



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SAFETY CENTER

AFMAN91-223_AFGM2019-01

30 July 2019

MEMORANDUM FOR DISTRIBUTION C
MAJCOMs/FOAs/DRUs

FROM: AF/SE
1400 Air Force Pentagon
Washington DC 20330

SUBJECT: Air Force Guidance Memorandum to Air Force Manual (AFMAN) 91-223, *Aviation Safety Investigations and Reports*

By Order of the Secretary of the Air Force, this Air Force Guidance Memorandum immediately changes AFMAN, *Aviation Safety Investigations and Reports*. Compliance with this Memorandum is mandatory. To the extent its directions are inconsistent with other Air Force publications, the information herein prevails, in accordance with AFI 33-360, *Publications and Forms Management*.

In advance of a rewrite of AFMAN 91-223, the attachments to this memorandum are updated to provide guidance changes that are effective immediately.

This Memorandum becomes void after one year has elapsed from the date of this Memorandum, or upon incorporation by interim change to, or rewrite of AFMAN 91-223, whichever is earlier.

JOHN T. RAUCH JR
Major General, USAF
Chief of Safety

Attachment:
Guidance Changes

AFMAN 91-223 AFGM 2019-01
Attachment 1
Guidance Changes

The below changes to AFMAN 91-223, dated 14 September 2018, are effective 15 August 2019.

1. All references to AFI 51-503 found within AFMAN 91-223 are now references to AFI 51-307, *Aerospace and Ground Accident Investigations*.

2. The following paragraphs are changed:

3.3. Change to read: Events do not require reporting if they occur as described in aircraft flight manuals and are expected responses to a crew's actions or flight regime. For example, do not report the loss of pitot-static instrument indications if the loss is the result of crew failure to activate the pitot heat. For small Unmanned Aircraft Systems (sUAS) undergoing testing, laboratory experimentation and test support training by AFMC the waiver authority for mandatory reporting criteria in paragraphs 3.3.2 through 3.3.5 (except for spills or leaks of hazardous materials, Near Mid-Air Collisions and off-range impacts) is the activity Wing Commander, laboratory Technology Director, or Range Operating Authority, per AFMAN 13-212v1, as appropriate. Unless noted otherwise, Convening Authorities will report the following events whether or not intent for flight is established **(T-1)**:

Table 3.5 Aerial Refueling Equipment Malfunction Condition section change the last sentence to read: Include boom strike occurrences and uncommanded/uncontrolled boom events.

4.2. Delete first and last sentences.

4.3.1.8. Add the following to the end of the paragraph: For Physiological events, complete the Physiological Event Worksheet (PEW) and applicable testing. The Flight Surgeon will make a presumptive or diagnosis prior to the PEW submission in AFSAS.

5.1.2.1. Change last sentence to read: Members included in Table 5.3 are Primary members and may either concur with the report or submit a Minority Report.

Table 5.3. Note 3. Change to read: Must not be assigned to the mishap wing, attached to the mishap organization for flying purposes, or anticipating an assignment to the mishap organization within the next six months for Class A mishaps. Must not be assigned to the mishap unit for Class B mishaps.

6.4.2. Change to read: Prior to de-convening. Upload all available tabs/exhibits. The investigation narrative should be drafted with all available information, to include placeholders for results of analysis or wreckage recovery. Develop a plan that allows enough time to finish the investigation and complete the safety report and briefing. While de-convened, the SIB remains the members' primary duty and are not relieved of their investigative responsibilities and continue to monitor investigation-related activities. The SIB must reconvene to deliberate in person or via video teleconference. **(T-1)**

6.5.5.4.1. Delete fourth sentence.

6.13.2. Change to read: Prior to de-convening for the scheduled out-brief, upload all tabs/exhibits in AFSAS. Prepare the final message in AFSAS, but do not select "Submit for Release" to the CA. Notify the CA safety office once all tabs/exhibits have been uploaded and the final message prepared. The CA safety office will review all products for quality control purposes IAW AFI 91-204. **(T-1)**

6.13.3. Change first sentence to read: The SIB President or IO may keep an electronic copy of all working files, tabs, exhibits, etc. on a portable hard drive, DVDs, or other suitable media in the event any material is needed between when the SIB de-convenes and the out-brief is complete.

7.2. Change to read: **Formal Report and Tab Waivers.** Use AFSAS to route formal report and Tab waiver requests through the CA to AFSEC/SEF. **(T-1)** AFSEC/SEF is the formal report and tab waiver concurrence authority for this publication.

7.3.7.1 Change tiering to T-1.

Table 7.4, G1. Change “Certificate of Aircrew Qualifications” to read “Aircraft Assignment/Aircrew Qualification Worksheet (AF Form 4234)”.

8.6. Change first sentence to read: Do not enter classified information in AFSAS. **(T-0)**

3. For safety events that occur on 14 August 2019 or before, use guidance in Chapters 7 and 8 for completing tabs and safety messages.

4. For safety events that occur on 15 August 2019 or later, do not follow guidance in Chapters 7 and 8, instead use new guidance below, included as Chapter 10, for completing safety reports.

5. Added: **Chapter 10**

SAFETY REPORTS

10.1. Overview. Safety Reports present both privileged and/or non-privileged safety information in a structured format. Exhibits are electronic copies of evidence used by SIBs in the course of the investigation. Exhibits are uploaded to the appropriate exhibit group in AFSAS.

10.2. Managing Exhibits. When uploading exhibits, a single .pdf is preferred, multiple .pdfs are acceptable, and when necessary, multiple file types are allowed. If two or more files are combined into a single file, include a table of contents to aid reviewers. Request exhibit waivers when there is no data for a required exhibit. Use AFSAS to request and route waivers through the CA to AFSEC/SEF. **(T-1)** AFSEC/SEF is the formal report and tab waiver concurrence authority for this publication.

10.3. Exhibit Groups. For Class A and B mishaps most exhibit groups are required. **(T-1)** However, for any other mishap class or event, investigators should upload information to any exhibit group when necessary to support their conclusions.

10.3.1. Technical and Engineering Reports. Technical and engineering reports are produced by subject matter experts and detail observations such as what components are bent, broken, or burned, etc. and whether the damage happened before, during, or after the event. Reports may include the mechanism or cause of damage, conclusions, and recommendations. See AFI 91-204 for details on technical reports and formatting.

10.3.1.1. Subject matter experts who provide reports must sign the appropriate Non-Disclosure Agreement (NDA). **(T-1)** Military and government civilians sign the **Non-Disclosure Agreement – Safety Investigation**. Contractors sign the **Non-Disclosure Agreement - Contractor Reps Serving as Tech Experts to SIBs**. Use the templates located in the SIB Support (Go) Package.

10.3.1.2. SIBs should make every effort to have subject matter experts write non-privileged reports. If required, experts can provide both non-privileged and privileged reports. If experts have knowledge of privileged information, they cannot use that information in their non-privileged report. For example, a manufacturer who has access to privileged interviews and proceedings would write a non-privileged report based on FDR data and their own analysis at the mishap site but would not include any information based on privileged information (e.g. information derived from a promise of confidentiality).

10.3.1.3. Include non-privileged egress, impact, and crashworthiness analysis. Include egress system specialist analysis if aircrew egress may have been attempted, was attempted, or was completed. Include technical specialist analysis of impact, wreckage, and burn patterns at the crash site if

applicable. Include technical specialist analysis of crashworthiness as needed. Crashworthiness analysis is relevant to aircraft such as helicopters and cargo airframes, where aircrew or passenger survivability is connected to the aircraft's crashworthiness features. This analysis is generally not relevant to ejection seat equipped aircraft or severe situations where crashworthiness features would not have made a difference in the outcome of the mishaps. If a SIB member writes one of these reports, mark the exhibit as reflecting Investigative Deliberations.

10.3.2. Testimony and Statements. Testimony and statements are derived from interviews with witnesses or involved individuals. These include statements solicited by the SIB or unsolicited statements voluntarily provided by individuals.

10.3.2.1. Transcribing interviews is a time intensive task and should be started early in the investigation. If necessary, request additional personnel to help with transcription. SIBs must review and verify the accuracy of all transcripts. **(T-1)**

10.3.2.2. If information from an interview is referenced in the analysis, it will be transcribed and included as an exhibit. **(T-1)** If testimony is not used to support the SIB's analysis it is not necessary to include it as an exhibit.

10.3.2.2.1. If non-privileged (no promise of confidentiality) testimony is not included as an exhibit, provide the audio recordings to any legal board. **(T-1)** Do not upload non-privileged (no promise of confidentiality) audio or video file as an exhibit.

10.3.2.2.2. If non-privileged interviews (no promise of confidentiality) are transcribed, include the complete testimony. Do not summarize the witness's testimony.

10.3.2.2.3. If privileged testimony (with a promise of confidentiality) is only partially transcribed, include the audio or video recordings in the Testimony and Statements exhibit group.

10.3.2.3. Label each transcription file with the date of the interview and who was interviewed (e.g. 1 Jan 19 Mishap Pilot Interview).

10.3.2.4. Upload a signed Privileged or Non-Privileged Witness Agreement with each written statement or transcribed testimony. Use the most current documentation for interviews and written statements found in the SIB Support (Go) Package. Label each Witness Agreement file with the date of the interview and who was interviewed (e.g. 1 Jan 19 Mishap Pilot Witness Agreement). When uploading a signed privileged witness agreement mark it as "obtained with a promise of confidentiality."

10.3.3. Diagrams, Photographs and Videos. Include items that increase understanding by showing equipment layout, damage, impact areas, metal fractures, flight path, etc.

10.3.3.1. Do not upload every photograph received by the SIB. Only upload photographs that are relevant to the mishap and aid the reader in understanding the analysis and conclusions.

10.3.3.2. Do not unnecessarily show evidence of human injury (e.g. bloody aircraft parts). Due to their sensitivity, upload photographs of deceased personnel or injuries in the "Medical Information" exhibit group only if they support findings or recommendations. If SIBs absolutely need to disseminate an injury photo to illustrate the mishap, consider using a black and white photo.

10.3.3.3. Label each image or name each file to aid reviewers. Labels (or file names) include name of item and where applicable, the direction the photograph is facing (e.g. Debris Field Looking West). Do not include privileged information such as "cowling damage caused by blade failure" in the label (or file name), instead state "cowling damage."

10.3.3.4. Photographs and videos are considered privileged if they are staged for SIB analysis and should be marked as reflecting Investigative Deliberations. Depictions of cockpit indications for a given

set of assumptions made by the SIB or described in witness testimony are staged photographs. Pointing with a finger or other device at a portion of wreckage does not necessarily make a photograph staged.

10.3.3.5. Include photographs and videos relevant to the investigation (e.g., videos shot by eye witnesses or surveillance videos). Not all photographs and videos received by the SIB will be relevant to the investigative results and conclusions reached by the investigators. If a non-privileged photographs and videos are not included as exhibits, provide them to any legal board.

10.3.3.6. Include diagrams that add to the report such as location of wreckage, route of flight, etc. Ensure diagrams are self-explanatory and indicate direction with a northward pointing arrow. If practical, indicate scale. Use Civil Engineering plots, aerial photographs, topographical maps, etc. Do not include diagrams depicting the location of human remains in the “Diagrams” exhibit group. If they support findings or recommendations upload such diagrams in the “Medical Information” exhibit group.

10.3.3.7. If applicable, include the final version of the releasable and/or privileged animations. Releasable animations are typically built with readily-available software tools, incorporate an intuitive visual presentation, and are based on selected recorded data. Releasable animations are produced without any input or direction from the SIB and before their creators are exposed to privileged safety information.

10.3.4. Training Records. For flight and flight-related mishaps, and AGO mishaps with aircrew involvement, include the aircrew training records. For AGO mishaps without aircrew involvement, include the training records of the maintainers operating or working on the aircraft at the time of the mishap. If other personnel are involved and their training records support the analysis assign the attribute “reflects investigative deliberations”.

10.3.5. Parametric Data. If uploading reports containing parametric data specifically requested by investigators (e.g. over-Gs by tail number, selected parameters from the mishap aircraft or unstable approaches at a particular location) assign the attribute “reflects investigative deliberations” and ensure the document is marked with the appropriate warning statement.

10.3.6. Radar Data and Plots. Coordinate with AFSEC Technical Assistance and 84th Radar Evaluation Squadron at Hill AFB (DSN 777-5251, DSN 586-7900, or Comm 801-586-7900) for availability of radar data to aid the investigation.

10.3.7. A Privacy Act Statement will accompany all recordings of voice communications.

10.4. Report Writing or Narrative. AFSAS provides investigators a step-by-step process for entering relevant information and a framework for providing consistent and quality report requirements IAW current guidance. Where appropriate, AFSAS will put together key information to create the narrative and streamline the entry process for investigators.

10.4.1 The narrative is the culmination of the investigation and provides a complete picture of what happened, how it happened, and why it happened. It is based on the weight of evidence, professional knowledge, and good judgment of the SIB. It includes factors, causal factors, and NFWODs. The analysis should clearly show how factors influenced the findings and causes and support the logic behind the recommendations.

10.4.1.1. See AFI 91-204 for guidance on determining cause and writing factors, NFWODs, findings, and recommendations.

10.4.1.1.1. Factors are written in narrative format and include detailed analysis of the actions or conditions that influenced the mishap. Include enough information so the reader can logically follow the SIB’s rationale. Include references to specific technical orders, publications, training, personnel actions

or inactions, results of technical analysis, quotes from interviews, human factors, etc. Use photos or diagrams as necessary.

10.4.1.1.1.1. When analyzing actions, organize factors as a discussion of how the action should have been accomplished, how it actually occurred during the mishap, and how it contributed to the mishap. Finally, explain why the difference between what should have occurred and what actually occurred.

10.4.1.1.1.2. When analyzing conditions (e.g. weather, fatigue), explain how and why the condition influenced the outcome of the mishap.

10.4.1.1.1.3. When analyzing publications (e.g. technical orders, AFIs), explain what the publication currently states, how it is deficient, and how it contributed to the mishap. Contrasting similar publications can be helpful in explaining why the publication was deficient.

10.4.1.1.1.4. The SIB must determine whether an action or condition was a factor or causal factor in the mishap. **(T-1)** If the SIB cannot narrow it down to a single most likely cause, identify the alternatives and state “Action X most likely occurred due to one or more of the following reasons.” List the most probable reasons from most probable to least probable. It is not necessary to list every single possibility.

10.4.1.1.2. NFWODs are written in narrative format and fall into one of three categories; areas uncovered that did not influence the mishap, but should be fixed due to the potential to be a factor in a future mishap, areas that were thoroughly investigated and subsequently ruled out as factors, and areas that may be considered an interest item to the CA.

10.4.1.1.2.1. When analyzing areas that could be a factor in a future mishap, explain the deficiency and why it could lead to a mishap. Include a sentence at the end of the narrative that states that this could be a factor in a future mishap.

10.4.1.1.2.2. When analyzing areas that were ruled out as factors, explain what the SIB investigated and why they determined it did not influence the mishap. Often the SIB will need to answer why other plausible scenarios were ruled out.

10.4.1.1.2.3. When analyzing areas that may be considered an interest item to the CA use either of the methods described in 7.5.1.1.2.1 and 7.5.1.1.2.2 as appropriate.

10.4.1.2. Class A and B SIBs should forward draft copies of the report as soon as available to the CA/SEF for review. Additionally, SIBs supported by AFSEC (on-site or telephonically), should forward draft copies of the report to AFSEC/SEF for review. Other SIBs may request a review by AFSEC/SEF. This review should normally be requested on or before day 25 of the investigation. The SIB should allow at least two duty days for the CA/SEF and AFSEC/SEF reviews. These reviews ensure compliance with AFI 91-204 and this AFMAN. They also ensure the analysis supports the SIB findings, cause(s), and recommendation(s). Reviewers may not direct SIBs to change their conclusions, but may direct SIBs to provide more analysis to support conclusions. Other than AFSEC involvement, the investigation will not be staffed outside of the CA safety office during this review process.

TERMS

Added: **Letter of Xs** - A list of aircrew certifications/qualifications.

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE MANUAL 91-223

14 SEPTEMBER 2018



SAFETY

**AVIATION SAFETY INVESTIGATIONS
AND REPORTS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Air Force Manual (AFMAN) provides aviation-unique guidance to support Air Force Instruction (AFI) 91-204, *Safety Investigation and Hazard Reporting*. It applies to all United States Air Force (USAF), Air Force Reserve, and Air National Guard (ANG) military and civilian personnel. In particular, it applies to commanders, managers, supervisors, and safety staffs at all levels, all persons who investigate and report USAF events, and persons who handle such reports. 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 Forms 847 from the field through the appropriate functional chain of command. This AFMAN may be supplemented at any level, but all supplements that directly implement this publication must be routed to the AF Safety Center Aviation Safety (AFSEC/SEF) for coordination prior to certification and approval. The authorities to waive wing and 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. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the AF Records Disposition Schedule located in the AF Records Information Management System. 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 needs to be completely reviewed. The rewrite of this manual was in response to the recent revision of AFI 91-204 and changes desired by AFSEC and AF safety staffs at all levels. This manual has been restructured to improve the overall usability by investigators and safety staffs.

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Chapter 1

BACKGROUND

1.1. Overview. This manual supplements AFI 91-204, *Safety Investigation and Hazard Reporting*, with USAF aviation safety-specific procedures and techniques.

1.1.1. For the purposes of this manual, the term “Safety Investigation Board (SIB)” includes a Single Investigating Officer (SIO) and any assembly of investigators.

1.1.2. Aviation safety investigations include Class A through E mishaps and Hazard Investigations. Aviation safety investigations do not include Incidents. See Attachment 1 or AFI 91-204 for definitions of mishaps, hazards, and incidents.

1.2. SIB Support. SIBs should contact their Convening Authority (CA) safety staff for investigative support. Only contact the Air Force Safety Center Aviation Safety Division (AFSEC/SEF) Safety Duty Officer when the CA safety staff cannot provide the required support in a timely manner. Table 1.1 provides aviation safety investigation support contact information.

Table 1.1. Aviation Safety Investigation Support.

Aviation Safety Investigation Support		
AFSEC	During Duty Hours (US Mountain Time)	After Duty Hours
Technical Assistance Duty Officer	d. (312) 246-5867 c. (505) 846-5867	c. (505) 220-0183
Safety Duty Officer	d. (312) 263-6175 c. (505) 853-6175	c. (505) 269-9583
For after-hours DSN, contact Kirtland AFB Command Post (ask for phone patch to the after duty hours commercial numbers)		d. (312) 246-3777 or 3776

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. Convening Authority. In addition to the requirements in AFI 91-204, the CA at all levels will:

2.1.1. Determine the size and scope of the investigation required for each safety investigation. **(T-1)**

2.1.2. Grant investigation timeline extensions when warranted. **(T-1)**

2.1.3. Determine a process for approving Class C through E mishaps and hazard investigations. **(T-1)** Approval options include but are not limited to; briefings, slide-only reviews, and report or message reviews. **(T-1)** Do not staff briefings or messages outside of safety channels. **(T-1)** Doing so has a detrimental effect on the integrity, independence, and timeliness of the safety investigation and carries a significant risk of misuse of privileged safety information. Class C through E mishaps and hazard investigation results should be approved for release within 15 days of the completion of the investigation. **(T-1)**

2.2. Director or Chief of Safety. In addition to the requirements in AFI 91-204, the Director or Chief of Safety will:

2.2.1. For all investigations:

2.2.1.1. Ensure an adequate number of potential investigators are appropriately trained and available to conduct safety investigations. **(T-1)** Request training allocations through the Major Command (MAJCOM) point of contact.

2.2.1.2. Ensure the Interim Safety Board (ISB) is provided refresher training on how to preserve evidence and conduct initial interviews. **(T-1)**

2.2.1.3. Ensure an AF Safety Automated System (AFSAS) account is set up for each safety investigator. **(T-1)** At a minimum, the following roles should be assigned:

2.2.1.3.1. Data Extraction Access: Events

2.2.1.3.2. Data Extraction Access: Recommendations

2.2.1.3.3. Event: Data Viewer

2.2.1.3.4. Event: Investigator

2.2.1.3.5. Event: Message (View Only)

2.2.1.3.6. Recommendation: View Only

2.2.1.3.7. Workspace: US Air Force

2.2.1.4. Act upon requests for additional members and subject matter experts. **(T-1)**

2.2.1.5. Monitor the progress of open investigations. **(T-1)** Review extension requests and obtain CA approval for extensions when appropriate. **(T-1)** Coordinate with SIBs to assure timely investigation completion. **(T-1)**

2.2.1.6. Assist SIBs in determining and contacting Office of Primary Responsibility (OPR) and Office of Collateral Responsibility (OCR) for recommendations and Other Recommendations of Significance (ORS). **(T-1)**

2.2.2. For Class A and B mishaps the CA Director or Chief of Safety will also:

2.2.2.1. Determine SIB requirements in accordance with (IAW) AFI 91-204 and this AFMAN. **(T-1)** Submit SIB names for CA approval. **(T-1)**

2.2.2.2. Issue orders appointing the SIB. **(T-1)** For each SIB Primary member, the order must contain the individual's position, full name, rank and grade, organization, and assigned base. **(T-1)** Include SIB recorders even though they are not primary SIB members. **(T-1)** Do not include observers, advisors, or external subject matter experts. **(T-1)**

2.2.2.3. Direct SIBs to travel and be in place within 72 hours of the mishap. **(T-1)** If the mishap occurred in a deployed location, advise each SIB member on travel requirements and personal and professional gear that is or may be required. **(T-1)**

2.2.2.4. Provide ISB contact information to the SIB. **(T-1)**

2.2.2.5. Provide the SIB a point of contact from the CA's safety staff. **(T-1)** The point of contact provides assistance and advice in all aspects of the investigation.

2.2.2.6. Provide out-brief templates to the SIB. **(T-1)**

2.2.2.7. Ensure SIBs have made adequate progress and will be ready to present their results before scheduling out-briefs or recommending CA approval of requests to de-convene. **(T-1)**

Chapter 3

EVENT REPORTING

3.1. Events That Require Safety Investigations and Reports. Class A through D mishaps are investigated IAW AFI 91-204 requirements. Investigate and report events described in paragraph 3.3 as either Class E mishaps or as Hazards. If there is no damage or injury, report the event as a Hazard. If there are damages or injuries that meet AFI 91-204 Class E mishap criteria, report the event as a Class E mishap.

3.2. Safety Studies. Safety Studies allow multiple events to be investigated and analyzed for the purpose of producing mishap prevention recommendations. See AFI 91-204 for details.

3.3. Aviation-Specific Reporting Criteria. Events do not require reporting if they occur as described in aircraft flight manuals and are expected responses to a crew's actions or flight regime. For example, do not report the loss of pitot-static instrument indications if the loss is the result of crew failure to activate the pitot heat. Unless noted otherwise, report the following events whether or not intent for flight is established:

3.3.1. **Physiological Events.** A physiological event is any injury, illness, or abnormal physiological condition experienced by aircrew or others as a result of the dynamic flight environment. Include lab and toxicological test results for involved personnel in the report only when determined necessary by the commander or flight surgeon. Report physiological events listed in Table 3.1.

Table 3.1. Physiological Events.

Event	Condition
Hypoxia/Hyperventilation/ Hypoventilation	Symptomatic exposure to reduced oxygen pressure and/or concentration or abnormal rate and/or depth of breathing. Report when symptoms are experienced during or after flight.
Decompression Sickness	Confirmed Decompression Sickness is considered an injury and is reported and investigated as a mishap. Suspected Decompression Sickness with symptoms which resolved on descent or within two hours at ground level, did not recur after the flight, and which required no treatment beyond supplemental oxygen is a physiological event. Report when experienced during or after flight.
Barotrauma	Trapped gas disorders in the middle ear, sinuses, teeth, and/or intestinal tract. Report confirmed or suspected barotrauma experienced during or after flight.
Acceleration Effects	G-induced loss of consciousness (GLOC), visual disturbances, or other acceleration effects. Report actual G-induced loss of consciousness, aircrew-reported partial G-induced loss of consciousness, or significant symptoms that impaired aircraft control. Include 72-hour and 7-day histories in the report.
Spatial Disorientation or	A failure to correctly sense aircraft position, attitude, or altitude.

Event	Condition
Visual Illusions	
Toxic Smoke, Fumes, or Liquids Exposure	Symptomatic exposure to toxic substances.
Other	Any physiological condition the aircrew or flight surgeon determined to be a health concern.

3.3.2. Propulsion-Related Events. Report propulsion-related events listed in Table 3.2.

Table 3.2. Propulsion-Related Events.

Event	Condition
Loss of Thrust	Loss of thrust was sufficient to prevent maintaining level flight at a safe altitude or which required the pilot to jettison stores.
Engine Stalls	Any engine stall which required crew action. Do not report stalls that occur during engine maintenance, or in aircraft “out of envelope” situations.
Emergency or Precautionary Landing	For single engine or rotary wing aircraft with imminent engine or rotor drive system failure confirmed after landing.
Uncommanded or Inadvertent Propeller or Thrust Reversal	During flight or ground operations when it resulted in a hazardous situation.
Abnormal Restart	During flight, after an intentional in-flight engine shutdown for training, functional check flights, or other non-emergency purposes. A restart is abnormal when it does not occur as planned or expected when using established restart procedures.
Engine Fire	Any fire not contained to the engine tailpipe or when extinguished with agent.
Emergency, Precautionary or Inadvertent Engine Shutdown	At any time after taxi until normal engine shutdown. Note: This does not include; intentional in-flight engine shutdowns for training, testing, or functional check flights or the following events during maintenance engine runs: flameout, engine stall, or emergency engine shutdown.
Throttle Binding or Interference	Any binding or similar issue with setting engine performance including any event where objects blocked throttle movement.

3.3.3. Flight Control-Related Events. Report flight control-related events listed in Table 3.3.

Table 3.3. Flight Control-Related Events.

Event	Condition
Unintentional Departure from Controlled Flight	When it met the aircraft-specific flight manual definition of a departure for that aircraft.
Uncommanded Inputs to the Flight Controls	All uncommanded inputs to the flight controls (including stability augmenter, or trim systems) whether it resulted in a dangerous situation or not. Report autopilot faults if, in the opinion of the aircrew, the autopilot would have put the aircraft in a hazardous situation.
Uncommanded	All uncommanded reversions to a backup mode for any safety-

Event	Condition
Reversions to a Backup Mode	critical flight control system that resulted in an in-flight emergency (either declared by the crew or directed by the flight manual).
Unintentional Aircraft Stick or Yoke Controller Interference	When it resulted in a hazardous situation.
Automatic Ground Collision Avoidance System	Unintentional automatic terrain avoidance maneuvering, or manually activated recovery systems such as the Pilot Activated Recovery System. Report these events regardless of when or if the aircrew overrode or otherwise took over for the system. Do not report intentional activations made for training or familiarization.
Remotely Piloted Aircraft Action Not Complying With Control Input	During flight and ground operations. Including, but not limited to, unintentional autonomous go-around, permanent loss of all command and control links, and malfunctions or emergencies for which the aircraft modified its flight path (e.g. executes Lost Link or Contingency missions) without operator input.

3.3.4. Instrument-Related Events. Report instrument-related events listed in Table 3.4.

Table 3.4. Instrument-Related Events.

Event	Condition
Loss of All Pitot-Static Instrument Indications	Loss occurred in-flight.
Loss of Both Primary and Standby Attitude Indicators	Loss occurred in-flight.
Loss of More Than One Electronic Primary Flight Display	Loss occurred in-flight at a primary crew duty station regardless of the ability to use standby instruments.

3.3.5. Miscellaneous Reportable Events. Report miscellaneous aircraft events listed in Table 3.5.

Table 3.5. Miscellaneous Reportable Events.

Event	Condition
Fire	Fire occurred in-flight.
Fuel Leak	Fuel leak resulted in an in-flight emergency or forced landing.
Gear Up Landing	Partial or full gear up landing.
Landing Gear Structural Failure	Failure of critical landing gear components, meaning any component that could cause landing gear collapse.
Departure From Takeoff or Landing Surface	Any unintended departure from takeoff or landing surfaces onto adjacent surfaces, including landing short of the landing surface. The overrun is considered part of the takeoff or landing surface. Report unintended departures of USAF Academy sailplanes only when the aircraft is damaged.

Event	Condition
Inadvertent or Uncommanded Canopy Openings	Opening occurred in-flight.
Spill or Leak of Hazardous Material	Hazardous material is radioactive, toxic, corrosive, or flammable. The leak or spill is from aircraft stores or cargo, and it created a hazardous condition or an in-flight emergency.
Unintentional Strike of an Object by an Aircraft	Any unintentional contact between an aircraft and another object regardless of damage cost or need for repairs.
Cabin Pressure Loss	When it required the execution of an emergency procedures checklist.
Aerial Refueling Equipment Malfunction	Occurred in-flight and affected an aerial refueling probe, boom nozzle, aerial refueling receptacle, multi-point refueling system, wing air refueling pod, boom drogue adaptor, hose, hose reel assembly, or aerial refueling pod. Report malfunctions involving helicopter aerial refueling probe oscillations. Include boom strike occurrences.
Hoist Malfunctions	Occurred in-flight and involved inadvertent separation of the hoist cable from the hoist (e.g. inadvertent cable shear or cable unwrapping from the drum) or intentional helicopter hoist cable shear due to a fouled or stuck cable.
Electrical Power Loss	Loss occurred in-flight and was a complete loss or a transfer to backup battery power. Does not include momentary power loss events resulting from intentional acts such as a transfer from one generator to another.
Inadvertent System Actuation	Actuation is due to design or ergonomic issues that created a potentially hazardous condition.
F-16 Canopy Water Pooling	Event matches the F-16 flight manual description.
Laser Events	Event occurred in-flight, negatively impacted flight operations or safety, or resulted in eye-irritation or post flight medical evaluation.
Near Mid-Air Collision	Aircrew took abrupt evasive action or would have taken such action if circumstance allowed, or another aircraft was within 500' or inside "well clear" and presented a hazard to flight safety. Traffic Collision Avoidance System Resolution Advisories which required the aircrew to deviate from a planned or assigned flight path. While unintentional separation less than 500' normally meets this criteria, it is not required. Report greater than "well clear" events when closure rate, aircraft maneuvers, visibility, control instructions, or other related circumstances resulted in a hazard to flight safety.

3.3.6. Hazard Air Traffic Report (HATR) Events. The intent of the HATR program is to identify potentially hazardous aviation practices or procedures based on a particular event and to disseminate information that might prevent similar hazardous conditions at other

USAF locations or areas of operation. See paragraph 9.1 for more information. Reportable HATR events are included in Table 3.6.

Table 3.6. HATR Events.

Event	Condition
Communication or Navigational Aid related	When communications or navigational equipment indications or malfunctions contributed to a hazardous air traffic condition.
Ground-related	An occurrence on the airfield movement area endangered an airborne aircraft or an aircraft operating on the ground.
Publication or Directive related	Flight information publications, notices to airmen, aeronautical information publication, or other related publications contributed to a hazardous air traffic condition.

3.3.7. Controlled Movement Area Violation (CMAV) Events. Report airfield infractions caused by aircraft, vehicles, or pedestrians entering the Controlled Movement Area without specific control tower approval. This includes incidents of aircraft landing or taking the runway for takeoff without clearance. See paragraph 9.1 for more information. If the violation resulted in the endangerment of an aircraft, report as a HATR event.

3.3.8. Bird/Wildlife Aircraft Strike Hazard (BASH) Events. Report all bird/wildlife strikes to aircraft. Reporting of both damaging and non-damaging BASH events is required. See paragraph 9.2 for more information.

Chapter 4

ISB REQUIREMENTS

4.1. Purpose of the ISB. The sole purpose of the ISB is to gather, preserve, and protect evidence after a mishap occurs. ISB actions are limited to identifying all the evidence, taking control or possession of evidence, and preserving it until it can be transferred to the SIB. The ISB does not determine factors or causes of the mishap. If an aircraft has a mishap off station, an ISB may be required at more than one location. In this situation the CA designates a lead ISB President to coordinate and control the activities at all locations.

4.2. ISB Member Requirements. IAW AFI 91-204, the commander of the regular AF installation nearest a mishap appoints an ISB. ISB members are selected based on qualifications, grade, and training. ISB members should not be from the mishap unit, however, it is most important that ISB members were not directly involved in the mishap and were not involved in the immediate supervision or execution of the activity that led up to the mishap. ISB position descriptions are described in Table 4.1. ISB members must meet the qualification, grade, and training requirements listed in Table 4.2. **(T-1)** For Class C through E mishaps the commander of the regular AF installation nearest a mishap determines ISB membership.

Table 4.1. ISB Position Descriptions.

Position	Description
Board President (BP)	Responsible for all activities of the ISB. Ensures evidence is preserved and the installation is prepared to provide all necessary support to the SIB upon arrival. Does not assume the role of Incident Commander (IC). Coordinates evidence collection with other ISBs if the mishap aircraft or involved personnel are not from the base of occurrence.
Investigating Officer (IO)	Ensures preservation of physical evidence. Documents the mishap site. Coordinates the efforts of other ISB members.
Maintenance	Assembles as much information as possible regarding the history of the mishap aircraft, including but not limited to: Air Force Technical Order (AFTO) Forms 781, automated maintenance records, training records of maintainers who last performed maintenance on the aircraft, fuel, oil, hydraulic, and liquid oxygen samples. Coordinates impoundment of servicing equipment and consolidated tool kits used on the aircraft.
Pilot	Assembles as much information as possible regarding the mishap flight and aircrew. This includes, but is not limited to, training records, flight evaluation folders, flight crew information files, flight plans, weather briefings, flight orders, briefing notes, radar and tower tapes, etc.
Flight Surgeon	Coordinates medical care at the mishap site and advises the ISB on the site's environmental hazards. May be the flight surgeon who provided initial response to the mishap. Responsible for completing 72-hour and 7-day history, examination, care and toxicological testing of individuals involved, collection of medical and

Position	Description
	dental records, and ensuring human remains are preserved, photographed, and documented. Serves as the liaison between local medical authorities or coroners and military investigators, including medical examiners from the Armed Forces Medical Examiner System, if required.
Recorder	Should be familiar with administrative duties. Responsible for administrative and logistical needs of the ISB. Facilitates a timely and orderly process of evidence collection and transfer. May be retained as the SIB recorder.
Aircrew Flight Equipment (AFE)	Assembles all evidence associated with AFE and aircraft crew protection and egress systems. This includes as much information as possible regarding the AFE, recent servicing, and the qualifications and relevant records for the individuals who most recently worked on it.

Table 4.2. ISB Member Requirements.

Position	Qualification and Grade	Training
BP	O-6 for Class A, O-6 or O-5 for Class B	Safety and Accident Investigation Board President Course (BPC)
IO		Aircraft Mishap Investigator Course (AMIC)
Maintenance	Fully qualified maintenance officer, SNCO, or civilian-equivalent Experience in the Mission Design Series (MDS) involved is preferred	
Pilot	Qualified in the mishap aircraft is preferred	
Flight Surgeon	Credentialed in aerospace medicine and familiarity with the MDS involved is preferred	Aircraft Mishap Investigation and Prevention Course (AMIP)
Recorder	O-1, E-4, GS-5 or higher	
AFE (as required)	Qualified AFE NCO or Officer	Life Sciences Investigation Course

4.3. Preservation of Evidence. Evidence collected by the ISB lays the groundwork necessary for a successful investigation by the SIB. Evidence includes, but is not limited to, training records, medical records, aircraft records, mission-related paperwork, toxicology, witness statements, and physical evidence. Preserving evidence at the mishap site does not take priority over rescuing the injured or recovering human remains. The ISB assembles evidence from multiple sources and locations. Concentrating only on the mishap site may result in delayed collection of perishable evidence.

4.3.1. Follow the below evidence collection procedures:

4.3.1.1. Collect all evidence regardless of apparent relevance. **(T-1)**

4.3.1.2. Conduct initial interviews of mishap participants. **(T-1)** To preserve the integrity of the safety investigation all written and verbal testimony must be accompanied by appropriate documentation (e.g. Non-Privileged Witness Agreements and Privileged Witness Agreements). **(T-0)** Follow the guidance in AFI 91-204 and use the most current templates located in the AFSAS Pubs & Refs ISB Support (Go) Package at <https://afsas.safety.af.mil/publications/PublicationHomepage.do> (hereinafter ISB Support (Go) Package). **(T-1)** Refer to AFI 91-204 for guidance on offering the promise of confidentiality. Record all verbal interviews. **(T-1)**

4.3.1.2.1. Separate individuals and do not allow debriefs or discussions among those involved. **(T-1)** Initial statements and interviews are extremely valuable in mishap investigations. Individuals' memories about what they experienced during the mishap are most accurate and most accessible shortly after the mishap.

4.3.1.2.2. When initially taking statements or conducting interviews, ISB members should only ask witnesses what happened or what they saw. Leave detailed questioning to the SIB. **(T-1)**

4.3.1.3. Do not copy or allow access to evidence to individuals outside the ISB or allow alteration of evidence. **(T-1)** This includes collection of primary physical evidence and paper records. For electronic products, lock down or sequester records. **(T-1)**

4.3.1.4. Ensure toxicology testing is conducted IAW AFI 91-204. **(T-1)**

4.3.1.5. Complete physical exams must be performed and documented in the Armed Forces Health Longitudinal Technology Application or other electronic medical record for all involved personnel for all Class A mishaps. **(T-1)** A post mishap AF Form 1042 or DD Form 2992, *Medical Recommendation for Flying or Special Operational Duty*, is required to be completed after all mishaps per AFI 48-123, *Medical Examinations and Standards*. **(T-1)** Physical examinations for other mishap and event classes may be focused physical exams appropriate for the mishap. The extent of these examinations is at the discretion of the ISB Flight Surgeon. Do not put privileged safety information in medical records. **(T-1)**

4.3.1.6. Numerous data sources and collection devices are available for use in investigations. Ensure data recorded by various aircraft systems including Crash Survivable Flight Data Recorders, Cockpit Voice Recorders (CVR), Flight Control Seat Data Recorders, Head Up Displays, Advanced Data Transfer Cartridges, Automatic Ground Collision Avoidance System Log files, Personal Computer Debriefing System files, and other on-board recorders is captured and preserved. **(T-1)** Additionally, secure data recorded by other off-board recording systems such as wingman CVRs. **(T-1)** Contact AFSEC Technical Assistance prior to downloading data recorders. **(T-1)**

4.3.1.6.1. To prevent overwrite of aircraft Flight Data Recorder (FDR) and CVR data, ensure power is removed from FDRs and CVRs by pulling the appropriate circuit breakers as quickly as possible if aircraft power still exists after the mishap. **(T-3)** Information on the data recorders can be overwritten and rendered useless in as little as 30 minutes if the recorders remain powered after the mishap.

4.3.1.6.2. The ISB should only remove data recorders from mishap aircraft when they are easily accessible without disturbing or destroying other evidence. When accessing a recorder would disturb or destroy evidence, consult AFSEC Technical Assistance to determine whether to proceed. **(T-1)** Contact AFSEC's Mishap Analysis & Animation Facility (AFSEC/MAAF) for where to send recorders for analysis. **(T-1)** Do not ship any recorder to the MAAF without contacting Tech Assist or one of the MAAF personnel in advance. **(T-1)** Ship recorders as soon as possible and do not hold these items for the SIB's arrival. **(T-1)** Ship the recorder via Federal Express (FedEx), Emery, Airborne, UPS, etc. DO NOT send via US Postal Service. **(T-1)** Do not allow the recorder to be run through metal detectors. **(T-1)** Maintain shipping records and track the location and status of these items closely. **(T-1)** When recovering flight data recorders from submerged aircraft, the ISB should follow the guidance provided in paragraph 6.5.2.

4.3.1.6.3. Ground Control Station (GCS) data is Remotely Piloted Aircraft-unique data that provides valuable information for mishap investigations. If not properly recovered and handled in a timely manner, the data can be overwritten and lost. Download the information from applicable ground stations. **(T-1)** Data may need to be downloaded from multiple Ground Control Stations. Ground Control Station data may be classified and special procedures may be required to download and preserve evidence. Contact local Special Security Officer to coordinate download. **(T-3)**

4.3.1.7. Coordinate with the Maintenance Group Commander or designated impoundment authority to ensure aircraft and equipment associated with the mishap is impounded IAW AFI 21-101, *Aircraft and Equipment Maintenance Management*, and AFI 91-204. **(T-1)** Immediately notify other locations to impound involved equipment. **(T-1)**

4.3.1.8. Collect laboratory samples, complete radiological studies, and obtain 72-hour and 7-day medical histories. Additionally, collect medical, mental health, family advocacy, pharmacy, and dental records. Every attempt should be made to collect 72-hour and 7-day medical histories without the promise of confidentiality. The ISB Flight Surgeon is not authorized to offer a promise of confidentiality without authorization from the ISB President or IO.

4.3.1.9. Do not assume control or overall authority for the mishap site. Before the mishap site is declared safe, the ISB's primary role is to monitor and document actions taken so that the original state of the evidence can be understood by the SIB. Once the site is safe, the ISB becomes the owner of the mishap evidence at the site, but does not assume control or overall authority for the site. The ISB should have a member at the mishap site whenever possible.

4.3.1.9.1. Coordinate with IC to ensure access to the mishap site is closely controlled. **(T-1)** Only those with a legitimate need to be at the mishap site will be included on the entry access list (EAL). **(T-1)** Closely control photography at the site to prevent inadvertent release of potentially sensitive photographs such as classified components or human remains. **(T-1)** To ensure evidence is not compromised, escort personnel who are not on the EAL. **(T-1)** Collect all copies of photographs taken at the site. **(T-1)**

4.3.1.9.2. If wreckage or evidence must be moved due to operational necessity or other circumstances prior to the SIB's arrival, document the scene as thoroughly as possible using both still photographs and video. **(T-1)** Aerial perspectives may prove particularly useful in these cases. Ensure photography or video documentation of both the wreckage as discovered and the removal process is accomplished. **(T-1)**

4.3.1.9.3. Record perishable evidence such as ground scars, witness marks, and medical evidence using video and photographic images. **(T-1)** The ISB should use different colored markings (e.g. flags) to differentiate human remains from other evidence. Photographs of every piece of wreckage are not required. Maintain a list and description of photographs and videos taken. **(T-1)** Include, as a minimum, the Global Positioning System (GPS) location of the item(s) being photographed, the position in relation to the main wreckage, and a description or name of what was photographed. **(T-1)** Do not release photographs or videos to the public. **(T-1)** The CA approves the release of any photographs or videos to the public IAW AFI 91-204. The host unit will provide digital photography support. **(T-3)** Personal cameras and cell phone recordings are forbidden unless authorized by the ISB President. **(T-3)**

4.3.1.9.4. The ISB Flight Surgeon should be present before human remains are removed from the mishap site. Complete a detailed site diagram before moving human remains. **(T-1)** Use clearly labeled markers and photograph the human remains and surrounding area. **(T-1)** Ensure photographs include adjacent structures which could account for injuries or objects which show evidence of tissue transfer. **(T-1)** Do not remove clothing, personal flight equipment, etc. from human remains before they are photographed, examined, radiographs are taken, or before the autopsy, unless prior removal is required for safety reasons. **(T-1)** Great care must be taken to ensure a positive chain-of-custody for all human remains. Contact the CA immediately if any chain-of-custody issues arise.

4.3.1.9.5. Contact the Armed Forces Medical Examiner System to coordinate forensic pathology assistance. **(T-1)** Armed Forces Medical Examiner System can be reached at <https://health.mil/afmes> or via telephone at DSN 366-8648 or Comm (302) 346-8648. If further assistance is needed, contact AFSEC Human Factors Division (AFSEC/SEH) DSN 263-4868, Comm (505) 853-4868.

4.3.1.10. Use the following guidelines to preserve mishap site evidence.

4.3.1.10.1. Curtail unnecessary vehicle and personnel movements because they can obliterate vital ground scar evidence. As quickly as possible, establish single routes into and out of the area, enforced with cordons.

4.3.1.10.2. Aircraft components should be left undisturbed if they pose neither a threat to survivors nor a hazard to the recovery efforts.

4.3.1.10.3. Photograph or video the mishap site prior to disturbing any part of the wreckage for any reason.

4.3.1.10.4. Be cognizant of changing weather conditions which can alter or obliterate evidence such as ground scars. Document conditions and place protective coverings as needed.

4.3.1.10.5. Consult with the IC to ensure proper personal protective equipment is worn to protect against blood-borne pathogens, composite materials, and other potentially hazardous materials at the mishap site.

4.3.2. Mark and inventory all evidence. (T-1) Record the date, name, office symbol, address, e-mail address, and phone number of each person who is interviewed or provides a statement. Document the source of any evidence collected by the ISB to include photographs and videos. Create an inventory list of all impounded aircraft and equipment including physical location.

4.4. ISB Handover to SIB. The ISB President hands over all evidence and provides a briefing to the SIB. All members of both the ISB and SIB should be present for the briefing. The briefing should be accomplished prior to the ISB and SIB visiting the mishap site. The ISB should remain available to the SIB after the handover is complete and until relieved by the SIB President. The ISB President should coordinate to remove ISB members from the mishap site EAL and add SIB members. Once released, the ISB's involvement in the mishap ceases. ISB members do not retain evidence, copies of evidence, AFSAS role assignment, or access to the mishap investigation. The briefing template is located in the ISB Support (Go) Package. The briefing should cover the following items:

- 4.4.1. Mishap aircraft call sign, serial number, unit, date, and time of mishap.
- 4.4.2. ISB contact information.
- 4.4.3. Location and condition of the mishap site, including collateral property damage.
- 4.4.4. Actions taken by emergency response forces that affected the scene or wreckage.
- 4.4.5. Location and condition of participants.
- 4.4.6. Status of toxicological testing and autopsies (as required).
- 4.4.7. Next-of-kin notification status.
- 4.4.8. Location, condition, and status of evidence, including all classified equipment.
- 4.4.9. Presence of munitions, composites, or other hazardous materials at scene.
- 4.4.10. Civil authorities involved in managing scene or casualties.
- 4.4.11. List and location of impounded equipment and records.
- 4.4.12. Status of witness statements and interviews.
- 4.4.13. Status of preliminary technical reports.
- 4.4.14. Status of technical assistance.
- 4.4.15. Media interest and statements made to date.
- 4.4.16. Local area safety briefing.
- 4.4.17. Logistical arrangements in place for SIB such as workspace, communications, transportation, billeting, personal equipment, etc.

Chapter 5

SIB REQUIREMENTS

5.1. Event Types and SIB Membership. The CA appoints individuals to investigate safety events based on the event type. When a mishap's initial cost estimate is within 10% of the next higher mishap class, consider using investigation procedures and requirements for the next higher class. SIB position descriptions are described in Table 5.2.

5.1.1. Primary and Secondary SIB Members. The CA designates SIB members as Primary or Secondary. **(T-1)**

5.1.1.1. Primary Members. Primary members determine the SIB's results, including factors, findings, causes, and recommendations. Primary members sign the investigation authentication page and may submit Minority Reports when they do not concur with the SIB's results in whole or in part. Primary members may include a SIB President, IO, AFSEC Representative, Maintenance, Pilot, and Flight Surgeon. See Table 5.1 for minimum SIB membership requirements. When the circumstances of the mishap require additional expertise, Conditional members may be added as Primary SIB members. See Table 5.4 for a list of Conditional members.

5.1.1.2. Secondary Members. Secondary members provide expertise or assistance to the SIB. Secondary members may participate in all SIB deliberations, but do not sign the authentication page and are not permitted to submit Minority Reports. The SIB President determines the extent of Secondary member involvement in the SIB. Conditional members may be added as Secondary Members. See Table 5.4 for a list of Conditional members.

5.1.1.3. Conditional Members. Conditional members may be subject matter experts, observers, or other personnel. The SIB President determines the extent of Conditional member involvement in the SIB.

5.1.1.3.1. Many different types of subject matter experts can be made available to SIBs. These experts and advisors can come from depots, industry, civilian organizations, other government organization, and laboratories.

5.1.1.3.2. Civil aviation, foreign military, and sister service personnel may request to observe the SIB. An observer is not a member of the SIB. Requests for observers must be approved by both AF/SE and the CA. **(T-1)** Department of Defense (DoD) observers may participate to the extent authorized by the SIB President. See AFI 91-204 for guidance on Non-DoD observers.

5.1.1.3.3. It is common for SIBs to use a number of other personnel in supporting roles. This can include personnel who assist in wreckage and evidence recovery, transcriptions, administrative personnel, and others. These personnel are not members of the SIB. Use of these personnel is at the discretion of the SIB President.

Table 5.1. Event Types and Minimum Required Membership.

Event Type	Required Members
Class A Destroyed Aircraft, Fatality or	BP

Event Type	Required Members
Permanent Total Disability	IO AFSEC Representative Maintenance Pilot Flight Surgeon Recorder
Class A Other	BP IO Flight Surgeon Recorder
Class A or B Engine-Confined Damage	SIO
Class B	BP IO or IO Recorder
Class C through E Mishap or Hazard	SIO

Table 5.2. SIB Position Descriptions.

Position	Description
BP	Responsible for all activities of the SIB, is the final decision authority, and reports directly to the CA. Coordinates site access requirements directly with the IC. Does not assume the role of IC at any point during the investigation.
IO	Responsible for daily SIB activities, the investigation, and preparing of reports and messages. Directs and coordinates activities of other SIB members and works with the AFSEC Representative (if assigned) to manage the SIB.
AFSEC Representative	Process expert that guides the SIB investigation and report writing efforts. Conducts refresher training on SIB procedures and coordinates technical assistance resources.
Maintenance	Analyzes maintenance factors, pre-mishap status of mishap aircraft, aircraft systems, records, and maintenance personnel qualifications, proficiency, and training. Evaluates depot and Quality Assurance actions, as well as possible design or engineering deficiencies.
Pilot Member	Analyzes operations factors to include: qualifications, proficiency, training, communications, aircrew actions, mission-specific concerns, performance data, flight-related publications, and aircrew stressors.
Flight Surgeon	Evaluates medical records, histories, and other evidence. Determines the impact of pre-existing medical conditions on the mishap. Analyzes mechanisms and causes of injuries or death. Typically analyzes human factors. Advises the SIB on protected health information.
Recorder	Manages the work center and evidence inventory.

Position	Description
	Supervises all additional administrative assistants assigned to the board. Maintains a filing system to account for all evidence, testimony, and board proceedings, both electronically and physically, to ensure security and prevent loss. Assists with all report products as needed. Assists with evidence and wreckage hand-over.
SIO	Performs duties as described above for the BP, IO, Maintenance, Pilot, and Recorder.

5.1.2. Class A and B SIB Requirements.

5.1.2.1. SIB Member Requirements. SIB members must meet the minimum training, qualification, and grade requirements listed in Table 5.3. **(T-1)** Members included in Table 5.3 are Primary members, sign the Tab T, and may submit a Minority Report.

5.1.2.2. Conditional Members. The CA may appoint Conditional members. Conditional members must be qualified or experienced in the needed specialty or field and for Class A mishaps must not be from the mishap wing, or equivalent. **(T-1)** For Class B mishaps Conditional members must not be from the mishap unit, or equivalent. **(T-1)** Conditional Members will be SNCOs, Officers, or civilian equivalents unless otherwise noted. **(T-1)** See Table 5.4 for a list of Conditional members.

Table 5.3. Class A and B SIB Member Requirements.

Position	Qualification and Grade	Training
BP	Pilot or Navigator (Notes 1, 2) (T-1) O-6 for Class A, O-5 for Class B (T-1) For fatalities must be O-7 (or O-7-select) (T-1)	BPC (T-1)
IO	Pilot or Navigator (Notes 1, 3, 6) (T-1)	AMIC (T-1)
AFSEC Representative		AMIC and BPC (T-1)
Maintenance	Fully qualified maintenance officer, SNCO, or civilian-equivalent. (T-1) Must have experience in the MDS involved and a minimum of 1 year flightline or Quality Assurance experience. (Note 3) (T-1)	
Pilot	Current and qualified and should be an instructor or flight examiner in the MDS involved. (T-1) At a minimum must be experienced as defined in MDS-specific Volume 1. (T-1) O-3 or higher (Note 3) (T-1)	
Flight Surgeon	Credentialed in aerospace medicine and familiarity with the MDS involved is preferred. (Note 4) (T-1)	AMIP (T-1)
Recorder	O-1, E-4, GS-5, or higher. (Note 5) (T-1)	None

Position	Qualification and Grade	Training
<p>Note 1: BP (including IO if no BP) must always be equal to or higher in rank than the highest ranking individual involved in the mishap. (T-1)</p> <p>Note 2: Must be appointed from outside the wing (or equivalent organization) experiencing the mishap, and must not be attached to the mishap organization for flying purposes or anticipating an assignment to the mishap organization within the next six months. (T-1)</p> <p>Note 3: Must not be assigned to the mishap wing for Class A mishaps and must not be assigned to the mishap unit for Class B mishaps. (T-1)</p> <p>Note 4: Must neither be attached to the mishap organization for flying purposes nor anticipating an assignment to the mishap organization within the next six months. (T-1)</p> <p>Note 5: Must not be assigned to the mishap unit. The recorder is normally assigned to the mishap base and may carry over from the ISB to the SIB. (T-1)</p> <p>Note 6: For Aviation Ground Operations (AGO) mishaps with no operations involvement (e.g. no aircrew, no intent for flight) the IO may be an AMIC-trained maintenance officer. (T-1)</p>		

Table 5.4. Conditional SIB Members.

Position	May be appointed if:	Required Training, Qualification and Grade
Additional Crew Members	A crew position other than pilot was, or likely was, central to the mishap. Includes crew positions such as Navigator, Air Battle Manager, Flight Engineer, Loadmaster, Sensor Operator, etc.	Current and qualified and should be an instructor or flight examiner in the MDS involved. At a minimum must be experienced as defined in MDS-specific Volume 1 (T-1) O-3 or higher SNCO (T-1)
Aircrew Flight Equipment (AFE)	AFE is known or suspected to have been a factor in the mishap, may have contributed to injuries, or was used during the mishap sequence. Required for all mishaps that involved the successful or unsuccessful use of an ejection seat. (T-1)	Life Sciences Equipment Investigation Course (T-1) Minimum 7-level SNCO or fully qualified AFE officer (T-1)
Human Factors	Human Factor issues are known or suspected to have been a factor in the mishap.	Must be an Aerospace and Operational Physiologists, psychologists, or and other Human Factors experts as required. (T-1) AMIP or AMIC (T-1)
Airfield Operations	Air Traffic Control (ATC), Tactical Air Control, or Airfield Management issues are a known or suspected factor in the	Minimum 7-level SNCO or fully qualified officer (T-1)

Position	May be appointed if:	Required Training, Qualification and Grade
	mishap.	
Weather	Weather or meteorological service issues are suspected factors in the mishap.	Minimum 7-level SNCO or fully qualified officer (T-1)
Weapons	Weapons or associated systems are suspected factors in the mishap.	Must be a graduate of the Weapons Safety Manager Course and be knowledgeable of the weapon(s) involved. (T-1) Minimum 7-level SNCO or fully qualified officer (T-1)
Air Force Operational Test and Evaluation Center	Air Force Operational Test and Evaluation Center personnel or equipment, or Air Force Operational Test and Evaluation Center-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.	
Jumpmaster or Malfunction Officer	Parachuting operations were affected or are a known or suspected factor in the mishap.	Current and Qualified Jumpmaster or Malfunction Officer trained and certified IAW AFJ 13-210 (T-1) Minimum 7-level SNCO or fully qualified officer (T-1)
Crash Fire & Rescue	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.	Minimum 7-level SNCO, fully qualified officer, or civilian equivalent (T-1)
Air Force Flight Standards Agency	Instrument flight procedures or publications are involved.	
Nuclear Expert	Nuclear reactors, nuclear power systems, or radioactive sources are involved.	
Defense Contracting Management Agency	Contract maintenance or operations are involved and government oversight and contractor actions are known or suspected factors in the mishap.	
Cyberspace	Cyberspace systems were involved in	

Position	May be appointed if:	Required Training, Qualification and Grade
	the mishap.	
Additional Personnel	Determined by AF/SE or CA to be necessary and appropriate under cooperative agreements. May include foreign military representatives and other types of personnel.	

5.1.3. Class C through E Mishaps and Hazard Member Requirements. Class C through E mishap and Hazard investigations normally require an SIO. The CA always has the option to assign additional members. SIOs investigating Class C through E mishaps must be graduates of AMIC. (T-1) Mishap Investigation Non-Aviation course graduates may investigate Class C through E mishaps if there was no aircraft damage (i.e. only injuries have occurred).

Chapter 6

INVESTIGATION PROCEDURES AND TECHNIQUES

6.1. Overview. This chapter provides procedures and techniques for mishap investigations. The focus is on Class A and B Mishaps, however, the applicable portions of the chapter should also be applied to Class C through E Mishaps and Hazard investigations.

6.2. Initial Actions. Upon arrival, the SIB receives a hand-over briefing from the ISB and the SIB IO or AFSEC Representative should provide the “SIB Day One” briefing outlining safety privilege, overview of the roles and responsibilities of each SIB member, and SIB timelines. Do not release the ISB until the SIB President is confident all evidence is accounted for and properly documented. (T-1)

6.2.1. SIB members will be briefed on protecting safety privileged information at the start of the SIB by the IO or AFSEC Representative. (T-1) This may be accomplished by viewing the video located on the AF Portal/AF Safety Center/JA/Protecting Privileged Safety Video or via briefing. The “SIB Day One” brief in the SIB Support (Go) Package at <https://afsas.safety.af.mil/publications/PublicationHomepage.do> (hereinafter SIB Support (Go) Package) covers the definition and protection of safety privileged information. Additionally, all members of the SIB must receive and sign a copy of the *Non-Disclosure Agreement - SIO or SIB Members* located in the SIB Support (Go) Package. (T-1)

6.2.2. The SIB will ensure that ISB member access to evidence, the mishap site, the investigation in AFSAS, and network shared drives are withdrawn. (T-1) The SIB will ensure the mishap site EAL is updated adding the SIB members and removing the ISB members. (T-1)

6.3. Mishap Site. The IC retains control of the mishap site at all times. The SIB controls all evidence at the mishap site. The SIB’s main concern is locating and recovery of evidence. Depending on the mishap this could range from a search for specific components to a general wreckage recovery. When determining recovery priorities and methods, the SIB should rely on the expertise provided by members of the SIB and other subject matter experts. SIB members provide oversight of recovery operations and may assist when necessary or desired. Ensure personal protective equipment is used as directed by the IC. When fatalities are involved, great care needs to be taken to ensure a positive chain of custody for all human remains. Contact the CA immediately if any chain-of-custody issues arise.

6.4. Investigation Timeline. Investigations should be completed within timelines established in AFI 91-204. If an investigation cannot be completed within established timelines, contact the CA’s safety staff to request an extension. Document approved extensions in AFSAS by releasing a status message.

6.4.1. Temporarily de-convening an investigation. If a SIB is waiting on technical analysis or wreckage recovery for an extended period of time, the CA may approve the SIB to temporarily de-convene.

6.4.2. Prior to de-convening. Complete all Tabs that are not awaiting information. The Tab T and final message should be drafted with all available information, to include placeholders for results of analysis or wreckage recovery. Develop a plan that allows enough time to

finish the investigation and complete the Tabs, briefing, and final message. While de-convened, the SIB remains the members' primary duty and are not relieved of their investigative responsibilities and continue to monitor investigation-related activities. The SIB must reconvene to deliberate in person or via video teleconference. **(T-1)**

6.5. Mishap Evidence. SIBs must use all available information to investigate the mishap. **(T-1)** Review and analyze all witness testimony, materiel analysis, historical documents, recorder data, publications, etc. to determine root cause of the mishap.

6.5.1. Physical Evidence. Collect all physical evidence including wreckage, components, documents (hard copy or electronic copies), etc.

6.5.2. Underwater Salvage. If recovery or salvage of floating debris or submerged wreckage is required, the SIB will request assistance from CA. **(T-1)** The CA will coordinate with the US Navy, US Coast Guard, or contract with commercial salvage company. **(T-1)** Upon recovery of a flight data recorder from an aircraft that has crashed in a body of water, immediately place the flight data recorder in the approved container. Do not make any attempt to drain or flush the flight data recorder; just get it back under water as quickly as possible. **(T-1)**

6.5.3. Records. Collect and review all personnel, medical, aircraft, and equipment records.

6.5.4. Photographs and Video. Collect and analyze all digital and video images as they can be effectively used as evidence. Keep a list and description of photos taken. This listing should include, as a minimum, the location of the part(s) being photographed and what was photographed. The host unit will provide digital photography support. **(T-3)** SIBs ensure no unauthorized photography of evidence is taken. Personal imaging devices, such as cell phones for photographs by SIB members, may not be used without SIB President or IO authorization.

6.5.4.1. Photographs or videos which do not suggest SIB analysis are non-privileged. Photographs and videos produced by technical experts as a part of field or laboratory analysis of factual evidence are non-privileged. This includes parts reconstruction, measurement of debris field, parts locations and dimensions, identification of key features and witness marks, identification of failure sequences, etc.

6.5.4.2. Photographs or videos that indicate interpretation or analysis by SIB or ISB members are privileged. These include staged photographs, simulated reenactments, etc. Photographs or videos that are privileged must be marked as such to include use of digital watermarks or coding if available. **(T-1)**

6.5.4.3. The CA approves the release of any photographs or videos to the public IAW AFI 91-204.

6.5.5. Recorded Data. Collect and analyze data from on-board and off-board sources. Numerous data sources and collection devices are available for use in investigations including Crash Survivable Flight Data Recorders, Cockpit Voice Recorders (CVR), Flight Control Seat Data Recorders, Head Up Displays, Advanced Data Transfer Cartridges, Automatic Ground Collision Avoidance System Log files, and Personal Computer Debriefing System files. Additionally, secure data recorded by other off-board recording

systems such as wingman CVRs. Contact AFSEC Technical Assistance prior to downloading data recorders.

6.5.5.1. SIBs frequently want to declassify aircraft Head Up Displays and other recordings. For each MDS, there is an AF Classification Authority who determines what displays and recordings are classified. The Classification Authority determines what can be declassified and authorize such declassifications. For some MDS, the Classification Authority has delegated declassification authority to a lower level. See Table 6.1 for the declassification process.

Table 6.1. Declassification Process.

Step	Action
1	Contact the System Program Office or find the appropriate Classification Guide on IntelLink to find the Classification Authority.
2	Contact the Classification Authority or delegate.
3	Classification Authority or delegate reviews the recording and authorizes the declassification.
4	Mask or blank any items required by the Classification Authority or delegate.
5	Mark the adjusted recording appropriately. This will commonly include For Official Use Only markings and International Traffic in Arms Regulations restrictions markings.

6.5.5.2. CVR and other recordings and transcripts are not privileged. SIBs will transcribe audio recordings. **(T-1)** Limit the transcript to periods of time relevant to the mishap sequence of events, but indicate breaks in the transcript. Do not summarize, paraphrase, or otherwise alter the recording when transcribing. **Exception:** SIBs can replace profanity with “[expletive]”. The AF does not release the audio recordings of the voices of the mishap crew to the public due to the privacy interests of the crewmembers or the surviving family members. Including recorded voices of the mishap crew in animation, simulation, or reenactment videos does not, in itself, make them privileged.

6.5.5.3. Recorded flight data will be reviewed by the AFSEC/MAAF to ensure the validity, limitations, and appropriate use are addressed. Simulation and animation products and tools, including those generated from contractor simulators, test range data systems, training range data systems, tactical data links, and companion aircraft used by the SIB must meet the highest standards of completeness and accuracy. AFSEC/MAAF does not provide other services such as the development or editing of multimedia products to be used solely as briefing aids.

6.5.5.4. Animations are commonly created to allow investigators to see multiple data sources merged together. AFSEC/MAAF is the central AF agency for recovery, transcription, analysis, simulation, and animation of all data in support of SIBs.

6.5.5.4.1. AFSEC/MAAF will be the primary source for animations intended to represent the actual mishap sequence. If AFSEC/MAAF cannot produce a specific mishap animation, or if additional animations are produced, SIBs will submit externally-generated mishap animations to the AFSEC/MAAF for review. **(T-1)** AFSEC/MAAF will analyze the externally-generated animation for any shortfalls, inadequacies, or inaccuracies that may impact accurate SIB deliberations or CA

conclusions. If it is not used, they will not enter the animation into the formal report Tabs. **(T-1)** All animation products must be appropriately marked to indicate whether or not they are privileged. **(T-1)**

6.5.5.4.2. The Military Flight Operations Quality Assurance (MFOQA) program also has the capability to provide mishap analysis and animation support for those fleets that currently employ MFOQA analysis. When workload or situational circumstances dictate, AFSEC/MAAF personnel may coordinate with the MFOQA program manager to establish investigation support.

6.5.6. Requests to return records or equipment to mishap organizations. If the BP determines it is appropriate, SIBs will retain original documents and provide copies to the requesting organization. **(T-1)** Document the return of equipment with a Memorandum for Record (MFR). **(T-1)**

6.6. Written and Verbal Testimony. To preserve the integrity of the safety investigation all written and verbal testimony must be accompanied by appropriate documentation (e.g. Non-Privileged Witness Agreements and Privileged Witness Agreements). **(T-1)** Follow the guidance in AFI 91-204 and use the most current templates located in the SIB Support (Go) Package. Refer to AFI 91-204 for guidance on offering the promise of confidentiality. Record all verbal interviews. See the SIB Support (Go) Package for interview tips and techniques.

6.6.1. Once a witness has given testimony under a promise of confidentiality, subsequent testimony should also be conducted under a promise of confidentiality.

6.6.2. The intent of interviews and written statements is to capture witness recollection. Maintain a list of all witnesses and their role at the time of the mishap (e.g. pilot, maintainer, commander, witness). Include witness contact information (name, address, phone number, and e-mail) for all individuals who provide a statement, are interviewed, or are witnesses.

6.6.3. If a contractor, such as contract maintainers involved in the mishap, are reluctant to provide a statement, have Quality Assurance, Contracting Office Representative, or the Government Flight Representative review the contract; look for wording such as, "the service provider will assist with the investigation and reporting of mishaps." If that type of wording is not in the contract, contact the CA for how to proceed.

6.6.4. If during the course of a non-privileged interview it becomes apparent that a witness is reluctant to provide testimony, end the interview and seek approval to offer the promise of confidentiality. If approved, offer the witness a promise of confidentiality, sign the appropriate documents, and begin a new interview.

6.7. Technical Analysis. If failure of a component is suspected, contact the AFSEC Engineering Technical Assist Hotline at DSN 246-5867 to determine the best organization to conduct analysis and ensure funding is approved. Do not simply turn-in suspect components for repair unless you have first contacted the program manager to determine whether failure analysis is required. When analysis is necessary but not performed the SIB risks loss of root cause and limits their ability to create effective recommendations. Submit Engineering Investigation type Mishap/High Accident Potential Deficiency Report (DR) on known or suspected causes of mishaps IAW Technical Order 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution*. Enter the DR number in the appropriate field in the Object section of AFSAS. SIBs should not disassemble parts without consulting AFSEC engineers or System Program Offices.

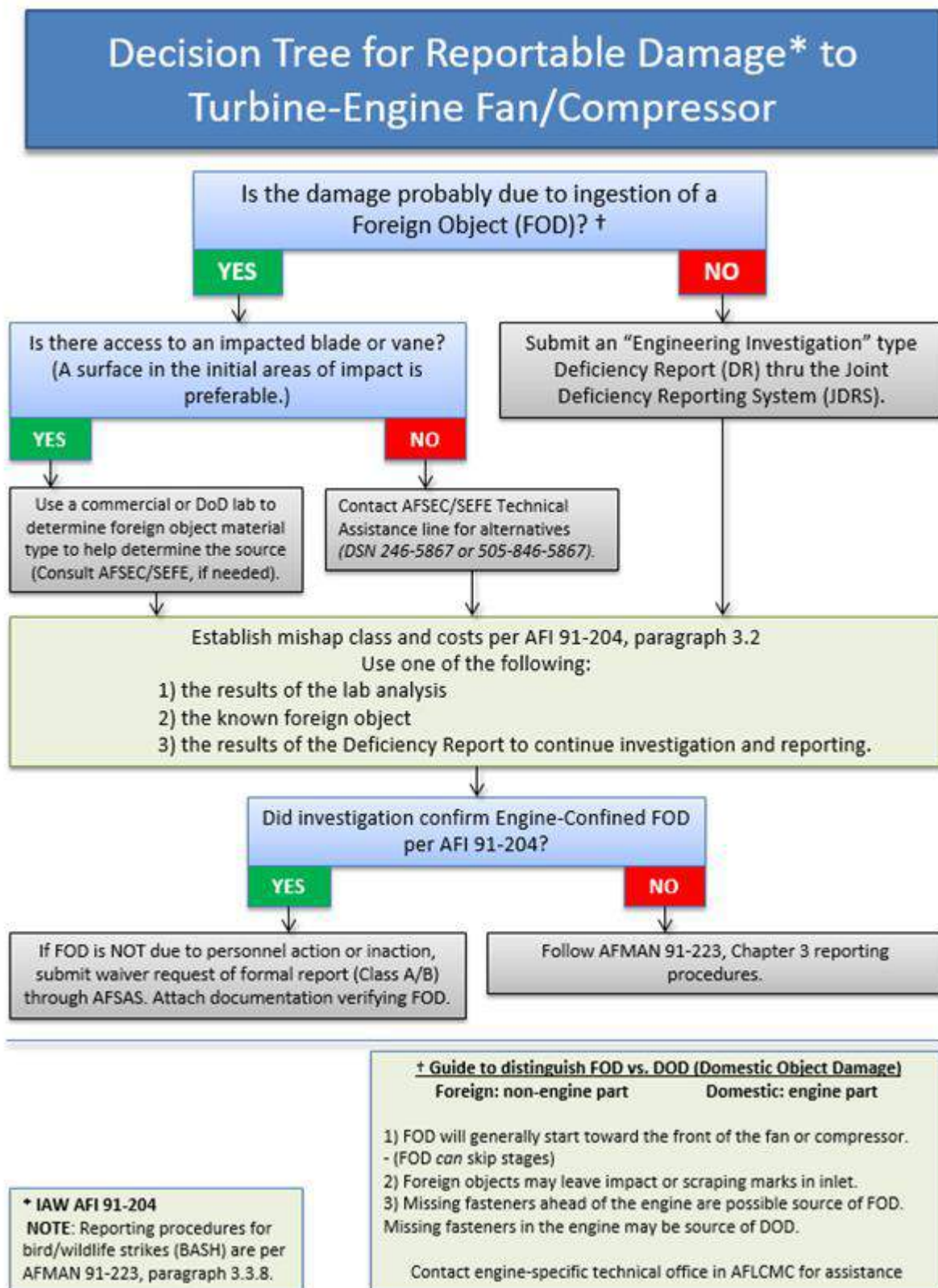
6.7.1. Ship investigative evidence IAW AFI 91-204. All evidence sent for analysis must include disposition instructions. **(T-1)** Instruct the laboratory not to release evidence to anyone until receiving approval from the SIB, a follow-on legal board, or owning unit as applicable.

6.7.2. If evidence is critical to determining the cause of a mishap, such as data recorders or suspect components, the SIB President may consider designating an individual to accompany the components. SIBs may observe laboratory analysis or teardown. Maintain contact with agencies conducting teardown and analysis. If the final evaluation will not be completed in a timely manner, request a preliminary report.

6.7.3. Organizations that perform component analysis provide a technical report to the SIB. These technical reports may be non-privileged or privileged.

6.7.4. If the suspected cause of engine damage is Foreign Object Damage (FOD), follow the decision tree in Figure 6.1 to determine costing and investigative requirements. Formal report waivers are routinely considered for engine-confined FOD mishaps. However, FOD mishaps that are initiated by personnel actions or inactions require a formal report. For example, if a maintainer fails to remove an engine inlet plug and the plug subsequently causes engine damage, a formal report would be required.

Figure 6.1. FOD Analysis.



6.8. Historical Data, Statistics, and Mishap Reports.

6.8.1. SIBs may conduct historical research using AFSAS. Areas of interest may include, but are not limited to, similar mishaps, Hazards, and previous recommendations.

6.8.2. Data from Proactive Aviation Safety Programs. Programs, such as MFOQA, Line Operations Safety Audit (LOSA), and Airman Safety Action Program (ASAP), are described in AFI 91-225, *Aviation Safety Programs*, and can be used to provide information to SIBs. Unusual events, threats, and errors encountered during routine operations and documented through proactive safety programs often are the same factors present during a mishap chain of events; contextual factors, such as weather or terrain, may determine the severity of the outcome of a chain of events. SIBs can use data from proactive programs to determine if and how similar factors found in a mishap were encountered during non-mishap events and then can assess what contextual differences mitigated the severity of the non-mishap events. Proactive safety data can prove particularly helpful when investigating whether the actions of mishap aircrew constituted isolated events or whether such actions form part of a larger pattern of deviation from established procedures.

6.8.2.1. The MFOQA Program has the capability to analyze historical flight data for a given MDS, operating location, or phase of flight. Such analyses may be requested based on the SIB's needs and may include: analysis of the event file; animation of the event file; historical analyses of similar operational activities (trends) of data associated with the affected aircraft tail number and of the location where the event occurred (same and additional tail numbers); and running of interpretive models. AFSEC/MAAF personnel will coordinate with the MFOQA program manager to establish investigation support. Non-privileged aggregate MFOQA analysis for participating MDS fleets for the last year can be found on the AFSAS Pubs and Refs Homepage MFOQA ASAP LOSA section.

6.8.2.2. The LOSA program produces reports of non-punitive and unobtrusive peer-to-peer observations of operations and logistics activities. LOSA reports contain safety-related data collected during normal operations in order to assess safety margins and improvement measures. LOSA reports can be used by SIBs as evidence of previously documented threats and errors encountered by aircrew, maintenance, or other personnel, how such threats and errors were managed, and of the outcome of such events. LOSA reports also may provide excellent insights into training and organizational culture.

6.8.2.3. ASAP voluntary reporting via the Airman Safety App documents hazards and errors. ASAP reports can provide a firsthand perspective of events, plus recommended corrective actions. ASAP may correlate similar hazards or errors investigated by a SIB. ASAP reports may also contain recommendations that the SIB can leverage. ASAP reports can be reviewed from the AFSAS homepage at <https://afsas.safety.af.mil>.

6.9. Surveys. A survey can substitute for observations and interviews. Surveys are useful when SIBs require a large sample to determine cultural norms or interpretation of guidance. There are pitfalls with conducting a survey that SIBs need to be aware of before deciding on a survey. Poorly designed and poorly executed surveys may yield invalid data and mislead SIBs.

6.9.1. Surveys can be as simple as asking yes-no questions or as complex as multi-item branching questions with combinations of forced choice, narrative, and Likert-type

responses. In every case, SIBs should strive to create a survey that meets the requirements of reliability and validity.

6.9.2. Contact AFSEC/SEH for assistance when considering the use of a survey.

6.10. Mishaps during Contingency Operations. Mishaps occurring during wartime or contingency operations present unique challenges. Access to mishap sites may not be possible if the aircraft is in hostile territory. Logistics and transportation for SIBs may delay their arrival or even preclude the investigation from being completed within established timeline guidance. While it is recognized that wartime, contingency operations, or classified operations may create delays in evidence gathering and reporting, these operations do not relieve commanders of the requirements in 91-series directives.

6.11. Coordination with a Legal Investigation. Following a mishap, a legal investigation (e.g. Accident Investigation Board or Commander Directed Investigation) may be convened IAW AFI 51-503, *Aerospace and Ground Accident Investigations*.

6.11.1. IAW AFI 91- 204, criminal investigations take priority over safety investigations. Occasionally a safety investigation and legal investigation will work concurrently (e.g. high visibility mishaps, mishaps with fatalities). However, safety investigations must be conducted independent of legal investigations. **(T-1)** SIBs should coordinate activities with the legal investigation such as visits to the mishap site.

6.11.1.1. IAW AFI 91-204, the SIB President refers all media and next of kin matters to the Accident Investigation Board President (including requests from these parties to obtain access to the wreckage or the personal property of the deceased).

6.11.1.2. SIBs may provide non-privileged information to the legal investigation as it becomes available, but not to the detriment of the SIB. This information includes, but is not limited to, aircraft maintenance records, toxicological results, flight records, non-privileged technical analysis reports, non-privileged photographs, and medical records. All information turned over to the legal investigation prior to the formal handover will be documented with an MFR. **(T-1)** When determined they are no longer needed by the SIB, the SIB President will release witnesses, participants, and interviewees (e.g. mishap pilot, mishap maintainer, mishap flight engineer) to the legal investigation.

6.11.2. Do not release analysis, findings, causes, recommendations, or references to privileged witness statements. Do not release recordings of simulated, computer-generated, animated, or reenacted portions of the mishap if they involve analysis.

6.11.3. Transfer evidence from the SIB to the legal investigation IAW paragraph 7.4.12.

6.12. Coordination with Mortuary Affairs. Provide copies of any records or materials required or used in the identification process and copies of requested photographs of the deceased to the mortuary officer. Either Armed Forces Medical Examiner System or the local medical examiner may generate these products. HQ Air Force Personnel Center carefully controls and maintains these documents on permanent file.

6.13. Investigation Conclusion. At the conclusion of the investigation, accomplish the following actions:

6.13.1. Dispose of all non-privileged evidence IAW AFI 91-204. Privileged evidence not uploaded in AFSAS is handed over to the CA's safety staff who maintains the evidence until the Memorandum of Final Evaluation is published.

6.13.2. Prior to de-convening for the scheduled out-brief, upload the .pdf Tab files for Part 1 and Part 2 of the formal report along with any Part 3 materials in AFSAS. Prepare the final message in AFSAS, but do not select "Submit for Release" to the CA. Notify the CA safety office once the Part 1, Part 2, and Part 3 materials and final message are loaded. The CA safety office will review all products for quality control purposes IAW AFI 91-204. **(T-1)**

6.13.3. The SIB President or IO may keep an electronic copy of all working files, Tabs, etc. on a portable hard drive, DVDs, or other suitable media in the event any material is needed between when the SIB de-convenes and the out-brief is complete. The SIB President or IO copies will be erased or destroyed after the CA accepts the results of the investigation and the final message is accepted by AFSEC. **(T-1)**

6.13.4. Reformat the host wing supplied computers used by the SIB immediately prior to their departure. Alternatively, military approved "wiping" software can be used on properly partitioned hard-drives.

6.13.5. Delete all network files, folders, e-mail, and backup copies used by the SIB once the investigation is complete.

6.13.6. SIBs will bring completed AFTO Forms 22, *Technical Manual Change Recommendation and Reply*, and AF Forms 847, *Recommendation for Change of Publication*, to the CA out-briefing. **(T-1)** The CA safety staff will submit these forms to appropriate agencies at the conclusion of the briefing, unless previously submitted for critical safety actions. **(T-1)** In the absence of a CA briefing, the CA safety staff will coordinate with SIBs to submit the forms to the appropriate agencies. **(T-1)**

6.13.7. IAW AFI 91-204, SIBs will bring any Opportunity to Submit Additional Comments letters (if applicable) to the CA out-brief. **(T-1)** The CA safety staff will route these letters IAW AFI 91-204. **(T-1)**

6.13.8. The CA safety staff will conduct a quality control of the formal report (Tabs, AFSAS entries, and final message narrative) IAW AFI 91-204 prior to approving the final message for release. **(T-1)** The SIB will correct any errors found before re-submitting the final message for release. **(T-1)**

6.13.9. Following release of the final message, AFSEC/SEF conducts a quality control review of the formal report for compliance with AFI 91-204 and AFMAN 91-223, and for accuracy and completeness of the investigation. If the final message is returned, further coordination between the SIB and the CA is required. Following a return, corrections must be completed and a final supplemental message released within 10 business days. **(T-1)**

Chapter 7

FORMAL REPORTS

7.1. Overview. Formal reports are normally completed for Class A and B mishaps, but may be required by the CA for other safety investigations. Formal reports present both non-privileged and privileged safety information in a structured format as outlined in AFI 91-204. Formal reports are composed of three Parts, and each Part is further subdivided into Tabs. Tabs comprise electronic copies of evidence used by SIBs to complete the investigation. SIBs must use the Tab templates for formal reports located in the SIB Support (Go) Package. **(T-1)** AFSEC does not provide completed reports as templates. This does not preclude the SIB from requesting or referencing other mishaps as investigative sources of data.

7.2. Formal Report and Tab Waivers. Use AFSAS to route formal report and Tab waiver requests through the CA to AFSEC/SEF. **(T-1)**

7.2.1. Formal Report Waiver. This type of waiver relieves SIBs of the requirement to produce Part 1 and Part 2 Tabs. When a formal report waiver is granted, SIBs must complete all required AFSAS data fields and the final message requirements in Table 8.1. **(T-1)** A formal report waiver does not relieve SIBs of their responsibility to conduct a thorough investigation and write a comprehensive report. SIBs must continue preparation of the formal report until a waiver is approved. **(T-1)** Formal report waivers are routinely considered for mishaps involving known material deficiencies with established corrective actions and engine-confined FOD. One prior occurrence does not generally constitute a known deficiency. A corrective action is considered established if it is funded or was considered for funding but consciously unfunded (accepted risk) by the appropriate decision authority. Formal report waiver requests for other types of mishaps require strong justification. Elapsed time since the mishap or the anticipated quality of the message is not appropriate justification for report waivers.

7.2.1.1. Formal report waiver requests for known material deficiencies must include the following:

7.2.1.1.1. The materiel characteristics or mishap attributes that were similar to previous mishaps. **(T-1)**

7.2.1.1.2. A summary of any technical analysis done. Upload supporting documentation. **(T-1)**

7.2.1.1.3. AFSAS numbers of previous mishaps showing this is a known failure mode, with corrective actions in place, or accepted risk. **(T-1)**

7.2.1.1.4. Status of corrective actions including reference information (e.g., Time Compliance Technical Order number), and the organization responsible for implementing the action. **(T-1)**

7.2.1.2. Formal report waiver requests for engine-confined FOD must include supporting documentation to confirm the mishap meets the AFI 91-204 definition of an engine-confined mishap. **(T-1)** Waivers will not be approved for FOD mishaps that were initiated by personnel actions or inactions. **(T-1)** For example, a formal report is required

if a maintainer fails to remove an engine inlet plug and the plug subsequently causes engine damage.

7.2.2. Individual Tab Waivers. Tab waivers, when granted, relieve SIBs of the requirement to complete individual Tabs. Request Tab waivers where there is no data for the individual Tab. Tab T is always required unless a formal report waiver is granted.

7.3. Assembling the Formal Report. Part 1 Tabs (A-S) contain non-privileged information and Part 2 Tabs (T-Z) contain privileged information. To produce electronic Tabs:

7.3.1. Download the current Tab templates from the SIB Support (Go) Package. Included in the Tab template folder is “how to” guidance on updated techniques to build Tabs.

Example: How to add documents using the “attach file” option in .pdf documents.

7.3.2. Work should be done on the Tab template as a Microsoft Word® document. Copy and paste Microsoft Word® documents (e.g. transcribed interviews for Tab R, Tab U) directly into the applicable portion of the template.

7.3.3. For hard-copy documents (e.g. pilot’s training folder for Tab G, orders appointing the investigators for Tab A), scan the documents as .jpg files and insert them into the template at the appropriate location. Ensure the scanner function is set to the highest resolution possible.

7.3.4. Photographs, as well as other .jpg files, can be inserted directly into the Microsoft Word® document. Compressing photos will degrade the quality and they will become unusable.

7.3.5. Do not highlight, redact, or otherwise mark documents in Part 1. **(T-1)** These markings may indicate SIB analysis and as such are privileged. If the document was provided to the SIB with markings or highlights, annotate it in the Tab. **Example:** All markings on the document are as they were provided to the SIB.

7.3.6. Ensure Tabs uploaded into AFSAS are not password protected.

7.3.7. Each Tab file within the formal report will be a single .pdf file containing all information for that Tab. **(T-1)** For example, Tab R will be an individual .pdf document of all the releasable witness testimonies with proper formatting and annotations as defined in this manual. Exceptions to the single .pdf file per Tab rule are:

7.3.7.1. Tab L may contain digital data files (e.g. Remotely Piloted Aircraft data logger files). When uploading multiple files, do not reference “AFSAS” in Tab L for the location of the files, instead label the files as attachments (e.g. See Attachment L1.1. Data Logger Files.xls.). **(T-0)**

7.3.7.2. Tabs S and X may contain videos or final versions of animations. Ensure that files are named so the reader can quickly understand what the file contains (e.g., S4.1. Animation.wmv. rather than OS1234.wmv.). Do not upload pictures as individual files in Tabs S or X. When uploading multiple files, do not reference “AFSAS” in Tabs S or X for the location of the files, instead label the files as attachments (e.g. See Attachment S4.1. Animation.wmv.).

7.3.7.3. When privileged interviews are only partially transcribed, upload the complete audio or video files in Tab U. When uploading multiple files, do not reference “AFSAS”

in Tabs U for the location of the files; instead label the files as attachments (e.g. See Attachment U1.1. MP1 interview 21 Jun 17).

7.3.8. Times New Roman 12-point font should be used as the text font in SIB documents. Past tense should be used throughout. Top, bottom, and side margins should be set at 1.0 inch. Header margins should be set at 0.5 inches. Ensure the following appears on each page of the report in the header block: “Aircraft Type, Aircraft Serial Number, Class, Date, and AFSAS number” (e.g., F-15C, 85-1717, Class A, 10 February 2009, AFSAS #123456). **(T-1)** Ten-point Times New Roman font, italicized, and page-centered formatting should be used for the header.

7.3.8.1. On the footer of each page in Part 2 Tabs, place the following Privilege Warning Statement: “FOR OFFICIAL USE ONLY. This contains privileged, limited-use safety information. Unauthorized use or disclosure can subject you to criminal prosecution, termination of employment, civil liability, or other adverse actions. See AFI 91-204, Chapter 4 for restrictions. Destroy in accordance with AFMAN 33-363 when no longer needed for mishap prevention purposes.” **(T-1)**

7.3.8.2. Place the appropriate statement in the footer on each page for all tabs containing information that is For Official Use Only (FOUO) IAW DoDM 5200.01, Volume 4, *Department of Defense Information Security Program: Controlled Unclassified Information (CUI)*. **(T-1)**

7.3.9. See sections 7.4, 7.5, and 7.6 for individual Tab requirements.

7.4. Formal Report - Part 1 Tabs.

7.4.1. Tab A - Safety Investigator Information. Include orders from the convening authority appointing the SIB, contact information for the SIB and advisors to the investigation, investigator acknowledgment of guidance and restrictions on investigation information, and non-disclosure agreements (NDA) generated during the investigation. Ensure NDAs are in compliance with AFI 91-204 requirements. See Table 7.1 for how to organize Tab A.

Table 7.1. Tab A Content.

Section	Content
A1.	Appointment Orders. Appointment orders signed by the CA. Orders must contain investigators full name, rank or grade, organization, assigned base, position on the investigation, and whether they are primary or secondary members. Include any approved SIB composition waivers.
A2.	Contact Information for Investigators and Advisors. Provide the role, name, telephone and e-mail contact information for all investigators and advisors. Use the individual’s home station or permanent contact information rather than any temporary contact information used during the investigation.
A3.	Investigator Guidance Memorandum. Include the signed <i>Guidance To Investigators On Controlling Information</i> . This memorandum serves as the NDA for the investigators.

Section	Content
A4.	Non-Disclosure Agreements. Include signed NDAs for technical advisors, transcribers, and other personnel who had access to safety privileged information during the investigation.

7.4.2. Tab D - Maintenance Report, Records, and Data. Only include maintenance records for the mishap aircraft that were created prior to the mishap. See Table 7.2 for how to organize Tab D.

Table 7.2. Tab D Contents.

Section	Content
D1.	Active Aircraft Forms. Include aircraft forms or equivalent electronic information that shows the maintenance status of the aircraft prior to the mishap. For aircraft that use paper-based AFTO Forms 781, this includes the active forms. Include AFTO Forms 781A, 781H, 781J, and 781K. For aircraft that do not use paper-based aircraft forms, either provide screen shots or other outputs from the relevant electronic system. If more than one aircraft is involved, provide a separate subsection within D1 (e.g. D1.1., D1.2.) for each aircraft's information.
D2.	Additional Aircraft Maintenance Records. Include other maintenance records that show the status of the aircraft prior to the mishap. Additional records could include historical data retrieved from Maintenance Information Systems or other types of files.
D3.	Laboratory results. Include laboratory results from the mishap aircraft and servicing equipment. This includes, but is not limited to, fuel, oil, hydraulic and liquid oxygen samples. Do not include analysis of suspect components in this Tab.

7.4.3. Tab F- Weather and Environmental Records and Data. See Table 7.3 for how to organize Tab F.

Table 7.3. Tab F Contents.

Section	Content
F1.	Weather Briefing. Include weather briefings provided to flight crews or maintainers. When available, include a copy of the actual weather briefing.
F2.	Weather Observation. Include actual weather observations and conditions for the event. Include weather radar data, Automated Terminal Information System, and other appropriate weather data.

7.4.4. Tab G - Personnel Records. Include the flight and training records of the personnel involved in the mishap. For flight and flight-related mishaps, and AGO mishaps with aircrew involvement, include the aircrew training records. For AGO mishaps without aircrew involvement, include the training records of the maintainers operating or working on the aircraft at the time of the mishap. Only include records discussed above in Tab G. When

investigators determine other personnel are causal, factors, or non-factors worthy of discussion (NFWOD) in the mishap, place their records in Tab V. See Table 7.4 for how to organize Tab G.

Table 7.4. Tab G Contents.

Section	Content
	For Flight, Flight-Related, and AGO Mishaps with Aircrew
G1.	Flight Records Include a copy of the aircrew's Certificate of Aircrew Qualifications, Letter of X's, 30/60/90 Flying History Report, Individual Data Summary, Individual Flying History Report, and Flight Record Report. Do not include the mishap flight time. The records should be closed out as of the mishap date. Use a subsection for each individual's records (e.g. G1.1, G1.2).
G2.	Flight Evaluations Include a copy of AF Form 942, <i>Record of Evaluation</i> , from the flight evaluation folder. Use a subsection for each individual's records (e.g. G2.1, G2.1).
G3.	Training Records Include records that show any recent upgrades or flight crew student training. If applicable, include training records for maintainers involved in AGO mishaps. Use a subsection for each individual's records (e.g. G3.1, G3.2).
	For AGO Mishaps without Aircrew
G1.	Training Records Include training records for personnel working on the aircraft at the time of the mishap. Use a subsection for each individual's records (e.g. G1.1, G1.2).

7.4.5. Tab I - Deficiency Reports (DRs). Include all DRs or equivalent documentation submitted in conjunction with the mishap investigation. Include a copy of the DR report containing the following information: Report Control Number, cognizant official, name of part (nomenclature), and part number. See Table 7.5 for how to organize Tab I.

Table 7.5. Tab I Content.

Section	Content
I1.	Deficiency Report Use a separate section, I1, I2, etc., for each deficiency report.

7.4.6. Tab J - Releasable Technical Reports and Engineering Evaluations. Technical reports and engineering evaluations are produced by subject matter experts and detail observations such as what components are bent, broken, or burned, etc. and whether the damage happened before, during, or after the mishap. Reports may include the mechanism or cause of damage, conclusions, and recommendations. Conclusions and recommendations will be based on physical evidence, other factual data, and other non-privileged evidence. **(T-1)** See AFI 91-204 for details on technical reports and formatting.

7.4.6.1. Subject matter experts who provide reports must sign the appropriate NDA. **(T-1)** Military and government civilians sign the *Non-Disclosure Agreement - Safety*

Investigation. Contractors sign the *Non-Disclosure Agreement - Contractor Reps Serving as Tech Experts to SIBs*. Use the templates located in the SIB Support (Go) Package.

7.4.6.2. SIBs should make every effort to have subject matter experts write non-privileged reports. If required, experts can provide both non-privileged and privileged reports. If experts have knowledge of privileged information, they cannot use that information in their non-privileged report. For example, a manufacturer who has access to privileged interviews and proceedings would write a non-privileged report based on FDR data and their own analysis at the mishap site but would not include any information based on privileged information (e.g. information derived from a promise of confidentiality).

7.4.6.3. Include non-privileged egress, impact, and crashworthiness analysis. Include egress system specialist analysis if aircrew egress may have been attempted, was attempted, or was completed. Include technical specialist analysis of impact, wreckage, and burn patterns at the crash site if applicable. Include technical specialist analysis of crashworthiness as needed. Crashworthiness analysis is relevant to aircraft such as helicopters and cargo airframes, where aircrew or passenger survivability is connected to the aircraft's crashworthiness features. This analysis is generally not relevant to ejection seat equipped aircraft or severe situations where crashworthiness features would not have made a difference in the outcome of the mishaps.

7.4.6.4. See Table 7.6 for how to organize Tab J.

Table 7.6. Tab J Content.

Section	Content
J1.	Report Title Use a separate section, J1, J2, etc., for each report.

7.4.7. Tab K - Mission Records and Data. This Tab includes standardized products used to plan and authorize flights. See Table 7.7 for how to organize Tab K.

Table 7.7. Tab K Content.

Section	Content
K1.	Flight Plan and Flight Orders Include DD Form 175, <i>Military Flight Plan</i> , DD Form 1801, <i>DoD International Flight Plan</i> , or authorized substitute flight plan forms. Include flight orders of the pilot or crew. Include a passenger manifest if the mishap aircraft was carrying passengers. If there was no manifest, provide a list giving the complete name and grade of all crew and passengers.
K2.	Aircraft Weight and Balance Include DD Form 365-4, <i>Weight and Balance Clearance Form F-Transport/Tactical</i> .

7.4.8. Tab L - Factual Parametric, Audio, and Video Data from On-board Recorders. Include non-privileged data and reports in this Tab. Reports for specific parametric data requested by investigators (e.g. over-Gs by tail number, selected parameters from the mishap aircraft or unstable approaches at a particular location) that may give insight to investigator's

deliberative process are privileged and will be included in Tab W. See Table 7.8 for how to organize Tab L.

Table 7.8. Tab L Content.

Section	Content
L1.	Parametric Data. Include Crash Survivable Flight Data Recorders, Quick Access Recorders, Ejection Seat Data Recorders, Remotely Piloted Aircraft data-logger files, and other data sources. Do not upload classified information into AFSAS.
L2.	Audio Recordings. Include relevant, non-privileged audio recordings. A Privacy Act Warning Statement will accompany all recordings of voice communications. Do not upload classified information into AFSAS.
L3.	Video Recordings. Include relevant, non-privileged video recordings. A Privacy Act Warning Statement will accompany all recordings of voice communications. Do not upload classified information into AFSAS.
L4.	Reports Generated Using Parametric Data. Data generated by the aircraft may be used for many purposes, such as structural integrity analyses and MFOQA products published in AFSAS. Include standard, periodic analysis reports (e.g. fleet-wide trends).

7.4.9. Tab M - Data from Ground Radar and Other Sources. Include non-privileged data in this Tab. If data is altered based on investigator analysis or overlaid with other communications such as a separate voice recording, it is considered privileged information and will be placed in Tab X. Coordinate with AFSEC Technical Assistance and 84th Radar Evaluation Squadron at Hill AFB (DSN 777-5251, DSN 586-7900, or Comm 801-586-7900) for availability of radar data to aid the investigation. See Table 7.9 for how to organize Tab M.

Table 7.9. Tab M Contents.

Section	Content
M1.	Air Traffic Control Radar data and plots.
M2.	Military Ground Radar, Airborne Warning and Control System (AWACS), and Telemetry Data.

7.4.10. Tab N - Transcripts of Voice Communications. Include transcripts of CVRs, ATC, Command and Control recordings etc. Ensure transcripts do not include classified information. Include other available transcripts such as crash-net, Security Forces communications, civilian police and rescue forces, etc. Limit the transcript to the conversation relevant to the mishap sequence of events and end the transcript when all damage and injury has occurred. For example, if the mishap flight lasted 4 hours and the mishap sequence began during landing, only include transcriptions starting during the start of the landing sequence. Do not include actual voice recordings in Tab N. For all

transcriptions, include a key describing who is speaking (e.g. ATC, MP). See Table 7.10 for how to organize Tab N.

Table 7.10. Tab N Content.

Section	Content
N1.	Cockpit Voice Recording Transcripts.
N2.	Air Traffic Control Transcripts. ATC radio transmissions by control position and radio frequency.
N3.	Command and Control Transcripts.
N4.	Other Transcripts.

7.4.11. Tab O - Any Additional Substantiating Data and Reports. Include a listing of the documents (e.g. AFIs, technical orders) or records reviewed by investigators and their effective dates. Tab O may also include complete copies of local operating instructions (OI), work packages, approach and landing charts, etc. if they are less than ten pages. Do not list specific pages referenced or include copies of individual pages; those will be included in Tab V. See Table 7.11 for how to organize Tab O.

Table 7.11. Tab O Content.

Section	Content
O1.	References.
O2.	Documents. Use subparagraph numbering (e.g. O2.1, O2.2) for each complete document.

7.4.12. Tab Q - Evidence Transfer Documents. IAW AFI 91-204, include an MFR documenting evidence transfer from the SIB to the legal investigation, host installation Judge Advocate, or CA Judge Advocate. The MFR must be signed by both the SIB President or SIO and the receiving individual. **(T-1)** Use the template located in the SIB Support (Go) Package. The MFR includes:

7.4.12.1. A list of witnesses including name, grade, address, phone number, and whether the witness was granted a promise of confidentiality.

7.4.12.2. A copy of the AFSAS preliminary message. This section may be empty for Class A or B mishaps that were upgraded from a Class C or below mishap which do not have preliminary messages.

7.4.12.3. The 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 investigators. Include the location and point of contact for any evidence that has not been returned to the SIB.

7.4.12.4. A copy of the AFSAS Mishap Cost page.

7.4.12.5. See Table 7.12 for how to organize Tab Q.

Table 7.12. Tab Q Content.

Section	Content
Q1.	Evidence Transmittal MFR. List of Witnesses.

Section	Content
	AFSAS Preliminary Message. Evidence Disposition. Mishap Cost.

7.4.13. Tab R - Releasable Witness Testimony. Include non-privileged written statements and transcribed interviews (including non-privileged 72-hour and 7-day histories).

7.4.13.1. Transcribing interviews is a time intensive task and should be started early in the investigation. If necessary, request additional personnel to help with transcription. SIBs must review and verify the accuracy of all transcripts. **(T-1)**

7.4.13.2. It is not necessary to include all testimony received, but if transcribed, include the complete testimony. If information from a non-privileged interview is referenced in Tab T it will be transcribed and included in Tab R. **(T-1)** If the testimony is not included in Tab R, provide the audio recordings to any legal board. **(T-1)**

7.4.13.3. Organize Tab R by individual and provide statements and transcribed interviews in the sequence they were taken for that individual.

7.4.13.4. Include a signed Non-Privileged Witness Agreement prior to each statement or transcribed testimony. Use the most current documentation for non-privileged interviews and written statements found on in the SIB Support (Go) Package.

7.4.13.5. See Table 7.13 for how to organize Tab R.

Table 7.13. Tab R Content.

Section	Content
R1.	Rank, Name, and mishap pseudonym (e.g. MP1, MM1). Signed Non-Privileged Witness Agreement. Statement or transcribed interview. 72-hour and 7-day history. Use subsections (R1.1, R1.2, etc.) within each individual's section for written statement and transcribed interviews if the individual provided more than one of these items.
R2.	Rank, Name, and mishap pseudonym of next witness (e.g. MP2, MM2). Use a separate section for each individual (R3, R4, etc.).

7.4.14. Tab S - Releasable Photographs, Videos, Diagrams, and Animations. Include a sample of non-privileged photographs, videos, diagrams, and animations that aid in understanding the mishap by showing damage, impact areas, metal fractures, flight path, etc.

7.4.14.1. Do not upload photographs as individual files.

7.4.14.2. Do not unnecessarily show evidence of human injury (e.g. bloody aircraft parts). Photographs of deceased personnel or injuries are not normally placed in Tab S due to their sensitivity, but instead are included in Tab Y if they support findings or recommendations. If SIBs absolutely need to disseminate an injury photo to illustrate the mishap, consider using a black and white photo.

7.4.14.3. Label each image to aid reviewers. Labels include name of item and where applicable, the direction the photograph is facing (e.g. debris field looking to the west).

Do not include privileged information such as “cowling damage caused by blade failure” in the label, instead state “cowling damage”.

7.4.14.4. Photographs and videos are considered privileged if they are staged for SIB analysis. Depictions of cockpit indications for a given set of assumptions made by the SIB or described in witness testimony are staged photographs will be included in Tab X. Pointing with a finger or other device at a portion of wreckage does not necessarily make a photograph staged.

7.4.14.5. Include non-privileged videos relevant to the investigation (e.g., videos shot by eye witnesses, surveillance videos). Not all videos received by the SIB will be relevant.

7.4.14.6. Include diagrams that add to the report such as location of wreckage, route of flight, etc. Ensure diagrams are self-explanatory and indicate direction with a northward pointing arrow. If practical, indicate scale. Use Civil Engineering plots, aerial photographs, topographical maps, etc. Do not include diagrams depicting the location of human remains. Place such diagrams in Tab Y.

7.4.14.7. If applicable, include the final version of the releasable, non-privileged animation (IAW paragraph 7.3.7.2), and make a reference to it in the Tab S .pdf document. Releasable animations are typically built with readily-available software tools, incorporate an intuitive visual presentation, and are based on selected recorded data. Releasable animations are produced without any input or direction from the SIB and before their creators are exposed to privileged safety information.

7.4.14.8. See Table 7.14 for how to organize Tab S.

Table 7.14. Tab S Content.

Section	Content
S1.	Photographs. Use subparagraph numbering (e.g. S1.1, S1.2) for each photograph.
S2.	Videos. Use subparagraph numbering (e.g. S2.1, S2.2) for each video.
S3.	Diagrams. Use subparagraph numbering (e.g. S3.1, S3.2) for each diagram.
S4.	Animation. Use subparagraph numbering (e.g. S4.1, S4.2) for each animation.

7.5. Formal Report - Part 2 Tabs.

7.5.1. Tab T - Investigation, Analysis, and Conclusions. The Tab T narrative is the culmination of the investigation and provides a complete picture of what happened, how it happened, and why it happened. It is based on the weight of evidence, professional knowledge, and good judgment of the SIB. It includes factors, causal factors, NFWODs, findings, and recommendations. The analysis should clearly show how factors influenced the findings and causes and support the logic behind the recommendations.

7.5.1.1. See AFI 91-204 for guidance on determining cause and writing factors, NFWODs, findings, and recommendations. Additionally, see the SIB Support (Go) Package for examples of different event Tab T narratives.

7.5.1.1.1. Factors are written in narrative format and include detailed analysis of the actions or conditions that influenced the mishap. Include enough information so the reader can logically follow the SIB's rationale. Include references to specific technical orders, publications, training, personnel actions or inactions, results of technical analysis, quotes from interviews, human factors, etc. Use photos or diagrams as necessary.

7.5.1.1.1.1. When analyzing actions, organize factors as a discussion of how the action should have been accomplished, how it actually occurred during the mishap, and how it contributed to the mishap. Finally, explain the difference between what should have occurred and what actually occurred.

7.5.1.1.1.2. When analyzing conditions (e.g. weather, fatigue), explain how and why the condition influenced the outcome of the mishap.

7.5.1.1.1.3. When analyzing publications (e.g. technical orders, AFIs), explain what the publication currently states, how it is deficient, and how it contributed to the mishap. Contrasting similar publications can be helpful in explaining why the publication was deficient.

7.5.1.1.1.4. The SIB must conclude or determine whether an action or condition was a factor or causal factor in the mishap. **(T-1)** If a clear determination cannot be made, avoid statements such as "may have been a factor." Instead, the SIB will determine the most likely cause. If the SIB cannot narrow it down to a single most likely cause, identify the alternatives and state "Action X most likely occurred due to one or more of the following reasons." List the most probable reasons from most probable to least probable. It is not necessary to list every single possibility.

7.5.1.1.2. NFWODs are written in narrative format and fall into one of three categories; areas uncovered that did not influence the mishap, but should be fixed due to the potential to be a factor in a future mishap, areas that were thoroughly investigated and subsequently ruled out as factors, and areas that may be considered an interest item to the CA.

7.5.1.1.2.1. When analyzing areas that could be a factor in a future mishap, explain the deficiency and why it could lead to a mishap.

7.5.1.1.2.2. When analyzing areas that were ruled out as factors, explain what the SIB investigated and why they determined it did not influence the mishap. Often the SIB will need to answer why other plausible scenarios were ruled out.

7.5.1.1.2.3. When analyzing areas that may be considered an interest item to the CA use either of the methods described in 7.5.1.1.2.1 and 7.5.1.1.2.2 as appropriate.

7.5.1.2. Class A and B SIBs should forward draft copies of the Tab T as soon as available to the CA/SEF for review. Additionally, SIBs supported by AFSEC (on-site or telephonically), should forward draft copies of the Tab T to AFSEC/SEF for review. Other SIBs may request a review by AFSEC/SEF. This review should be requested on or before day 25 of the investigation. The SIB should allow two duty days for the CA/SEF

and AFSEC/SEF reviews. These reviews ensure compliance with AFI 91-204 and this AFMAN. They also ensure the analysis supports the SIB findings, cause(s), and recommendation(s). Reviewers may not direct SIBs to change their conclusions, but may direct SIBs to provide more analysis to support conclusions. Other than AFSEC involvement, the investigation will not be staffed outside of the CA safety office during this review process.

7.5.1.3. See Table 7.15 for how to organize Tab T.

Table 7.15. Tab T Contents.

Section	Content
T1.	Terms and Acronyms. List the terms and acronyms used in the report that are not commonly understood.
T2.	Mishap Overview.
T2.1.	<p>History of Mishap. Include the history of the mishap as a narrative, in chronological order, of all pertinent events from briefing, ground operations, takeoff, etc., through the mishap sequence, search and rescue, recovery of the pilot, and recovery of the aircraft.</p> <p>For maintenance mishaps that do not involve flight, start the mishap sequence from when the maintainers were assigned the task that resulted in the mishap and continue until the damage occurs and the aircraft is shut down or safe.</p> <p>Times of significant events should be integrated into the write-ups. The history explains what occurred, but not why.</p> <p>Do not include analysis in this section.</p>
T2.2.	<p>Investigator(s) Conclusions. Include a brief summary of the causes in the mishap. Think of this as a “bottom line up front” paragraph(s).</p> <p>Do not include detailed explanations; those will be included in the appropriate factors sections of the Tab T.</p> <p>This section is normally the last part of the Tab T accomplished and is written after the SIB has completed their analysis.</p>

Section	Content
T3.	<p>Background Information. Always include background information on the mishap aircrew (or maintainers if an AGO and there was no aircrew involvement) and mishap aircraft.</p> <p>Background information includes but is not limited to, information on training, upgrades, promotions, deployments, 30/60/90 day flying hours and sortie totals, and summary of 72-hour and 7-day histories.</p> <p>Include background information on the mishap crewmembers, maintenance personnel, leadership, or others that were factors in the mishap.</p> <p>Do not place analysis in this section.</p>
T3.1.	<p>Mishap Persons, use mishap pseudonym (e.g. Mishap Pilot, Mishap Maintainer) Include as many subparagraphs as needed (e.g. T3.1.1 Mishap Pilot, T3.1.2 Mishap Flight Lead).</p>
T3.2.	<p>Mishap Aircraft Include as many subparagraphs as needed (e.g. T3.2.1 Mishap Aircraft, T3.2.2 Mishap Engine).</p>
T3.3.	<p>General Background Information. The purpose of this section is to give readers enough background to understand the specifics of factors presented later.</p> <p>Include descriptions of training procedures, emergency procedure requirements, etc. that influenced the mishap.</p> <p>Include enough detail so the reader can understand the SIB's investigative processes.</p> <p>Include as many subparagraphs as needed (e.g. T3.3.1 Pilot Upgrade Program, T3.3.2 Emergency Procedures).</p>
T4.	<p>Operations Factors If operations were not a factor in the mishap then simply state "Operations were not a factor in this mishap".</p>
T4.1.	<p>Factor Title (e.g. Mishap Pilot Emergency Procedure Execution) Analysis: Include analysis for each operations factor that led to the mishap.</p> <p>Conclusion: Include a conclusion statement, for example: "The SIB determined mishap pilot emergency procedure execution was a factor (or causal factor) in the mishap."</p> <p>Include as many subparagraphs as needed (e.g. T4.2 Mishap Pilot Emergency Procedure Execution, T4.3 Supervision Oversight).</p>
T4.2.	<p>Non-Factors List of Non-Factors.</p>

Section	Content
T5.	Maintenance Factors If maintenance was not a factor in the mishap then simply state “Maintenance was not a factor in this mishap”.
T5.1.	Factor Title (e.g. Part Installation) Analysis: Include analysis for each maintenance factor that led to the mishap. Conclusion: Include a conclusion statement, for example: “The SIB determined a part installation was a factor (or causal factor) in the mishap”. Include as many subparagraphs as needed (e.g. T5.2 Training Methods, T5.3 Quality Assurance Oversight).
T5.2.	Non-Factors List of Non-Factors.
T6.	Logistics Factors If logistics was not a factor in the mishap then state “Logistics was not a factor in this mishap”.
T6.1.	Factor Title (e.g. T.O. 1P-51-1) Analysis: Include analysis for each logistics factor that led to the mishap. Conclusion: Include a conclusion statement, for example: “The SIB determined T.O. 1P-51-1 was a factor (or causal factor) in the mishap”. Include as many subparagraphs as needed (e.g. T6.2 Depot FOD Practices, T6.3 Quality Assurance Oversight).
T6.2.	Non-Factors List Non-Factors.
T7.	Non-Factors Worthy of Discussion (NFWOD) If there were no NFWODs in the mishap then state “There were no NFWODs in this mishap.”
T7.1.	NFWOD Title (e.g. Survival Kit Batteries) Analysis: Include analysis for each NFWOD. Conclusion: Include a conclusion that states “The SIB determined survival kit batteries was a non-factor worthy of discussion in this mishap” and if it could lead to future mishaps “The SIB determined survival kit batteries was a non-factor worthy of discussion in this mishap, but could be a factor in a future mishap.” Include as many subparagraphs as needed (e.g. T6.2 Depot FOD Practices, T6.3 Quality Assurance Oversight).

Section	Content
T8.	<p>Findings and Causes. Write findings as single sentences. Write findings in chronological order. Findings must be supported by factors. Causal findings must be supported by causal factors. Spell out acronyms the first time they are used in the findings section.</p> <p>Examples: Finding 1: The mishap maintainer (MM) cleared the mishap pilot (MP) from the chocks. Finding 2: (Causal) Due to complacency, the MP failed to accomplish the taxi checklist.</p>
T9.	<p>Recommendations. Include recommendations associated with findings in Section T8. Recommendations are stand-alone items and must be written accordingly. Spell out acronyms the first time they are used in each recommendation. Include the item to which the recommendation applies. Include OPR and OCR information.</p> <p>Examples: Recommendation 1: Change T.O. 1P-51-2-28JG-40-1, 28-40-01, step 5 to read “Install widget B prior to torqueing object A”. OPR: AFLCMC/WW2 OCR: ACC/A4</p> <p>Recommendation 2: Install a crash survivable data recorder on all F-15E aircraft. OPR: ACC/A8 OCR: AFLCMC/WWQ</p> <p>Note: When entering a recommendation into AFSAS the SIB also enters a single sentence, non-privileged, hazard or deficiency statement.</p>

Section	Content
T10.	<p>Other Findings of Significance (OFS) and ORS. Write OFS's as single sentences. OFS' must be supported by NFWODs. Spell out acronyms in each OFS. Do not write an OFS if there is no corresponding ORS.</p> <p>Include ORS's associated with OFS's. ORS' are stand-alone items and must be written accordingly. Spell out acronyms the first time they are used in each ORS. Include the item to which the ORS applies. Include OPR and OCR information.</p> <p>Example: OFS 1: F-16C survival kit batteries failed prematurely. ORS 1: Replace F-16C survival kit batteries with the upgraded MK2 battery at the next inspection interval. OPR: ACC/A4</p> <p>Note: When entering an ORS into AFSAS the SIB also enters a single sentence, non-privileged, hazard or deficiency statement.</p>
T11.	<p>Authentication Page. Type each primary SIB member's name, rank, and board position. SIB members sign (electronic signatures are acceptable) above their name.</p>
T12.	<p>Minority Reports. Primary SIB members who disagree with the results of the SIB may submit a separate minority report.</p> <p>Minority reports must include reasons for disagreement in a narrative format and list suggested findings, causes, and recommendations if different from those contained in the original report.</p> <p>If a SIB member submits a minority report, their signature block still appears on the Tab T authentication page but they do not sign above it. Instead, they sign the minority report.</p>

7.5.2. Tab U - Witness Testimony Provided Under a Promise of Confidentiality. Include written statements and transcribed interviews (including 72-hour and 7-day histories) provided under a promise of confidentiality

7.5.2.1. Transcribing interviews is a time intensive task and should be started early in the investigation. If necessary, request additional personnel to help with transcription. SIBs must review and verify the accuracy of all transcripts. **(T-1)**

7.5.2.2. It is not necessary to include all testimony received. If information from a privileged interview is referenced in the Tab T, it will be transcribed and included in Tab U. **(T-1)**

7.5.2.3. If testimony is only partially transcribed, include the audio or video recordings as attachments to the Tab.

7.5.2.4. Organize Tab U by individual and provide statements and transcribed interviews in the sequence they were taken for that individual.

7.5.2.5. Include a signed Privileged Witness Agreement prior to each statement or transcribed testimony. Use the most current documentation for privileged interviews and written statements found in the SIB Support (Go) Package.

7.5.2.6. Opportunity to Submit Additional Comments Letters. MFRs are sent to individuals, but not organizations, found causal during the course of a mishap investigation, allowing them the opportunity to provide comments for the Memorandum of Final Evaluation process. Place copies of these letters signed by the BP or SIO in the Tab. Do not have the causal individual sign a copy before the CA briefing; this will be accomplished by the CA safety staff following the briefing. **(T-1)** See AFI 91-204 for guidance.

7.5.2.7. See Table 7.16 for how to organize Tab U.

Table 7.16. Tab U Content.

Section	Content
U1.	Statements or Transcribed Interviews
U1.1.	Rank, Name, and mishap pseudonym (e.g. MP, MM). Signed Privileged Witness Agreement. Statement or transcribed interview. 72-hour and 7-day history. Use subsections (e.g. U1.1.1, U1.1.2) within each individuals section for written statement and transcribed interviews if the individual provided more than one of these items.
U1.2.	Rank, Name, and mishap pseudonym of next witness (e.g. MP, MM). Use a separate section for each individual (e.g. U1.3, U1.4). Use as many sections as needed.
U2.	Opportunity to Submit Additional Comments Letter(s) Use a separate section for each individual (e.g. U2.1, U2.2). Use as many sections as needed.

7.5.3. Tab V - Other Supporting Privileged Products. Include other supporting privileged products not otherwise required elsewhere in the report. These products may include, but are not limited to, the following:

7.5.3.1. AF Form(s) 847 and AFTO Form(s) 22 if the SIB recommends changes to publications.

7.5.3.2. Applicable portions of technical orders, flight manuals, checklists, local OIs or directives. Highlight sections the SIB discussed in the Tab T.

7.5.3.3. If individuals were found to be factors or causal in the mishap, include their flight and training records. If these records are already included in Tab G, do not include them here.

7.5.3.4. If a survey was administered by the SIB, include a copy and the results.

7.5.3.5. If the SIB recreated a weight and balance form to determine weight and center of gravity at the time the mishap occurred, include it in the Tab.

7.5.3.6. See Table 7.17 for how to organize Tab V.

Table 7.17. Tab V Content.

Section	Content
V1.	Product Title. Use subparagraph numbering (e.g. V2, V3) for each product.

7.5.4. Tab W - Technical Reports and Engineering Evaluations Provided Under a Promise of Confidentiality. Technical reports and engineering evaluations detail observations such as what components are bent, broken, or burned, etc. and whether the damage happened before, during, or after the mishap. Reports may include the mechanism or cause of damage, conclusions, and recommendations. See AFI 91-204 for details on technical reports and formatting.

7.5.4.1. Subject matter experts who provide reports must sign the appropriate NDA. **(T-1)** Military and government civilians sign the *Non-Disclosure Agreement – Safety Investigation*. Contractors sign the *Non-Disclosure Agreement - Contractor Reps Serving as Tech Experts to SIBs*. Use the templates located in the SIB Support (Go) Package.

7.5.4.2. Include analysis of AFE equipment if performed by the SIB AFE Member.

7.5.4.3. Include SIB-directed MFOQA analysis as it reveals the deliberative process and is considered privileged.

7.5.4.4. See Table 7.18 for how to organize Tab W.

Table 7.18. Tab W Content.

Section	Content
W1.	Report Title Use a section, W1, W2, etc., for each report.

7.5.5. Tab X - Privileged Photographs, Videos, Diagrams, and Animations. If required, include a sample of privileged photographs, videos, diagrams, and animations that aid in understanding the mishap by showing damage, impact areas, metal fractures, flight path, etc.

7.5.5.1. Do not upload photographs as individual files.

7.5.5.2. Do not unnecessarily show evidence of human injury (e.g. bloody aircraft parts). Photographs of deceased personnel or injuries are not normally placed in Tab X due to their sensitivity, but instead are included in Tab Y if they support findings or recommendations. If investigators absolutely need to disseminate an injury photo to illustrate the mishap, consider using a black and white photo.

7.5.5.3. Include staged photographs, videos, and recreations by the SIB.

7.5.5.4. Label each image to aid reviewers. Labels include name of item and where applicable, the direction the photograph is facing (e.g. debris field looking to the west).

7.5.5.5. Include diagrams that add to the report such as location of wreckage, route of flight, etc. Ensure diagrams are self-explanatory and indicate direction with a northward pointing arrow. If practical, indicate scale. Use Civil Engineering plots, aerial photographs, topographical maps, and SIB analysis. Do not include diagrams depicting the location of human remains. Place such diagrams in Tab Y.

7.5.5.6. See Table 7.19 for how to organize Tab X.

Table 7.19. Tab X Content.

Section	Content
X1.	Photographs. Use subparagraph numbering (e.g. X1.1, X1.2) for each photograph.
X2.	Videos. Use subparagraph numbering (e.g. X2.1, X2.2) for each video.
X3.	Diagrams. Use subparagraph numbering (e.g. X3.1, X3.2) for each diagram.
X4.	Animation. Use subparagraph numbering (e.g. X4.1, X4.2) for each animation.

7.5.6. Tab Y - Privileged Medical Information. Provide analysis and supporting documentation covering pre- and post-mishap medical conditions that affected or were an outcome of the mishap for each mishap person.

7.5.6.1. Analyze how any pre-mishap medical conditions or toxicology contributed to the mishap. Include relevant portions of medical records, and toxicology reports.

7.5.6.2. Describe the results of post-mishap medical evaluations and all injury types and mechanisms. Include relevant portions of medical records, photos of injuries or human remains only when necessary to explain injuries, and autopsy reports.

7.5.6.3. See Table 7.20 for Tab Y organization.

Table 7.20. Tab Y Content.

Section	Content
Y1.	Rank, Name, and Designation (e.g. MP, MM). Use a separate section for each individual (Y2, Y3, etc.).
Y1.1.	Pre-Mishap Medical Information. Analysis. Relevant medical records. Toxicology report.
Y1.2.	Post-Mishap Medical Information. Evaluations. Injuries. Photos. Autopsy report.

7.5.7. Tab Z - SIB Final Products. Use this Tab to provide reviewing agencies an assessment of investigation difficulties and make recommendations for improving reporting and investigating procedures. See Table 7.21 for how to organize Tab Z.

Table 7.21. Tab Z Content.

Section	Content
Z1.	SIB Proceedings

7.6. Formal Report – Part 3 Tabs.

7.6.1. Part 3 of the formal report contains six Tabs. These Tabs contain briefings and other significant products which are sometimes discovered or produced after the SIB has been completed.

7.6.2. See Table 7.22 for how to organize Part 3 Tabs.

Table 7.22. Part 3 Contents.

Tab	Content
1A.	SIB or SIO Final Briefing (Actual)
1B.	SIB or SIO Final Briefing with Privacy Information Removed
1C.	SIB or SIO Final Briefing with Privacy and Privileged Information Removed
2A.	Animations (Actual)
2B.	Animations (Sanitized)
3.	Other Material

Chapter 8

SAFETY MESSAGE REQUIREMENTS

8.1. Safety Messages. Release safety messages in compliance with AFI 91-204 requirements.

8.2. Final Message. Upon completion of any mishap or Hazard investigation, a final message is input into AFSAS. The final message contains the SIB's analysis, findings, and recommendations. The final message for Class A through E mishaps is privileged.

8.3. Preparing the Final Message. All final messages are derived from elements of the Tab T, minus any figures or tables. Do not use formatting such as italics, underlines, bold, different sized font, colored font, highlighted text, centered text, etc., as they are not recognized by AFSAS. See Table 8.1 for final message requirements.

Table 8.1. Final Message Requirements.

Tab T	Final Message	Title	Class A & B	Class C	Class D	Class E	Hazard	Safety Study
T1.	4.1.	Terms and Acronyms	X	O	O	O	O	O
T2.	4.2.	Mishap Overview						
T2.1.	4.2.1.	History of Event	X	X	X	X	X	X
T2.2..	4.2.2.	Investigator(s) Conclusions	X	X	X	X	X	X
T3.	4.3.	Background Information						
T3.1.	4.3.1.	Mishap Persons	X	O	O	O	O	N/A
T3.2.	4.3.2.	Mishap Aircraft	X	X	O	O	O	O
T3.3.	4.3.3.	General Background Information	O	O	O	O	O	O
T4.	4.4.	Operations Factors						
T4.1.	4.4.1.	Operations Factor 1 (Notes 2, 3)	X	X	X	O	O	O
T4.2.	4.4.2.	Non-Factors	X	X	X	O	O	O
T5.	4.5.	Maintenance Factors						
T5.1.	4.5.1.	Maintenance Factor 1 (Notes 2, 3)	X	X	X	O	O	O
T5.2.	4.5.2.	Non-Factors	X	X	X	O	O	O
T6.	4.6.	Logistics Factors						
T6.1.	4.6.1.	Logistics Factor 1 (Notes 2, 3)	X	X	X	O	O	O
T6.2.	4.6.2.	Non-Factors	X	X	X	O	O	O
T7.	4.7.	NFWODs						

Tab T	Final Message	Title	Class A & B	Class C	Class D	Class E	Hazard	Safety Study
T7.1.	4.7.1.	NFWOD 1	O	O	O	O	O	O
T8.	Note 4	Findings	X	X	X	O	O	O
T9.	Note 4	Recommendations (Note 5)	O	O	O	O	O	O
T10.	Note 4	OFS and ORS	O	O	O	O	O	O
T11.	N/A	Authentication Page	X	O	O	O	O	O
T12.	N/A	Minority Report	O	O	O	N/A	N/A	N/A
<p>Note 1: Required = X, Optional = O</p> <p>Note 2: Class A through D mishaps must have at least one causal factor (operations, maintenance, or logistics).</p> <p>Note 3: Add additional sub-paragraphs as necessary (e.g. T4.2, T4.3, or 4.4.2, 4.4.3).</p> <p>Note 4: AFSAS automatically numbers these paragraphs.</p> <p>Note 5: If no recommendations are made in an on-duty Class A or B mishap, investigators will explain their rationale in the report narrative.</p>								

8.4. Message Approval and Release. CA safety staffs review and approve messages with approval from, and on behalf of, the CA. See AFI 91-204 for quality control processes.

8.5. Final Supplemental Message. Final supplemental messages are required for two reasons: quality control returns and whenever the SIB needs to modify the final message. Final supplemental messages must meet the same requirements as final messages. (T-1)

8.6. Classified Reporting. Do not enter classified information into AFSAS. Refer to AFI 91-204 for classified reporting requirements.

Chapter 9

OTHER REPORTING REQUIREMENTS

9.1. HATR and CMAV Reporting Procedures. In addition to the requirements in AFI 91-202, *US Air Force Mishap Prevention Program*, investigate HATR and CMAV events using the following:

9.1.1. Any person (e.g., air traffic controller, pilot, safety officer) aware of an event listed in Table 3.6 may file a HATR or CMAV. Report the details on AF Form 651, *Hazardous Air Traffic Report (HATR)*, or AF Form 457, *USAF Hazard Report*, or through the Air Force Safety App (<https://asap.safety.af.mil>). If the individual is at the AF base where the event occurred, they should file the report within 24 hours to the base safety office. If the event occurred away from an AF installation, they should report the event to AF safety personnel at the nearest AF safety office or the next landing location with an AF safety office. If not planning to transit an installation with an AF safety office, aircrews should contact their home unit safety office.

9.1.2. If an aircrew experiences a HATR or CMAV and circumstances permit, immediately (i.e., while airborne) inform the nearest ATC agency, flight service station, civil aviation authority for overseas events, or flight service station and provide the information listed in Table 9.1.

Table 9.1. HATR or CMAV Immediate Reporting Elements.

Description
Identification or callsign.
Time and place (name of Navigation Aid, radial and distance, and GPS coordinates, if available) of event.
Altitude or flight level.
Description of other aircraft in the event.
Advise the controlling agency a written report will be filed and request all available data be saved.

9.1.3. The unit safety office is responsible for ensuring all aircrew members, ATC, and other personnel controlling aircraft (e.g. Tactical Air Control Party personnel) are aware of HATR reporting requirements. Aircrews who experience a near mid-air collision under Federal Aviation Administration (FAA) control should immediately request that facility initiate an FAA Near Miss report.

9.1.4. Within 24 hours after notification of the event, the safety office receiving the report determines which safety office is responsible for the investigation. Send the AF Form 651 or AF Form 457 to the appropriate safety office. The responsible office is determined in the following order:

9.1.4.1. If applicable, comply with host nation agreements or other international agreements (e.g. International Civil Aviation Organization agreements). If unable to determine agreements, contact the pertinent overseas MAJCOM/SE or the AF Forces Safety (AFFOR/SE).

9.1.4.2. If foreign ATC or aircraft are involved, the responsible office is the unit involved in the event in conjunction with the overseas MAJCOM/SEF, or the AFFOR/SE.

9.1.4.3. For local hazardous events, the responsible office is the AF safety office at that installation.

9.1.4.4. If no AF safety office is available or if an airborne report is initiated by pilot or aircrew, the originator's home station or deployed location is the responsible office. The originator's home station safety office will then forward the report to appropriate agency for investigation. **(T-1)**

9.1.5. The investigating safety office will:

9.1.5.1. Determine if the reported event merits a HATR or CMAV. **(T-1)** Notify the individual or unit that filed the report of this determination and the pending actions. **(T-1)**

9.1.5.2. If the event is reportable, document the event in AFSAS. **(T-1)**

9.1.5.3. Determine which organizations were involved and request those offices' assistance with the investigation. **(T-1)** Notify the following organizations:

9.1.5.3.1. The base Airfield Operations Flight Commander (AOF/CC), or equivalent, if USAF ATC, Tactical Air Control, or Airfield Management services were suspected to be involved. **Note:** Review ATC recordings needed for HATR investigations as quickly as possible. ATC recordings are routinely retained for only 45 days. Due to various types of recording equipment installed, review of ATC recordings is best conducted at the ATC facility. Coordinate times for review with the AOF/CC in order to minimize impact on support of flight operations.

9.1.5.3.2. If ATC or Airfield Management personnel are contributory to the event, the IO will contact the AOF/CC to discuss the investigation and get advice on ATC or Airfield Management procedures. **(T-1)** At the conclusion of the investigation, AOF/CC concurrence or non-concurrence with the IO's report must be input to AFSAS. If the AOF/CC non-concurs, his or her rationale with corrective actions must also be input in AFSAS. If the event takes place at a non-USAF base (e.g. US Navy base or civilian airfield), contact the AOF/CC equivalent. If no AOF/CC equivalent can be identified (e.g. contingency operations at a foreign airfield), contact the AF organization responsible for coordination with the airfield owner or operator. If unable to identify an appropriate organization, contact the MAJCOM staff for assistance.

9.1.5.3.3. The base Operations Support Squadron Commander if Navigation Aids were likely involved.

9.1.5.3.4. The flying unit if local base aircraft were involved. If transient aircraft were involved, notify the aircrew's unit of assignment safety office. **(T-1)**

9.1.5.3.5. The FAA facility or Flight Standards District Office if FAA ATC or civil aircraft were involved. Contact the AOF/CC or FAA Air Force Representative for help in notifying the proper facility or Flight Standards District Office. See AFI 13-201, *Airspace Management*, for which Air Force Representative to contact. The Air Force Representative at FAA Regional Offices reviews HATR and CMAV events in

their region involving FAA ATC or civil aircraft and provides assistance when requested. Include the Air Force Representative in these investigations as needed, especially if you are having difficulty getting information from the FAA.

9.1.5.3.6. HQ Air Force Flight Standards Agency uses AFSAS to administer program oversight for AF review of Airfield Operations related HATRs. Coordinate with MAJCOM Airfield Operations staffs to reconcile any discrepancies in conclusions and recommended corrective actions for AF-wide trends. Coordinate safety reviews, evaluations, recommendations, and time critical notifications with AFSEC/SEF.

9.2. BASH Reporting Procedures. Report all damaging BASH events as the applicable mishap class and all non-damaging BASH events IAW AFI 91-204 and this AFMAN. **(T-1)**

9.2.1. Owing organization flight safety offices will report wildlife strikes sustained by their aircraft. **(T-1)** This allows for universal reporting standards for all mishap classes for non-expeditionary forces. For trending purposes, report all non-USAF bird and wildlife strikes that occur at their installation in AFSAS as Hazard events. **(T-1)**

9.2.2. When aircraft are under the Operational Control of an expeditionary organization, Class E and Hazard bird and wildlife strikes to aircraft will be reported by the owning expeditionary force flight safety office to facilitate timely reporting. **(T-1)** The owning expeditionary force organization will be the accounting and CA for these events.

9.2.3. For every bird strike, send samples of the remains (if available) to the Smithsonian Institution's Feather Identification Lab for identification. Digital photographs may be used when whole carcasses of diagnostic species are available to assist in bird/wildlife identifications. While photographs do not replace the need to submit wildlife remains for most bird strikes, they may prevent the need to send whole or partial carcasses. Do not use photographs for minute samples or single feathers, or for impact point identifications (ghost birds). Use the following procedures when collecting and shipping remains:

9.2.3.1. Coordinate with aircraft maintenance personnel prior to collecting remains from aircraft surfaces. For whole or partial bird carcass, pluck a variety of feathers from the head, breast, back, body, and tail if possible.

9.2.3.2. Investigators should not delay recovering and shipping remains to the Feather Identification Lab, as the DNA in the sample could degrade.

9.2.3.3. Collect all blood, tissue, or fluid remains for DNA analysis. Exercise caution when handling wildlife remains, especially in or from regions of the world that may have disease transmission concerns (e.g. Avian Flu).

9.2.3.3.1. Spray the area with ethyl alcohol (ethanol) or 70% isopropyl alcohol and wipe with a clean paper towel, or use pre-packaged alcohol wipes. If there is a concern over using alcohol on certain aircraft surfaces, use a dry cloth. Use water and a clean paper towel as a last resort. Ethanol is preferable to isopropyl alcohol but both types of alcohol are preferable to water.

9.2.3.3.2. Treat collected remains according to the current Animal and Plant Health Inspection Service shipping permit if Outside the Continental United States. **(T-1)** Allow all bird strike remains to completely dry, fold the towel, and place remains into a labeled re-sealable plastic bag (primary container).

9.2.3.4. Place the plastic bag(s) containing the sample(s) inside a second plastic bag or envelope (secondary container) and affix an international biohazard label to the secondary container. Multiple primary containers can be contained within a single secondary container. Place the secondary container inside a rigid fiberboard outer shipping container that is at least 3.9" x 3.9" on its largest surface.

9.2.3.4.1. IAW US Postal Service Publication 52, paragraphs 346.12 and 346.326, label the outer shipping container with "EXEMPT ANIMAL SPECIMEN" on the address side of the container (between the return address and address is preferred).

9.2.3.4.2. For non-damaging Hazards, attach a copy of the corresponding BASH shipping sheet, found on the BASH web page in AFSAS and the AF Portal, to all types of wildlife strike evidence and ship to the following address: Smithsonian Institution, Feather Identification Lab, NHB-E -600 MRC 116, PO Box 37012, Washington, DC 20013-7012.

9.2.3.4.3. For damaging mishaps, attach a copy of the corresponding BASH shipping sheet, found on the BASH web page in AFSAS and the AF Portal, and ship to the following address: Smithsonian Institution, Feather Identification Lab NHB-600, MRC 116, 10th and Constitution Ave., NW, Washington, DC 20560, (202) 633-0801.

9.2.4. Collect and submit a Hazard report for all wildlife remains, whether whole or in part, found on the airfield within 250 feet of a runway or within 1,000 feet of a runway end, unless the animal's death may be definitively attributed to another source. If a complete bird carcass in good condition is found on the airfield, place it in a freezer, and contact the Feather Identification Lab at (202) 633-0801 to see if the museum would like to have the specimen for their collection.

9.2.5. For wildlife strikes other than birds, gather samples of skin, hair, teeth, or other non-fleshy remains following procedures in paragraph 9.2.3. While physical evidence is preferred, gathering remains of wildlife other than birds may not be practicable. In these cases, photographs will be accepted. E-mail an electronic image of the carcass or remains to the Feather Identification Lab at dovec@si.edu.

9.3. ASAP Reporting Procedures. Report events via the Airman Safety App at <https://asap.safety.af.mil>. Leaders and staff build a reporting culture by encouraging Airmen to identify hazards and errors, and then resolving those hazards and errors in a Just Culture as described in AFI 91-202. An ASAP Triage Tutorial is located in AFSAS (Pubs & Refs/Homepage/MFOQA-ASAP-LOSA).

9.3.1. Lead MAJCOMs, as identified in AFRD 10-9, *Lead Command Designation and Responsibilities For Weapons Systems*, develop a procedure to de-identify aviation-related hazard and error reports during the triage process. As a web-based tool designed for Airmen to voluntarily self-report hazards and errors, resolution processes for an event submitted through the ASAP app protect the identity of the submitter, even if the submitter offers his or her name and contact information. This identity protection both builds a healthy reporting culture and underscores the importance of a Just Culture. **Exception:** Identity protection processes are not applied to events that describe damage or injury, or potential misconduct.

9.3.1.1. An aviation event submitted through the ASAP app indicating injury or damage may be a mishap. Forward the report to the owning Wing (or Group if no Wing) safety

staff. Submissions indicating injury or damage are handled as a non-privileged statement in a mishap investigation.

9.3.1.2. Reports submitted through the ASAP app that identify the following factors will not be entered into AFSAS: Criminal activity, substance abuse, controlled substances, alcohol, intentional falsification, medical qualification, force protection, security violations, information security issues or other instances of intentional disregard for safety. These reports will be handled by AF/JA on a case by case basis, and identities will not be protected.

9.3.2. All reports submitted through the ASAP app, whether meeting mandatory or voluntary reportable criteria, will be used by applicable staff and safety offices for fact finding and investigation of hazards and mishaps, as required. Lead MAJCOMs develop a procedure to ensure initial and update messages responding to ASAP hazard reports are posted on the Aviation ASAP Scoreboard found on the AFSAS homepage. This provides hazard and error awareness, plus documents risk mitigation and risk management activities.

JOHN T. RAUCH, Major General, USAF
Chief of Safety

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 13-201, *Airspace Management*, 21 August 2012

AFI 21-101, *Aircraft and Equipment Maintenance Management*, 21 May 2015

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

AFI 48-123, *Medical Examinations and Standards*, 05 November 2013

AFI 51-503, *Aerospace and Ground Accident Investigations*, 14 April 2015

AFI 91-202, *The US Air Force Mishap Prevention Program*, 24 June 2015

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

AFI 91-225, *Aviation Safety Programs*, 26 January 2015

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

AFPD 10-9, *Lead Command Designation and Responsibilities For Weapons Systems*, 8 March 2007

DoDM 5200.01, Volume 4, *DoD Information Security Program: Controlled Unclassified Information (CUI)*, 24 February 2012

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

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

AF Form 457, *USAF Hazard Report*

AF Form 651, *Hazardous Air Traffic Report (HATR)*

AF Form 942, *Record of Evaluation*

AFTO Form 22, *Technical Manual Change Recommendation and Reply*

AF Form 1042, *Medical Recommendation for Flying or Special Operational Duty*

DD Form 175, *Military Flight Plan*

DD Form 365-4, *Weight and Balance Clearance Form F—Transport/Tactical*

DD Form 1801, *DoD International Flight Plan*

DD Form 2992, *Medical Recommendation for Flying or Special Operational Duty*

Abbreviations and Acronyms

ADTC—Advanced Data Transfer Cartridge

AFE—Aircrew Flight Equipment

AFFSA—Air Force Flight Standards Agency

AFI—Air Force Instruction
AFMAN—Air Force Manual
AFSAS—Air Force Safety Automated System
AFSEC—Air Force Safety Center
AFTO—Air Force Technical Order
AGO—Aviation Ground Operations
AMIC—Aircraft Mishap Investigation Course
AMIP—Aircraft Mishap Investigation and Prevention Course
ANG—Air National Guard
AOF—Airfield Operations Flight
ASAP—Airman Safety Action Program
ATC—Air Traffic Control
BASH—Bird/Wildlife Aircraft Strike Hazard
BP—Board President
BPC—Safety and Accident Investigation Board President Course
CA—Convening Authority
CMAV—Controlled Movement Area Violation
CVR—Cockpit Voice Recorder
DoD—Department of Defense
DR—Deficiency Report
EAL—Entry Access List
FAA—Federal Aviation Administration
FDR—Flight Data Recorder
FOD—Foreign Object Damage
GPS—Global Positioning System
HATR—Hazardous Air Traffic Report
IAW—In Accordance With
IC—Incident Commander
IO—Investigation Officer
ISB—Interim Safety Board
LOSA—Line Operations Safety Audit
MAJCOM—Major Command

MAAF—Mishap Analysis & Animation Facility

MDS—Mission Design Series

MFOQA—Military Flight Operations Quality Assurance

MFR—Memorandum for Record

NFWOD—Non-Factor Worthy of Discussion

NDA—Non-Disclosure Agreement

OCR—Office of Collateral Responsibility

OFS—Other Finding of Significance

OI—Operating Instruction

OPR—Office of Primary Responsibility

ORS—Other Recommendation of Significance

SE—Safety

SIB—Safety Investigation Board

SIO—Single Investigating Officer

Terms

Causal Finding—Findings that identify actions or inactions in the mishap sequence that resulted in damage or injury. They are identified with the word “Causal” at the start of the text of the finding and supported by causal factors within the report analysis.

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

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

1. Direct mishap cost totaling \$2,000,000 or more.
2. A fatality or permanent total disability.
3. Destruction of a DoD aircraft.
4. Permanent loss of primary mission capability of an AF space vehicle.

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

1. Direct mishap cost totaling \$500,000 or more but less than \$2,000,000.
2. A permanent partial disability.
3. Inpatient hospitalization of three or more personnel. This does not include individuals hospitalized for observation, diagnostic, or administrative purposes that were treated and released.
4. Permanent degradation of primary or secondary mission capability of a space vehicle or the permanent loss of secondary mission capability of a space vehicle.

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

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

2. Any injury or occupational illness that causes loss of one or more days away from work not including the day or shift it occurred. When determining if the mishap is a Lost Time Case, you must count the number of days the employee was unable to work as a result of the injury or illness, regardless of whether the person was scheduled to work on those days. Weekend days, holidays, vacation days, or other days off are included in the total number of days, if the employee would not have been able to work on those days.
3. An occupational injury or illness resulting in permanent change of job.
4. Permanent loss or degradation of tertiary mission capability of a space vehicle.

Class D Mishap—An on-duty mishap resulting in one or more of the following:

1. Direct mishap cost totaling \$20,000 or more but less than \$50,000.
2. A recordable injury cost or illness not otherwise classified as a Class A, B, or C mishap.
3. Any work-related mishap resulting in a recordable injury or illness not otherwise classified as a Class A, B, or C mishap. These are cases where, because of injury or occupational illness, the employee only works partial days, has restricted duties (does not include medical restriction from flying or special operational duties by AF Form 2992) or was transferred to another job, required medical treatment greater than first aid, or experienced loss of consciousness (does not include G-loss of consciousness). In addition, a significant injury (e.g. fractured/cracked bone, punctured eardrum, any laser eye injury) or occupational illness (e.g. occupational cancer (mesothelioma), chronic irreversible disease (beryllium disease)) diagnosed by a physician or other licensed health care professional must be reported even if it does not result in death, days away from work, restricted work, job transfer, medical treatment greater than first aid, or loss of consciousness.

Class E Mishap—A work-related mishap that falls below Class D criteria. Most Class E mishap reporting is voluntary; however, see discipline-specific safety manuals for a list of events requiring mandatory reporting.

Event—A broad term used to describe an occurrence, a series of occurrences, or a condition which has implications for the safety community. Events include Mishap, Nuclear Surety, Incident, Hazard, and Safety Study.

Factor—Any deviation, out-of-the-ordinary or deficient action or condition, discovered in the course of an investigation that in the investigator's opinion contributed to the eventual outcome.

Flameout—An instance of the flame in the combustion chamber of a jet engine being extinguished, with a resultant loss of power.

Ground Scar—A mark on the ground indicating where an object traveled or impacted.

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

Incident—A planned or unplanned occurrence or series of occurrences resulting in injury or damage that does not meet Mishap or Nuclear Surety reporting criteria.

Mishap—An unplanned occurrence, or series of occurrences, that results in damage to Department of Defense (DoD) property; occupational illness to DoD personnel; injury to on- or off-duty DoD military personnel; injury to on-duty DoD civilian personnel; or damage to public or private property, or injury or illness to non-DoD personnel, caused by DoD activities. Mishaps are classified by total direct mishap cost and the severity of injury/occupational illness.

Privilege—A common law doctrine or statutory rule of evidence that protects certain communications and products from being used as evidence in court or otherwise released.

Privileged Safety Information—Information that is reflective of a deliberative process in a mishap investigation or given to a safety investigator pursuant to a promise of confidentiality, which the safety privilege protects from being released outside safety channels or from being used for any purpose except mishap prevention. For those types of investigations (Class A through E), Nuclear Surety, certain safety studies that used privileged source information, it includes products such as draft and final findings, evaluations, opinions, preliminary discussions, conclusions, mishap causes, recommendations, analyses, and other material that would reveal the deliberations of safety investigators, including reviews and endorsements. It also includes information given to a safety investigator pursuant to a promise of confidentiality and any information derived from that information or direct or indirect references to that information.

Witness Mark—A scratch or similar mark on an object that indicates impact with another object.