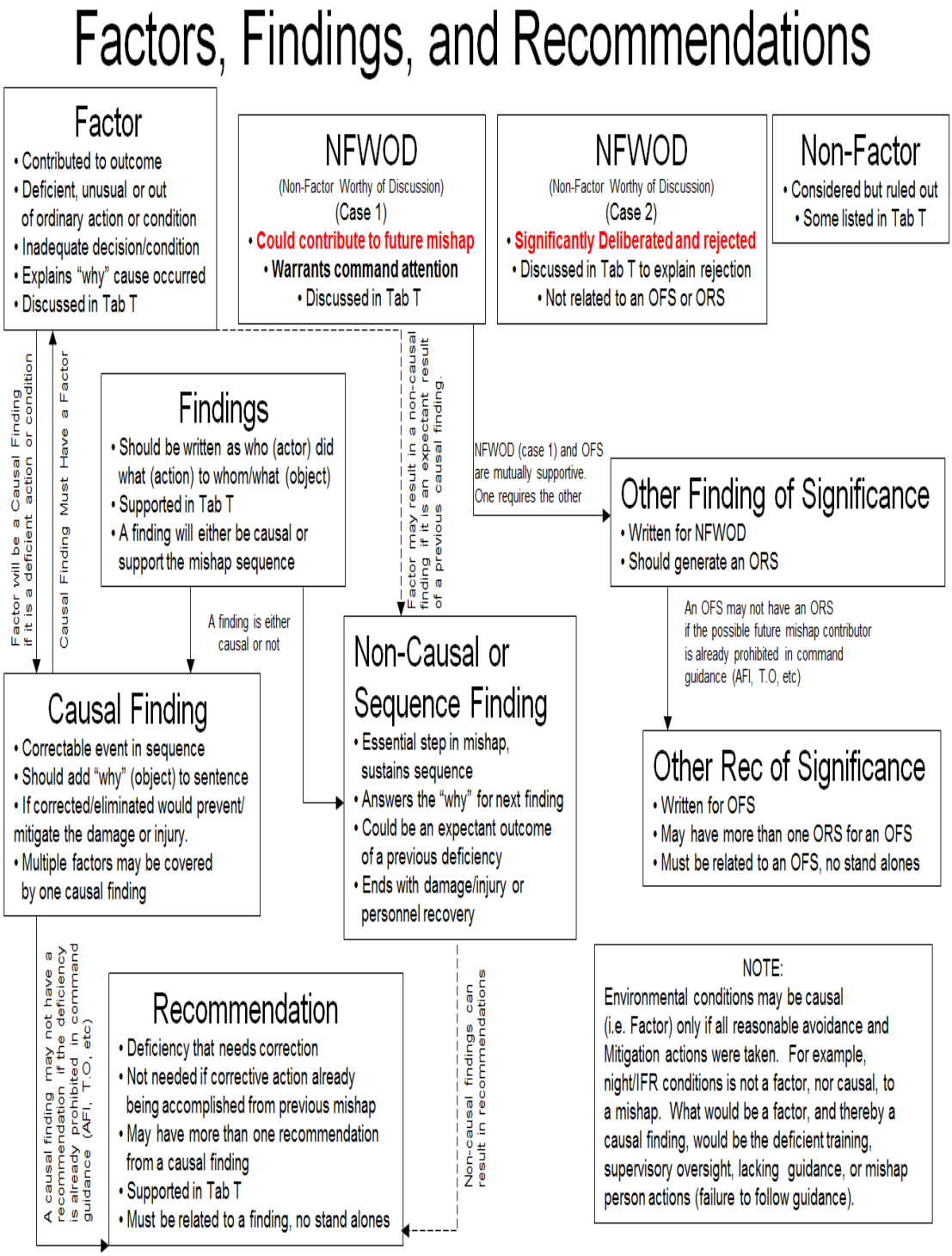
OP005 Doctrine
Doctrine is a factor when the doctrine, philosophy or concept of operations in an organization is flawed or accepts unnecessary risk and this flaw or risk acceptance leads to an unsafe situation or uncontrolled hazard.

OP006 Program Oversight/Program Management
Program Oversight/Program Management is a factor when programs are implemented without sufficient support, oversight or planning and this leads to an unsafe situation.

Attachment 7

FACTORS, FINDINGS, AND RECOMMENDATIONS RELATIONSHIP

Figure A7.1. Factors, Findings, And Recommendations Relationship.



Attachment 8

JOINT SERVICE MEMORANDUM OF UNDERSTANDING FOR INVESTIGATIONS

MEMORANDUM OF UNDERSTANDING
AMONG
THE U.S. ARMY COMBAT READINESS CENTER,
AIR FORCE AND NAVAL SAFETY CENTERS,
COMMANDANT OF THE MARINE CORPS (SAFETY DIVISION) AND
THE U.S. COAST GUARD HEALTH AND SAFETY DIRECTORATE
FOR SAFETY INVESTIGATION AND REPORTING OF
JOINT SERVICE MISHAPS

1. Subject. The working relationship, responsibilities and understanding among U.S. Army, Air Force, Marine Corps, Navy and Coast Guard (hereafter known as the "*services*") relative to joint service safety investigation and reporting of mishaps and incidents involving personnel, equipment and facilities. For the purposes of this Memorandum of Understanding (MOU), the term "*safety centers*" includes the U.S. Army Combat Readiness Center, Air Force and Naval Safety Centers, Commandant of the Marine Corps (Safety Division) and the U.S. Coast Guard Health and Safety Directorate.

2. Purpose. DoD tasked the services to determine a lead service to investigate and report each joint service mishap. The purpose of this document is to clarify the "ownership" of a mishap when more than one service's assets are involved and to provide guidance for the establishment of a single joint safety investigative board and the selection of investigators from multiple agencies. Additionally, guidance is provided regarding preservation of physical evidence at a mishap site, accounting for losses, dissemination of reports, responsibility for recommendations, and the spirit of cooperation and professionalism expected.

3. Scope. This MOU serves to establish agreements, responsibilities, procedures, and funding requirements for Joint Service Safety Investigations involving the services. Authority for investigation of military mishaps is contained in DoD Instruction 6055.7 and Coast Guard Manual COMDTINST M5100.47.

4. Joint Service Mishap Definition. A joint service mishap is a single mishap involving two or more services in which one or more service(s) experience reportable injuries or damage. The provisions of this MOU will also be applicable to mishaps involving joint agencies or joint programs where only one service experiences a loss and two or more services are/were involved in development and acquisition of a system.

5. Understandings, Agreements and Responsibilities.

a. The service safety chiefs will determine which service will have primary responsibility for investigating and reporting each Class A joint service mishap. This authority may be delegated to safety center personnel for lower classes of mishaps. Normally, the convening authority for the investigation will be the service experiencing the greater loss, although other factors such as operational roles will also be considered. The convening service's safety investigation directives will be used in investigating and reporting the mishap. The service safety chiefs have the authority to agree, on a case-by-case basis, to an alternate approach to a safety investigation, to include not participating in the lead service's investigation.

b. The safety center which first becomes aware of a Class A, B, or C joint service mishap will provide immediate telephonic notification to the other involved services' safety centers. Each service will make available operational and technical experts for the safety investigation board as required. The service owning or controlling the facility where a mishap occurs or the service that is geographically closest, will secure, protect, document and preserve the mishap site to prevent contamination or removal

MEMORANDUM OF UNDERSTANDING CONT

of evidence. This includes ensuring search, recovery and criminal investigative organizations do not disturb the mishap scene until released by the joint board president/senior member.

c. Joint service safety investigation boards will be comprised of the following representatives:

(1) Each involved service safety chief may send safety investigators to participate in the board. These investigators will be voting/primary board members, who are experts in the program, operation and/or utilization of the facilities, personnel or equipment involved in the mishap. Those investigators will be granted access to all relevant information, both privileged and non-privileged, and related board deliberations.

(2) Other board members, including members from joint or DoD agencies, may be required as determined by the involved safety centers.

(3) Voting/primary board members are only authorized to communicate with their respective service safety chief. The board president/senior member must authorize all other communications. Non-voting/non-primary technical advisors and observers may not discuss privileged or non-privileged investigative proceedings with their parent service without approval of the board president/senior member.

(4) Voting/primary board members work solely for the safety investigation board president or senior member and will be released at their discretion.

d. The joint service safety investigation board president/senior member will allow concurrent investigators access to the mishap site and non-privileged physical evidence.

e. The convening service's safety center will promptly provide all involved services safety centers a complete, un-redacted copy of all the joint safety investigation board's reports and subsequent endorsements. Supporting documents will be provided upon request. Safety centers may further distribute any reports within DoD for safety purposes. The service producing the safety investigation report will respond to requests for copies of portions of the report, to include requests from other DoD staff sections, organizations and commands, as well as requests from the public under the Freedom of Information Act (FOIA).

f. The joint service safety investigation board's report endorsing chain will be determined by the involved safety centers.

g. The service preparing the report will clearly identify recommendations targeted toward other services or agencies and forward the recommendations to the other services' safety center or to Joint or DoD agencies when appropriate. Each service's safety center will, in turn, forward applicable recommendations to the appropriate agency, organization, and/or elements in their service. Each service's safety center will track to completion the status of those recommendations and inform any other involved service's safety center of actions taken.

h. When there is a suspected material failure, the board president/senior member will submit the item(s) in question to the service-appropriate facility for analysis. The service whose facility conducts the analysis will fund the analysis.

MEMORANDUM OF UNDERSTANDING CONT

i. Each service will provide funding for travel, per diem, rental car, and other expenses incurred by its representatives. The nearest military installation to the mishap site will provide Administrative and host base support while the board president/senior member is present. Other expenses (site security, special equipment, consultants, etc.) will be borne by the investigating service. Each service will provide funding for salvage/wreckage recovery of its own assets.

j. When briefings are requested, the service safety chiefs will coordinate requirements.

k. The service that is determined to have ownership of the mishap will account for all fatalities, injuries and property damage in that service's mishap statistics. The services recognize that this is not an obvious interpretation of DoDI 6055.7 reporting requirements, but have obtained DoD concurrence for this approach. Consistently reporting all losses in conjunction with a single event without regard to assignment of the assets assures proper prioritization of mishap prevention resources.

6. <u>Effective Date, Periodic Review, Modification and Termination</u>. This agreement is effective on the date of the last signature and will remain in effect until rescinded, revised or superseded. This agreement may be cancelled at any time by mutual agreement or by any safety center with at least 30 days advanced written notice. All safety centers will review this agreement every three years and it may be modified by mutual consent of the signatories. A written request for modification shall be provided to the other safety centers at least 60 days prior to the proposed date of changed.

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JOSEPH A. SMITH, BG, USA
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Commanding General
U.S. Army Combat Readiness Center

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Commandant of the Marine Corps
Director, Safety Division

Date Approved: 10 April 2006