

EXHIBIT 9-3**Aviation Accident Investigation Template****General**

This template is designed to serve as a checklist for the writer of the report. Delete portions that do not apply to the accident under investigation. Review chapter 6 of the Accident Investigation Guide.

Do not identify involved personnel by name in the narrative. Identify involved personnel by their position. Involved personnel are individuals:

- Who had an active role in the accident
- Who were injured in the accident
- Whose actions or inactions initiated or sustained the accident sequence

Photographs, maps, illustrations, exhibits, and so forth, will be referenced in the section where applicable and properly identified as figure 1, figure 2, and so on.

Photographs should be taken before the accident scene (wreckage) is disturbed. General views of the scene from several different directions is recommended. The location and direction of each photo should be recorded. The following kinds of items should be photographed.

- | | | |
|-----------------------|--|---|
| • Aircraft site | • Control surface positions | • Ground impact marks |
| • Instruments | • Suspicious bends or breaks | • Seats and seat belts |
| • Controls in cockpit | • Vegetation strike points | • Approach paths |
| • Radio settings | • Propeller blades showing pitch positions | • Terrain and obstacles, if relevant |
| • Fuel valve setting | • Engine control positions in cockpit and engine | • Photographic documentation of crash sequence |
| • Switch locations | • Fire damage | • Aerial pictures documenting the site and wreckage orientation |

Location maps (include as appropriate)

- | | |
|---|--|
| • General location map | • Suppression plan and initial action plan |
| • Profile of flight/probable path of flight | • Shelter deployment location diagram |
| • Diagram/sketches of the airport layout/helibase | • Fire progress maps |
| • Accident scene or aerial photo identifying important features | |

Physical Evidence

- Analysis reports from any aircraft components

Records

Factual data and documents used to substantiate facts involving the accident. Witness statements and interviews shall be signed. If telephone and transcribed statements cannot be signed due to witness' condition, timing, or availability, insert a statement by the investigator or interviewer attesting to the time and date of the interview, followed by the investigator's or interviewer's signature. These records should not be part of the factual section or the management evaluation section. These records shall reside in an official case file. They may be used by the ARB for their deliberations. Examples of records are witness statements and interviews, training records, licenses, and aircraft and pilot cards.

You must delete these general pages and the checklist items as you fill in the sections and proceed through the report. Do not address items that do not apply.

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EXHIBIT 9-3 (continued)



United States Department of Agriculture
Forest Service

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WITHOUT OFFICE OF GENERAL COUNSEL REVIEW

Draft Preliminary Aircraft Accident Investigation Report

(Type of accident)
(Unit, location)
(Region/station/area/institute)
(City, State)
(Date of accident or incident)

Mount 4- by 6-inch photo here.

DRAFT – FOR OFFICIAL USE ONLY

Copy ____ of ____

This report will remain preliminary until the NTSB releases the final report.

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EXHIBIT 9-3 *(continued)***Preliminary Aircraft Accident Investigation Report****Accident:** (Aircraft tail number, make, and model, and accident type)

Location: (Unit and location where accident occurred)

Date: (Date of accident) _____**Signatures:**

Investigation team leader: (Name, title, and location of home unit)

Qualified technical investigator: (Name, title, and location of home unit)

Investigation team members: (Names, titles, and locations of home units)

Investigation technical consultants: (Names, titles, and locations of home units)

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EXHIBIT 9-3 (continued)

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EXHIBIT 9-3 (continued)**Preliminary Factual Section****Executive Summary**

Briefly describe the mission being performed and the event that occurred to initiate the accident investigation. It normally should not exceed one page.

Narrative**Mission**

1. Describe the mission events leading up to the accident.
2. Include brief statement describing the weather, terrain, obstacles, and other operational information concerning the mission.
3. Indicate who communicated with and/or observed the mission, including those who witnessed the accident.
4. List the personnel involved.
 - A. Describe the seating location in the aircraft.
 - B. List the capacity of each crewmember or passenger.
5. Identify the make, model, and serial number of each aircraft.
6. Describe the aircraft configuration and loading.
7. Identify who authorized (ordered) the flight.
8. Identify who dispatched and provided flight following for the aircraft.
9. Identify who provided operation control of the aircraft other than the pilot. (For example; the forest or district dispatcher, the Incident Commander, the District Ranger, or the regional office).

Accident Chronology/Sequence of Events

10. Using a timeline, describe each significant event prior to the accident, including discovery, rescue, and recovery.
11. Include a brief statement describing the weather, terrain, obstacles, and other operational information concerning the mission.

12. Indicate who communicated with and/or observed the mission including those who witnessed the accident.

Crash Sequence/Accident Response

13. Describe the flight regime of the aircraft during the final moments of flight, detailing each evolution, until the aircraft comes to a complete and final resting position and all personnel have exited the aircraft.
14. Include all external factors involved in the accident scenario such as fire, blade strikes, seat belt integrity, component separation, and wreckage movement.
15. Provide a disintegration sequence from the first point of impact, or inflight separation.
16. Describe briefly the actions taken concerning:
 - A. Crash rescue efforts/body removal, and so forth.
 - B. Accident plan availability and utilization.
17. Describe briefly the problems encountered concerning:
 - A. Communication.
 - B. Availability of personnel/equipment.
 - C. Transportation and other resources.
 - D. Interagency cooperation.

Injury and Damage Descriptions

18. Personnel.
 - A. Briefly describe all personnel injuries.
 - B. List expected time of hospitalization/treatment.
19. Aircraft.
 - A. Describe essential damage to the aircraft.
 - B. State whether damage was minor, substantial, demolished or burned.
 - C. State whether the accident was survivable and whether the cabin retained structural integrity.
 - D. Photographic documentation.
 - E. Other.
20. Accident site
 - A. Describe accident site and damage.
21. Omit details or circumstances that are unrelated to the accident.

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EXHIBIT 9-3 (continued)

Preliminary Factual Section

Operational History

22. Operation Base.

- A. Briefly describe the operation base supporting the mission.
- B. Include only information that is related to the mission and accident.
- C. Describe the appearance, accessibility, location, suitability, organization, and management of the facility, including deficiencies.
- D. Describe communication between the facility and dispatch including aircraft communications.
- E. Describe the safety measures for the base, including the condition and suitability of equipment.
- F. Equipment inspection currency.
- G. Accident planning and response.

23. Aircraft and pilot.

- A. Discuss the following concerning the aircraft.
 - Maintenance history.
 - Inspections and approval.
 - Mission loading.
- B. Discuss contractor performance.
- C. Discuss the following items concerning the pilot.
 - Performance and habits.
 - Manifesting and records management.
 - Establish a 24-hour history (longer if necessary).
 - Inspection and approval.
 - Document last days off and flight and duty limitations compliance.

24. Organizational structure and management relationships.

- A. Prepare an organizational structure chart for the personnel involved in the accident and identify relationships to the mission flown. Discuss supervision and staffing levels if relevant.
- B. Identify the agency person who was in operational command of the mission. Establish why and how this individual was selected.
- C. Identify the individuals both inside and outside the organization who were in a position to exercise some form of control over the mission, including accident prevention (i.e., dispatcher, district ranger, helicopter manager, forest aviation officer, and so forth).
- D. Discuss the relationships as they are relevant to the investigation.

25. Aircraft dispatching and aircraft management.

- A. Discuss the communications involved in the mission.
 - When was the mission ordered?
 - How was it controlled?
 - Was there a flight plan?
 - Were communications recorded? Timely?
- B. Discuss accident response.
 - Timeliness.
 - Availability of personnel and equipment.
- C. Discuss use of checklists (crash/rescue, risk analysis, pilot and aircraft, and so forth).
- D. Does the forest aviation plan address these issues? Is it adequate? Current? Utilized?

26. Operational inspections and followup.

- A. List the contract inspections performed on the pilot and aircraft since award.
- B. Document and discuss operations inspections performed on mission personnel.

27. Physical environment.

- A. Discuss the effects of altitude, temperature, terrain, weather, and turbulence on the accident mission.
- B. Discuss the accident mission in relation to other missions performed by the pilot or unit.
 - Was the mission more difficult than normal?
 - Were environmental factors considered? By pilot, crew, or dispatching?
 - Was management involved in the decision process?
- C. What was the workload on the pilot and crew? Was this taken into consideration by managers and at what levels?
- D. Was the departure and arrival base or site suitable for the mission undertaken?

Compliance With Directives

28. Operational procedures.

- A. Were standard procedures followed?
 - Pilot proficiency/currency.
 - Weight and balance/manifests.
 - Load calculations/manifest.
 - Aircraft and preflight checklists.
 - Power trend checks.
 - Go/no-go checklists.
 - Personal protective equipment, PPE, (worn/used).
 - Pilot and aircraft approvals.
 - Flight following.
 - Passenger controls (exposure to hazards).

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EXHIBIT 9-3 (continued)**Preliminary Factual Section**

- Flight and duty limitations.
 - Contracting.
 - Airport guides.
 - Minimum altitudes.
 - Safety briefings.
 - Other.
- B. Identify and discuss special mission procedures as they are related to the accident.
- 29. Training and Qualifications**
- A. The purpose of this section is to evaluate the training and qualifications of personnel including supervisors involved or directly associated with the accident.
- B. Identify and discuss specific violations of established policy.
- 30. Records management.**
- A. Identify and discuss whether directives, operational guides, contracts, manifest, and so forth, were readily available and properly utilized by personnel associated with the accident. Were they current?
- B. Other records to consider:
- Timesheets and overtime records.
 - Dispatching logs and communications records.
 - Forest aviation plan, fire plan, and so forth.
 - Daily diaries.
 - Other ICS forms, and so forth.
- 31. Accident prevention opportunities.**
- A. Attitudes and performance
- Discuss attitudes of personnel involved in the accident and their peers concerning:
 - Use of PPE.
 - Records management.
 - Training guide and handbook compliance.
 - Pilot and contractor performance.
 - Past operational practices.
 - Weather, terrain, and fire behavior predictions.
 - Safety practices and standard orders.
 - Management oversight.
- 32. Incident reports.** The purpose of this section is to determine whether 5700–14s, SAFECOMs, safety documents, and other operational information is routinely completed and submitted. Establish the following:
- A. History of submission by the unit/individual. Determine whether any are related to the accident being investigated. If relevant include a listing of reports and actions taken to correct at the field and Forest level.
- B. Who reviews these documents on the unit? What is done about problems identified? Determine timeliness of submission including review.
- C. Were other unit incident reports reviewed and discussed by the individuals involved in the accident? Is a file available?
- D. Are other unit reports or safety alerts available and used?
- 33. Mission risk factors.**
- A. Determine whether a risk analysis has been performed and by whom. Is it current and applicable to the accident mission? Who was involved; management, pilot, crew, incident commander?
- B. Determine whether risk determination is a consideration in mission planning. How frequent? Supervision and oversight?
- C. Establish what part the risk analysis played in the accident mission.
- 34. Safety emphasis.** The objective of this section is to determine the safety emphasis at each level of the organization as it applies to this accident.
- A. Who provides emphasis on safety?
- B. How is it provided? Accountability?
- C. What is the frequency of briefings?
- D. When was the last safety briefing held?
- E. Do the district ranger, fire management officer, forest fire staff, forest aviation officer, and others participate?
- Findings**
- 35. Develop findings from supporting data.** Findings are the conclusions of the accident investigation team based on the facts, weight of evidence, professional knowledge, and good judgment. Each finding should, where possible, be supported by two or more facts from the investigation.
- A. Divide the listing of findings into sections by subject matter. For example:
- People
 - Pilot
 - Personnel
 - Management
 - Equipment
 - Aircraft
 - Fuel Truck

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EXHIBIT 9-3 (continued)

Preliminary Factual Section

- Environment
 - Weather
 - Terrain

Sample findings:

- The accident/incident was partially survivable due to the limited cabin structural damage and absence of fire following the accident (page xxx).
- The flight crewmembers were properly certified and inspected (page xxx).
- The load calculation and passenger manifest were properly completed and accurately depicted conditions at the destination helispot (page xxx).
- Dispatch had not received a position report or contact for more than 30 minutes, and no attempt had been made during this period to contact the aircraft or firefighters (page xxx).
- The Forest Aviation Officer (or FMO) position had been vacant for 6 months, and no assignments had been made to another individual to perform this task (page xxx).
- Three 5700-14's, SAFECOM's reports had been prepared on the pilot in the 12 days prior to the accident (page xxx-xxx).
- The last entry in the suppression crewmember's training record was dated 21 months prior to the accident. No helicopter training was provided in 2000 (page xxx).

Causal and Contributing Factors

36. Causal factor definition:

- A. Any behavior, acts, or omission that starts or sustains an accident/incident occurrence. These can occur individually or in combination. An event(s) which sustain the occurrence sequence but were normal to the situation as it developed are not causal factors.
- B. Base the causal factor(s) on the findings. Although all the findings are significant, not all of them relate to the cause of the accident.
- C. Reference which findings were used to determine each causal factor.

37. Contributing factor definition:

- A. Any behavior, act, or omission, which contributes to—but does not directly cause—an accident/incident occurrence.
- B. Management actions, failures, and behavior frequently contribute to an accident scenario, but by themselves do not cause the accident to happen. These actions meet this definition of contributing factor.
- C. Reference which findings were used to determine each contributing factor.

Appendixes

38. Appendixes. Appendixes can be used as reference information in the report. They should not be part of the case file. Examples of appendixes are:

- A. Weather reports/summaries.
- B. Aviation Human Factors Classification Analysis (HFACS).
- C. PPE analysis.
- D. Teardown analysis.
- E. Equipment analysis.
- F. NTSB Form 6120 1/2.

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EXHIBIT 9-3 (continued)**Preliminary Management Evaluation Section****Preliminary Recommendations****Recommendations**

Recommendations suggest measures that management may take to prevent similar accidents. They must be reasonable, feasible, and relate to the causal factors of the accident. All recommendations must allow for a definite solution to the problem. Every causal factor should have recommendations for future prevention or mitigation, although exceptions may occur. Upon completion of the report, preliminary recommendations will be developed. This last step culminates in the investigation report and represents the purpose for which the investigation was conducted. Considerable effort should be expended to ensure that the Accident Review Board (ARB) develops quality recommendations for further review and action. Number the recommendations consecutively.

Recommendation number 1:

Recommendation number 2:

Recommendation number 3:

Case File

The accident investigation case file has two components: the accident investigation report (factual section and management evaluation section), and the supporting documentation and equipment that are not in the investigation report. Cassette tapes, photos not used or unfit for distribution, witness statements, and documents that may be too large, should not be included in the investigation report. They should be kept in the case file and only referenced in the accident investigation report to support the team's findings.

The Washington Office, Office of Safety and Occupational Health is the office of record for all Chief's level investigations. The office of record for delegated Chief's level investigations is the safety office of the region or station delegated responsibility to conduct the investigation. However, a copy of the accident investigation report will be forwarded to the Washington Office, Office of Safety and Occupational Health.

Case files will be maintained for the time period required by Forest Service records management rules or FOIA rules as appropriate and then destroyed, except one copy of the accident investigation report that will be kept permanently.

Examples of records that would go in the case file are:

1. Witness statements and interviews.
2. Contract and equipment records.
 - A. Applicable portions of contracts and equipment records. Include contract number and date signed. Identify the contracting officer and contraction officer's representative (COR).
 - B. COR diary or records.
 - C. Rental equipment (as necessary and relevant).
3. Aircraft records.
 - A. FS aircraft inspection records.
 - B. Discrepancy sheets and FS data cards.
 - C. Aircraft log sheets relevant to the accident.
 - D. Power check forms.
 - E. Load calculation forms.
 - F. Load manifests and weight and balance forms.
4. Pilot records.
 - A. Federal Aviation Administration (FAA) certificates.
 - B. Medical certificates.
 - C. Electrocardiogram (EKG).
 - D. FS application and check-ride forms.
 - E. Pilot approval card and date.
 - F. Pilot training and flight time records.
 - G. Medical injury report.
 - H. Autopsy (relevant portions only).
 - I. Death certificates.
 - J. Previous 24-hour history.
 - K. Pilot safety briefing and contract briefing.
5. Personnel records.
 - A. Aircraft crewmembers, helitack, and suppression personnel.
 - Training and qualification records
 - Medical records of injured personnel
 - Other related records
 - Pay records (as needed)

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EXHIBIT 9-3 (continued)

Preliminary Factual Section

6. Weather and terrain description.

A. Accident site.

B. Flight service station, FS fire weather, lookout reports, and so forth.

C. Fire behavior, predicted and actual.

D. Other.

7. Communications record.

A. Radio and dispatch logs.

B. Tapes and other communication records.

8. NTSB Records.

A. Transmittal letter.

B. Preliminary accident report.

9. Other.
- Exhibit 9-3
- Exhibit 9-3—Aviation accident investigation template.
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