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Safety

WEAPONS SAFETY INVESTIGATIONS AND REPORTS

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This manual implements Air Force Policy Directive (AFPD) 91-2, *Safety Programs*, is consistent with AFPD 13-5, *Air Force Nuclear Mission*, and provides weapons unique guidance to support Air Force Instruction (AFI) 91-204, *Safety Investigation and Reports*. It directs procedures specific to investigating and reporting United States Air Force (USAF) weapons mishaps and events. It applies to commanders, managers, supervisors, and safety staffs at all levels, all persons who investigate and report Air Force (AF) mishaps, and those persons who handle such reports. This publications applies to all active duty, The Air National Guard, and Air Force Reserve military and civilian personnel. This manual requires the collection and or maintenance of information protected by the Privacy Act of 1974 authorized by Title 10 United States Code (USC), Section 9013, Secretary of the Air Force. The applicable SORN (FO91 AFSEC C) is available at: **https://dpcld.defense.gov/privacy/SORNS.aspx**. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual 33-363*, Management of Records*, and disposed of in accordance with Air Force Records Disposition Schedule located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*. Route AF Form 847 from the field through the appropriate functional chain of command. This publication may be supplemented at any level, but all supplements must be routed to the OPR of this publication for coordination prior to certification and approval. Send supplements to Air Force Safety Center (AFSEC) Weapons Safety Division (AFSEC/SEW) at **HQAFSCSEW@us.af.mil** or 9700 G Avenue SE, Kirtland AFB NM 87117-5670, for coordination before publication. The authorities to waive wing/unit

level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the 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, or alternately, to the requestor's commander for non-tiered compliance items. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. This publication is updated to reflect changes in guidance and procedures for weapons safety investigation and reports. This document modified criteria for DULL SWORD reporting requirements, updated the Reportable Mishap Flow Chart, provided additional guidance for classified safety reporting, modified report message criteria, updated report submission schedules, modified glossary and terms, and incorporated numerous administrative revisions.

Chapter 1

GENERAL INFORMATION

1.1. General.

1.1.1. This manual, in conjunction with AFI 91-204, provides guidance for investigating and reporting weapons mishaps. The sole purpose of these safety investigations is to prevent future mishaps. Investigations to gather evidence for claims, litigation, disciplinary, and adverse administrative actions, and for all purposes other than mishap prevention are not covered by this manual.

1.1.2. Weapons mishaps will be reported and classified in accordance with AFI 91-204 Class A, B, C, D, and E criteria. Directed energy weapon mishaps will comply with additional reporting and classification requirements directed by AFI 91-401, *Directed Energy System Safety*.

1.1.3. Nuclear Accidents, Incidents and Deficiencies.

1.1.3.1. Nuclear accidents and incidents will be reported using flagwords and associated mishap class in accordance with AFI 91-204.

1.1.3.2. Deficiencies. Deficiencies involving damage and/or injury will be classified as mishaps. Non-damaging/non-injuring deficiencies that meet any of the DULL SWORD criteria listed within this instruction will be classified apart from mishaps.

1.2. Mishap Category. Reference **Figure 1.1** to determine if the mishap should be reported in accordance with this manual.

1.3. Mishap Severity Classification.

1.3.1. Once it is determined that a non-nuclear mishap is reportable, classify mishap by total direct mishap cost and the severity of injury/occupational illness.

1.3.2. When determining the mishap severity classification for nuclear mishaps, be sure to reference the appropriate security classification guide and mark the report appropriately.

1.3.3. Reference **paragraph 1.4** and **paragraph 1.5** for criteria requiring flagword reporting of a nuclear accident, incident, or dificiency.

1.4. Flagwords.

1.4.1. Flagwords are used to identify nuclear accidents (e.g., BROKEN ARROW) and nuclear incidents (e.g., BENT SPEAR). The safety investigator (as determined by AFI 91-204 and **Table 3.1** of this manual) will determine the best flagword to describe the event. **(T-1)**.

1.4.1.1. If the event status changes after submitting an original report, the investigator should submit another report using the new flagword. Flagwords are listed below from most severe (NUCFLASH) to least severe (BENT SPEAR). Investigators should upgrade the flagword only when time-critical responses are required. Do NOT downgrade the flagword of nuclear mishap reports without the concurrence of AFSEC/SEW. **(T-1)**.

1.4.1.2. Safety reporting of flagwords is a separate report from operational reporting and should be conducted in addition to, not in place of requirements outlined in Air Force Manual (AFMAN) 10-206, *Operational Reporting.*

1.4.2. NUCFLASH. Includes accidental, unauthorized, or unexplained events that could create the risk of war, meeting any of the following criteria:

1.4.2.1. Accidental, unauthorized, or unexplained actual or possible nuclear detonation by United States (US) forces or US-supported allied forces.

1.4.2.2. Accidental or unauthorized launch of a nuclear-armed or nuclear-capable missile by US forces or US-supported allied forces.

1.4.2.3. 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.

1.4.3. BROKEN ARROW. Accidental, unauthorized, or unexplained events that could not create the risk of war, but meets any of the following criteria:

1.4.3.1. Accidental or unauthorized launching, firing, or use by US forces or US-supported allied forces of a nuclear capable weapons system.

1.4.3.2. An accidental, unauthorized, or unexplained nuclear detonation.

1.4.3.3. Non-nuclear detonation (no nuclear yield) or burning of a nuclear weapon or nuclear component.

1.4.3.4. Plutonium or uranium contamination from a U.S. nuclear weapon or component.

1.4.3.5. Public hazard, actual or perceived.

1.4.3.6. Jettisoning of a nuclear weapon or nuclear component.

1.4.4. EMPTY QUIVER. Nuclear weapon is lost, stolen, or seized.

1.4.5. BENT SPEAR. Includes mishaps not in the accident category but meeting any of the following criteria:

1.4.5.1. Radioactive contamination from burning, theft, seizure, abnormal release of content, or destruction of a radioactive limited–life component (e.g., neutron generator, gas reservoir(s)) or radioisotope thermal generators.

1.4.5.2. Inadvertent initiation of a limited-life component (except parachutes), or evident damage to a nuclear weapon or nuclear component that requires major rework, replacement, or examination or re-certification by the Department of Energy.

1.4.5.3. Events requiring immediate action in the interest of nuclear surety (such as render safety procedures or failed positive measures) or which could result in adverse national or international public reaction or premature release of information (such as attempted theft or seizure of a nuclear weapon). **Note:** Includes damage to a nuclear weapon carrier that could lead to loss of, or damage to, nuclear components.

1.4.5.4. An event indicating a nuclear weapon or nuclear warhead has been armed without proper authorization.

1.4.5.5. Abnormal readings encountered during Non-Nuclear Verification procedures of Joint Test Assemblies.

1.4.5.6. Events which could lead to a nuclear weapon system accident and thus warrant the informational interest of, or action by, any of the following agencies:

1.4.5.6.1. Appropriate military service.

1.4.5.6.2. Office of the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs).

1.4.5.6.3. Office of the Assistant Secretary of Defense (Strategy and Threat Reduction).

1.4.5.6.4. Office of the Assistant Secretary of Defense (Public Affairs).

1.4.5.6.5. Federal Emergency Management Agency (within the continental US).

1.4.6. PINNACLE FADED GIANT. Used to report a radiological accident as defined by the following criteria:

1.4.6.1. Release of radioactive material such that, had an individual been present for 24 hours, the individual could have received a dose of 25 rem (internal dose portion is 50-year committed from an intake).

1.4.6.2. Exposure of an individual's whole body to 25 rem or more of radiation, exposure of the eye to 75 rem or more of radiation; or exposure of any extremity to 250 rem or more of radiation.

1.4.6.3. Immediate public hazard or widespread coverage in news media.

1.4.7. BEELINE FADED GIANT. Used to report any event or incident that requires Air Force-level interest, but not requiring a PINNACLE FADED GIANT report. A BEELINE FADED GIANT is radiological incident as defined by the following criteria:

1.4.7.1. Release of radioactive material so that, had an individual been present for 24 hours, the individual could have received an intake with an estimated 50-year committed effective dose equivalent in excess of 5 rem.

1.4.7.2. Exposure of an individual's whole body to 5 rem or more of radiation, exposure of the eye to 15 rem or more of radiation; or exposure of any extremity to 50 rem or more of radiation.

1.4.7.3. Possible public hazard, actual or perceived, or coverage in news media.

1.5. DULL SWORDs.

1.5.1. The flagword DULL SWORD is used to report nuclear safety or nuclear surety deficiencies not falling into the accident or incident categories, but meeting any of the criteria listed below. **Note:** nuclear deficiencies may be associated with mishaps if the deficiency resulted in damage to equipment or injury to personnel. See **paragraph 4.1.1**

1.5.1.1. Abnormal Exposure.

1.5.1.1.1. Actual or suspected exposure of a nuclear weapon or component to sources of electrical or electromagnetic energy.

1.5.1.1.2. Damage from electrical or electromagnetic energy (e.g., lightning, over voltage and power fluctuations). This includes malfunction, failure, or any anomaly that directly results in damage or has the potential to damage the nuclear weapon system or component.

1.5.1.1.3. Exposure of a nuclear weapon, nuclear component, or nuclear weapon system to an abnormal environment (e.g., flood, earthquake) whereby there is a possibility of damage to the nuclear weapon. Report the incident if there is any doubt as to the condition or serviceability of the nuclear weapon, component, or system.

1.5.1.2. Operational.

1.5.1.2.1. Malfunction, failure, or anomaly involving the command and control system which results in indications (suspected, false, or actual) of critical function (e.g., release, launch, or arming) activation.

1.5.1.2.2. Malfunction, failure, or anomaly during operations or testing, potentially resulting in a safety or coded device to arm or be left in an unsafe condition (e.g., safety control switch, safe and arm devices).

1.5.1.2.3. Malfunction, failure, or anomaly that results in suspected or unconfirmed tritium release.

1.5.1.2.4. Minor damage to a nuclear weapon or nuclear component resulting from errors committed during the assembly, testing, loading, or transporting of the nuclear weapon while in Air Force custody (includes electrical components, mechanically activated components, explosives, or radioactive materials). **Note** Technical Order (TO) 00-35D-54, *USAF Materiel Deficiency Reporting and Investigating System*, or TO 11N- 5-1, *Unsatisfactory Reports* may contain reporting guidance regarding materiel deficiencies/failures (e.g., dents, scratches, scuffs, chips, rips, tears, cuts, splits) which are not safety related and should be referenced.

1.5.1.2.5. Use of uncertified equipment/hardware or software on a nuclear weapon or weapon system that requires nuclear certification.

1.5.1.3. Personnel.

1.5.1.3.1. Nuclear surety violations, where there is the opportunity to tamper with or damage the nuclear weapon, component, or system. A report is not required for a momentary loss of two-person concept control if the event does not permit tampering with a certified critical component or removal of codes without detection.

1.5.1.3.2. Nuclear weapon system technical order procedure inadequacies that the unit perceives could lead to a violation of nuclear weapon system safety rules. **Note:** TO 00-5-1, *Air Force Technical Order System*, (using Air Force Technical Order (AFTO) Form 22, *Technical Manual (TM) Change Recommendation and Reply*) and/or TO 11N-5-1, *Unsatisfoactory Reports* may contain additional guidance on reporting procedural deficiencies and should be referenced.

1.5.1.4. Security. Catastrophic failures or major malfunctions to an intrusion detection system monitoring equipment or software, and any failure/malfunction trends of the intrusion detection system occurring at a nuclear weapon operational, maintenance, or storage facility. Reference DoD S-5210.41-M_AFMAN 31-108, *Nuclear Weapon Security Manual: General Nuclear Weapon Security Procedures*, for definitions of catastrophic failures and major malfunctions. **Note:** Do not include false or nuisance alarms.

1.5.1.5. Nuclear Surety.

1.5.1.5.1. Violations involving nuclear weapon system safety rules as published in applicable regulations (i.e., AFI 91-111, *Safety Rules for US Strategic Bomber Aircraft*; AFI 91-112, *Safety Rules for US/NATO Strike Fighters*; AFI 91-114, *Safety Rules for the Intercontinental Ballistic Missile System*; AFI 91-115, *Safety Rules for Nuclear Logistics Transport by the Prime Nuclear Airlift Force*; AFI 91-116, *Safety Rules for Long-Term Storage and Maintenance Operations for Nuclear Weapons*; and AFI 91-117, *Safety Rules for the Airborne Launch Control System)*. If the reportability of a violation involving a weapon system safety rule regulation violation is in question, submit a request to AFSEC/SEW for determination.

1.5.1.5.2. Event or trend with an item that could have an adverse effect on nuclear surety or certification of nuclear weapon systems. This applies to items listed in the following:

1.5.1.5.2.1. Master Nuclear Certification List (MNCL) located on the AF Nuclear Weapons Center website at **https://www.mil.nwc.kirtland.af.mil/mncl/index.cfm**.

1.5.1.5.2.2. TO 21M-LGM30F-12-1, *Minuteman Nuclear Surety Procedures*.

1.5.1.5.3. Known damage, malfunction, failure, or anomaly to items listed in the MNCL or TO 21M-LGM30F-12-1 that could have an adverse effect on nuclear surety of a nuclear weapon system.

1.5.1.6. Ground-Launched Missile Systems. Loss or compromise of certified critical components listed in TO 21M- LGM30F-12-1. The DULL SWORD should indicate whether loss or compromise is actual or suspected, and should identify follow-on actions required to recertify compromised critical components or to conduct a code change for a compromised code. AFSEC/SEW makes the final determination if appropriate action was taken. If recertification procedures are not provided in appropriate technical orders, or doubt exists regarding what action to take, request guidance from AFSEC/SEW before submitting a DULL SWORD report.

1.5.1.7. Aircraft and Air-Launched Missile Systems.

1.5.1.7.1. Inadvertent release, launch, or jettison of a training weapon or non-nuclear store from any nuclear-capable station of a nuclear certified aircraft.

1.5.1.7.2. Damage, malfunction, failure, or anomaly involving:

1.5.1.7.2.1. Cargo restraint systems, winching systems, or procedures that affects the positioning or securing of cargo on non-combat delivery vehicles (C-17 cargo aircraft). **Note:** Does not include normal wear and tear as identified in equipment technical orders or guidance.

1.5.1.7.2.2. A missile's arming and control, or propulsion system when mated with a nuclear warhead.

1.5.1.7.2.3. A nuclear combat delivery vehicle's aircraft monitor and control.

1.5.1.7.2.4. Equipment installed in aircraft to permit nuclear weapon monitoring and control of the critical functions: safing; pre-arming; arming; and fuzing functions of nuclear weapons or nuclear weapon systems that could have an adverse

affect on the nuclear certification of the aircraft.

1.5.1.8. Nuclear Certified Support Equipment.

1.5.1.8.1. Stability, steering or brake system problems that affect the safe steering, stopping, towing, or holding in park of a tow or transport vehicle (cargo, loading, or lifting). **Note:** Does not include minor problems such as dents, flat tires, corrosion, or electrical accessory malfunctions.

1.5.1.8.2. Defects or failures in vehicle structural members (including the pintle hooks and mounting structure, fifth wheels) that support the load or transmit the towing or braking force.

1.5.1.8.3. Inadequate restraint of loads attributed to trailer tiedown points or tiedown patterns.

1.5.1.8.4. Unsafe condition, malfunction, or improper operation of the hydraulic, mechanical, and structural components of lift vehicles (e.g., forklifts) resulting in unresponsive operation, uncontrolled raising or lowering, or improper cargo restraint.

1.5.1.8.5. Unsafe condition, malfunction, or improper operation of installed equipment lifting devices (e.g., overhead hoists, cranes, load frames, monorail hoist systems, and storage vaults) resulting in situations such as limit switch failure, restraint of load failure, over-speed operation, or uncontrolled raising or lowering operations.

1.5.1.8.6. Exceeding the rated load-capacity of any nuclear certified equipment/vehicle listed in the MNCL.

1.5.1.9. Nuclear Certified Test Equipment. Damage, malfunction, failure, or anomaly involving test equipment listed in the MNCL. **Note:** Failures of normal functional tests or self-testing that have correction procedures or turn in procedures listed in technical guidance do not need to be reported as a DULL SWORD.

1.5.1.10. Other criteria.

1.5.1.10.1. Abnormal or unknown status of any nuclear weapon, weapons system, or MNCL item where the applicable technical publication does not provide guidance.

1.5.1.10.2. Loss, theft, seizure, or destruction of a training weapon.

1.5.1.10.3. When directed by AFSEC, Major Command (MAJCOM), or the unit commander for any problem or situation that affects nuclear safety.

1.5.1.10.4. Recognizable faults or failures where specific diagnostic and corrective actions are outlined in current technical data need not be reported as a DULL SWORD unless deemed necessary by the Weapons Safety Manager.

1.5.2. DULL SWORD reporting and trend analysis.

1.5.2.1. Surety deficiencies shall be reported in accordance with Table A2.3 by all Air Force organizations owning/using nuclear certified equipment through the Air Force Safety Automated System (AFSAS) website located at **https://afsas.kirtland.af.mil**. Reference **paragraph 4.9** for guidance regarding classified safety reporting. **(T-1)**.

1.5.2.2. Reports will include the applicable human factor code(s) in latest version of the DoD Human Factors Analysis and Classification System (HFACS). **(T-1)**.

1.5.2.3. DULL SWORD reports are used to identify deficiencies through cross-tell communication and/or trend analysis to enhance nuclear surety by identifying the potential for a nuclear mishap.

1.5.2.4. AFSEC/SEW will prepare a quarterly informational summary of deficiencies and identified trends. The summary will be posted to the AFSAS website for access.

1.6. Mishap Costs.

1.6.1. Use the guidance in AFI 91-204 with the following additions to determine mishap costs for mishap classification.

1.6.2. Dropped Weapons. For weapons or their components dropped a distance that exceeds the drop criteria in the specific item technical order, estimate the mishap cost at 15 percent of the item replacement cost in the current stock catalog for initial mishap class determination. **(T-1)**. Upgrade or downgrade the mishap class, and report all changes when actual cost is determined. **(T-1).** Upgrade or downgrade after completion of final evaluation. **(T-1)**.

1.6.3. Prelaunch Damage. Compute all ground-launch weapon prelaunch damage occurring without the weapon being launched, to include transportation and storage cost. **(T-1)**.

1.6.4. Unintentional Functioning. If the weapon or explosives functioned unintentionally (e.g., a bomb exploded), include the cost of the item (not including intentionally jettisoned items). **(T-1)**.

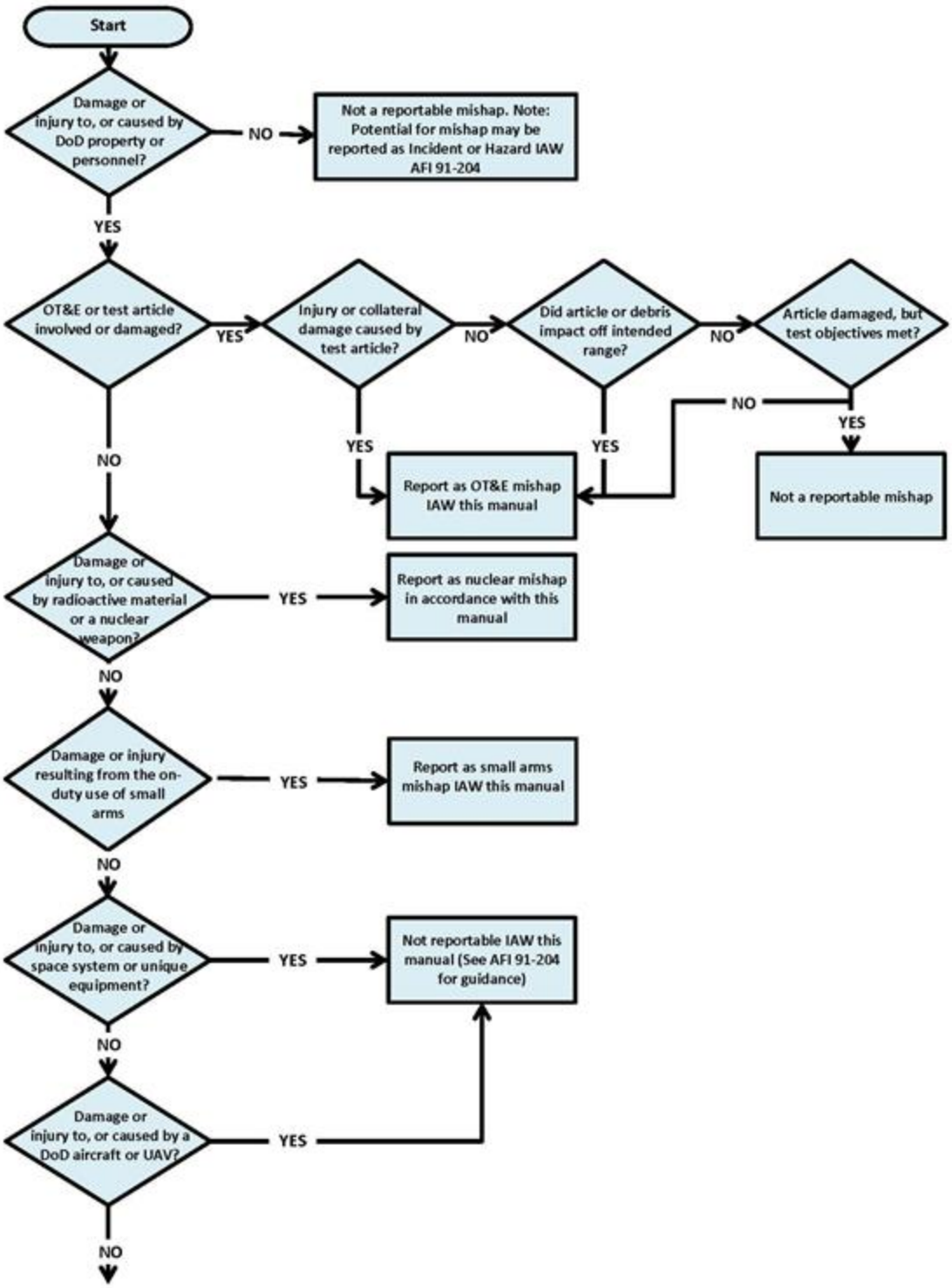
1.6.5. Intentional Functioning. If a weapon or explosive was intentionally functioned, do not include the cost of the item. **(T-1)**. For test missions where recovery was expected, but not accomplished, include the cost of these items to determine classification, unless test objectives were met or the risk of non-recovery had been anticipated and accepted. **(T-1).**

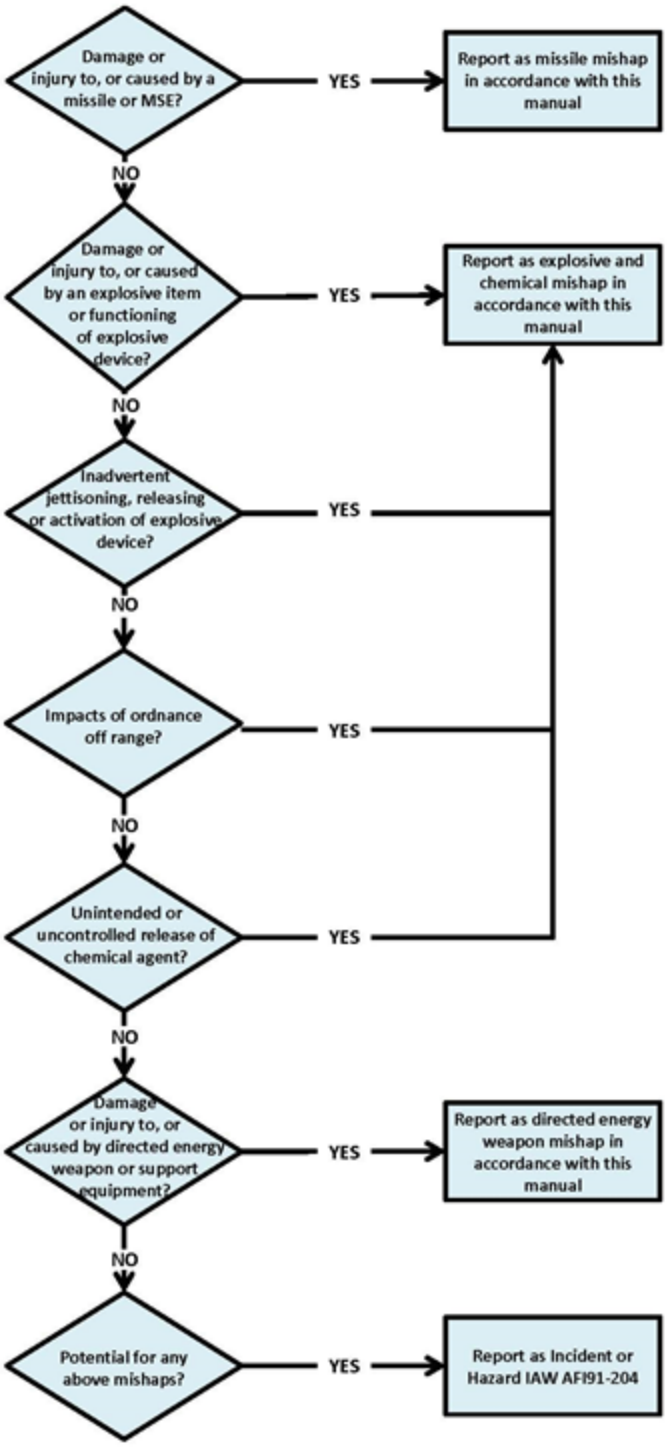
1.6.6. Parachute-recovered weapons. Include the repair/replacement costs of all components where recovery was expected, but not accomplished, related to abnormal events or clearly excessive damage. **(T-1)**. Abnormal events include torn parachutes, late recovery initiation, failure of a parachute to blossom or release, high winds, etc. Excessive damage includes buckling of the main fuselage, fire at impact, destruction of the payload section, etc. The cost of expected damage to parachute-recovered weapons resulting solely from surface impact during an otherwise normal recovery sequence is an operational expense and not reportable. Do not include cost of recovery since recovery is normally a mission objective for recoverable weapons. **(T-1)**.

1.7. Privileged Safety Information. Follow guidance listed in AFI 91-204. There is no additional guidance specific to this manual.

1.8. Determining Investigative Responsibility. Follow guidance listed in AFI 91-204. There is no additional guidance specific to this manual.

Figure 1.1. Reportable Mishap Flow Chart.




Damage or injury to, or caused by a missile or MSE?
YES
Report as missile mishap in accordance with this manual
NO
Damage or injury to, or caused by an explosive item or functioning of explosive device?
YES
Report as explosive and chemical mishap in accordance with this manual
NO
Inadvertent jettisoning, releasing or activation of explosive device?
YES
NO
Impacts of ordnance off range?
YES
NO
Unintended or uncontrolled release of chemical agent?
YES
NO
Damage or injury to, or caused by directed energy weapon or support equipment?
YES
Report as directed energy weapon mishap in accordance with this manual
NO
Potential for any above mishaps?
YES
Report as Incident or Hazard IAW AFI91-204

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. General Information. In addition to the responsibilities outlined in AFI 91-204, the following responsibilities apply when conducting a weapons safety investigation and report.

2.2. Safety Investigation Personnel.

2.2.1. Primary Members. Primary Safety Investigation Board (SIB) members determine findings, causes, and recommendations, and are authorized to submit a minority report. Primary members are the only SIB members authorized to sign the Authentication Page of Exhibit T.

2.2.1.1. Board President (BP). The BP is in charge of the SIB, is the final decision authority, and reports directly to the Convening Authority (CA). The SIB BP should coordinate site access requirements directly with the Incident Commander or Recovery Operations Chief. The BP will not assume the role of Incident Commander/Recovery Operations Chief at any point during the investigation.

2.2.1.2. Investigating Officer (IO). The IO is responsible for daily SIB activities, the investigation, and preparing of reports and messages. The IO directs and coordinates activities of other board members and works with the AFSEC Representative (if assigned).

2.2.1.3. Single Investigating Officer (SIO). The SIO is responsible for the investigation and preparing of reports and messages. The SIO is responsible for determining factors, findings, causes, and recommendations (as applicable), including influence and effects of human factors.

2.2.1.4. Air Force Safety Center (AFSEC) Representative. The AFSEC representative acts as the investigation process expert to guide SIB procedures and analysis efforts. An AFSEC Representative that is assigned to and is on-site with the SIB is considered a primary member. AFSEC representatives that support a SIB telephonically are not primary members but are considered required consultants to the SIB. If appointed, the AFSEC representative (or AFSEC telephonic advisor in the absence of an on-site representative) should be the single point of contact with AFSEC for the duration of the investigation.

2.2.1.5. Weapon Operations Officer. The weapon operations officer analyzes operations factors, to include: qualifications, proficiency, training, communications, crew actions throughout mishap sequence, mission-specific concerns, performance data, all operations-related publications, and crew stressors.

2.2.1.6. Maintenance Member. The maintenance member analyzes maintenance factors, to include: pre-mishap status of mishap weapon, weapon systems, records, and maintenance personnel qualifications, proficiency, and training. The maintenance member also evaluates depot and quality assurance actions, as well as possible design or engineering deficiencies.

2.2.1.7. Medical Officer. The medical officer analyzes medical data to evaluate medical histories, records, laboratory, radiologic, and pathology reports; and determines the cause(s) and mechanisms of injuries or death. The medical officer may be assisted by a separate human factors member.

2.2.2. Conditional Members. SIB BPs may request these members from the CA depending on the circumstances of the mishap as either primary or secondary members. The CA will be responsible to source these members and ensure they are properly categorized on the Board orders. If their area of expertise relates to a factor that was integrally involved in initiating or sustaining the mishap sequence, these individuals are accorded primary member status.

2.2.2.1. Human Factors Member. If the SIB suspects significant, complex human factors issues were present in the mishap, a human factors member should be assigned to the SIB as a primary member. Human factors members include, but are not limited to, aerospace physiologists, aviation psychologists, pilot physicians, human factors engineers, aerospace medicine specialists or flight surgeon.

2.2.2.2. Air Force Operational Test and Evaluation Center (AFOTEC) Representative. Assign this member anytime AFOTEC personnel or equipment, or AFOTEC-managed test, assessment, or evaluation procedures are involved. Other test organizations may take part in investigations and send a representative when they have test responsibilities.

2.2.2.3. Weather Member. Assign this member when weather or meteorological service issues are suspected factors in the mishap.

2.2.2.4. Weapons Safety Manager/Expert. Assign this member when weapons or associated weapon systems are suspected factors in the mishap.

2.2.2.5. Nuclear Expert/Health Physicist. Assign this member if radiation exposure has occurred, or if radioactive sources are involved.

2.2.2.6. Civil Engineering Environmental Representative. Assign this member to analyze data and reports to determine environmental impacts and clean-up estimates.

2.2.2.7. Crash Fire & Rescue Member. Assign this member if crash fire & rescue response, actions, or failures were suspected to have played a major role or contributed significantly to the extent of damage or injuries.

2.2.2.8. Security Forces Member. Assign this member if security response, actions, or failures were suspected to have played a major role or contributed significantly to the mishap.

2.2.2.9. Vehicle Maintenance Officer. Assign this member if vehicle operations or maintenance actions were suspected to have played a major role or contributed significantly to the mishap.

2.2.2.10. Defense Contracting Management Agency Member. Assign this member if contract maintenance and operations are involved and government oversight and contractor actions may be factors in the mishap.

2.2.2.11. Department of Energy Representative. Assign this member if DoD agreements with the Department of Energy apply for the weapon system involved.

2.2.2.12. Munitions/Explosives Representative. Assign a qualified maintenance officer with munitions experience, Explosive Ordnance Disposal officer or non-commissioned officer (NCO), or nuclear safety officer to assist with munitions/explosives analysis.

2.2.2.13. Other Service Representatives (US Navy, Army, Marine Corps, and Coast Guard). Assign this member when systems/equipment, facilities, materiel, or personnel

were involved and that service elects to participate in the investigation. The non-AF members will actively participate in the investigation and aid in report preparation under the provisions of AF 91-series guidance. The CA determines whether they are accorded primary member status in accordance with any inter-service agreements. Depending upon the extent of involvement, other services may provide a qualified investigator to serve as an assistant IO on the SIB.

2.2.2.14. Additional Representatives. Include additional representatives from other federal agencies to serve as advisors or consults, if appropriate.

2.2.3. Secondary Members. Secondary members assist the SIB in mishap investigation and reporting. The BP determines the extent of their participation. They are not authorized to submit a minority report and do not sign the authentication page of the Exhibit T. Any additional member subordinate to a primary member will be designated as a secondary member and will not be a primary member (i.e., if there are two technical engineering members, one will be primary and one will be secondary). If the BP determines a conditional primary member's area of expertise is not a factor in the mishap but that member's expertise is still needed, then this member serves as a secondary member.

2.2.3.1. Recorder. An officer or NCO familiar with administrative procedures and experienced in the use of typical office computer software. The recorder manages the work center, control access, filing and security. The recorder also assists with report preparation and distribution.

2.2.3.2. Technical Engineering Member. If an investigation requires a significant level of technical expert involvement, as defined by the CA, a member should be assigned to lead these efforts. This member must have a technical background compatible with the technical nature of the investigation.

2.2.3.3. Technical Assistance Members. These members can be from various technical backgrounds and training levels to include contractor safety/technical personnel. If a technical engineering member is appointed, he or she is the lead for the technical assistance members.

2.2.3.4. Commander's Representative. The SIB BP may request a representative from the commander whose assets were involved in the mishap, subject to CA approval. The commander who owns those assets may also request to have a representative on the board. The commander's representative's role is limited to providing basic information to the SIB regarding operational and organizational details and practices to help the SIB determine who to interview, mishap organization hierarchy, etc. This individual is considered the expert on local procedures, local command relationships, organizational structure, and unit personalities. The presence of the commander's representative on a SIB will not substitute for interviews with mishap principals. The commander's representative is strictly prohibited from providing any information regarding the SIB investigation to anyone outside the SIB, including his/her commander or chain of command.

2.2.3.5. Program Office Representative. If a Class A or B mishap involves a system where engineering control resides with a Program Office, (e.g., the Program Office owns the system TOs) the Program Office must be represented on the SIB in order to be able to provide relevant and meaningful inputs as required by DoDI 5000.02, *Operation of the*

Adaptive Acquisition System, DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, and AFI 91-204.

2.2.3.6. Cyberspace Member. If there is a possibility that cyberspace systems were involved in the mishap, an expert in this area may be requested to support the investigation.

2.2.3.7. Additional Personnel. Personnel determined by AF Chief of Safety (AF/SE) to be necessary and appropriate under cooperative agreements.

2.2.3.8. Administrative Specialists. NCOs or airmen that assist the SIB with administrative tasks such as building safety report exhibits, transcribing interviews, answering phones, or filing.

Chapter 3

SAFETY INVESTIGATIONS

3.1. General Information. Conduct the safety investigation using a SIB or a SIO. Follow guidance listed in AFI 91-204 with the addition of the minimum safety investigation membership requirements that are established in **Table 3.1** of this manual.

3.2. Safety Investigation Personnel Requirements.

3.2.1. The BP or SIO are as follows:

3.2.1.1. Must meet minimum rank requirements.

3.2.1.1.1. For Class A mishaps, the BP must be a Colonel (O-6), GS-15 or higher rank. **(T-1)**.

3.2.1.1.2. For Class B mishaps, the BP must be a Lieutenant Colonel (O-5), GS-14 or higher rank. The SIO must be a GS-11 (0017 or 0018) or higher, or a 7-skill level or higher. **(T-1)**.

3.2.1.1.3. For all other class mishaps, the BP/SIO will be a safety NCO, civilian, or officer. **(T-1)**.

3.2.1.2. Must meet training requirements.

3.2.1.2.1. For Class A and B mishaps, the BP must be a graduate of the AFSEC Board President Course. The SIO must be a graduate of the Mishap Investigation Non-Aviation course. **(T-1)**.

3.2.1.2.1.1. Contact the AFSEC Training Management Branch (AFSEC/SETM) at **afsec.setm@us.af.mil** for course schedules and locations.

3.2.1.2.1.2. Contact AFSEC/SEW for exceptions to the course requirements.

3.2.1.2.2. For Class C, D and E mishaps, experience in the weapon system and safety mishap investigation training is preferred.

3.2.1.3. Must be independent from the organization. **(T-1)**.

3.2.1.3.1. For Class A mishaps, the BP/SIO must be appointed from outside the wing (or equivalent organization) experiencing the mishap, and must neither be attached to the mishap organization nor anticipating an assignment to the mishap organization within the next six months. **(T-1)**.

3.2.1.3.2. For Class B mishaps, the BP/SIO must be appointed from outside the mishap unit. **(T-1)**.

3.2.2. Requirements for the IO are as follows:

3.2.2.1. Must have experience with the weapon system. **(T-1)**.

3.2.2.2. Must be a graduate of the Mishap Investigation Non-Aviation course. **(T-1)**.

3.2.2.2.1. Contact AFSEC/SETM at **afsec.setm@us.af.mil** for course schedules and locations.

3.2.2.2.2. Contact AFSEC/SEW for exceptions to the course requirements.

3.2.2.3. Must be independent from the organization. **(T-1)**.

3.2.2.3.1. For Class A mishaps, the IO will not be assigned to the wing (or equivalent organization) experiencing the mishap. **(T-1)**.

3.2.2.3.2. For all other Class mishaps, the IO will not be assigned to the mishap unit. **(T-1)**.

3.2.3. Requirements for the weapon operations officer are as follows:

3.2.3.1. Must be qualified in the operational use of the weapon system. **(T-1)**.

3.2.3.2. Must be independent from the organization. **(T-1)**.

3.2.3.2.1. For Class A mishaps, the weapon operations officer will not be assigned to the wing (or equivalent organization) experiencing the mishap. **(T-1)**.

3.2.3.2.2. For all other class mishaps, the weapon operations officer will not be assigned to the mishap unit. **(T-1)**.

3.2.4. Requirements for the maintenance member are as follows:

3.2.4.1. Must be a fully qualified maintenance officer, civilian equivalent, or senior NCO, with maintenance experience on the type weapon system involved. **(T-1)**.

3.2.4.2. Must be independent from the organization. **(T-1)**.

3.2.4.2.1. For Class A mishaps, the maintenance member must not be assigned to the wing (or equivalent organization) that experienced the mishap. **(T-1)**.

3.2.4.2.2. For all other class mishaps, the maintenance member will not be assigned to the mishap unit. **(T-1)**.

Table 3.1. Minimum Safety Investigation Membership Requirements.

MISHAP	MINIMUM REQUIREMENTS
Class A	Board President AFSEC Representative Investigating Officer Weapon Operations Officer Maintenance Member Medical Officer (see note 2) Technical Expert on item involved Other members as required (see note 3)
Class B	Board President / Single Investigation Officer (see note 1) Investigating Officer Other members as required (see note 3)
Class C, D and E	Single Investigation Officer

Notes:
1. Investigation can be conducted using a SIB or SIO.
2. Required when investigation involves a fatality, otherwise the requirement is optional.
3. For mishaps that involve certain focus areas (e.g., human factors, crash fire & rescue, Program Office engineering control, test representative), assign primary members experienced/qualified in that focus area in order to thoroughly investigate the mishap.

3.3. Operational Test and Evaluation (OT&E) Mishaps.

3.3.1. Mishaps involving weapon test articles undergoing Operational Test and Evaluation (OT&E) will be reported per this manual. If test objectives were met, a mishap report is NOT required. Test mishaps may be investigated using a SIB, a Launch Analysis Group (LAG) or an Air-Launched Missile Analysis Group (ALMAG). LAG investigations will be handled in accordance with MAJCOM guidance. ALMAG investigations will be handled in accordance with AFMAN 99-151, *Air-Launched Munitions Analysis Group*. The report class will be determined in accordance with AFI 91-204 classification guidance for the direct cost of the loss incurred.

3.3.1.1. The CA will determine if OT&E mishaps may be reported via LAG or ALMAG based upon the following:

3.3.1.1.1. The weapon, system energy, or its debris does not impact outside the predicted impact limit parameters.

3.3.1.1.2. The mishap does not result in collateral (secondary and unintended) damage or injury.

3.3.1.1.3. The responsible agency fully investigates the mishap to determine causes and recommended corrective actions.

3.3.1.1.4. The CA does not have a reason to believe that there is a conflict of interest with the ALMAG or LAG conducting the investigation.

3.3.2. The ALMAG/LAG report may replace the safety report; however, all safety message reports (per Table A2.1) are required. Classify mishaps per AFI 91-204.

3.3.3. The ALMAG/LAG investigators may not offer promises of confidentiality. If confidentiality is required to determine the cause(s) of a mishap, a SIB must be convened under AFI 91-204 and a safety report issued. **(T-1)**.

3.4. Obtaining and Using Technical Assistance. If technical assistance is required to conduct the safety investigation, the SIB should request technical assistance through the CA. The CA then contacts AFSEC/SEW who will answer directly to the SIB.

Chapter 4

REPORTS AND BRIEFINGS

4.1. General.

4.1.1. In addition to the requirements of this chapter, nuclear accidents, incidents, and deficiencies will require the submission of a nuclear flagword report and associated mishap class A-E, if injury or damage occurs. Follow guidance listed in AFI 91-204, with the following additions.

4.1.2. Report submission schedule. Use **Table A2.1** through **Table A2.3** to determine report submission schedule. Reports required by these tables are in addition to any operational reporting requirements that may be outlined in AFMAN 10-206. **(T-1)**.

4.1.3. When weapons involved in a mishap are common to other services, ensure other service safety agencies are notified. **(T-1)**.

4.1.4. Use the following examples for writing subject line of weapons reports, or if AFSAS cannot be accessed:

4.1.4.1. CLASS B, GUIDED MISSILE, 19980307ZQKL003B.

4.1.4.2. CLASS C, EXPLOSIVES AND CHEMICAL AGENTS, EXPLOSIVE, 19991225ZQKL123C.

4.1.4.3. CLASS D, EXPLOSIVES AND CHEMICAL AGENTS, EXPLOSIVE, 19981122ZQKL005D.

4.1.4.4. CLASS E, NUCLEAR, NUCLEAR WEAPON, 19990927FTFA005E.

4.1.5. Reports will be closed by the originator. **(T-1)**.

4.2. Multiple Categories.

4.2.1. When reporting multiple categories, refer to appropriate manuals that implement AFI 91-204 to provide all required information, and include necessary addressees in the reports.

4.2.2. The objectives for reporting weapons deficiencies are to prevent accidents and incidents, minimize their effects if they should occur, and reduce the occurrence of safety deficiencies. The requirement for reporting nuclear weapon system safety deficiencies supports the objectives of AFI 91-101, *Air Force Nuclear Weapons Surety Program*. The requirements for reporting radiological safety deficiencies support the objectives of AFMAN 40-201, *Radioactive Materials Management*.

4.2.3. While the results of safety investigations play a direct role in the mishap prevention process, the indiscriminate use of statistical comparisons between units can jeopardize accurate reporting and are inappropriate due to the rare nature of mishaps. Do NOT make statistical comparisons of different commands or units using mishap reports as a source. **(T- 1)**.

4.2.4. Because the criteria for the submission of safety deficiency reports are so broad, comparing nuclear safety statistics between commands and operating units may NOT provide accurate trend information for managerial analysis. Use safety deficiency reports only to identify potential problems and corrective measures. Do NOT publish statistical comparisons of different commands or units using safety deficiency reports as a source. **(T- 1)**.

4.3. Preparing safety reports for weapons mishaps.

4.3.1. Safety reporting will be through the AFSAS website. If AFSAS is not available, units will report in accordance with AFI 91-204.

4.3.1.1. For nuclear investigations, only unclassified DULL SWORD nuclear deficiencies will be reported in AFSAS. **(T-1)**.

4.3.1.2. Classified nuclear accidents, incidents and deficiencies will be submitted via SECRET Internet Protocol Network (SIPRNet) or other secure means. **(T-1)**.

4.3.2. MAJCOMs may supplement their addressees to include any internal organizations with a need-to-know. They may use addressee indicator groups to add addressees, within the command, as recipients of selected safety reports. Do not include addressees outside of MAJCOM addressee indicator group listings. Do not use an address list for reports that contain little or no information of worldwide mishap prevention potential. Use routine handling procedures for address list addressees.

4.3.3. Send reports conveying significant safety information peculiar to the nuclear weapon system to other Air Force MAJCOMs possessing like systems.

4.4. Preliminary Message.

4.4.1. Guidance in AFI 91-204 should be followed for transmitting preliminary messages. For Class A and B on-duty mishaps, send a fully releasable preliminary message within 24 hours (**Table A2.1**). **(T-1)**.

4.4.2. A narrative description should be included describing what happened (but not why), stating the best and most complete information available in simple and direct terms. Reports should not be delayed for lack of information. If complete data is not available, it should be provided it in a status report.

4.5. Status Message:

4.5.1. Follow guidance in AFI 91-204. Status messages may be sent at any time to update information prior to final message when awaiting results from deficiency reports, analyses, toxicology tests, etc. The purpose is to relay the status of the mishap investigation and any new information discovered since the initial status report. Findings, causes, and recommendations may be made in a status report if a delay is anticipated in receiving results and the investigator believes that enough information is available to reach a conclusion. In this case, a status report should be issued no later than 30 days after the mishap with as much information as is known. A final message should be published when the results are known and revise the status report's findings, causes, and recommendations if required.

4.5.2. If new information is found and the information makes significant changes to the final message, a message should be sent updating findings, causes, or recommendations.

4.6. Final Message.

4.6.1. Follow guidance in AFI 91-204. Complete the investigation and prepare the final message within the specified time limits. **(T-1)**. The CA will release the final message, unless this responsibility is delegated to the SIB or single investigator. **(T-1)**.

4.6.2. The principles for writing the narrative portion of the final message are the same as for the safety report below.

4.7. Incidents and Hazards.

4.7.1. Incident and hazard reports provide information on events and trends that do not meet Class A-E reporting, but have the potential to do so. Incident and hazard reports that have the potential to create a reportable mishap should be reported in accordance with this manual (See **Figure 1.1** and **Table A2.1**) and AFI 91-204 incident and hazard reporting.

4.7.2. If an incident or hazard event involves materiel failure, malfunction, or design deficiency, the program manager forwards corrective action taken or contemplated to AFSEC/SEW, Air Force Materiel Command Chief of Safety, and the investigating MAJCOM by message within 60 days following the date of the associated deficiency report or combined mishap deficiency report. Replies to deficiency reports by the agency with engineering responsibility suffice for the Air Logistics Complex action message if the incident or hazard event number is included.

4.8. Safety Reports.

4.8.1. All privileged safety reports have three parts: Part 1, Factual Information and Releasable Material; Part 2, Board Conclusions and Non-Releasable Material; and Part 3, Other Material. Follow-up actions will be placed in supplemental status messages.

4.8.2. Authenticating Safety Reports. Type each primary SIB member's name, grade, and position on the last page of the exhibit containing board analysis and conclusions. Have each concurring member, including primary members from other services on joint investigations, sign above it for authentication of the report or for any changes to the report. If the SIB report needs to be changed after it is completed and signed by the board, all primary members of the SIB shall be physically reconvened.

4.8.3. Controlling the Safety Report. Once the SIB completes the investigation and finalizes the hard copy report, the SIB will send all copies of the safety report to the CA. **(T-1).** The CA safety office will control all hard copies of the report until the CA is briefed on the results of the investigation. **(T-1)**. Upon approval for release, the MAJCOM safety office will control the distribution of the report. **(T-1)**. MAJCOMs may set up different procedures to speed up the distribution process. These procedures should be published in the MAJCOM Supplement.

4.8.4. Forwarding Safety Reports.

4.8.4.1. The memorandum of transmittal (located on AFSEC Portal) should list all addressees receiving copies of (or extracts from or attachments to) the report. Number and account for all copies of privileged reports by listing each addressee, including office symbol and copy number, in the "Distribution List" attachment to the memorandum of transmittal (for example, ACC/SE, Harbor Center, 2 Eaton Street, Suite 402, Hampton VA 23669, copy 4 of 20). The memorandum of transmittal goes before all exhibits in Part 1 of the report. Include a statement signed by the SIB president, certifying the number of copies of the report listed are the only copies of the SIB report produced. **(T-1)**.

4.8.4.2. Distribution of privileged reports is restricted to those with a need to know in the Air Force or unified commands. Do not provide copies or extracts to agencies outside the Air Force or unified commands. **(T-1)**. If an outside agency needs a copy of the safety

report for corrective actions or has statutory jurisdiction, request and secure authorization from AFSEC Judge Advocate (AFSEC/JA) by message or memorandum before sending copies to these organizations.

4.8.4.3. AFSEC or MAJCOMs may require additional copies to be sent to their headquarters to aid in staffing the report. After completing the command endorsement, MAJCOMs must destroy all but the file copy. **(T-1)**.

4.8.4.4. Copies of the safety report should be sent to all Air Force agencies or organizations tasked in the recommendations. If investigators conclude action needs to be taken by an agency outside the CA's command, but cannot specifically identify where it must be accomplished, the CA's safety office will:

4.8.4.4.1. Locate the responsible agency and provide the IO with a point of contact, or

4.8.4.4.2. Accept initial responsibility for the action by being tasked as OPR in the safety report. **(T-1)**. In this case, the CA's safety office should ensure an extra copy of the safety report is prepared and available for forwarding when the appropriate action agency and point of contact are determined.

4.8.4.5. If a Secretariat level or Air Staff office is the action agency for a validated recommendation, the MAJCOM safety office will forward a copy of the report to that agency and an informational copy to the Issues Division, Office of the Chief of Safety (AF/SEI). **(T-1)**. MAJCOM safety offices will also forward reports directly to Field Operating Agencies (FOAs) or Direct Reporting Units (DRUs). **(T-1)**.

4.8.4.6. AFSEC may request extra copies of reports for distribution to other agencies. Send these copies to AFSEC/JA who will provide them to the proper agency.

4.8.4.7. Do not produce "information only" copies of safety reports. **(T-1)**.

4.8.4.8. The SIB president may keep a complete copy of the safety report (for briefing purposes) for 60 days. List this copy on the memorandum of transmittal and return it to the MAJCOM safety office for disposition.

4.8.4.9. The CA may retain reports according to AFI 33-364, *Records Disposition—Procedures and Responsibilities*. AFSEC/JA must approve retention of these reports for other than the CA.

4.8.4.9.1. Wing-level units or below destroy safety reports upon receipt of the *Memorandum of Final Evaluation* (MOFE) or letter of administrative closure. **(T-1)**.

4.8.4.9.2. Numbered Air Forces and above destroy safety reports upon final close-out of recommendations and when no longer needed for mishap prevention purposes.

4.9. Classified Safety Reporting.

4.9.1. Classified reports will follow unclassified report schedules and will be submitted via SIPRNet to AFSEC/SEW (**usaf.kirtland.afsec.mbx.hq-afsec-sew-organizational-mailbox@mail.smil.mil**). **(T-1)**.

4.9.2. Format templates for classified messages and reports are available via SIPRNet at **http://intelshare.intelink.sgov.gov/sites/afsec/SEWN/SitePages/Home.aspx**

(AFSEC/SEW's SIPRNet sharepoint® site). Submit access requests via email to AFSEC/SEWN. Requests must include users name, organization and justification for access.

4.9.3. Ensure all classified messages and reports are properly marked in accordance with AFI 16-1404*, Air Force Information Security Program*.

4.9.4. Classified safety reports will be available for, or distributed to appropriate agencies for review and implementation of corrective actions.

4.9.4.1. The CA has responsibility to distribute the safety report. Safety reports will be distributed to AF/SE, AF/A3/A4/A10, AFSEC/SEW, affected MAJCOM commander and the United States Strategic Command's Command Center, at a minimum. Contact AFSEC/SEW for additional agencies requiring a copy of the safety report.

4.9.4.2. Classified DULL SWORD reports are available via AFSEC/SEW's SIPRNet sharepoint® site. Create a report number in AFSAS as a placeholder for any classified DULL SWORD report.

4.10. Assembling Safety Mishap Reports.

4.10.1. Prepare safety reports according to this instruction and AFI 91-204. Additional guidance on report format and access to report templates are available in AFSAS under "Pubs and Refs."

4.10.2. With the exception of nuclear flagword reports, the report will be assembled from various exhibits that the SIB or SIO uploads into AFSAS. Each exhibit will be a single .pdf file containing all the information for that exhibit. Exceptions to the single .pdf file format are:

4.10.2.1. Exhibit L, as it may contain digital data files.

4.10.2.2. Exhibit S (non-privileged) and Exhibit X (privileged), as they may contain pertinent videos and/or final versions of animations.

4.10.2.3. Exhibit U, as it will contain the complete audio/video files for pertinent interviews that are partially transcribed.

4.10.3. Prepare safety reports according to this instruction and AFI 91-204, use continuation pages, if needed.

4.10.4. Ensure documents are marked with appropriate warnings in accordance with AFI 91-204.

4.10.4.1. Place a footer on each page in Part 2 of privileged safety reports using the Privileged Warning Statement (located at AFSEC Portal).

4.10.4.2. Place the appropriate statement in the footer on each page for all exhibits containing "FOR OFFICIAL USE ONLY."

4.10.4.3. Do not stamp unclassified pages in Part 1 that have no privileged information with markings indicating special handling requirements or identifying them as "FOR OFFICIAL USE ONLY."

4.11. Safety Report Part 1—Factual Information and Releasable Material:

4.11.1. EXHIBIT A: Safety Investigator Information.

4.11.1.1. Include one copy of the orders appointing the SIB or SIO. The orders must contain the SIB position, full name, rank/grade, organization, assigned base, and whether they are a primary or secondary for each appointed person. Do not include administrative specialists or SIB observers on SIB orders.

4.11.1.2. Include contact information for SIB members and all technical advisors who participated in the SIB. Use "permanent" rather than temporary duty (TDY) contact information.

4.11.1.3. The SIB President/SIO is responsible for the release of all information (including electronic/digital media, photographs, etc.) from the safety investigation. SIB Presidents/SIOs will ensure everyone working on their team is briefed on the restriction that all information, privileged or not, collected by safety investigators is not releasable outside safety channels except in accordance with this instruction or upon approval of the CA. Every member of a SIB will sign the *Memorandum Documenting Guidance to Investigators on Controlling Information* (located on AFSEC Portal), acknowledging the guidance and restrictions. Additionally, include non-disclosure agreements for all technical advisors or additional members that do not sign the memorandum (located on AFSEC Portal).

4.11.1.4. The IO and recorder complete Exhibit A.

4.11.2. EXHIBIT B: NOT USED.

4.11.3. EXHIBIT C: NOT USED.

4.11.4. EXHIBIT D: Maintenance Reports, Records, and Data.

4.11.4.1. Place any maintenance data pertaining to the weapon, explosive, or radiological material involved.

4.11.4.2. The maintenance member completes Exhibit B.

4.11.5. EXHIBIT E: NOT USED.

4.11.6. EXHIBIT F: Weather and Environmental Records and Data. Use, if contributed to mishap.

4.11.6.1. Include weather briefings provided to personnel involved. If available, include a copy of the actual weather briefing given.

4.11.6.2. Include actual weather observations and conditions for the event. Include weather radar data, automated terminal information system, and other appropriate weather data if available.

4.11.6.3. The weapon operations officer or weather member completes Exhibit F.

4.11.7. EXHIBIT G: Personnel Records. Use for maintenance personnel and training records, quality assurance reports, and evaluations.

4.11.7.1. Include maintenance personnel training records and quality assurance reports, if maintenance was a factor in the mishap.

4.11.7.2. Include other personnel evaluation and training records, if they were factors in the mishap.

4.11.7.3. The weapons operations officer and/or maintenance member completes Exhibit G as applicable.

4.11.8. EXHIBIT H: Egress, Aircrew Flight Equipment, Impact, and Crashworthiness Analysis. Exhibit H is currently not used for weapons mishap investigations.

4.11.9. EXHIBIT I: Deficiency Reports.

4.11.9.1. Include all deficiency reports or equivalent submitted in conjunction with the mishap investigation.

4.11.9.2. Include a copy of the submitted deficiency report containing the following information: report control number, cognizant official, name of part (nomenclature), and part number.

4.11.9.3. The maintenance member completes Exhibit I.

4.11.10. EXHIBIT J: Releasable Technical Reports and Engineering Evaluations.

4.11.10.1. Reports in Exhibit J are factual and should detail observations (what parts are bent, broken, or burned, etc.), analysis (how it happened, and whether it happened before, during, or after the mishap), conclusions (effect on system function, etc.), and recommendations (methods to prevent the observed condition from re-occurring, etc.). Analysis, conclusions, and recommendations will be based on physical evidence, other factual data, and statements made without a promise of confidentiality.

4.11.10.1.1. Written reports and on-scene evaluations submitted by DoD personnel will be included in Exibit J. Do not provide a promise of confidentiality to DoD personnel, but obtain their signature on the *Safety Investigation Non-Disclosure Agreement* (located on AFSEC Portal) which is kept on file with the SIB.

4.11.10.1.2. Factual reports or information provided by a contractor, which the contractor's representative has determined does not require the promise of confidentiality, are placed in Exhibit J. The SIB will ensure they sign the *Memorandum for Contractor Representatives Serving as Technical Experts to Safety Investigations* (located on AFSEC Portal) and it is on file with the SIB.

4.11.10.1.3. SIBs/SIOs should make every effort to have their technical experts (government or contractor) write a non-privileged report for Exhibit J. Technical experts are often included in all SIB proceedings and have access or exposure to privileged information during the investigation; therefore, SIBs/SIOs must thoroughly review Exhibit J reports to ensure they do not contain and are not based upon privileged information.

4.11.10.2. Analysis that includes or was based on privileged information (e.g., privileged witness testimony, board deliberations) or includes speculative opinion of the mishap cause by the technical expert is considered privileged and will be placed as an addendum in Exhibit W. The SIB will determine what caused the mishap, and that will appear in Exhibit T.

4.11.10.3. The IO and maintenance member completes this Exhibit J.

4.11.11. EXHIBIT K: Mission Records and Data.

4.11.11.1. Include all mission records, data, forms and work orders associated with the mishap item.

4.11.11.2. In the event private property is damaged, the IO will draft a statement indicating the type of property damage involved (e.g., 20' x 30' x 15' deep crater in NW corner of property, 5 acres of grasslands destroyed). The statement will not contain damage cost estimates, but only describe the damage incurred. Additionally, do not state the cause of the property damage (e.g., 5 acres of grassland destroyed by post impact fire). Statement should be no more than a brief description of the type and extent of damage to civilian personnel and property.

4.11.11.3. The weapon operations officer and/or maintenance member completes Exhibit K.

4.11.12. EXHIBIT L: Factual Parametric, Audio, and Video Data from On-Board Recorders. Exhibit Lis currently not used for weapons mishap investigations.

4.11.13. EXHIBIT M: Data from Ground Radar and Other Sources. Exhibit M is currently not used for weapons mishap investigations.

4.11.14. EXHIBIT N: Transcripts of Voice Communications. These are written transcripts of recorded voice communications that aid the investigation. Because these transcripts are factual data, they often provide a basis for information in the factual summary of circumstances.

4.11.14.1. Include available Command and Control transcripts. Transcripts of tapes from command posts and other command and control agencies may aid the investigation; however, do not include any material that was discussed, transmitted, or received via secure means.

4.11.14.2. Include other available transcripts (e.g., security forces, maintenance, civilian police/rescue forces).

4.11.14.3. The IO completes Exhibit N.

4.11.15. EXHIBIT O: Any Additional Substantiating Data and Reports.

4.11.15.1. Provide a listing of the documents, publications or records reviewed by the SIB and their effective dates. They can include local operating instructions, AFIs, TOs, Time Compliance Technical Orders, work packages, directives, approach and landing charts, and other forms as applicable. Do not mark, highlight, or extract a particular page, as those will be included in Exhibit V as appropriate.

4.11.15.2. The IO completes this Exhibit O.

4.11.16. EXHIBIT P: Damage Summaries.

4.11.16.1. Environmental Clean-up Costs.

4.11.16.1.1. 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 nominal 30-day investigation timeframe. Use the best estimate available at the time of the final message.

4.11.16.1.2. Environmental clean-up costs include actual clean-up cost, environmental decontamination, and restoration of private and/or government property.

4.11.16.2. Non-DoD Property Damage Costs.

4.11.16.2.1. Provide brief description of non-DoD property damage, but do not include estimated costs in Exhibit P. Include cost estimates in AFSAS only. Determine estimated non-DoD property damage costs using official estimates such as security forces reports, civilian police reports, or logistics readiness offices.

4.11.16.2.2. Include a document titled, "Statement of Damage to Private Property." The document will identify potential claims and damages. To maintain flexibility, there is no set template for this document. Contact the local staff judge advocate office for assistance in preparing the statement.

4.11.16.3. Itemized DoD Property Damage Costs.

4.11.16.3.1. Include a certificate of damage that lists the total damage to all government property, materiel, and equipment. Reference AFI 91-204 for damage cost guidelines. Provide a detailed statement that includes acquisition, replacement, or repair costs (as applicable) for all property, materiel, or equipment damaged. Include nomenclature and national stock number if available. Do not include injury cost in the certificate of damage. This certificate is generated using costing data from the program office.

4.11.16.3.2. Only include direct costs when determining the cost of the mishap. Direct mishap costs only include property damage costs (DoD and non-DoD), associated repair labor costs, and environmental cleanup costs. Classify the mishap repair cost according to the total estimated repair cost in accordance with AFI 91-204. Do not include indirect costs related to the mishap (e.g., TDY costs of the SIB, costs of mishap site support personnel, "opportunity upgrades").

4.11.16.4. The maintenance member completes Exhibit P.

4.11.17. EXHIBIT Q: Accident Investigation Board (AIB) Transfer Documents. Provide transfer documents as applicable.

4.11.17.1. Include a memorandum from the SIB President to the AIB President regarding the location and disposition of all non-privileged evidence, wreckage, and components involved in the mishap sequence including items sent to an Air Logistics Complex or other locations for analysis and not returned to the SIB.

4.11.17.2. Include an evidence disposition list that includes the point of contact for the part and a phone number/email address.

4.11.17.3. Include a witness list that includes name, grade, role in the mishap, organizational address, duty phone, and date (of first interview).

4.11.17.4. For Class B mishaps, or Class A mishaps where no AIB is convened or the AIB President is not available, contact the CA staff judge advocate office for guidance on how to accomplish the transfer. Work through the CA safety office for contact information. The AIB will be responsible for final disposition of all material released to them by the SIB.

4.11.17.5. The IO and recorder completes Exhibit Q.

4.11.18. EXHIBIT R: Releasable Witness Testimony.

4.11.18.1. Place testimony from individuals and witnesses that were not granted a promise of confidentiality in Exhibit R. Pertinent recorded interviews placed in Exhibit R will be completely transcribed verbatim. Do not include audio recordings in Exhibit R.

4.11.18.1.1. For non-privileged interviews, whether written or recorded, all witnesses sign the *Non-Privileged Witness Statement* form (located on AFSEC Portal). This only needs to be accomplished once for recorded interviews, but must be done for ALL written statements whether it be initial or subsequent follow-up.

4.11.18.1.2. For recorded interviews, ensure all interviewees are read the *Notice to Witness that Recorded Statement is not Confidential* and it is recorded and transcribed. This must be done for ALL recorded interviews whether it be initial or subsequent follow-up.

4.11.18.1.3. It is not necessary to transcribe or publish all testimony. If the testimony does not provide any insight into the mishap, do not include it in Exhibit R, but provide it to the AIB. Place the statements and transcribed interviews from applicable witnesses together in chronological order starting with the first accomplished. The mishap participants are placed first followed by other witnesses.

4.11.18.2. Reference AFI 91-204 for guidance authorizing promises of confidentiality.

4.11.18.3. If applicable, place non-privileged 72-hour and 14-day histories to include non-privileged witness statements in Exhibit R.

4.11.18.4. The IO completes Exhibit R.

4.11.19. EXHIBIT S: Releasable Photographs, Videos, Diagrams, and Animations.

4.11.19.1. Releasable Photographs.

4.11.19.1.1. Include well-defined non-privileged photographs aiding in understanding the mishap (e.g., damage, impact areas, metal fractures, flight path, vehicle travel).

4.11.19.1.2. Do not include photographs of deceased personnel or unnecessary evidence of human injury (e.g., bloody vehicle parts) in the safety report. These photographs may be included in Exhibit Y if they support findings or recommendations. Medical pictures can be given to the AIB. If the SIB absolutely needs to disseminate an injury photo to illustrate the mishap, consider using a black and white photo if it will meet the needs of the investigation.

4.11.19.1.3. Label each image to aid reviewers; however, do not refer to privileged safety information on the page captions or in comments on an index. When investigators include privileged safety information on a transparent overlay, place the photograph with the overlay in Exhibit T and the photograph without the overlay in Exhibit S.

4.11.19.1.4. Staged photographs (e.g., pictures of models showing flight paths in a midair collision, assembling or reconstructing damaged parts or aligning parts to show fire patterns or impact marks, or depictions of cockpit indications for a given set of assumptions made by the SIB or described in witness testimony) are considered privileged if they are staged for the board’s analysis and will be placed at Exhibit X.

Pointing with a finger or other device at a portion of wreckage does not make the photograph staged.

4.11.19.2. Releasable Videos.

4.11.19.2.1. Releasable videos. Only upload non-privileged videos (e.g., videos shot by eye witnesses) relevant to the investigation (in accordance with **paragraph 4.10.2**) and make a reference in Exhibit S. Not all videos received by the SIB will be relevant.

4.11.19.2.2. List tapes or films on an index page and give the original to the AIB in accordance with AFI 51-307, *Aerospace and Ground Accident Investigations.*

4.11.19.2.3. All non-privileged videos will be handed over with other evidence to the AIB.

4.11.19.3. Releasable Diagrams.

4.11.19.3.1. Include only those diagrams that add to the report such as fallout, wreckage patterns, or impact areas. Exhibit S can be accomplished using Civil Engineering plots, aerial photographs, topographical maps, etc. Indicate direction with a northward pointing arrow on each diagram. If practical, indicate scale.

4.11.19.3.2. Ensure the diagrams do not depict the location of human remains. Such diagrams should be placed in Part 2, Exhibit Y2, to protect the privacy interests of a decedent's family.

4.11.19.3.3. Ensure diagrams are self-explanatory.

4.11.19.4. Releasable Animations. If applicable, include the final version of the non-privileged animation (in accordance with **paragraph 4.11.2**), and make a reference in Exhibit S.

4.11.19.5. The IO completes this Exhibit S.

4.12. Safety Report Part 2—Board Conclusions and Non-Releasable Material.

4.12.1. EXHIBIT T: Investigation, Analysis and Conclusions. This section comprises the most important part of the report; therefore, information in Exhibit T should draw from all portions of the report to not only provide a complete picture of what happened, but also provide a thorough analysis of all evidence and the findings, causes, and recommendations. This section also records the opinions of the SIB, and it either accepts or rejects all scenarios or theories in the report. Only in the case of a minority report are there differing findings, causes, or recommendations. Human factor recommendations related to causal findings will be included with the other SIB recommendations. Place all privileged status messages and the final Consolidated Mishap Report in Exhibit T. The IO, with contributions from all applicable SIB members, is responsible to complete Exhibit T. Reference AFI 91-204 for additional guidance for completing Exhibit T. The layout should be as follows:

4.12.1.1. EXHIBIT T1: Glossary of Terms and Acronyms.

4.12.1.2. EXHIBIT T2: Mishap Overview.

4.12.1.2.1. EXHIBIT T2.1: History of Mishap. The section is a narrative of the mishap sequence, in chronological order, of all pertinent events from briefing, ground

operations, maintenance, etc. Times of significant events should be integrated into the write-ups. The history explains what occurred, but not why.

4.12.1.2.2. EXHIBIT T2.2: SIB Conclusions. This section contains a brief summary of why the mishap occurred. Think of this as a "bottom line up front" paragraph(s). This section does not include detailed explanations, as those will be included in the appropriate factors sections of the Exhibit T. If human factors are issues in the mishap, be sure to include the name of the human factor and nano-code as defined by the DoD HFACS guide located in the AF Safety Automated System Pubs & Refs section.

4.12.1.3. EXHIBIT T3: Background Information. Provide background information and facts on the mishap crewmembers, maintenance personnel, leadership, or others that were factors in the mishap. In addition, detail should provide sufficient background to understand the condition of vehicle or equipment to include any significant events in its design, manufacture, procurement, maintenance, or overhaul.

4.12.1.4. EXHIBIT T4: Operations Areas investigated.

4.12.1.4.1. EXHIBIT T4.1: Investigative Sources of Data. Explain the sources of data used by the SIB to determine the operations factors in the mishap (e.g., interviews, training, mission preparation, technical assistance provided by contractors).

4.12.1.4.2. EXHIBIT T4.2: Description of Systems, Processes, Organizations. Describe in narrative format the normal operation of weapon systems, the process directly involved in the mishap, or the organizational structures as required. Provide detailed descriptions unusual operational environments involved in the mishap. This section will contain enough detail so the reader can understand the SIB's investigative processes.

4.12.1.4.3. EXHIBIT T4.3: Factors. Analyze the factors that influenced the mishap or its outcome. This section is written in narrative format. Each factor will be analyzed in a separate write-up. Topics presented should flow in order from what factors the SIB considered most important to least important in contributing to the mishap. In collaboration with the medical officer or human factors member (if applicable), integrate DoD HFACS nano-codes without definitions and discuss the applicable human factor in this section. Provide a detailed analysis and rationale of how human factors contributed to the factor under discussion.

4.12.1.4.4. EXHIBIT T4.5: Non-Factors.

4.12.1.5. EXHIBIT T5: Maintenance Areas Investigated. Subcategories in this section will mirror those described in **paragraph 4.12.1.4**.

4.12.1.6. EXHIBIT T6: Logistics Areas Investigated. Subcategories in this section will mirror those described in **paragraph 4.13.1.4**.

4.12.1.7. EXHIBIT T7: Non-Factors Worthy of Discussion (NFWOD).

4.12.1.7.1. If an issue contributed to the mishap, even minimally, it is a factor and should not be placed in this section.

4.12.1.7.2. Group NFWODs together by operations, maintenance, and logistics.

4.12.1.7.3. In collaboration with the medical officer or human factors member (if applicable), integrate DoD HFACS nano-codes without definitions and discuss the applicable human factor in the this section. Provide a detailed analysis and rationale of how human factors contributed to the NFWOD under discussion.

4.12.1.8. EXHIBIT T8: Findings and Causes.

4.12.1.8.1. This section is a chronological list of all the SIB's findings and causes. Ensure all findings and causes are supported by the investigation and analysis section.

4.12.1.8.2. Human factors related causes should include those specific human factors attributed as causal in a "due to" statement.

4.12.1.9. EXHIBIT T9: Recommendations.

4.12.1.9.1. This section contains a listing of the SIB's primary recommendations. Each recommendation must correspond to a finding. However, each finding is not required to have a recommendation.

4.12.1.9.2. Most causal findings should have recommendations for future prevention or mitigation.

4.12.1.10. EXHIBIT T10: Other Findings and Recommendations of Significance. Use this section to fully discuss and provide rationale for any other findings and recommendations of significance identified.

4.12.1.11. EXHIBIT T11: Authentication Page.

4.12.1.11.1. Type each primary SIB member's name, rank, and board role on the last page of this section. Have each concurring member, including primary members from other services on joint investigations, sign above their name for authentication of the report or for any changes to the report.

4.12.1.11.2. If the SIB report needs to be changed after it is completed and signed by the board, all primary members of the SIB will reconvene. However, the CA may allow the SIB to make minor changes without reconvening the board.

4.12.1.12. EXHIBIT T12: Minority Reports (if applicable).

4.12.1.12.1. Primary members who disagree with the results may submit a separate minority report. Minority reports must include reasons for disagreement in a narrative format and will list suggested findings, causes, and recommendations if different from those contained in the original report.

4.12.1.12.2. If a SIB member submits a minority report, their signature block still appears on the Exhibit T authentication page but they do not sign above it. Their signature will be on the minority report.

4.12.2. EXHIBIT U: Witness Testimony Provided Under a Promise of Confidentiality.

4.12.2.1. If testimony was provided under a promise of confidentiality, it will be placed in Exhibit U. Select only meaningful testimony (written or verbal). Only pertinent sections of interviews need be transcribed. If any interviews are only partially transcribed, the audio file must also be uploaded to Exhibit U in AFSAS.

4.12.2.1.1. A promise of confidentiality may be given to any witness whom the SIB determines should be extended such a promise for mishaps involving nuclear or directed energy weapons.

4.12.2.1.2. A promise of confidentiality shall not be given on a blanket basis to every potential witness. Reference AFI 91-204 for guidance pertaining to a promise of confidentiality.

4.12.2.1.3. The promise of confidentiality must be clearly understood by those witnesses extended the promise, and they must be given the opportunity to waive any confidentiality. Non-privileged statements will be placed in Exhibit R.

4.12.2.2. For privileged interviews, whether written or recorded, all witnesses sign the *Witness Promise of Confidentiality and Non- Disclosure Agreement* (located on AFSEC Portal). This only needs to be accomplished once for recorded interviews but must be done for ALL written statements whether it be initial or subsequent follow- up.

4.12.2.3. For recorded interviews, ensure all interviewees are read *the Notice to Witness Documenting Promise of Confidentiality of Recorded Statements*, and it is recorded and transcribed. This must be done for all recorded interviews whether it be initial or subsequent follow-up.

4.12.2.4. Place the statements and transcribed testimony of each witness together in chronological order starting with the first accomplished. The mishap participants are placed first followed by other witnesses.

4.12.2.5. If applicable, place privileged 72-hour and 14-day histories to include privileged witness statements in Exhibit U.

4.12.2.6. The IO completes Exhibit U.

4.12.3. EXHIBIT V: Other Supporting Privileged Products.

4.12.3.1. Include applicable portions of supporting products. When findings or recommendations involve deficiencies in, or changes to TOs, flight manuals, checklists, local Operating Instructions or directives, place highlighted pages or publication extracts revealing the deliberative process of the board in Exhibit V. The SIB's conclusion that a particular paragraph of a document was or was not a factor is privileged.

4.12.3.2. Include copies of SIB-submitted AFTO Form 22, *Technical Manual Change Recommendation and Reply* or AF Form 847 in Exhibit V. Without disclosing the contents of the requested change, obtain a local control number from the unit quality assurance office for AFTO Form 22 and a MAJCOM/headquarters (HQ) control number from the MAJCOM Standardization and Evaluation office for AF Form 847. Additionally, place the mishap's AFSAS number on the AF Form 847. Ensure no privileged safety information generated by the SIB is referenced on or included in the forms.

4.12.3.3. Include a copy of any survey(s) administered by the SIB as well as the results of the survey(s). Coordinate with AFSEC/SEH prior to conducting any survey.

4.12.3.4. Include copies of Opportunity to Submit Additional Comments Letters. These are memorandums sent to individuals, but not organizations, found causal during the course of a mishap investigation, allowing them the opportunity to provide comments for the

MOFE process. Place copies of these letters signed by the Board President in Exhibit V. Do not have the causal individual sign a copy before departing for the CA briefing; this will be accomplished by the CA safety staff following the out-brief. Reference AFI 91-204 for guidance.

4.12.3.5. Include other supporting privileged products used by the SIB but not included in other exhibits.

4.12.3.6. The IO completes Exhibit V.

4.12.4. EXHIBIT W: Privileged Technical Reports and Engineering Evaluations.

4.12.4.1. In the event a contractor who built, designed, or maintained the equipment involved, provides an engineering analysis under a promise of confidentiality, include the evaluation in Exhibit W.

4.12.4.2. Include memorandums of acknowledgment on protection of privileged safety data signed by these contractors when their evaluations are included in privileged safety reports. The signed memorandums must be placed in Exhibit W in front of the respective technical reports. Additionally, include a copy of the report coversheet documenting promises of confidentiality to contractor representatives. Reference the AFSEC Portal for the *Memorandum for Contractor Representatives Serving as Technical Experts to Safety Investigations*.

4.12.4.3. The maintenance member completes Exhibit W.

4.12.5. EXHIBIT X: Privileged Photographs, Videos, Diagrams, and Animations.

4.12.5.1. Privileged Photographs. These photos, supporting analysis in Exhibit T, may be included here or imbedded in Exhibit T for clarity. These typically include photos showing deliberative SIB analysis of aircraft parts, photos showing parts involved in the mishap with imbedded analysis on the photo, photos showing reenactments, parts reconstruction, etc.

4.12.5.2. Privileged Videos. Only upload videos relevant to the investigation (in accordance with **paragraph 4.11.2**) and make a reference in Exhibit X.

4.12.5.3. Privileged Diagrams.

4.12.5.4. Privileged Animations. If applicable, include the final version of the privileged animation (in accordance with **paragraph 4.11.2**), and make a reference in Exhibit X.

4.12.5.5. The IO completes Exhibit X.

4.12.5.6. The AF/SE may authorize use of SIB video simulations for mishap prevention purposes.

4.12.6. EXHIBIT Y1: Human Factors Analysis.

4.12.6.1. Narrative descriptions of human factors and DoD HFACS nano-codes are in Exhibit T; however, Exhibit Y1 contains a more detailed narrative using extensive medical terminology and privileged information to identify causal factors, factors and NFWOD using DoD HFACS nano-codes. The following topics should be discussed.

4.12.6.1.1. Summary of Injuries. Include a brief narrative describing the type and mechanism of injuries. As with the narrative in Exhibit T, begin the narrative as early in the mishap sequence as is relevant and stop the narrative when all injury and damage is described.

4.12.6.1.1.1. Limit protected health information (PHI) in Exhibit Y1 and Exhibit T to the minimum required to adequately describe the role of a diagnosis or medication in the mishap sequence.

4.12.6.1.1.2. With HQ AFSEC approval, photos of human remains may be included in Exhibit Y1 if it was deemed necessary to define injuries. Otherwise, include photos in Exhibit Y2 as an attachment to the autopsy report. Injury pattern diagrams are preferred over photos in Exhibit Y1.

4.12.6.1.2. DoD HFACS. Include a listing of all DoD HFACS nano-codes that appear in Exhibit T as well as the definition. The analysis of the human factor that was involved in the factor will be included in the Exhibit T. The nano-code will be identified either as a causal factor, factor, or NFWOD as written in Exhibit T. Cross-reference the related factor or NFWOD by referencing the number in parenthesis. For example, "PC101- Inattention (Causal – T4.3.1): Inattention is a factor when the individual."

4.12.6.1.3. Human Factor Member/Consultant Reports. When available, place all human factors, aerospace physiology, aviation psychology, aircrew flight equipment, and other consultant reports here. A consultant report only speaks for the consultants' point of view. If a consultant was assigned to the board, the consultant must submit a written report, and the report must be included in Exhibit Y1, even if the consultant report does not agree with the SIB findings. If the board chooses to discount or disagree with a significant portion of a consultant report this fact may be annotated in the appropriate "Investigation and Analysis" section.

4.12.6.1.4. Additional Consultant Reports. Include other consultant reports here if applicable.

4.12.6.2. Consult with AFSEC/SEH for questions pertaining to the placement of PHI.

4.12.6.3. Human factors analysis and PHI may be privileged; therefore, the SIB shall protect the information with prudent safeguards to prevent unauthorized release. Factual non-privileged information, to include PHI, is releasable to the AIB; however, PHI should not be released to the public. Safety personnel should consult AFSEC/JA or AFSEC/SEH for questions on PHI release.

4.12.6.4. The medical officer and human factors member are responsible for providing an analysis of all human factors and contribute to the SIB's effort in the completion of Exhibit Y1.

4.12.7. EXHIBIT Y2: Protected Medical Documents.

4.12.7.1. Exhibit Y2 is usually non-privileged information and might be given to the AIB. If provided to the AIB, only give the entire record or unmarked factual documents, but NOT sections or pages deemed appropriate to the mishap, or marked-up records as those would be considered the workings of the board and privileged. Non-safety privileged medical documents are protected by other laws and regulations such as Public Law 104-

191, *Health Insurance Portability and Accountability Act of 1996 (HIPAA)* or Title 5 United States Code Section Section 552a, *The Privacy Act of 1974*. The following topics should be discussed:

4.12.7.1.1. Toxicology Reports. Relevant toxicology reports and medical forms should be scanned and pasted into this section.

4.12.7.1.2. Physical Examinations and Medical Condition. Include scanned copies or Armed Forces Health Longitudinal Technology Application print-outs of all physical exams (e.g., DD Form 2808, *Report of Medical Examination*; DD Form 2807-1, *Report of Medical History*), the most recent Physical Health Assessment, the DD Form 2766, *Adult Preventive and Chronic Care Flowsheet*. In addition, include any active waivers and the person's current serial profile.

4.12.7.1.3. Post-Mishap Physical or Autopsy Report. The factual post-mishap physicals should be documented on DD Form 2808 or SF 506, *Medical Record – Physical Examination*, and included here. Photos of human remains highlighting fatal injuries may be included as an attachment to the autopsy report. Include factual radiology reports and statements of prognosis and prescribed medications.

4.12.7.2. The medical officer and/or human factor member completes Exhibit Y2.

4.12.8. EXHIBIT Z: SIB Proceedings and BP Comments.

4.12.8.1. Use Exhibit Z to provide reviewing agencies an assessment of investigation difficulties and to make recommendations for improving reporting and investigating procedures.

4.12.8.2. The BP and IO complete Exhibit Z.

4.13. Safety Report Part 3—Other Materials:

4.13.1. EXHIBIT 1A: SIO/SIB Briefing (Actual).

4.13.2. EXHIBIT 1B: SIO/SIB Final Briefing with Privacy Information Removed.

4.13.3. EXHIBIT 1C: SIO/SIB Final Briefing with Privacy and Privileged Information Removed.

4.14. Supplement.

4.14.1. Follow-up Actions. This part is applicable for only the CA's copy and the AFSEC copy one of the safety report.

4.14.2. Exhibit 1. Statements of Persons Cited in Findings. Place the original and endorsed notification memorandums and any statements provided by persons found causal in a privileged safety investigation at Exhibit 1.

4.14.3. Exhibit 2. Comments to Final Message/Safety Report. Insert copies of required comments.

4.14.4. Exhibit 3. *Memorandum of Final Evaluation* (MOFE).

4.14.5. Exhibit 4. Reports from Other Organizations (National Transportation Safety Board, law enforcement, foreign or other military services). Place applicable copies of any available reports that may assist personnel reviewing this mishap at a later date.

4.14.6. Exhibit 5. Significant Additional Information Received After MOFE. On rare occasions, new information is uncovered after the MOFE is complete.

Chapter 5

FOLLOW-UP ACTIONS

5.1. General Information. Follow guidance listed in AFI 91-204, with the following additions.

5.1.1. Managing Preventive Action for Mishaps w/o Safety Reports. Class C, D, mishaps, and Class E events without a safety report do not go through the MOFE process. MAJCOMs must establish an internal program to effectively track and manage recommendations resulting from these mishaps.

5.1.2. OT&E Mishaps. For Class A and B OT&E mishaps, a letter of administrative closure will be accomplished to document AF/SE coordination on report's recommendations.

JOHN T. RAUCH, Maj Gen, USAF
Chief of Safety

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

5 USC Section 552a, *The Privacy Act of 1974*

10 USC Section 8013, *Secretary of the Air Force*

AFI 16-1404, *Air Force Information Security Program*, 29 May 2015

AFI 33-360, *Publications and Forms Management*, 1 December 2015

AFI 33-364, *Records Disposition--Procedures and Responsibilities*, 22 December 2006

AFI 51-307, *Aerospace and Ground Accident Investigations*, 18 March 2019

AFI 91-101, *Air Force Nuclear Weapons Surety Program*, 15 August 2014

AFI 91-111, *Safety Rules for US Strategic Bomber Aircraft*, 5 September 2019

AFI 91-112, *Safety Rules for US/NATO Strike Fighters*, 29 August 2018

AFI 91-114, *Safety Rules for the Intercontinental Ballistic Missile System*, 1 November 2018

AFI 91-115*, Safety Rules for Nuclear Logistics Transport by the Prime Nuclear Airlift Force*, 27 September 2019

AFI 91-116, *Safety Rules for Long-Term Storage and Maintenance Operations for Nuclear Weapons*, 29 August 2018

AFI 91-117, *Safety Rules for the Airborne Launch Control System*, 4 September 2018

AFI 91-204, *Safety Investigation and Reports*, 27 April 2018

AFI 91-401, *Directed Energy System Safety*, 28 November 2018

AFMAN 10-206, *Operational Reporting (OPREP)*, 18 June 2018

AFMAN 33-363, *Management of Records*, 1 March 2008

AFMAN 40-201, *Radioactive Materials Management*, 29 March 2019

AFMAN 99-151, *Air-Launched Missile Analysis Group*, 14 August 2019

AFPD 13-5, *Air Force Nuclear Mission*, 17 July 2018

AFPD 91-2, *Safety Programs*, 3 September 2019

DoDI-5000.02, *Operation of the Adaptive Acquisition System*, 23 January 2020

DoDI-6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, 6 June 2011, Incorporating Change 1, 31 August 2018

DoD S-5210.41-M_AFMAN 31-108v2, *Nuclear Weapon Security Manual: General Nuclear Weapon Security Procedures*, 2 May 2019

Executive Order 9397, *Numbering System for Federal Accounts Relating to Individual Persons, as amended*

Public Law 104-191, *Health Insurance Portability and Accountability Act of 1996 (HIPAA)*

SSN Continued Use Justification Memo for the Air Force Safety Automated System (AFSAS), 25 October 2011

TO 00-5-1, *Air Force Technical Order System*, 4 June 2016

TO 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution*, 1 September 2015

TO 11N-5-1, *Unsatisfactory Reports*, 28 February 2018

TO 21M-LGM30F-12-1, *Minuteman Nuclear Surety Procedures*, 17 Oct 2014

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

AFTO Form 22, *Technical Manual (TM) Change Recommendation and Reply*

DD Form 2766, *Adult Preventive and Chronic Care Flowsheet*

DD Form 2807-1, *Report of Medical History*

DD Form 2808, *Report of Medical Examination*

SF 506*, Medical Record – Physical Examination*

Abbreviations and Acronyms

AF—Air Force

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFOTEC—Air Force Operational Test and Evaluation Center

AFPD—Air Force Policy Directive

AFSAS—Air Force Safety Automated System

AF/SE—Air Force Chief of Safety

AFSEC—Air Force Safety Center

AFTO—Air Force Technical Order

AIB—Accident Investigation Board

ALMAG—Air-Launched Munition Analysis Group

BP—Board President

CA—Convening Authority

DD Form—Department of Defense Form

DoD—Department of Defense

DoDD—Department of Defense Directive

DoDI—Department of Defense Instruction

DRU—Direct Reporting Unit

FOA—Field Operating Agency

HFACS—Human Factors Analysis and Classification System

HQ—Headquarters

IO—Investigating Officer

LAG—Launch Analysis Group

MAJCOM—Major Command

MNCL—Master Nuclear Certification List

MOFE—Memorandum of Final Evaluation

NCO—Non-commissioned officer

NFWOD—Non-Factor Worthy of Discussion

OPR—Office of primary responsibility

OT&E—Operational Test and Evaluation

PHI—Protected health information

SE—Chief of Safety

SIB—Safety Investigation Board

SIO—Single Investigating Officer

SIPRNet—SECRET Internet Protocol Network

TDY—Temporary duty

TO—Technical Order

US—United States

USAF—United States Air Force

USC—United States Code

Terms

BEELINE FADED GIANT—A reporting flagword used to identify a radiological incident that poses a hazard to life, health, or property as defined by the criteria in **paragraph 1.4.7.**

BENT SPEAR—A reporting flagword identifying a nuclear weapon incident. This includes mishaps not in the accident category but meeting any of the criteria in **paragraph 1.4.5**.

BROKEN ARROW—A reporting flagword used to identify a nuclear weapon accident that could NOT create the risk of war, but meets any of the criteria in **paragraph 1.4.3.**

Catastrophic—Occurs when the entire system or a major portion of it is inoperative. For example failure of the annunciation and display subsystem.

DULL SWORD—A reporting flagword used to identify a nuclear safety deficiency. This includes mishaps not falling into the accident or incident categories, but meeting any of the criteria in **paragraph 1.5.**

EMPTY QUIVER—A reporting flagword used to identify a nuclear weapon incident involving the loss, theft, or seizure of a nuclear weapon or component as outlined in **paragraph 1.4.4.**

Hazard—Any real or potential condition that can cause injury, damage, or occupational illness.

Human Factors (HFACS)—A body of scientific facts about human characteristics. The term covers all biomedical and psychosocial considerations; it includes, but is not limited to, principles and applications in the areas of human engineering, personnel selection, training, life support, job performance aids, and human performance evaluation.

Industrial Weapons Mishap—Mishaps occurring in the industrial environment that involve weapons (i.e., nuclear, guided missile, explosives and chemical agents, or directed energy weapons) or associated unique support equipment. Examples include bomb fin damage during handling or injury to a worker during a MJ-1 bomb lift operation.

Limited—Life Component—A weapon component that deteriorates in some respect over time, and must be replaced periodically during weapon stockpile life: principle classes of limited-life components are reservoirs, neutron generators, radioisotope thermal generators and parachutes.

Missile—Systems that are propelled through the air that are unmanned, guided by internal or external systems, self-propelled, and designed to deliver ordnance to a target or act as a target. This definition includes training missiles. BQM-167 subscale aerial targets and ADM-160 Miniature Air-Launched Decoys will be considered subscale remotely piloted vehicles (i.e., Unmanned Aerial System) for mishap categorization purposes.

Missile Mishap—Unplanned damage to or functioning of a missile; or damage, illness, or injury caused by a missile; or when the missile fails to complete its intended mission.

NUCFLASH—A reporting flagword used to identify a nuclear weapon accident that could create the risk of war, meeting any of the criteria in **paragraph 1.4.2**

Nuclear Components—Major subassembly of a nuclear explosive that contains special nuclear material in quantities sufficient to fuel a nuclear explosion (e.g., pit or canned subassembly). Note that subassemblies containing tritium are not nuclear components.

Nuclear 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, noncombat delivery vehicles, facilities, and services.

Nuclear Weapon System Accident—A serious nuclear weapon system mishap involving a nuclear weapon.

Nuclear Weapon System Incident—A significant or unexpected event involving nuclear weapons, nuclear warheads, or nuclear components not meeting the criteria for an accident.

Nuclear Weapon System Mishap—Nuclear accident, incident, and safety deficiency involving nuclear weapons, nuclear weapon systems, and associated equipment and procedures.

Nuclear Weapon System Safety Deficiency—A situation, event, or condition which could (or did) degrade nuclear surety but did not meet the criteria for an accident or incident.

PINNACLE FADED GIANT—A reporting flagword used to identify a radiological incident that poses a hazard to life, health, or property as defined by the criteria in **paragraph 1.4.6**.

Attachment 2

REPORT SUBMISSION SCHEDULES, ADDRESS LISTINGS AND DISTRIBUTION

Table A2.1. Report Submission Schedule for Weapons, Explosives and Radiological Class A, B, C, D, and E Events.

MISHAP	REQUIRED REPORT	SUSPENSE	METHOD
Class A or B Mishap	Preliminary Message (see note 1)	Within 24 hours	Priority Message (see note 2)
	Status Message (see note 3)	Within 30 calendar days	AFSAS (see notes 3, 4)
	Final Message	Within 30 calendar days or 3 business days following Safety Report	AFSAS
	Safety Report	Within 30 calendar days	AFSAS
	Convening Authority Briefing (if required)	15 calendar days after completing	CA direction
Class C, D, & E Mishaps, Hazards and Incidents	Status Message (see note 3)	Within 30 calendar days	AFSAS
	Final Message (see notes 6, 7, 8)	Within 30 calendar days	AFSAS
	Safety Report (see note 5)	Within 30 calendar days	AFSAS
OT&E	Preliminary Message	Within 24 hours	AFSAS
	Status Message	Every 30 calendar days	AFSAS
	Final Message (see notes 6, 7, 8)	Within 75 calendar days	AFSAS
	Safety Report (see note 5)	Within 75 calendar days	AFSAS

Notes:

1. Use non-privileged, unclassified format.
2. Overseas commands use IMMEDIATE precedence.
3. Include new information discovered since the preliminary message and identify SIB members. Place the safety privilege statement at the beginning of the message. Include the "For Official Use Only" statement unless classified. If classified, use required classification markings.
4. For subsequent reports, only add information not previously reported in initial status or preliminary messages.
5. When directed by MAJCOM or AF/SE.
6. If the investigation will not be complete within the time frame, transmit 30-day status message on day 30 and every 30 days until investigation is complete. Include estimated completion date.
7. Do not delay final messages awaiting testing results. If the testing results significantly change the final message's outcome, reconvene the SIB (if necessary) and send a status message describing changes.
8. For extension of due date, send request to the investigating MAJCOM/DRU/FOA with

Table A2.2. Report Submission Schedule for Nuclear Accidents and Incidents.

FLAGWORD	REQUIRED REPORT	SUSPENSE	METHOD
NUCFLASH, BROKEN	Preliminary Message (see note 1)	Within 24 hours	SIPRNet (see note 2)

ARROW, EMPTY QUIVER, BENT SPEAR, or FADED GIANT	Status Message	Within 30 days	SIPRNet (see note 2)
	Final Message	Within 30 calendar days or 3 business days following Safety Report	SIPRNet (see note 2)
	Safety Report (see notes 3, 4, 5)	Within 30 calendar days	CA direction
	Convening Authority Briefing (if required)	15 calendar days after completing investigation	CA direction

Notes:

1. Use non-privileged, unclassified format.
2. Send to AFSEC/SEW SIPRNet workflow address at usaf.kirtland.afsec.mbx.hq-afsec-sew-organizational-mailbox@mail.smil.mil.
3. If the investigation will not be complete within the time frame, transmit status message on day 30 and every 30 days until investigation is complete. Include estimated completion date.
4. Do not delay final reports awaiting testing results. If the testing results significantly change the final report's outcome, reconvene the SIB (if necessary) and send a status message describing changes.
5. For extension of due date, send request to the investigating MAJCOM/DRU/FOA

Table A2.3. Report Submission Schedule for DULL SWORDs.

	REQUIRED REPORT	SUSPENSE	METHOD
DULL SWORD	Preliminary Message	Within 5 calendar days	AFSAS (see notes 1, 2, 3)
	Status Message	Within 30 calendar days	AFSAS (see notes 1, 3)
	Final Message	Within 30 calendar days	AFSAS (see notes 1, 2, 3, 4)

Notes:

1. Use non-privileged, unclassified format.
2. Reports shall include any additional report (e.g., Deficiency Reports (DR), Unsatisfactory Reports (UR),, AFTO Form 22) reference number, if applicable.
3. Include "Status" or "Final" in the subject line, as applicable.
4. For extension of due date, send request to the investigating MAJCOM/DRU/FOA with information copy to AFSEC/SEW.