U.S. Department of the Interior

Serious Accident Investigation Guide

August 1, 2013

Table of Contents

Preface

Every day countless operations are conducted safely throughout the United States. Occasionally accidents and incidents happen which may involve agency employees, contractors, volunteers or agency property. An accident investigation collects evidence and interprets information to assist the agency in understanding how and why an accident or incident occurred. Recommendations can then be developed for corrective actions intended to eliminate or mitigate hazards to prevent future injuries, occupational illnesses, and property damage.

An accident investigation must be promptly done to ensure that important information is not lost, misplaced, or contaminated. The Department's first priority is to aid the injured and to ensure prompt emergency medical attention. As soon as the emergency situation is over the accident investigation will begin.

Interagency activities often have increased complexity in all operational levels that may not be identified during single agency accident investigations. A Serious Accident Investigation (SAI) must consider these interagency complexities in order to be successful. When the causal factors of a serious accident are identified, effective corrective actions to prevent a recurrence can be taken. Interagency investigations add perspective and enhance the mix of skills and knowledge on the investigation team. Interagency investigations are especially important for identifying and correcting common management and operational issues that cross agency lines. This will also help ensure that lessons learned are shared across agencies.

Chapter 1
Administrative Information and Overview

1.1. PURPOSE

An accident investigation is the methodical collection of evidence, and the analysis as well as interpretation of the evidence. The fundamental purpose is to identify the cause(s) of the accident and to recommend corrective actions to prevent or minimize the chance of a reoccurrence. This Serious Accident Investigation Guide provides guidance on how to conduct a serious accident investigation and perform the associated administrative tasks.

1.2. AUTHORITY

The authority and requirement to investigate accidents is established in the *Occupational Safety and Health Act of 1970*, Executive Order 12196, *Occupational Safety and Health Programs for Federal Employees*; Title 29, Code of Federal Regulation (CFR) 1960, *Basic Program Elements for Federal Employees OSHA*; and *DOI 485 DM 7, Incident/Accident Reporting/Serious Accident Investigation.*

1.3. SCOPE

This guide is the core guidance for all DOI SAIs. It is primarily designed to provide guidelines for SAI Teams (SAIT); however, the process outlined in this guide can be applied, in whole or in part, to all accident investigations regardless of severity. The templates, forms, and outlines contained within must be used by SAITs when conducting investigations.

This guide outlines the standards and tools for teams and provides a comprehensive process to conduct an accident investigation. This guide details information on the investigative process and associated tasks, such as gathering and maintaining custody of physical and photographic evidence, interviewing and documenting witness statements, and preparing investigation reports (factual and management evaluation).

1.4. OBJECTIVE

Investigations must be initiated promptly and properly to ensure important evidence is not lost, misplaced, or contaminated. Investigations related to the serious accident conducted for administrative, disciplinary, legal, or liability purposes must be separate and independent of the SAI. This guide provides essential steps for serious accident investigations, regardless of the organizational level involved and should help to:

- Conduct a comprehensive accident investigation
- Identify not only the immediate cause(s) of an accident, but also the root cause(s)
- Recommend corrective actions to prevent similar accidents from occurring in the future

Jurisdictional and other affected agencies policies, in accordance with laws and agreements, will determine the type of investigation that will be conducted. The level of accident investigation is determined by the complexity and severity of the incident. Federal Wildland Fire Agency policy references can be found in the Interagency Standards for Fire and Aviation Operations (Red Book). Bureau of Indian Affairs (BIA) Wildland Fire Accidents are defined in the BIA Wildland Fire and Aviation Program Management and Operations Guide (Blue Book).

1.5. TYPES OF ACCIDENTS AND INVESTIGATIONS

DOI Serious Accidents: 485 DM 7 defines a serious accident as a Department-related incident that is a result of an employee action or Departmental condition that results in:

- One or more duty-related employee fatalities or imminently fatal injuries or illnesses or non-employee fatality caused by a Departmental operation
- The in-patient hospitalization of three or more DOI personnel (i.e. employees, volunteers, contractors, or emergency fire fighter) as a result of a work-related accident
- Property damage (including site mitigation or cleanup) of $250,000 or more
- Consequences that the Designated Agency Safety and Health Official (DASHO) judges warrant further investigation (e.g., one or two employees are hospitalized due to severity of work-related injuries or illnesses or a close call incident [e.g., one that's diving-related] that resulted in hospitalization which could have been fatal but was not)

The use of a SAIT is the preferred approach to the investigation of serious accidents. However, in situations where the accident causes appear to be unrelated to Departmental management processes or controls, or in cases where there are no people affected by the accident (e.g., only property damage) the bureau DASHO may elect to use a *Trained Investigator* (TI) in lieu of the SAIT). In such cases, the TI will provide a serious accident Factual Report and a Management Report as required by this guide.

Interagency Wildland Fire Accidents: U.S. Department of the Interior and U.S. Department of Agriculture, U.S. Forest Service (USFS) wildland firefighting that results in a "serious fire-related accident" are investigated in accordance with the Memorandum of Understanding (MOU) between the DOI and the USDA and the procedures outlined in this guide.

Aviation Accidents: Aviation accidents are investigated by the DOI Office of Aviation Management Services (AMS) and the National Transportation Safety Board (NTSB) in accordance with 352 DM - Aviation Safety, and Federal Aviation Administration regulations. Should an aviation or a combined aviation and ground accident occur, the NTSB will have overall authority of the accident scene and investigation. Close coordination and collaboration with the NTSB will be critical to the SAI's mission. The *Delegation of Authority* will include the Team Leader's responsibility to request *party status* to the NTSB investigation. The SAI Team Leader must ensure that the completed Final Report has been approved by the NTSB prior to submittal to the agency.

Collateral Investigations: Collateral investigations are conducted independently or apart from the serious accident investigation to make a record of the facts for use in litigation, claims, and other administrative and disciplinary actions. Collateral investigations may include a Board of Inquiry, Occupational Safety and Health Administration (OSHA) Inspection, or a law enforcement investigation.

Federal OSHA offices have jurisdiction over Federal employees and will be notified telephonically, within 8 hours if the accident involves an employee fatality/fatalities and/or three or more employees are hospitalized, by the affected unit prior to SAIT arrival. State OSHA offices do not generally have jurisdiction over Federal employees, Federal volunteers or Federal agencies. The local OSHA Area Director will have knowledge of any local jurisdictional issues. State OSHA offices may get involved if there are victims that are not Federal employees such as state personnel, contractors, or municipal employees; may be involved if the accident is on state land.

Note: After normal business hours and on weekends, OSHA can be notified telephonically at 1-800-321-OSHA [6742]). If the OSHA Area Office having jurisdiction is closed, the reporter *may not* leave a message on OSHA's answering machine, fax the area office, or send an e-mail as notification. If a person is unavailable to talk to at the Area Office, the reporter must report the fatality or multiple hospitalization incident using the 800 number listed above.

SAIT Investigation Priority: DOI serious accident investigations take precedence over all other non-criminal investigations. An OSHA inspection may be conducted concurrently with a DOI SAI.

Criminal Investigations: Halt the investigation if criminal activity is suspected. The Team Leader must notify the DASHO, appropriate law enforcement office within the bureau or at the agency-level, and consult with the Bureau Safety and Health Manager for further guidance. If an accident being investigated may have been caused by an intentional criminal act, the SAIT, in consultation with the law enforcement agency, shall take necessary actions to ensure that evidence is preserved. Do not resume the investigation unless directed by the DASHO.

1.6. SERIOUS ACCIDENT INVESTIGATION TEAM COMPOSITION

Authority to authorize the formation of an SAI Team rests with the Bureau DASHO. Following initial notification of a serious accident, the respective Bureau DASHO will designate a SAI, provide a written *Delegation of Authority* to conduct the investigation, and the means to form and deploy an investigation team.

Resource Ordering and Status System (ROSS) – under development: The SAIT can be formed by using the ROSS to call up team members; similar to how Wildland firefighting teams are called up. Once an incident/accident occurs warranting a DASHO delegated SAIT, members should be called up utilizing ROSS. The bureau or office must log in to ROSS to start ordering

their SAIT members. Each bureau or office must have an individual authorized to access ROSS before attempting to use the system. See Chapter 2 for information to request new ROSS accounts.

The MOU between DOI and USDA states that interagency serious accidents will be investigated by interagency investigation teams (See Exhibit A2-1). Serious accidents involving more than one agency will require the DASHO to collaboratively develop a delegation of authority that must be signed by each of the respective agencies.

Team Composition: SAIT members will be selected in such a manner as to eliminate any perception of bias. Teams will be comprised of a Team Leader, Chief Investigator, Safety Advisor, Management Liaison, Technical Expert(s) as required, and a Documentation Specialist, if so desired. The DASHO will issue a *Delegation of Authority* (See Exhibit 1-1) letter to the Team Leader. Interagency representatives may be added as requested by the Team Leader.

Use of Contract Investigators: The SAI process is the desired approach for investigating serious accidents; however, in isolated incidents where the accident cause(s) appear to be unrelated to Departmental management processes and controls, the DASHO may elect to use a Contract Investigator in lieu of the SAIT.

Trained Investigator (TI): An individual appointed by a bureau DASHO to investigate a serious accident in lieu of a bureau DASHO-appointed SAIT. Trained Investigators must meet the qualifications and training requirements for SAIT Chief Investigators.

Qualifications, Duties, and Responsibilities of Team Members:

Team Leader: Normally a senior manager (typically a GS-14 or above) from a region within the bureau other than the one involved in the accident; leads the SAIT's activities. For example, if a diving accident resulted in the formulation of an SAI, the team composition should not be all divers or personnel from the same discipline; only the "technical specialist" should be from the dive community. Another example would be if a wildland firefighting accident required a SAI, the "technical specialist" should be the only wildland fire fighter on the team with the rest of the team composition coming from other occupational disciplines.

Qualifications: Graduate of the Interagency Serious Accident Investigation Course or equivalent and completed a shadow assignment or hands-on training utilizing role based scenarios.

Duties and Responsibilities:

- Calls up SAIT members using ROSS.
- Arranges team logistics such as local transportation and suitable work space(s)
- Provides opening and closing briefings with site managers
- Serves as the liaison between the site and convening authority
- Organizes and controls the SAIT's investigation efforts

- Coordinates with site and/or bureau's Public Information Officer for media releases
- Arranges for additional SAIT members as required
- Approves SAIT member release from or inclusion in the investigation
- Drafts & forwards the 72-hour Report to the convening authority for distribution
- Provides for the safety and security of the team and the gathered information
- Coordinates with local law enforcement, coroner's office, and others as required
- Confirms that drug testing, autopsies, medical reports, and other appropriate tests are initiated when required
- Arranges Critical Incident Stress Management (CISM) for investigation team members when necessary
- Prepares and presents the Factual Report and Management Evaluation Reports to the respective Bureau Board of Review prior to DASHO receipt
- Briefs the accident to the Bureau Director/Administrator and/or Deputy Director when so directed by the Bureau Director/Administrator

Chief Investigator: Selected from a region within the bureau other than the one involved in the accident and is responsible for the direct management of the technical investigation activities. Once again, the SAIT should be composed from other occupational disciplines with only the "technical specialist" coming from the occupational series of the accident victim(s).

Qualifications: Graduate of the Interagency Serious Accident Investigation Course or equivalent and completed a shadow assignment or hands-on training utilizing role based scenarios.

Duties and Responsibilities:

- Documents the sequence of events leading up to, during, and following the accident
- Assists the SAIT in identifying findings, developing causes of the accident, and recommending possible solutions to prevent recurrence
- Manages the evidence collection process
- Identifies additional SAIT staffing and resource needs, such as technical specialists, documentation specialists, law enforcement, communications, and forensic experts (based upon the technical complexity of the investigation)
- Ensures that the investigation addresses pertinent safety issues and concerns.
- Coordinates with the organization having jurisdiction over the accident site to ensure security and control of the accident site
- Works closely with the Team Leader to draft the 72-hour Report, the Factual Report, and the Management Evaluation Report
- Prepares and presents the Factual Report and Management Evaluation Reports to the Board of Review with the Team Leader
- With the Team Lead jointly briefs the accident to the Director and/or Deputy Director, when so directed

Safety Manager: An occupational safety and health professional selected from a region within the bureau other than the one involved in the accident and is responsible for advising the SAIT on safety issues pertinent to the investigation.

Qualifications. Fully qualified Safety and Health Specialist/Manager, GS-0018, 0803, or 0690 Series or a Collateral Duty Safety Officer (CDSO) with at least five years safety and health field experience and Graduate of the Interagency Serious Accident Investigation Course or equivalent. It's preferable that the individual selected have completed a shadow SAIT assignment but it's not mandatory if their qualifications and experience is deemed sufficient by the Team Leader after consultation with the Bureau/Agency Safety Manager.

Duties and Responsibilities:

- Advises the SAIT on the conduct of the investigation to ensure compliance with Federal and Departmental safety standards
- Facilitates risk assessments using a risk management process (such as the NPS Operational Leadership Process or the DOI Operational Risk Management plan) for the SAIT's operations and activities
- Ensures SAIT members have the necessary equipment and training for all activities they will be performing
- Ensures team members utilize the required personal protective clothing and equipment as prescribed by the Risk Assessment

Management Liaison: Representative requested from the site experiencing the accident with DASHO or SAI Team Lead approval.

Qualifications: Possesses the reputation and ability to communicate effectively and coordinate efforts between accident unit managers and the SAIT in order to expedite services to support the investigation.

Duties and Responsibilities:

- Serves as the liaison between the SAIT and the local unit that experienced the accident
- Assists unit management, as desired, during coordination efforts with family members
- Excluded from participating in the investigative process

Documentation Specialist: An individual assigned to the SAIT to provide document management assistance and to serve as a writer and editor. He/she does not require formal investigative training.

Qualifications: Possess sufficient skills to provide the team with writing, editing, word processing, records management, and evidence collection management.

Duties and Responsibilities:

- Makes arrangements and accommodations as requested by the Team Leader
- Provides document management support to the investigation until released
- Collaborates with the Chief Investigator to develop a system to ensure that all evidence collected by the investigation team is documented (chain of custody) and safeguarded

Technical Specialist: Expert with specific technical skills in a particular field needed to support the accident investigation; does not require formal investigative training. This expert must come from the same occupational series as the as the victim or unit experiencing the accident.

Qualifications: Possess sufficient technical skills in a specialty area required to provide expert advice in support of the investigation. In Wildland fire related investigations, he or she must have a red card rating at or above the level he or she is advising.

Duties and Responsibilities:

- Works directly with the Chief Investigator to provide technical support to the investigation until released by the Team Leader.

Trained Investigator (TI): An individual (or a private sector or governmental investigative body) appointed by a Bureau DASHO to investigate a serious accident in lieu of an appointed SAIT. Trained Investigators must meet the qualifications and training requirements for SAIT Chief Investigators.

1.7. INVESTIGATION PROCESS

Each accident investigation is different; however, once the DASHO provides the *Delegation of Authority* to the Team Leader, the following steps will almost always occur in DOI accident investigations:

- Team selection using the DOI ROSS
- Notification and travel to, or as close to, the accident site
- Initial meeting with other SAIT members
- Initial meeting with manager of the unit sustaining the accident
- Initial site survey
- Witness interviews and statements taken
- Evidence collection
- Development of accident sequence, findings, causes and recommendations
- Report preparation
- Close-out briefings with management
- Board of Review Briefing
- Briefing accident and presenting final reports to DASHO
- DASHO approve final reports and schedules Bureau Director/Administrator briefing
- Bureau Director/Administrator briefed on investigation causes and recommendations
- All final reports are transmitted to the DOI DASHO

1.8. INVESTIGATION PRODUCTS

When complete, the investigation must have produced the following:

- A chronology of the events leading up to the accident, the accident sequence, and the events that occurred after the accident
- Findings that sustained the accident sequence of events
- Root cause(s) of the accident

- Recommendations to prevent recurrence
- Other findings of significance, which if left uncorrected, could lead to another accident

1.9. INVESTIGATION REPORTS.

The following is a list of reports required by DOI regulations. This section discusses each briefly; more detailed information, to include samples, can be found in Chapter 10, *Reports and Briefings*. DOI guidance can be found in 485 DM 7, *Incident/Accident Reporting/Serious Accident Investigations*.

24-Hour Report (Preliminary). Contains the first details of the accident and must be completely factual (no testimony or assumptions). This report is produced by the local unit experiencing the serious accident since the SAIT is generally not yet on site.

72-Hour Report (Expanded). Contains a brief narrative of the accident based on factual information gathered onsite and lists the members of the SAIT.

Safety Alert. If a safety hazard or action item is identified during the course of the accident investigation that requires immediate action, a ***Safety Alert*** will be developed to address the concern and recommend corrective action. It will be sent by the Team Leader to the bureau safety manger, with a "CC" to the DASHO, for consideration in scope of release (e.g. bureau only or department-wide). If the release should be Department-wide, the alert will be sent by the DASHO to the DOI Occupational Safety and Health Director for official release.

Factual Report. Contains a chronology of the events leading up to, during, and after the accident; findings that contributed to the accident sequence and the causes of the accident.

Management Evaluation Report. Contains an executive summary of the factual report; the Findings from the factual report; causes identified; any conclusions that the SAIT makes, recommendations to prevent similar accidents and other findings that, if left uncorrected, could potentially lead to future accidents.

1.10. REPORT USE

Information collected and developed during the course of an accident investigation is to be used for accident prevention purposes only. It shall not be used for purposes such as: evidence (or to obtain evidence) to determine the misconduct of agency personnel; to determine the disciplinary responsibility of agency personnel; to assert affirmative claims on behalf of the Government; or to determine Government liability for property damage, injuries, or death.

Chapter 1—Administrative Information and Overview

EXHIBIT 1-1

Sample Delegation of Authority Letter – Courtesy of the National Park Service

United States Department of the Interior
NATIONAL PARK SERVICE

Date

IN REPLY REFER TO

Y14 (9560)

Memorandum

To: [Team Leader- identify by name and regular job title]

From: Deputy Regional Director, xxx Region [include signature]

Subject: Delegation of Authority – Serious Accident Investigation

This memorandum formalizes your appointment as Team Leader for the Serious Accident Investigation Team (SAIT) assigned to the accident that occurred [insert unit name, location, and date]. Your duties include but are not limited to:

1. Organizing, managing and conducting the accident investigation in accordance with Departmental Manual 485 Chapter 7 and National Park Service Reference Manual 50B.
2. Providing in-briefings and out-briefings with affected personnel and agency officials including the Park Superintendent.
3. Coordinating information exchange between team members, local law enforcement, the coroner's office and other entities involved with investigating the serious accident.
4. Maintaining liaison with the affected park and regional office.
5. Approving requests and allocating funding for resources to assist with the investigation.
6. Requesting technical, logistical or other support to conduct the investigation as required.
7. Providing briefings to myself and others. Initially, briefings will be conducted daily however; the frequency may be reduced at a later time.

8. Coordinating the scheduling of interviews and other appropriate activities with other line of duty death entities such as critical incident stress management teams, funeral/memorial arrangements, etc.
9. Providing the following formal briefings/reports to me within the identified time frames:
    a. Preliminary Report (24 hours)
    b. Expanded Report (72 hours)
    c. Factual Report (45 days)
    d. Management Report (45 days)
10. Briefing the Board of Review (BOR) in regards to the investigation, findings, recommendations, etc.
11. Conducting additional investigations and performing additional follow-up actions as requested by the BOR.

Requests for time extensions on report submittals must be made through me. Requests should be made in writing, to include the rationale for the extension, and be submitted at least five calendar days prior to the official due date. All approval of time extensions will be made by the DASHO.

Reports will be prepared in accordance with Departmental Manual 485 Chapter 7 and National Park Service Reference Manual 50. Reports will be delivered to the delegating official by the Team Leader. Once the Factual Report and the Management Report are accepted by the delegating official, no changes will be made. However, addendums to these reports may be necessary as a result of the BOR and any subsequent follow-up investigations. All reports (other than the Preliminary and Expanded Reports) will be considered draft until they are accepted by the agency DASHO.

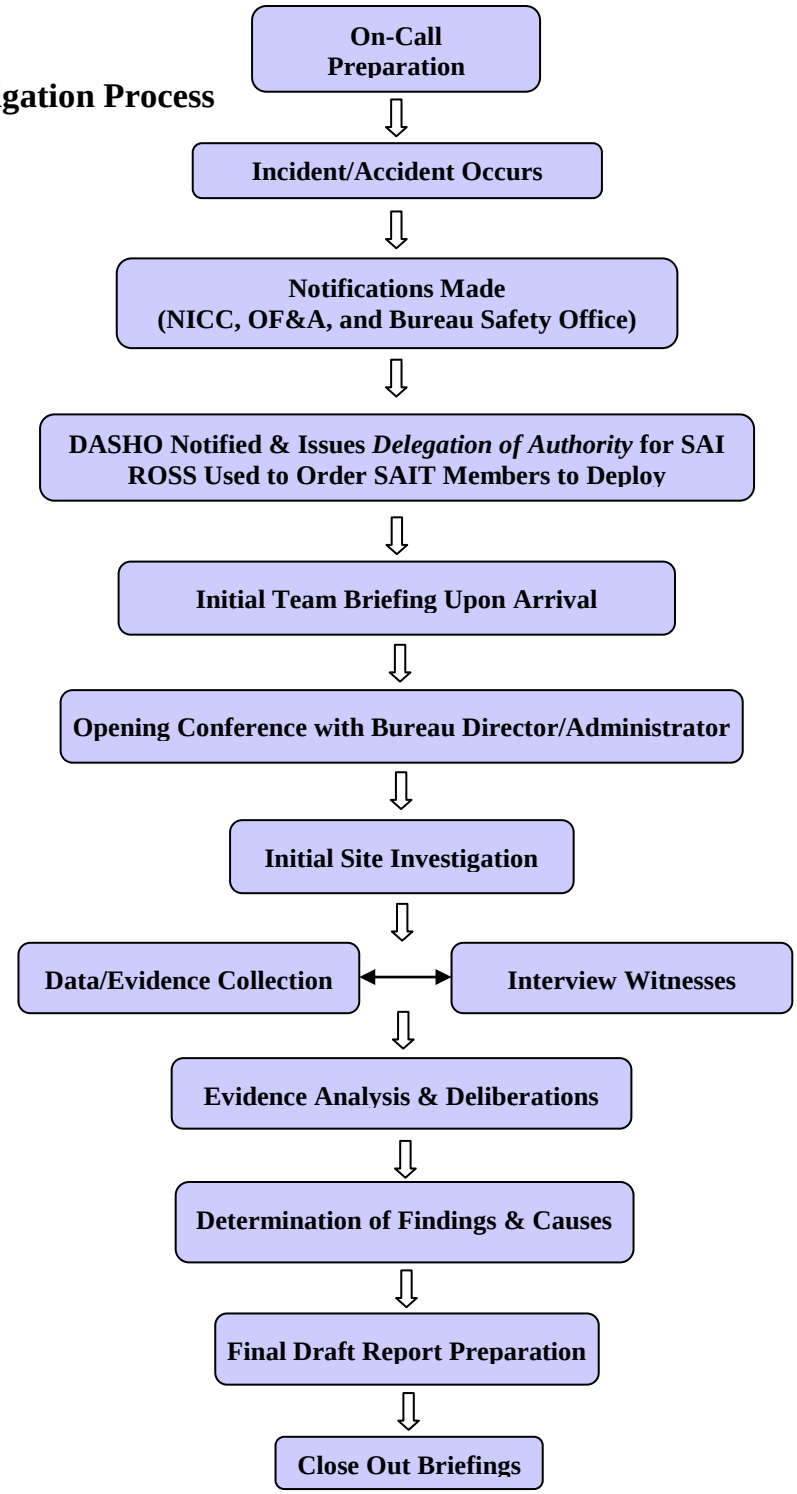
You will be provided a charge code to pay for all travel and associated costs.

cc: NPS Designated Agency Safety and Health Official (DASHO)
Chief, Office of Risk Management, WASO
Chief, Park Facility Management Division
Park Superintendent [where the serious accident occurred]
Regional Safety Manager

Chapter 1—Administrative Information and Overview

EXHIBIT 1-2

Accident Investigation Process



Chapter 2
Team Preparation and Activation

2.1. INTRODUCTION

The hours after a major accident can be confusing and stressful for most of the people involved. Members of an activated SAIT should be prepared to be dispatched to the location of the incident as soon as possible. The first responsibility of all emergency response team members is to arrive expeditiously and safely to the site of the incident. (Team composition is covered in Chapter 1.)

2.2. PREPARATION

Team members should preplan what they will do if activated. On-call SAIT members should contact their Team Leader at the start of the on-call period just to touch base. An on-call period should be established within each bureau to assure timely activation and response of a SAIT. SAIT qualified members should have a list of personal items they will need and a list of the most common accident investigation tools they would likely use. Exhibit 2-1 provides a list of items that may be needed during an investigation.

2.3. NOTIFICATION

The DOI Resource Ordering and Status System (ROSS) should be the sole source for ordering a SAI Team. Once an incident/accident occurs warranting a DASHO delegated SAIT, members should be called up utilizing ROSS. The bureau or office must log in to ROSS to start ordering their SAIT members. Each bureau or office must have an individual authorized to access ROSS before attempting to use the system.

Requesting New Accounts. Potential users need to establish an account to work with Production or Practice ROSS. A unique e-mail address is needed for the user plus contact information of the person to verify the account (i.e. Dispatch Center Account Manager). For step-by step instructions for requesting a new account, please see the Quick Reference Guide How to Request a NAP User Account.

Team Activation. Once notified as a SAIT member, record information on the Preliminary Notice Worksheet (Exhibit 2-2).

Note: All of the information may not be available immediately.

- Accident/incident specifics: what happened, where, and when accident occurred
- Onsite Point of Contact (POC) telephone/call back number
- Record Regional, NFMO, ROSS, or NICC POC (who and what was said)
- Team report location & report time
- Determine who will be making travel arrangements
- Confirmation of other team members' status (estimated time of arrival, etc.)

Once mobilized, make immediate plans to depart so, if possible, you can arrive at the scene within 24 hours of the notification call. Do not delay your departure while attempting to contact other team members or to gather additional information on the incident.

2.4. TRAVEL PLANS

If travel plans are not already made for the team, make your own plans using the most efficient approved method. Charge all authorized expenses to your official Government credit card. The unit that sustained the accident will provide reimbursement charge codes.

2.5. INITIAL TEAM MEETING

The Team Leader should get the team together before the initial briefing with the affected unit. It is preferable to do this offsite. It allows team members to meet each other, organize their thoughts, and get an understanding of their roles. At this meeting, the Team Leader will ask you to explain how you plan to proceed. Provide the team members with an overview of your approach to the investigation (e.g., getting preliminary information from the agency, documenting the site, interviewing witnesses, collecting evidence). If you plan to use a formal analytical process such as MORT (Management Oversight and Risk Tree) or Fault Tree Analysis, tell the team and give them a short explanation of how that process works. Either you or the Team Leader should ensure the following information is conveyed to the team:

- Team members understand the need for confidentiality of the findings until the investigation is complete and the report is released
- Team members shouldn't take independent actions without Chief Investigator approval
- The SAIT Safety Manager reminds team members to maintain their own personal safety
- The SAIT Safety Manager discusses known hazards and protective measures that will be required. Include both the local area and work site hazards
- Team members understand each other's roles and general duties
- Discuss the immediate plan of action
- Discuss expectations regarding performance and conduct
- Discuss the need to be sensitive to local personnel and their feelings of loss
- Remind SAIT members not to discuss the investigation in public settings (e.g., hallways and other common areas, such as restaurants)
- Remind SAIT members not disturb any physical evidence at the accident site
- Keep written information secure

2.6. TEAM ORGANIZATION

The team cannot be effective if it's not organized. Lodging, transportation needs, work areas, and other logistical needs should be taken care of as soon as possible at the incident site. The Team Leader should contact the SAIT's Management Liaison to assist with any arrangements.

Chapter 2—Team Preparation and Activation

Exhibit 2-1

Accident Investigation Kit Contents

Basic Administrative Requirements

DOI SAI Guide
Agency Administrator's Guide to Critical Incident Management, PMS 926/NFES 1356
Standards for Fire and Aviation Operations (Red Book or Blue Book)
DOI Line of Duty Determination (LODD) Guide
Laptop computer/Pocket computer/Calculator
Digital voice recorder or equivalent device (w/spare batteries and cassettes, if applicable)
Flashlight (w/spare batteries)
Camera, with date/time stamp (zoom/close-up, with spare batteries and data storage cards)
Clipboard
Notepads
Pencils/pens/markers
Measuring tape (50 or 100-foot preferably)
Ruler (12 inch)
Compass (magnetic)
Evidence bags
Evidence tags

Optional Equipment

Inclinometer
Optical range finder
Handheld GPS unit
Magnifier, small
Pocket multi-tool with case
Screwdriver, flat tip
Screwdriver, Phillips
Pliers
Graph paper

Chapter 2—Team Preparation and Activation

Exhibit 2-2

Preliminary Notice Worksheet

Date of Accident	Location of Accident

Person Who Contacted You

Name/Phone	Position	Organization (i.e., Bureau Safety Office, OF&A, NICC)

Injuries/Fatalities Details (if available)

Name(s)	Home Unit(s)	Age(s)

Estimated Property Damage	$

Brief Description of Accident (who, what, when, where, how)

Initial Actions by Local Office

Who is the Local Point-of- Contact (POC – Management Liaison)

Name	Position	Phone Numbers

Delegation of Authority letter

Signed (yes/no)	Sent To:

Chapter 3
Opening Conference

3.1. INTRODUCTION

The opening conference is an opportunity for you to get to know the managers and supervisors involved in the incident and for them to get to know you. This is an extremely valuable meeting.

3.2. OPENING CONFERENCE

The Team Leader should ask the Bureau Director/Administrator to give a complete and candid briefing to the team. All known facts, circumstances, and theories that the unit may have on the cause of the accident should be thoroughly covered. However, the theory should not be considered as fact, the investigation will reveal the facts. Begin to fill out the investigation documentation form located at Exhibit 3-1 with the facts provided by the Bureau Director/Administrator and agency staff.

The Team Leader should use the Investigation Team in-brief to conduct the formal part of the briefing. During the briefing, cover the general approach that the team will take, and explain the duties of the team members and what they will be looking for. Express who the team would like to interview and request that they be made available to the team. Lastly, state that any recommendations to prevent future recurrence will be made at the end of the investigation.

Any collateral investigations that are underway or planned should be discussed at this time. The DOI SAIT investigation takes priority over all other internal DOI non-criminal investigations. Other investigations being conducted (e.g., OSHA, NTSB, FAA, local law enforcement) may be ongoing and run concurrently. Many times these agencies have seasoned investigators who will provide valuable information to the SAIT. The Team Leader must ensure that the SAIT works with, not against, other authorized investigations; this includes the sharing of releasable information with the other investigative agencies.

Any evidence that has been collected by the unit to date should be turned over to the investigation team to be cataloged. The Team Leader will assign one of the SAIT members the responsibility of cataloging evidence (See Chapter 8). The *Chain of Custody* of any evidence collected during the course of the investigation must be maintained.

Senior representatives of the unit sustaining the loss may ask that the team address certain specific areas or issues. These should always be taken into consideration, but should not guide the investigation or interfere with the basic purpose of the investigation.

The team should request a safety briefing from the unit. The briefing should cover local conditions, such as weather, special field precautions, driving conditions, vehicle usage (e.g., use of four-wheel drive vehicles, ATVs, snow machines, etc.), political climate (e.g., as it may affect Government employees), and any other areas the team should be aware of.

The team should confirm who their *Management Liaison* with the unit is. This liaison will serve as the team's local point-of-contact (POC) with the unit. As much as possible, all requests for equipment, information, and other resources should be directed to that person. The team should strive to reduce the impact of the investigation on the unit as much as possible.

The team should identify any working space, specialized equipment, office supplies, and administrative support that they know they will need at the time of the in-brief to the unit. Obtaining resource requirements for the investigation team should be a priority, but should also be consistent with the unit's requirement to continue/complete their mission.

3.3. SITE SECURITY

The team should obtain all information possible on the condition of the accident site; request that it be held for the SAIT; determine if any evidence has been removed or moved from its position; and determine if any special site entry requirements have been put into place. If any evidence has been removed, its location and the name of the person controlling access should be given to the Team Leader or the Chief Investigator.

3.4. FAMILY LIAISON/PUBLIC AFFAIRS OFFICER

The unit should provide the Team Leader with the names and phone numbers of the *Family Liaison* and the *Public Information Officer* (PIO), as well as copies of any press releases or preliminary up-channel reports (e.g., the 24 Hour Report or Law Enforcement Serious Incident Reports) that may have been generated.

If possible, all information given by the team to non-DOI entities should come from a PIO. The Team Leader, working closely with the PIO, will need to make public announcements in some cases. With the exception of the Team Leader and PIO, no other team members should make any public announcements.

3.5. CRITICAL INCIDENT STRESS DEBRIEFING

As a general rule, it is best for the team to interview witnesses before the Critical Incident Stress Management (CISM) debriefing. The Team Leader should ascertain if a debriefing has been conducted or is planned, how the employees are doing in general, and if the CISM team liaison has any serious concerns. The Team Leader should also get the name of the CISM team liaison in case members of the Investigation Team need counseling assistance during or after the investigation.

3.6. AUTOPSIES

The Team Leader should find out if an autopsy is planned. If so, request that samples of body fluids be analyzed for alcohol and drugs. The rules on autopsies vary from State to State. Determine what the respective State autopsy policy is as soon as possible after arrival. If an autopsy is not planned, determine if it appears to be in the best interest of the agency and family for one to be conducted.

Note: Survivors of firefighters who die in the line of duty are entitled to death benefits; normally, an autopsy is required. This fact should be presented to the family if they are uncertain about approving an autopsy. Refer to Appendix 2 for additional information.

Chapter 3—Opening Conference

Exhibit 3-1

Investigation Documentation Form

<table>
<tr><td colspan="5">INVESTIGATION DOCUMENTATION FORM</td></tr>
<tr><td colspan="5">Names of participants in the opening conference:</td></tr>
<tr><td colspan="5">Personal Data – Victim</td></tr>
<tr><td colspan="2">Name:</td><td>Address:</td><td colspan="2">Telephone:</td></tr>
<tr><td>Age:</td><td>Sex: M F</td><td colspan="2">Job Title:</td><td>Grade/Series:</td></tr>
<tr><td colspan="2">Date of employment:</td><td colspan="3">Time in position:</td></tr>
<tr><td colspan="5">Training for job being performed at time of accident:</td></tr>
<tr><td colspan="5">Employee status:</td></tr>
<tr><td colspan="5">Nature of injuries:</td></tr>
<tr><td colspan="5">Accident Data</td></tr>
<tr><td colspan="5">What happened?</td></tr>
</table>

Physical layout:		
Measurements:		
Sketches/Drawings: Yes No	Videos/Photos: Yes No	
Equipment Involved or Process		
Machine type:	Manufacturer:	Model:
Process:		
Manufacturer's instructions: Yes No	Warning devices (detectors): Yes No	
Condition: Good Fair Poor	Misuse: Yes No	
Maintenance program: Yes No	Equipment inspection (logs, reports): Yes No	
Tasks performed:		
How often is equipment used?		
Energy sources and disconnecting means identified: Yes No		
Supervision or instruction provided to employees involved in accident: Yes No		
Witnesses		
Public Fellow Employees Management		
Safety and Health Program		
Does organization/office have a safety and health program? Yes No		
Was a copy of the safety and health program provided to the SAIT? Yes No		
Does the program address the type of hazard that resulted in the fatality/catastrophe? Yes No		

Chapter 4
Initial Site Investigation

4.1. INTRODUCTION

The initial site investigation is the most important and revealing visit. The accident site must be secured and made safe before entering or visiting the site. Evidence must be protected from damage or tampering, especially evidence considered to be perishable. The team should approach the site slowly and get the overall picture of what was going on and what the conditions were at the time of the accident. Landscape features, shadows, roadways, space allocation, type/location of equipment and people, should all be looked at from a distance to help establish the overall complexity of the scene, to include photographing the scene.

4.2. COORDINATION WITH LAW ENFORCEMENT

Prior to departure to the site, the team should coordinate with law enforcement to see what their interest in the incident is and if they have any evidence that should be considered. If DOI law enforcement has sent out any preliminary reports, a copy should be given to the team. Should the investigation at any time identify any evidence that may indicate that a crime has occurred; the SAI Team must notify their respective DASHO, or other appropriate law enforcement agencies as directed. Do not resume the investigation until a decision is made by the DASHO after Bureau/Regional Solicitor/LE consultation that the SAI may continue.

4.3. PREPARATION FOR SITE VISIT

The first priority is always to visit and return safely from the site. The team should wear any required personal protective equipment (PPE) when entering any work area or accident site and comply with all other site safety requirements. Ensure that all necessary equipment is identified and obtained prior to departing for the site. Adequate transportation, water, and protective clothing should be provided for each team member. Items such as digital cameras and adequate SIM cards (i.e. for electronic data storage) should be obtained. Prepare yourself mentally and emotionally for the site visit.

4.4. INITIAL SITE INVESTIGATION

Site Security: Any site security procedures that have been established prior to the SAIT's arrival should be complied with. The team may change these procedures once the scene is evaluated.

Site Visit: The team will want to look at the accident scene early in the investigation. Upon arrival at the site, STOP. Your first observations and analysis of the scene are critical. Slow the

team's approach and observe the overall picture. Do not move anything. Take photographs and make sketches. All site evidence must be documented on an evidence log.

It is very important to get an overall look of the accident area and at the exact site of the accident before any evidence is disturbed. The site should be approached from the same direction as the site is normally approached. The entire site should be taken into account. The position of major structures, utilities, roadways, benches, machinery, tools, and other items must be considered in the grand scheme of events leading up to the accident. The main tasks and the flow of work must be established. If there is evidence that may be easily disturbed, only the Chief Investigator and Team Leader should enter the area.

Entrance to the Site: People not on the SAIT or invited into the site for assistance shall be prohibited from entering the accident site.

Pictures: All pictures taken must be logged or identified on a sketch. The picture number, date/time of photo, the person taking the photo, angle of photo, location, and photo description should be included for each shot taken. See Chapter 6 for more details on photographing.

Evidence Removal: Anything taken from the accident site shall be logged in on the evidence log and a chain of custody established. Chapter 8 discusses evidence gathering and documentation.

Extent of Site and Controls: The extent of the accident site—its physical dimensions—should be established and boundaries identified and marked. The entire site needs to be controlled and evidence protected until released back to the unit by the Chief Investigator.

Initial Description of Site: The site description needs to be prepared very carefully to ensure that it is accurate and well defined. Drawings, photographs, and historical records may all prove useful. Chapters 5 and 6 discuss site documentation.

Contamination of Site: Witnesses should be used to determine how the site looked at the time of the incident or how it typically looked during a similar operation. The Chief Investigator should always consider the possibility that the site had been disturbed when considering the position of the evidence.

Grid Plan for Sketches/Photographs: On large or complex accident sites, the site should be divided into grids in order for photographs and sketches to be easily logged, so their locations and angles are easily understood later on.

Chapter 5
Maps, Sketches, Drawings, and Diagrams

5.1. INTRODUCTION

The purpose of maps, sketches, drawings, and diagrams is to aid the investigation team and management in understanding the conditions existing at the time of the accident, and to reconstruct the circumstances leading up to the accident. All sketches, drawings, diagrams and maps should be part of SAI documentation. Critical information may be lost forever due to inadequate documentation by the investigation team. Such information may be necessary later on in the investigation when analysis of causal factors shows that the position of items held a greater importance than originally thought. Accuracy in measurements, mapping, sketches, and drawings is so important to a successful investigation, that prior to entering a site, a thoughtful and deliberate planning process must occur.

The initial development of maps, sketches, drawings, and diagrams should begin as soon as possible following the Agency Administrator's briefing. It is necessary to identify and document any personal items that left the scene of the accident with the victim(s) or response personnel. Do not rely on photographs alone for "site layout" due to problems encountered with photography perspectives (and the occasional bad roll of film).

5.2. PRELIMINARY WORK

The first step upon arriving at the scene is from a distance; determine the extent of the accident site. Note specific geographic and spatial "benchmarks" in order to establish common points of reference. A spatial benchmark may be the big boulder just to the left of the accident site that helps give you an idea of the proportions of the accident.

A baseline often needs to be established so that all other measurements can be based from a point along the baseline. Roads, sidewalks, exterior building walls, and ridge or tree lines make good baselines since their positions are fixed and unlikely to change if follow up site inspections are required. Identify all of the common and proper names of site features or boundary marks so that interview questions can be developed for witnesses who may be unfamiliar with the terms used by long-term residents.

5.3. INITIAL SKETCHES

The first sketch should be a rough general area sketch encompassing the accident site, debris field, location of readily identifiable structures or land features, general orientation to the north arrow, and approximate measurements by estimation. It should show the orientation of the victim(s), equipment, machinery parts, and debris field.

Obvious marks such as skid marks, damaged foliage, damaged surfaces or structures, spills or contaminated areas, and the position of safety equipment should be noted. A team member should be assigned as recorder to take notes for the Chief Investigator and/or Technical Advisor.

The intent is not to prepare a detailed drawing of the site, but to:

- Identify where more precise measurements should be taken
- Establish the general orientation of investigation photographs
- Note key areas likely to contain forensic evidence
- Identify hazardous locations

5.4. EVIDENCE PRESERVATION

The Chief Investigator must determine what evidence is fragile or perishable and may be destroyed or lost due to weather, theft, or moved in order to protect valuable equipment. After conferring with the personnel responsible for site security, arrange for site preservation (equipment and material). This may require flagging or barricading the area, increasing security personnel, expanding the site security perimeter, covering the site with plastic, obtaining a secured storage facility, or carefully packaging and removing evidence.

5.5. MEASUREMENTS AND MAPPING

Upon establishing a baseline, determine which measurements must be taken to provide definitive information showing the scope and size of the site. An easy method to accomplish this is by establishing a grid pattern for a debris field and identifying each grid in its x-axis and y-axis. Care must be taken when entering the debris field so not to disturb evidence during measurements. Photographs taken by the Chief Investigator inside the debris field may be necessary prior to moving objects. Videotapes taken outside the debris field may be useful during the measurement process. Specific points must be identified and recorded from the notes. From the first sketch and the measurements taken, a map is sketched on grid paper and the notes from the recorder are added into a “map symbol key” or directly onto the position map.

Many organizations have access to global positioning systems (GPS). This tool can be very helpful in mapping accident sites. There are two types of GPS, navigational and engineering.

1. Navigational GPS data and software are usable for quick, accurate mapping for spatial locations and gross distances between areas of interest. DO NOT rely on navigational GPS units to provide accurate, minute detail.

2. Engineering GPS units used with geographic information system (GIS) programs (e.g., ArcView) will provide accurate, minute detail, as well as data documentation and multiple mapping opportunities to more accurately display the accident scene and occurrences.

Use of detailed GPS and GIS information will require a technical specialist, who can sometimes be provided by the unit sustaining the accident.

5.6. RECORD KEEPING

During the initial measurement and initial photography stage, specific notes should be taken indicating which items may reveal important clues and should be removed immediately for protective storage (eventually all items will be removed from the site). Indicate items that were disturbed or removed during the emergency response efforts, and items that should be at the site but are missing, such as personal protective equipment (PPE) or broken parts. Information critical to the investigation may include: environmental and site conditions that have changed from the time of the accident; events like rainfall or fire that may have destroyed perishable evidence such as tire tracks; and equipment that may have been repaired.

5.7. RECONSTRUCTION

Reconstruction of an accident scene or re-creation of an accident is generally not recommended for DOI SAITs due to the complexities and potential theoretical errors, as well as the re-creation of the hazards. If a scene reconstruction or re-creation of an accident is necessary, it is recommended that a professional accident investigator/engineering firm versed in accident reconstruction be brought into the investigation as early as possible before fragile evidence is compromised. The use of placards, traffic cones, ribbon, twine, and spray paint to indicate paths of travel or trajectories is recommended to highlight physical evidence that may not be readily apparent through photographs.

Chapter 6
Photographs and Videos

6.1. GENERAL

One of the most useful tools the investigator can bring to the accident scene is a camera. The camera shows the view seen by a witness and can record accident scene details for future reference. There is almost no limit to its usefulness.

Depending upon the complexities of the accident, a professional photographer may be needed to document the accident. If law enforcement personnel investigated the accident, they may have photos of the undisturbed scene that will be of value to the SAIT.

6.2. PHOTOGRAPHY

Photographs do not have to be taken in the order the investigator intends to look at them. Shoot all the distant and medium shots first and then move on to close-up shots. Use a tripod, flash, or cable release if needed. This method may save time by not having to go back and forth between the two types of photography.

Photographs used in the Factual Report should be mounted and captioned. A caption example could be: "View of damaged driver's door looking north." Each photo taken should be entered into a log and should include the name of the photographer and date taken (Exhibit 6-1, *Accident Photographic Documentation Form*). If a detailed map of the scene is made photography positions should be noted on the map.

Photographs are more useful than video because they can be enlarged, printed in multiple copies, and placed in the Factual Report; videos are hard to integrate into the final report. Types of photographs that can be used to document the scene are:

Perishable Evidence: These are photographs of things that are likely to change or disappear altogether if not photographed immediately. They can include, but are not limited to, photographs of the accident aftermath or rescue in progress, the victim'(s) position, gauge readings, ground scars, radio settings, fire damage, body fluids or parts, and switch/control positions on equipment.

Aerial Views: When using an aircraft to shoot aerial photography an aviation plan approved by the Unit Aviation Officer will be needed. If possible, photograph aerial observations early. The appearance of the accident site from the air will change rapidly as investigators move through it. Important locations on the ground can be marked using yellow flagging or other suitable material (e.g., yellow fire shirt). Shoot from multiple angles and distances aboveground.

Overviews of the Scene: Photograph the accident site equipment wreckage from the eight points of the compass. If the accident scene is spread out over a long distance, try a series of overlapping pictures. The prints can be edge-matched creating a montage (panoramic view). It's important not to adjust the camera between shots and take the shots from about the same distance. Try to establish the terrain gradient through photographs. Photograph ground scars in such a manner that will allow future analysis of size and depth.

Site Inventory: The camera is a useful tool to inventory the accident site and document personal protective equipment (PPE), other safety equipment, personal effects, and the location and condition of victims. The location of each item may be plotted on a scaled map using a fixed point of reference.

Close-ups: Bracket exposures for closeups by taking two pictures with slightly different focus adjustments (f-stops). Use a tripod or monopod, as appropriate.

Documents: The camera can be used to photograph documents that otherwise cannot be retained or copied. This includes licenses and logbooks, or even a map or chart on someone's wall.

Witness Views: It may be important to document the witness' view of the accident. Because the witness may have a very wide-angle view, use a tripod and take overlapping pictures to duplicate the view.

Exemplars: An exemplar is a model or pattern for an actual object. Sometimes it's difficult to tell from wreckage photographs what the part or component is supposed to look like. In some investigations, its worth having pictures of an identical undamaged object for comparison.

Reference: Use an item of known size like a ruler, pen, or your hand in pictures for a reference.

Wildland Fire Photos: In addition to the types of photographs previously discussed, the following items are specific to fire management accidents:

- Final resting position of victims, equipment, trees, and other relevant items
- Fireline construction at the accident site
- Equipment carried or worn by personnel (personal and official gear)
- Fire personal protective clothing and equipment
- Safety equipment
- Vegetative conditions (before and after)
- Surrounding terrain, structures, and orientation photographs
- Fire origin and build-up photographs
- Shelter deployment (shelter, packaging, and location carried by personnel)
- Operating base unit/facilities/equipment

Chapter 6—Photographs and Videos

Exhibit 6-1

Accident Photographic Documentation Form

ACCIDENT PHOTOGRAPHIC DOCUMENTATION FORM	
Accident:	Location:
Name of Photographer:	Date and Time Photograph Taken:
Camera Make and Model:	
Description of Photograph:	
PLACE PHOTOGRAPH HERE	

Note: Copy and paste this form for each photo included in the report.

Chapter 7
Interviews and Witness Statements

7.1. GENERAL

After the site visitation, it's generally best to continue the investigation by interviewing the "eyewitnesses." Those involved in the accident are included in the "eyewitness" category. Eyewitnesses may be your best or only source of information for determining the accident sequence of events. It's important for investigators to hold interviews as soon as possible.

The mental state of the witnesses in regard to critical incident stress should be taken into account. They may be in shock or traumatized following the accident. They may also be on medication and require the approval of the attending physician before making statements or being interviewed. On the other hand, they are frequently anxious to talk about the accident to anyone who will listen. Providing them with an opportunity to talk about the events surrounding the accident may be helpful to their psychological recovery.

It's best to interview the witnesses before any Critical Incident Stress Management (CISM) debriefing takes place. However, should the events of an accident cause severe psychological burden on a witness, it may be necessary to secure the services of a CISM counselor before interviews are conducted. In these cases, try to get a written statement from the witness prior to attending the CISM debriefing. Contact the local Employee Assistance Program coordinator to arrange for CISM counseling on scene, as necessary.

7.2. STATEMENTS

To ensure candor, witnesses should be isolated from each other when making their individual statements. Investigators taking statements need to inform witnesses that the SAIT will only use their statements for accident prevention purposes. An assurance of confidentiality cannot be given. Exhibit 7-1, *Memorandum of Interview*, is the form recommended for documenting witness interviews.

7.3 INTERVIEWS

The Chief Investigator should take the lead in preparing questions for interviews, but may not necessarily always be the interviewer. Interview duties can be assigned to other investigation team members. Interviews need to be taken in quiet, private, comfortable locations that are free of disruption. Provide frequent breaks. Depending on the amount of information needed, an interview may need to be divided up and held in subsequent sessions. It's recommended that the interview be recorded so that a complete record of the interview exists. Whenever an interview is recorded, the record becomes a part of the accident investigation record.

Control questions should be developed and used. Control questions provide consistency and ensure that pertinent information is collected in all interviews. Paragraph 7.6 describes some types of control questions.

Ensure the name, work address, phone number, date, and name of the interviewee are included in the document. In some instances, witnesses may have to be taken to the accident site after the initial interview for clarification of their statements.

If employees are concerned the interview may result in disciplinary action being taken against them, a request for union representation may be made before or during the interview (Weingarten Right) as stated in the Master Agreement. Anytime a representative is requested, the interview will be discontinued until representation is obtained.

7.4. CONDUCT OF INTERVIEW

The objective of the interview is to get the individual to tell you everything he or she knows without being influenced by either the question or by what he or she thinks you want to hear. Usually, it is more productive to move from general to specific questions and from the known to the unknown.

The interview begins by asking the individual for his or her name, work address, phone number, position (job title), and location during the accident. The best approach is to ask the person to explain, in his or her own words, what happened. Ask them to start with when they first noticed something. This usually helps put the person at ease and gives you a pretty good idea of what they know.

- Avoid interviewing more than one witness at a time
- Place the witness at ease. Explain that the purpose of the interview is for accident prevention purposes and that you only seek the facts related to the accident
- Do not prejudge a witness. Keep an open mind and be receptive to all information
- Maintain control of the interview and don’t make promises you can’t keep
- Inform the witness that a promise of confidentiality cannot be given
- Read the witness's written statement (if available) before the interview
- Permit witnesses to tell the story in their own words; do not interrupt
- Be a good listener. Be unobtrusive in note taking
- Maintain self-control and don’t become emotionally involved in the investigation
- Investigation team members should coordinate their questions
- The interviewer should ask follow up interview questions of the witness. Do not assist the witness in answering questions – avoid leading questions
- Avoid revealing to the witness items discovered during the investigation
- Avoid contemptuous attitudes. Avoid controversial matters. Respect the emotional state of the witness

7.5. TYPES OF QUESTIONS

General Questions: General questions are open-ended, broad questions. Examples are: "What did you see?" "Tell me everything you can recall." "Tell me more about that."

Directed Questions: Directed questions address the subject in a direct manner and get the witness to focus on a specific subject without guiding him or her to what he or she may have seen. For example: "Did you notice any lights on the vehicle?"

Specific Questions: Specific questions are needed for specific information. For example: "Did you notice any flashing lights?" "What color was the light?"

Summary Questions: Summary questions help the witness organize his or her thoughts and draw attention to possible additional information. Restate what you think the witness told you in your words and ask if that's correct. Frequently, the witness will add more information.

Leading Questions: Avoid leading questions. A leading question is one that contains or implies the desired answer. For example: "Was a red light flashing?"

Techniques That Do Not Require Questions: Some interview techniques do not require questions. A nod of your head or an expectant pause may encourage the witness to talk. To keep a witness talking, say something like "uh-huh," "really," or "go ahead." Another non-question technique is to mirror or echo what the witness says. Repeat back to the witness what they have just said without either agreeing or disagreeing with them.

7.6. SAMPLE WITNESS QUESTIONS

- What is your name, work address, and phone number?
- What is your duty station (location) and position (job title)?
- Tell us, in your own words, what happened. Begin with when you first noticed something?
- What is your technical background, skills, or knowledge?
- What is your connection with those involved in the accident?
- At what time did you see the accident happen?
- What attracted your attention to the accident?
- What was the position of the (vehicle, equipment or individual) when first seen?
- What was the direction of travel, fall, or final resting place of the vehicle or equipment and individual involved in the accident? Have the witness draw a diagram, if appropriate
- What was the weather like at the time of the accident? Determine if it was clear, sunny, rainy or smoky; what the wind conditions were, such as gusty.
- What actions did you take at the accident site?
- Were there any other eyewitnesses around? Do the police have other witnesses' names?
- Do you wear glasses, other corrective lenses, or a hearing aid? What type? Did you have your glasses or hearing aid on?
- Is there any additional information you would like to provide?

Chapter 7—Interviews and Witness Statements

Exhibit 7-1

Memorandum of Interview

<table>
<tr><td></td><td colspan="3">Page X of X</td></tr>
<tr><td>U.S. DOI</td><td colspan="3">MEMORANDUM OF INTERVIEW</td></tr>
<tr><td colspan="4">1. Nature of Investigation:</td></tr>
<tr><td colspan="4">2. Name of Person Interviewed:</td></tr>
<tr><td colspan="2">3. Work Address (St., City, State, Zip Code):</td><td colspan="2">4. Phone (H) (Area Code):</td></tr>
<tr><td colspan="2">5. Employer (Name And Address):</td><td colspan="2">6. Phone (W) (Area Code):</td></tr>
<tr><td colspan="2">7. Location of Interview:</td><td colspan="2">8. Name of Interviewer:</td></tr>
<tr><td colspan="2">9. Others Present:</td><td>10a. Started
Date:
Time:</td><td>10b. Ended
Date:
Time:</td></tr>
<tr><td colspan="4">11. Remarks (continue remarks to following pages as needed):</td></tr>
<tr><td colspan="4">I prepared this report on (insert date) after refreshing my memory from notes made during and immediately after the interview with the interviewee.</td></tr>
<tr><td colspan="2">12. Interviewer’s Signature:</td><td colspan="2">13. Witness’ Signature (to attest to remarks made):</td></tr>
</table>

Chapter 8
Evidence Gathering and Documentation

8.1. GENERAL

Evidence is gathered for two primary reasons: to help you determine what happened and, to provide documentation to support your findings and causes. Evidence takes many forms, such as: photos, witness statements, site diagrams, technical references, equipment parts, material recovered from the accident site, training records, and tear-down analysis.

The collection of this information begins almost immediately after you arrive at the accident site. During the Agency Administrator's Briefing, you should determine if they have been collecting evidence. For all pertinent documentation that has not been collected, request that it be secured until your team can retrieve it.

Once collected, all evidence must be logged in and tracked through detailed *Evidence* and *Chain-of-Custody Logs* (Exhibits 8-1 and 8-2 respectively). If anyone, including members of the SAIT takes a piece of evidence away from the work area; its removal shall be noted on the chain-of-custody log. Only persons with a need to know will be allowed to view evidence.

8.2. TYPES OF EVIDENCE

Evidence is categorized into three types: **human**, **material**, and **environmental**. As the investigation starts, begin to list the items you want the team to acquire. One good way to do this is to take three sheets of flipchart paper and place them on the wall in the team room. Place one of the three evidence headings on each sheet. As you identify items you want to acquire or check on, place that item on the appropriate sheet. As items are acquired or discarded as not relevant, place a check mark in front of that item or draw a line through it.

Sections 8.3, 8.4, and 8.5 give examples of types of evidence that will help provide a thorough understanding of the systems in place prior to the accident, and identify the inherent strengths and weaknesses in management controls. In requesting the information, care must be taken so as to not destroy, alter, or lose documentation, and to preserve documentation for any subsequent legal proceeding.

8.3. TYPES OF HUMAN FACTORS EVIDENCE

Qualification and Training: Determine the qualifications and training of individuals directly involved in the accident (e.g., operator, passenger, supervisor, etc.). Identify any contributing factors, such as the lack of operator certifications or insufficient training.

Duties: Identify the duties (e.g., primary and additional duties,) of the individuals directly involved in the accident. Note any accident contributing factors (e.g., work/rest schedules, employee fatigue).

Management: Management policies and procedures, manufacturers' operator manuals, and standard operating procedures are written with the intention of placing controls on human behavior. If these documents are inadequate for the job to be performed by a given employee, the employee may perform the job task unsafely. Determine organization, supervision, and external control of the individuals directly involved in the accident. Identify any accident contributing factors (e.g., supervisory or organizational lack of safety emphasis or support).

Compliance: Note deviations from policies, procedures, practices, and contract specifications directly involved in the accident (e.g., risk assessments/job hazard analysis [JHA], safety equipment, and other items pertinent to the accident).

Documents: Identify whether directives, operating guides, and contracts were current, readily available, and properly used by individuals associated with the accident. Review records specific to the accident (e.g., inspections, dispatch and equipment logs, time and attendance records).

Communications: Establish what the pre-accident, accident, and post-accident communications were. Identify any communication factors that contributed to the accident (e.g., coverage, faulty equipment, etc.).

Services: Determine whether contractual services, such as road guards, traffic signs, or dispatch procedures contributed to the accident.

Fatigue: At a minimum, a 72-hour pre-accident, work/rest analysis should be conducted. This analysis should include an examination of time and attendance records, as well as input from respective supervisors on tasks completed and actual time worked (may not necessarily be reflected on time and attendance records), off-duty activities, and sleep duration/cycles.

Risk Management: Determine whether a risk assessment, JHA, or other workplace analysis was developed and establish the role they played in the work project or activity. Determine if a safety briefing was conducted prior to beginning work. Exhibit 8-3 is a *Human Factors Accident and Incident Analysis checklist*. The following are examples of specific human factors evidence:

- Official personnel records/official medical records
- Private medical records
- Position descriptions
- Resumes
- Driver's license checks
- Training records
- Management policy statements

- Accident records
- OSHA log
- Time cards, work shift schedules
- Safety briefings
- Employee reports of unsafe/unhealthful working conditions
- Safety communications
- Executive and safety committee minutes
- Employee suggestions
- Inspection reports
- Risk assessments
- Job hazard analyses
- System safety analyses
- Facility inspections
- Standard operating procedures
- Job or contract specifications
- Purchasing records (contracts, change orders, invoices)
- Regulatory standards
- Professional, trade, and union standards
- Emergency medical system records
- Coroner and medical examiner's reports
- Public affairs news releases
- News media reports
- Radio communication reports/transcripts
- Law enforcement reports

8.4. TYPES OF MATERIAL EVIDENCE

Equipment: Equipment evidence includes the tools, cords, cables, machinery, and vehicles that employees use to perform job tasks. A number of accidents are the result of improper use of equipment, not using equipment as designed by the manufacturer, confusing designs or layouts, improper maintenance, manufacturing design flaws, defeated guards, or abuse of equipment.

Systems: Determine what equipment was involved in the accident and its suitability to perform the work project or activity. Include any pertinent maintenance records, preventive maintenance, inspections, and approvals of maintenance personnel.

Survivability: Evaluate the ability and suitability of the vehicle/system/equipment to perform the work project or activity. Evaluate the occupant compartment's structural integrity. Examples include:

- Impact conditions and crash (dynamic) forces
- Restraint and roll-over protection systems (used/not-used, equipped/non-equipped, seatbelts used/not used)
- Personal protective clothing and equipment, and safety equipment

- Backup and emergency systems
- Safety design

Position of dials and gages: Note position of operating controls, such as the gear shifter, parking brake, and lift/tilt controls.

Laboratory/Tear down Analysis: Special studies or tests may be needed to determine the cause of the failure. These tests are usually conducted by another agency or private laboratory to ensure impartiality. Determine if this level of analysis is required and if so work with the local unit to see it is obtained. Review the results of the equipment component analysis, if conducted. Some examples of specific material evidence are:

- Equipment, parts, and structures
- Manufacturer's operating instructions
- Equipment inspections
- Condition reports and operation logs
- Repair reports (documenting previous equipment failures)
- Building blueprints
- Facility design documents
- Facility layout diagrams
- Engineering orders
- Construction project files
- Equipment installation manuals
- Parts lists
- Maintenance schedules
- Maintenance procedures
- Building contract provisions
- Fabrication and design records
- Manufacturer's warranties
- Material consensus standards (ANSI, ATSM)
- Material safety data sheets

8.5. TYPES OF ENVIRONMENTAL EVIDENCE

Weather: Verify the weather conditions before, during, and after the accident. Identify any contributing factors, such as precipitation, temperature, lighting, and visibility.

Physical Environment: Identify any contributing factors, such as terrain features, working space, walking surfaces, altitude, vegetation, slope, accessibility, dust, and smoke.

Types of environmental evidence include:

- Weather reports
- Meteorological analysis
- Weather damage analysis (lightning strike points, wind damage)

- Terrain maps
- Altitude
- Environmental hazards (smoke, fire, asbestos, radiation)
- River volume and speed
- Surface slip resistance
- Noise levels

8.6. EVIDENCE COLLECTION

It is the responsibility of Chief Investigator to identify what evidence is required and see that it is collected and cataloged. All members of the team may collect and catalog evidence. Exhibit 8-4 provides a non-inclusive list of the types of documents that should be collected for SAIT analysis.

Physical evidence, such as equipment and parts, needs to be "bagged and tagged" at the time of collection. Large items such as vehicles or construction items should be secured.

The original or copies of all important paper evidence should be placed in the permanent file.

Exhibits 8-1 and 8-2 are examples of an evidence collection log and a chain-of-custody log. The chain-of-custody log helps keep track of pieces of evidence taken by team members for further testing or study.

8.7 Equipment for Entering the Site

When preparing to go to the accident scene, make a list of equipment or materials needed to take into the field. For example, some materials that should be taken are:

- Buggies or other off-road type vehicles
- Sample bottles
- Clipboard
- Evidence tags
- Evidence bags
- Evidence documentation forms

Chapter 8—Evidence Gathering and Documentation

Exhibit 8-1

Evidence Log

EVIDENCE LOG (for Non-Photographic Evidence)
Incident Identification:
Evidence Custodian:

Note: Use a standardized numbering system for the ***Evidence ID Number***. See the example of a standardized numbering system using the date of the accident (month, day, year), the bureau designation, and then an assigned number in sequential order it's logged (tag the evidence item exactly the same). With each item logged in as evidence, the only number to change would be the last digit(s).

Evidence ID Number	Date	Collected By	Description of Evidence	Remarks (location found, etc.)	Person Logging Evidence In (Signature Required)	Date Signed In
11262012 NPS1						
11262012 NPS2						
11262012 NPS3						

Chapter 8—Evidence Gathering and Documentation

Exhibit 8-2

Chain-of-Custody Log

CHAIN-OF-CUSTODY LOG (for Non-Photographic Evidence)
Incident Identification:
Evidence Custodian:

Note: Use a standardized numbering system for the ***Evidence ID Number*** using the date of the accident (month, day, year), the bureau designation, and then an assigned number in sequential order it's logged (tag the evidence item exactly the same). With each item logged in as evidence, the only number to change would be the last digit(s). The

Evidence ID Number	Description of Item	Name of Person Logging Item Out	Name and Signature of Person Receiving Item	Date Item Received	Name and Signature of Person Receiving Item Back In	Date Item Received
11262012NPS1						

Chapter 8—Evidence Gathering and Documentation

EXHIBIT 8-3

Human Factors Accident and Incident Analysis

1. Sensory and Perceptual Factors

- Misjudgment of distance, clearance, speed, etc.
- False perception caused by visual illusion

Conditions that impair visual performance:

- Featureless terrain (such as a desert, dry lake, water, snow)
- Darkness and poor visibility
- Smoke and changing smoke patterns
- Mountainous terrain or sloping runway
- Anomalous light effects that cause flicker vertigo
- Low contrast of objects to background or poor illumination
- View into bright sunlight or moonlight
- Shadows
- Whiteout snow conditions
- Spatial disorientation and vertigo

Conditions that affect sense of body position:

- Loss of visual cues
- Adverse medical condition or physiological condition (alcohol and drug effects, hangover, dehydration, fatigue, etc.)
- Moving head up and down, looking in and out to change radios, answering or using cell phones

Loss of situational awareness types:

- Geographic disorientation (such as deviation from route, loss of position awareness)
- General loss of situational awareness (such as failure to perceive hazardous condition)
- Erroneous situational assessment (misinterpretation of situation or condition)
- Failure to predict or anticipate changing conditions
- False hypothesis confirmation bias (persistent false perception or misconception of situation)

Attention failure types (such as failure to monitor or respond when correct information is available)

- Failure to visually scan outside the vehicle or equipment for hazards
- Omission of checklist items
- Failure to respond to communication or warning

Control-action error:

- Failure to set, move, or reset control switch (lapse)
- Unintentional activation of control switch (slip)
- Control-substitution error (slip)
- Control-reversal error (slip)
- Control-adjustment or precision error (slip)

Conditions that affect attention and situational awareness:

- Inattention (focus on information unrelated to tasks)
- Channelization, fixation (psychological narrowing of perception)
- Distraction (preoccupation with internal mental event or with external event)
- Task overload due to systems (such as communications)
- Task overload due to equipment systems assignment factors
- Cognitive workload (problem-solving concentration or information overload)
- Habit influence or interference
- Excessive crew stress or fatigue
- Excessive workload or tasking
- Inadequate briefing or preparation
- Inadequate training or experience for assignment
- Negative learning transfer (such as during transition to new assignment)
- Adverse meteorological conditions
- Tactical-situation overload or display-information overload
- Inadequate crew motivation or inadequate vigilance
- Inadequate equipment design

2. Medical and Physiological Factors

- Carbon monoxide poisoning
- Self-medication (without medical advice or against medical advice)
- Motion sickness
- Incompatible physical capabilities
- Overexertion while off duty
- Influence of drugs or alcohol
- Cold or flu (or other known illness)
- Excessive personal stress or fatigue
- Inadequate nutrition (such as omitted meals)
- Hypoxia (lack of oxygen)
- Heat
- Cold
- Stress induced by heightened state of alertness
- Effects of smoke
- Dehydration
- Other medical or physiological conditions

Conditions that may cause adverse medical or physiological state:

- Assignment tasking or job fatigue (such as on duty more than 14 hours, late-night or early morning operations)
- Cumulative fatigue (such as excessive physical or mental workload, circadian disruption, or sleep loss)
- Cumulative effects of personal or occupational stress (beyond stress-coping limit)
- Emergency condition or workload transition (from normal operation to emergency operation)
- Medical or physiological preconditions (health, fitness, hangover, dehydration, etc.)

3. Knowledge and Skill Factors

Inadequate knowledge of systems and procedures:

- Use of improper procedure
- Ill-structured decisions

- Failure in problem solving
- Inadequate equipment control or inadequate accuracy and precision of equipment maneuvering (skill-based error)
- Breakdown in visual scan
- Failure to see and avoid
- Over or under reacting
- Over or under controlling
- Inadequate experience for complexity of assignment

Misuse of procedures or incorrect performance tasks (rule-based error):

- Failure to perform required procedure
- Use of wrong procedure(s) or rule(s)
- Failure to conduct step(s) in prescribed sequence

Conditions that lead to inadequate operational performance:

- Lack or variation of standards
- Loss of situational awareness in varying environment
- Demonstration of performance below required proficiency or current certification standards
- Demonstration of inadequate performance or documented deficiencies
- Inadequate essential training for specific task(s)
- Inadequate recent experience or inadequate overall experience
- Lack of sensory input
- Limited reaction time

4. Assignment Factors

- Failure of dispatch to provide correct critical information (such as frequencies, location, other equipment or resources)
- Poor communication with other assets (such as ground or aircraft)
- Inadequate or faulty supervision from ground or tactical aircraft
- Lack or variation of standards
- Non-participant or non-communicative equipment or resources at the scene
- Loss of situational awareness in varying environment
- Changing plans tactics (change of teams on incidents)
- Unanticipated change of radio frequencies
- Intentional deviation from procedures
- Unintentional deviation from procedures
- Demonstration of performance below required proficiency standards or currency standards
- Demonstration of inadequate performance or documented deficiencies
- Inadequate essential training for specific task(s)
- Inadequate recent experience or inadequate experience for assignment
- Transition (learning new equipment or operational systems)
- Inadequate knowledge of tactical situation
- Lack of sensory input
- Limited reaction time
- Smoke
- Wind shifts
- Changes in fire behavior
- Low visibility
- Unexpected or non-participant equipment, resources, or aircraft

- Assignment intensity
- Assignment creep
- Assignment urgency
- Failure to recognize deteriorating conditions
- Time compression
- Excessive communication demands
- Past assignment success based on high-risk behavior

5. Personality and Safety Attitude Factors

- Demonstration of overconfidence
- Demonstration of excessive motivation to achieve assignment
- Reckless operation
- Demonstration of anger or frustration on the job
- Demonstration of stress-coping failure (such as anger)
- Overly assertive or non-assertive
- Inadequate confidence to perform tasks or activities
- Acquiescence to social pressure to operate in hazardous situation or condition
- Failure to report or act upon incidents of misconduct
- Toleration of unsafe acts and behaviors
- Poor equipment or assignment preparation

6. Judgment and Risk Decision Factors

- Acceptance of a high-risk situation or assignment
- Misjudgment of assignment risks (complacency)
- Failure to monitor assignment progress or conditions (complacency)
- Use of incorrect task priorities
- Intentional deviation from safe procedure (imprudence)
- Intentional violation of standard operating procedure or regulation
- Violation of orders, regulations, or standard operating procedures (SOPs)
- Crew rest requirements
- Inadequate training
- Violated agency policy or contract
- Failed to comply with agency manuals
- Supervisor knowingly accepted unqualified crew
- Failed to obtain valid weather brief
- Accepted unnecessary hazard
- Not current or qualified for assignment
- Intentional disregard of warnings
- Noncompliance with personal limits
- Noncompliance with published equipment limits
- Noncompliance with prescribed assignment parameters

Conditions leading to poor safety attitude and risky judgment:

- History of taking high risks (personality-driven)
- Pattern of overconfidence
- Personal denial of wrongdoing
- Documented history of marginal performance or failure
- Excessive motivation (did not know limits)
- Reputation as a reckless individual
- Failure to cope with life stress (anger or frustration)
- Overly assertive or non-assertive (interpersonal style)

- Influenced by inadequate organizational climate/safety culture (i.e. lack of supervision)

7. Communication and Crew Coordination Factors

- Inadequate assignment plan or brief
- Inadequate/wrong assignment information conveyed (dispatch errors, supervisor errors)
- Failure to communicate plan or intentions
- Failure to use standard or accepted terminology
- Failure to work as a team
- Inability or failure to contact and coordinate with ground or aviation personnel
- Inadequate understanding of communication or failure to acknowledge communication
- Interpersonal conflict or crew argument during assignment

Conditions leading to inadequate communication or coordination:

- Inadequate training in communication or crew coordination
- Inadequate standard operating procedures for use of crew resources
- Inadequate support from organization for crew coordination doctrine
- Failure of organizational safety culture to support crew resource management

8. System Design and Operation Factors

- Use of wrong switch or lever or control
- Misinterpretation of instrument indication
- Inability to reach or see control
- Inability to see or interpret instrument or indicator
- Failure to respond to warning
- Selection or use of incorrect system operating mode (mode confusion)
- Over reliance on automated system (automation complacency)

Conditions that contribute to design-induced crew errors:

- Inadequate primary equipment control or display arrangement
- Inadequate primary display data or data format
- Inadequate hazard advisory or warning display
- Inadequate system instructions or documentation
- Inadequate system support or facilities
- Inappropriate type or level of automation, or excessive mode complexity

9. Supervisory and Organizational Factors

- Not adhering to rules and regulations
- Inappropriate scheduling or crew assignment
- Failure to monitor crew rest or duty requirements
- Failure to establish adequate standards
- Failure to provide adequate briefing for assignment
- Failure to provide proper training
- Lack of professional guidance
- Failure to support or negative support of crews
- Failure to monitor compliance with standards
- Failure to monitor crew training or qualifications
- Failure to identify or remove a known high-risk employee
- Failure to correct inappropriate behavior

- Failure to correct a safety hazard
- Failure to establish or monitor quality standards
- Failure of standards, poorly written, highly interpretable, or conflicting
- Risk outweighs benefit
- Poor crew pairing
- Excessive assignment tasking or workload
- Inadequate assignment briefing or supervision
- Intentional violation of a standard or regulation

Failure to perceive or to assess correctly assignment risks, with respect to:

- Hazards go unseen or unrecognized
- Environmental hazards or operating conditions
- Assignment tasking and crew skill level
- Equipment limitations

Conditions leading to supervisory failures:

- Excessive operations or organizational workload (imposed by the organization or imposed by organizational chain)
- Inadequate organizational safety culture
- Supervisor over-tasked
- Supervisor untrained
- Inattention to safety management (inadequate safety supervision)
- Inadequate work standards or low performance expectations
- Inadequate or bad example set by supervisors
- Inadequate safety commitment or emphasis by supervisors
- Organization lacked adequate system for monitoring and correcting hazardous conditions
- Supervisors did not promote and reward safe behavior or quickly correct unsafe behaviors
- Organization did not have policies or procedures to ensure quality work performance
- Organization had inadequate job qualification standards or training program
- Organization had inadequate internal communication
- Organization had no or an inadequate system for management of high-risk employees
- Organization had inadequate process or procedures for operational risk management
- Organization did not provide adequate human factors training
- Organization did not ensure sufficient involvement of medical or safety & health specialists
- Organization did not establish or enforce acceptable medical or health standards

10. Maintenance Factors

Procedures:

- Unwritten
- Unclear, not defined, or vague
- Not followed

Records:

- Discrepancies entered, but not deferred or cleared
- Entries not recorded or not recorded in correct book(s)
- Improper entries or unauthorized signature or number

- Falsification of entries

Publications, manuals, guides:
- Not current
- Were not used for the procedure
- Incorrect manual or guide used for procedure
- Not available

Training:
- Not trained on procedure
- Training not documented
- Falsified
- Not current

Personnel:
- Not properly licensed
- Insufficient (staffing)
- Improper or insufficient oversight
- Not properly rested

Management:
- Non-existent
- Ineffective
- Understaffed
- Ineffective organization chart
- Insufficiently trained

Quality Assurance:
- Non-existent
- Insufficiently trained
- Ineffective
- Not used when available

Inspection Guides:
- Not available
- Procedures not followed
- Insufficient
- Not current
- Not approved
- Not signed off
- Falsified
- Unapproved signature or number

Tools or Equipment:
- Improper use or procedure
- Not calibrated
- Not used properly
- Not trained for the special equipment or tool
- Not used
- No tool control program

EXHIBIT 8-4

Document Collection

The following are types of documents that should be collected for analysis:

- Radio logs (written and recorded, if applicable)
- Dispatch/911 logs
- Occupant emergency plans
- Maps
- Job Hazard Analyses/Risk Assessment
- Safety briefings
- Employee(s) training records
- Medical examination records
- Qualifications/certifications
- Work/rest (timesheets) for at least two pay periods (current and before the accident)
- Equipment maintenance records
- Equipment performance tests
- Inspection documents
- RAWS (remote automated weather system information)
- Weather (forecast/conditions)
- Delegation of authority
- MOU/agreements
- Specs/drawings
- Press releases
- Autopsy/toxicology report
- Death certificate
- Witness statements
- Photos, videos, recordings
- Internal policies/guidelines
- Pertinent tailgate safety session documentation
- Accident unit’s safety plan

Chapter 9
Deliberations, Findings, Causes and Recommendations

9.1. GENERAL

At some point during the investigation, you will decide that all the relevant data has been collected. The next task is to analyze the data and to structure the results into a format that clearly shows the relationship between the causal factors (human errors/material failures/environmental factors) and the system inadequacies or root causes that permitted them to occur. The process used to conduct this analysis is termed "deliberations" and will be conducted with all team members present.

9.2. DELIBERATIONS

The *Team Leader* is responsible for the supervision of deliberations and, at a minimum, should discuss the following areas with the team prior to beginning:

- Deliberation process that will be used
- The products that the team will need to produce as a result of the deliberations that include:
  - Accident chronology
  - Root cause(s) of the accident
  - Indirect cause(s) of the accident
  - Findings that did not contribute to the accident sequence of events but could lead to other accidents if uncorrected
  - Recommendations to correct the causal findings identified

All appointed team members will attend the deliberations.

9.3. DELIBERATION PROCESS

The *Chief Investigator* will lead the deliberations in conjunction with the *Team Leader*. There are several different ways to effectively conduct deliberations. The following method is suggested for use if you don't have another preference. It ensures that all deficiencies are addressed, establishes the timeline, produces a written record of the deliberations, and provides a framework from which to write the analysis portion of the Report, which is the documentation of the team's deliberations.

Develop an accident chronology. This chronology will include events leading up to the accident, the accident sequence, and actions taken after the accident. This chronology will probably have already been outlined during the investigation. Go through it once more to make sure the timeline is complete and there are no unexplained gaps. Consider the following in your chronology:

- **Pre-Accident**. Establish the sequence of events leading to the accident to answer the questions: who, what, when, where, why, and finally how the operation was to be conducted. Identify any pre-accident contributing factors. These may be things like an inappropriate sense of urgency, known weather issues that were not taken

into consideration, equipment conditions or terrain, or management pressure to complete a job or task.

- **Accident**. Determine the accident sequence of events. Identify any accident contributing factors (e.g., use of seatbelts, worn tires, lack of information, mistakes). If a fire was involved, establish when, where, and how the fire started if possible. Determine flame propagation and if attempts were made to extinguish the fire. (Note: Fire in this subparagraph does not mean wildland fire.)

- **Post-Accident**. Identify the post-accident sequence of events (e.g., search and rescue efforts, medical efforts), how the accident was first reported, and the locations of personnel/equipment at the conclusion of the accident. Describe rescue, first aid, and evacuation efforts. Identify all medical facilities that provided treatment. Note any disturbance to the accident site, security/preservation measures taken, and any post-accident contributing factors, (e.g., rescue/medical response).

- **Injuries**. Record all injuries. Document the condition of the patients, and summarize autopsy reports, if applicable.

- **Damage**. Estimate the extent and cost of the equipment or property damage and define as minor, major, destroyed, or repairable.

Identify the findings. A finding is a single event or condition. Each finding is an essential step in the accident sequence, but each finding is not necessarily causal.

Identify the causes of the accident. A cause is a deficiency that the correction, elimination, or avoidance of would have prevented or mitigated the accident sequence of events resulting in the injury, illness, or property damage.

After you determine the cause(s), go to the human, material and environment lists:
- *Pre-Accident*: historical (e.g., improper training); events preceding the accident (e.g., the deceased had only three hours of sleep the previous night)
- *Accident*: during the accident sequence (e.g., the right front tire blew out)
- *Post-Accident*: post-accident actions (e.g., because of weather it took 25 minutes for emergency assistance to arrive at the scene of the accident)

Some findings will not fit in the sequential list. If the SAIT is not sure about a finding, ask this question, "Would the accident still have occurred if this finding was not present?" If the answer is **NO**, leave this item out of the sequential order that is being prepared.

Note: It is of utmost importance to impress upon each team member that every finding, regardless of perceived individual importance, be brought to the attention of the entire board during deliberations. Listed below are examples of findings that are frequently found during investigations.

History
- Medical problems
- Personnel records (discrepancies)
- Driving records (discrepancies with DA Form 348, training records, and SF-46)
- The unit driver's training program was inadequate

- The activity wasn't approved
- There wasn’t adequate preparation
- The employee wasn't qualified
- The employee's work/rest schedule did not comply with standards
- The equipment condition/maintenance trends indicated problems
- The written guidance was inadequate
- The operator had a number of previous accidents
- Risk management procedures weren't applied or weren't adequate (e.g., hazards identified and in place controls were or were not followed)

Preparations

- Vehicle checks were not completed properly.
- Vehicle was not dispatched properly.
- Written policies were not followed.
- Other discrepancies

Activity

- Work not conducted as planned.
- Material/maintenance problems
- Logistical support problems
- Weather conditions
- Didn't adhere to written requirements.
- Communication and coordination inadequate

Post-accident

- Egress, seat belt, or rollover protection system problems
- Compromise, penetration, or reduction of occupiable space
- Rescue (timeliness, problems with rescue)
- Pre-accident plan (written instructions on what to do if an accident occurs)
- Security of accident site

After completing this process, you will have a sequential listing of all the findings that contributed to the accident.

Now go back to your original human, material, and environmental lists. The remaining abnormalities will be classified as "***Other***" findings because they were present, but did not contribute to, the accident (e.g., unsafe equipment or operations you observed during your investigation that could lead to a serious accident if not corrected).

9.4. ANALYSIS

After all of the findings have been identified, the SAIT needs to analyze each finding to determine the why. **WHY** did it happen?

The SAIT must continue to ask the question “**why**” to determine what findings are causes. Many investigative teams do not do this, which results in flawed recommendations that do not get to the root of the problem.

The "why" of human errors can be divided into four categories: standards failure, training failure, leader failure, and individual failure.

- **Standards Failure** - Policies do not exist, or policies exist, but are not clear or practicable
- **Training Failure** - Policies exist, but are not known, or ways to achieve the policies are not known
- **Leader Failure** - Policies are known, but not enforced
- **Individual Failure** - Policies are known, but not followed

Material failures must be investigated closely. Why did the material fail? While it is possible to have a totally unexpected failure, many times there are contributing factors that were known before the accident.

Environmental conditions occasionally are the cause of an accident. A lightning strike is a classic example. When this occurs, look for human errors that may have exposed the employee to the environmental hazard.

9.5. RECOMMENDATIONS

For each “cause” or "other" finding identified, the team recommends a course of action which has the best potential for correcting or eliminating it. It is rare to not have a recommendation for a finding that contributed to or caused an accident. It is also important to specify who should take the corrective action. These recommendations once validated and approved by the Designated Agency Safety and Health Official (DASHO), will be assigned to the appropriate parties for action and their progress tracked.

Recommendations can vary widely in their scope and who is assigned responsibility for implementation. The organization assigned responsibility for the corrective action should have sufficient authority to implement the correction. In some cases, more than one level in the Bureau or even other agencies will have action responsibility.

The **don’ts** of making recommendations:

- Recommendations should not focus on punitive steps addressing an individual’s failure in a particular case
- Do not recommend briefing unit personnel on the accident. Such briefings are a basic management responsibility and a normal function of safety and health managers at all organizational levels
- Do not recommend sweeping or general recommendations that cannot be closed out at the assigned action level(s)
- Do not recommend that a new policy, regulation, or SOP be written when existing guidance exists, but was not followed
- Vague recommendations addressing the importance of simply doing one's job properly are also inappropriate. Allow for definitive completion of each recommendation

If a recommendation depends on test results or analyses that are incomplete when the Factual Report is sent in, explain this and reference the test or analysis.

If the test results are critical to the completion of the Factual Report, the *Team Leader* should request an extension from the DASHO or delegated individual authorizing the accident investigation. Failure to incorporate critical information could result in reconvening the SAIT at a later date.

9.6. DELIBERATION PRODUCTS

Upon completion of the deliberations, the team should have identified the following:

- A chronology of the accident that includes findings that outline:
  - Events leading up to the accident
  - The accident sequence of events
  - Rescue and recovery actions after the accident
- The events that were directly responsible for the fatality, injury, or damage (Causes)
- Recommendations for correcting the causes and "other" findings identified
- A list of findings that were present, but did not contribute to the event

Chapter 10
Reports and Briefings

10.1. INVESTIGATION REPORTS

This chapter discusses the various reports (See Exhibit 10-8) that are prepared during an accident investigation. Exhibits at the end of the chapter provide sample formats for your use.

Preliminary Report (24-Hour Report). This document contains the first details of the accident. It is normally prepared by the manager of the office sustaining the accident and transmitted to the Bureau Safety Manager and also to the NFMO (for fire-related accidents), within 24 hours. If there is a delay in sending this report, the *Team Leader* can prepare and transmit it within 24 hours after the team arrives. It provides preliminary, factual information about the accident and may contain preventive measures or recommendations of an emergency nature. This information does not become part of the Factual Report, but is retained as part of the case file (See Exhibit 10-1).

Expanded Report (72-Hour Report). This document contains a brief narrative of the accident based on factual information gathered onsite. It usually contains the number of victims, names of victims (and if next of kin was notified), severity of injuries or property damage, and status of the investigation (e.g., site surveyed, data collection ongoing, witnesses being interviewed). It is drafted by the *Chief Investigator*, working closely with the Team Leader, within 72-hours after arriving at the accident site and is released under the signature of the Team Leader. The Team Leader sends the Expanded Report to the Bureau Safety Manager and also to the NFMO (for fire-related accidents). This information does not become part of the Factual Report, but is retained as part of the case file (See Exhibit 10-2).

Safety Alert. If a safety hazard or action item is identified during the course of the accident investigation that requires immediate action, a Safety Alert will be developed to address the concern. Proposed safety alerts will be submitted to the Bureau Safety Manager and the appropriate Program Manager or NFMO (for fire related alerts) for consideration and national distribution as applicable. (See Exhibit 10-3).

Final Report. After completion of the deliberations, the Team Leader, along with the Chief Investigator, draft the final report. Depending upon the severity and complexity of the event, it may be wise to have the report reviewed by an editor. If one is available locally, or has been assigned to the team, use that person to edit. When an editor is used, the SAIT should review and approve the revised version. The final report consists of two parts, the **Factual Report** and the **Management Evaluation Report**.

10.2. FACTUAL REPORT

The purpose of the Factual Report is to provide a narrative of the events leading up to, during, and after the accident. It is based on an examination of technical and procedural issues. Only the facts go into this report; do not include inferences, conclusions, causes, or recommendations.

The Factual Report should provide:

- An executive summary of the event
- A chronology of the accident sequence
- Any post-accident actions (e.g., emergency response attributed to survival of victim)
- Attachments or addendum essential to support the factual information

The Team Leader or the Chief Investigator will prepare the Factual Report using the following format (See Exhibit 10-4).

- **Cover**. Self-explanatory
- **Title Sheet**. The Freedom of Information Act Disclaimer Statement ("This document contains materials for internal agency use only and is not releasable under the Freedom of Information Act"), the Privacy Act Statement, the name of the accident or the incident, the date of accident or incident, and the list of investigation team members and their respective agencies
- **Table of Contents**. Include page numbers
- **Executive Summary**. A brief description of the facts involved in the accident
- **Narrative**. A detailed chronological narrative of the events leading up to and including the accident, as well as rescue and medical actions taken after the accident. This section should spell out the "who," "what," "when," and "where" in as much detail as possible
- **Investigation Process**. A brief narrative stating that the team was assigned to investigate the accident. It should include a standard statement that human, material, and environmental factors were considered. If one of these factors is determined to be non-contributing to the accident, it should be addressed first and discounted. For example, if the investigation revealed that there were no environmental findings that contributed to the accident, simply state that fact and move on to the next factor. Human factors or material factors paragraphs should not be formulated so as to draw conclusions, nor should they contain adjectives or adverbs to describe and thus render opinion into pertinent facts. Keep it simple. If the particular system or factors were not involved, say it simply
- **Findings**. Each finding is a single event or condition. Each finding is an essential step in the accident sequence, but each finding is not necessarily causal
- **Maps/Illustrations/Photographs**. Graphic information used to document and visually portrays facts
- **Appendices**. Excerpts, test results, factual data, and documents used to support the facts surrounding the accident that were used as reference information
- **Records**. Factual data and documents used to substantiate facts involving the accident

10.3. MANAGEMENT EVALUATION REPORT

The *Management Evaluation Report* is intended for **internal use only** and explores management policies, practices, procedures, and personal performance related to the accident. It takes the findings identified in the factual report and categorizes them for management. This report may contain:

- Executive Summary
- Findings identified in the Factual Report
- Causes of the accident
- Conclusions and observations
- Confidential information
- Recommendations for corrective measures
- Other findings of significance, which if uncorrected, could lead to future accidents

The Team Leader or Chief Investigator will prepare the Management Evaluation Report using the following format (See Exhibit 10-5).

- **Cover**. Self-explanatory
- **Title Sheet**. The Freedom of Information Act Disclaimer Statement - "This document contains materials for internal agency use only and is not releasable under the Freedom of Information Act," the Privacy Act Statement, the name of the accident or incident, the date of the accident or incident, and the list of investigation team members and their respective agency
- **Table of Contents**. Include page numbers
- **Executive Summary**. Consists of a brief summary of the accident facts
- **Findings**. From the Factual Report
- **Causes**. A cause is a deficiency that the correction, elimination, or avoidance of would likely have prevented or mitigated the accident or significant injury
- **Recommendations**. Recommendations are prevention measures that management may take to prevent similar accidents. They must be reasonable, feasible, relate to the cause(s) of the accident, and allow for definitive closure. Every cause need not have a recommendation
- **Other Findings**. Other findings of significance that did not contribute to the accident but, if left uncorrected, could lead to other accidents
- **Enclosures**. Information used to support the recommendations that were not included in the Factual Report.

10.4. MINORITY REPORT

Team members should be advised that, if they are not in agreement with the factual and/or the management report, they may submit a *minority report* to the Team Leader, which will be included with the Management Evaluation Report. This report will:

- Only address points of disagreement
- Recommend alternative conclusions
- Recommend alternate recommendations as appropriate
- Be included with the Management Evaluation Report and the office file

10.5. REPORT DUE DATE

The SAIT will provide its Final Report, which consists of the Factual and Management Evaluation Reports, to the DASHO within **60 calendar days of the accident date**. In extreme circumstances, the Team Leader may request an extension from the DASHO through the Bureau Safety Manager.

10.6. DISTRIBUTION OF REPORTS

Upon completing the investigation, the Team Leader will forward three copies of the Factual and Management Evaluation Reports to the person who delegated them the authority for the investigation (typically the respective DASHO). The report will be presented by the SAIT Leader to a *Board of Review* where it will be formally accepted by the bureau and forwarded on to the bureau DASHO. Once the DASHO receives and accepts the report, it will be processed in accordance with DOI 485 DM Chapter 7.

10.7. DISPOSITION OF REPORT/CASE FILE.

The **Factual Report** may be released to the public and other agencies for use as an accident prevention tool.

The **Management Evaluation Report (MER)** will not generally be released to other agencies not involved in the SAIT or the public because it contains opinions and recommendations for internal use only. Fire investigation MERs will generally be released within the interagency fire community as an accident prevention tool.

The Bureau Safety Office is the "***office of record***" for all SAI accident files. A case file containing the Factual Report, Management Evaluation Report, and data that was gathered during the investigation but was not included in the report will be sent to the Bureau Safety Office by traceable means.

Physical evidence will be returned to the property manager, insurance company, or owner under signed receipt. Return of contractor property will be coordinated through the appropriate contracting officer. All items that should be kept as evidence will be sent to the Bureau Safety Office and kept with the case file.

10.8. RELEASE OF ACCIDENT REPORTS AND DOCUMENTS

Any request made under the Freedom of Information Act (FOIA) for copies of accident Management Evaluation Reports and supporting documents shall be forwarded immediately to the appropriate FOIA Officer. These documents may contain privacy or other information that may be exempt from mandatory disclosure under FOIA.

10.9. INVESTIGATION TEAM CLOSEOUT BRIEFING

The purpose of the closeout briefing is to tie up loose ends and critique the team's performance. The Team Leader should facilitate the closeout briefing. Exhibit 10-6 is a checklist that should help ensure that the closeout covers the appropriate items. The closeout should cover:

- Collection and destruction of all field notes
- Cleaning and turning in all equipment
- Follow on assignments for members after leaving the scene

- Critique of the investigative process used
- Critique of the team's performance

The critiques are performed to ensure that any lessons learned from the investigation can be captured. One effective way to do this is to simply have each member of the team identify three things they liked about the process and three things they would like to see improved. Suggestions for process improvement shall be sent to the Bureau Safety Office for action.

The possible need for critical incident stress management debriefings (CISM) for team members should be discussed. If there is an interest, the Team Leader is responsible for ensuring that a CISM debriefing is scheduled and that team members attend.

10.10. CLOSEOUT BRIEFINGS WITH EXTERNAL (TO THE TEAM) ENTITIES

The Team Leader will present the team's findings to the *Board of Review*. They may ask any member of the team that they feel is needed to assist them. During the meeting of the BOR any team member present is not considered a voting member of the BOR. (See Exhibit 10-7).

An additional close out will be held by the SAIT for the unit involved. The affected unit close out shall cover:

- The Team Leader should stress the fact that the purpose of the investigation, the report, and the supporting material is accident prevention only
- The closeout briefing with the unit sustaining the accident should cover:
  - Unit support to the investigation. It would be appropriate to address any outstanding support that you received from the unit
  - The timeline of the accident
- Significant findings; particularly those that the unit should take immediate action on
- The cause(s) of the accident
- Other findings of significance, which if left uncorrected, could lead to future accidents and any recommendations that have been identified

The Team Leader should describe the process and timeline that is required to get the report to through the appropriate management levels for approval/signature, and when they should see a signed report. The Team Leader should also add that there is no need for the unit to wait until the report is signed to take appropriate action on identified recommendations.

The Team Leader and/or Chief Investigator may be requested by the DASHO or Bureau Director to make oral presentations to management on the opinions and recommendations included in the report.

- Upon request by other agencies (e.g., OSHA, State organizations), a formal presentation may be provided, detailing the facts and findings of the investigation
- Upon completion of the investigation, the Bureau Director may be requested to personally brief the Secretary of the Interior to explain the accident and corrective actions

It is likely that the Team Leader and the Chief Investigator will be asked to participate in these briefings.

Exhibit 10-1

24-Hour Report Cover Letter and Format

To: (Designated Agency Safety and Health Official)

Subject: Preliminary (24-Hour) Report

THE FOLLOWING INFORMATION IS PRELIMINARY AND SUBJECT TO CHANGE

LOCATION:

DATE OF OCCURRENCE:

TIME OF OCCURRENCE:

TEAM LEADER:

ACTIVITY:

NUMBER OF INJURIES:

NUMBER OF FATALITIES:

PROPERTY DAMAGE (such as to vessels, equipment, and structures):

NARRATIVE:

/s/ (Team Leader)

cc:
Bureau Safety and Health Manager
Director, DOI Office of Occupational Safety and Health
Office of Fire and Aviation Safety Manager (only if a fire-related accident)

Exhibit 10-2

72-Hour Report Cover Letter and Format

To: (Designated Agency Safety and Health Official)

Subject: Expanded (72-Hour) Report

NAME OF INJURED OR DECEASED (IF THE NEXT OF KIN HAVE BEEN NOTIFIED):

NARRATIVE (INCLUDE ALL OF THE 24-HOUR REPORT INFORMATION PLUS MISSION/ACTIVITY INFORMATION):

PRELIMINARY FACTUAL FINDINGS:

/s/ (Team Leader)

cc:
Bureau Safety and Health Manager
Director, DOI Office of Occupational Safety and Health
Office of Fire and Aviation Safety Manager (only if a fire-related accident)

Exhibit 10-3

Safety Alert Format

To: Bureau of Land Management Safety Manager

Subject: Safety Alert

NARRATIVE: IDENTIFY THE BASIC CIRCUMSTANCES SURROUNDING THE INCIDENT.

FINDINGS: IDENTIFY THE FINDINGS OF FACT THAT WARRANT A SAFETY ALERT.

RECOMMENDATIONS: IDENTIFY APPROPRIATE RECOMMENDATIONS.

(The Bureau Safety Manager or the Director of the Office of Fire and Aviation will coordinate with appropriate staff and issue the Safety Alert.)

/s/ (Team Leader)

cc:
Bureau Safety and Health Manager
Director, DOI Office of Occupational Safety and Health
Office of Fire and Aviation Safety Manager
Official case file

Exhibit 10-4

Accident Investigation Factual Report

- FOR OFFICIAL USE ONLY -

This document contains materials for internal bureau/agency use only and is not releasable under the Freedom of Information Act.

Accident Investigation Factual Report

(Type of Accident)
(Unit, Location)
(Region/Station/Area/Institute)
(City, State)

(Date of Accident or Incident)

Privacy Act
This report contains information protected by the Privacy Act. Disclosure of protected information is a violation of the Privacy Act of 1974, as amended, (5U.SC. § 552a).

Copy ____of____

Exhibit 10-4 (cont)

Accident Investigation Factual Report

Accident: (type of accident or incident and name of involved individual)

Location: (unit and location where accident occurred)

Date: (date of accident)

Investigation Team Leader: (name, title, location of home unit)

_____ _____

Signature Date

Investigation Chief Investigator: (name, title, location of home unit)

Investigation Team Members:
(name, title, location of home unit)
(name, title, location of home unit)
(name, title, location of home unit)
(name, title, location of home unit)

Investigation Technical Consultants:
(name, title, location of home unit)
(name, title, location of home unit)

Exhibit 10-4 (cont)

Accident Investigation Factual Report

TAB A - Table of Contents. Include page numbers.

TAB B - Executive Summary. Briefly summarize the factual report in a paragraph or two.

TAB C - Narrative. Place the accident chronology you developed in the deliberation phase here.

TAB D - Investigation Process. Summarize the appointment of the team and what you did. Emphasize that you evaluated all of the human, material, and environmental factors surrounding the event.

TAB E - Findings. Identify all of the findings that support the accident sequence. (DO NOT include other findings that are not related to this accident. They go in the Management Evaluation Report)

TAB F - Maps/Illustrations/Photographs. Graphic information used to document and visually portrays facts.

TAB G - Appendices. Excerpts, test results, factual data, and documents used to support the facts surrounding the accident that were used as reference information.

TAB H - Records. Factual data and documents used to substantiate facts involving the accident.

Exhibit 10-5

Management Evaluation Report

- FOR OFFICIAL USE ONLY -

This document contains materials for internal bureau/agency use only and is not releasable under the Freedom of Information Act.

Management Evaluation Report

(Type of Accident)
(Unit, Location)
(Region/Station/Area/Institute)
(City, State)

(Date of Accident or Incident)

Privacy Act
This report contains information protected by the Privacy Act. Disclosure of protected information is a violation of the Privacy Act of 1974, as amended, (5U.SC. § 552a).

Copy ____of____

Exhibit 10-5 (cont)

Management Evaluation Report

Accident: (type of accident or incident and name of involved individual)

Location: (unit and location where accident occurred)

Date: (date of accident)

Investigation Team Leader: (name, title, location of home unit)

_____ _____

Signature Date

Investigation Chief Investigator: (name, title, location of home unit)

Investigation Team Members:
(name, title, location of home unit)
(name, title, location of home unit)
(name, title, location of home unit)
(name, title, location of home unit)

Investigation Technical Consultants:
(name, title, location of home unit)
(name, title, location of home unit)

Exhibit 10-5 (cont)

Management Evaluation Report

TAB A - Table of Contents. Include page numbers.

TAB B - Executive Summary. Briefly summarize the entire report in a paragraph or two. The factual data portion should be identical to what is in the Factual Report.

TAB C - Findings. Each finding is a single event or condition. Each finding is an essential step in the accident sequence, but each finding is not necessarily causal.

TAB D - Causes. A cause is a deficiency that the correction, elimination, or avoidance of would likely have prevented or mitigated the accident or significant injury.

TAB E - Other Findings. Include the "other findings" not related to the accident here along with your recommendations.

TAB F - Recommendations. There will normally be a recommendation for each finding. List the findings in the same order as the Factual Report has them listed. Put the Team's recommendations under that finding and specify who has the responsibility for implementing the recommendations.

TAB G - Enclosures. Enclose witness statements and other non-factual data needed to support your recommendations that you did not put in the Factual Report.

TAB H - Other Information (Optional). This paragraph can contain opinions by the investigators, conclusions and observations, and confidential information that the team feels is relevant for management’s consideration.

Exhibit 10-6

Investigation Team Closeout Briefing

INVESTIGATION TEAM INTERNAL CLOSEOUT BRIEFING

The purpose of the closeout is to tie up loose ends and critique the team's performance. Typically the following items are covered:

- Collection and destruction of all field notes
- Cleaning and turning in all equipment
- Follow on assignments for members after leaving the scene
- Critique accident process used
- Critique team performance
- Discuss need for critical incident stress debriefing (CISD) for members

Suggestions for process improvement that comes out of the closeout with the team shall be sent to the Bureau Safety Office and to the Office of Fire and Aviation (for fire-related accidents).

Discuss the possibility of the need for additional work after the BOR meeting.

Exhibit 10-7

Closeout Briefing with Management

CLOSEOUT BRIEFING WITH MANAGEMENT

Note: This briefing will be prepared by the Team Leader with the assistance of the Chief Investigator.

The most important thing to remember about closeout briefings is to use a presentation method you are comfortable with. The Chief Investigator may present a portion of the closeout briefing if you prefer; but remember this briefing is yours. Many times you will make an impression on management that is far more powerful than the one a Chief Investigator can make.

You should reemphasize that the purpose of the investigation, the report, and the supporting material is for accident prevention purposes only.

The outbrief with the unit should cover the timeline of the accident, any significant findings identified, and any preliminary recommendations made by the SAI Team that need to be implemented immediately. Briefings with groups other than the unit sustaining the accident will generally not include recommendations.

Disciplinary actions should not be discussed – at all. Questions and solicitations for your opinion in this matter should be handled very carefully. A separate investigation (e.g., Board of Inquiry) may be initiated by the Bureau Director to determine if any disciplinary actions are appropriate.

It would be appropriate to address any outstanding support that you received from the unit during the outbrief. Be careful about addressing any negative issues with this subject; it may be counter-productive to meet the objective of the meeting.

You should describe the process and timeline that you will follow to get the report to the appropriate agencies for approval/signature, and when they should see a signed report. You should also add that there is no need for the unit to wait until the report is signed to take appropriate action on the identified recommendations.

You have developed some opinions, thoughts, or ideas about the incident by this time. Use your judgment in what to include and not include. Your opinions and insights may have a significant impact on the unit's ability to ensure that this type of accident never occurs again. On the other hand, if you ramble on over a pet peeve, you could also damage your credibility.

Exhibit 10-8

Notification, Reporting, and Briefing Table

Type of Notification, Report, Briefing	From	To	Timeline
Initial Telephonic, Followed by Electronic Notification	Unit that experienced the serious accident (SA)	Bureau DASHO Bureau Safety Manager DOI Watch Office doi_watch_office@ios.doi.gov)	As soon as possible
OSHA Notification (800-321-6742)	Unit involved with SA	U.S. Department of Labor OSHA Area Office closest to accident site http://www.osha.gov/html/RAmap.html	Within **8 hours** from time of SA
Accident/Incident Data Entry Report	Unit that experienced the SA	Safety Management Information System (SMIS) https://www.smis.doi.gov/	Within **8 hours** from time of SA
24-Hour Report (Preliminary)	Normally the senior manager of the unit sustaining the SA; however, the SAIT or TI may send it if on scene within 24-hours	Bureau DASHO Bureau Safety & Health Manager DOI DASHO via Bureau DASHO The National Fire Management Office for fire-related SAs	Within **24 hours** from time of SA
72-Hour Report (Expanded)	SAIT or TI	Bureau DASHO Bureau Safety & Health Manager DOI DASHO via Bureau DASHO	Within **72hours** from time of SA
Factual Report & Management Report	SAIT or TI	Bureau DASHO **Note**: Internally a BOR process will take place prior to final DASHO acceptance (See Chapter 11)	Within **60 calendar days** from date of the accident
Bureau Director/Administrator Briefing	Regional Director/Administrator briefs the results of the SA	Bureau Director/Administrator Briefing	Within **120-150 calendar days** from date of the accident
Final Factual Report & Management Report Transmittal	Bureau DASHO	DOI DASHO	Within **30 calendar days** from the date the Bureau Director or Administrator was briefed

Chapter 11
Board of Review

11.1. BOARD OF REVIEW

When investigating DOI accidents, the Factual Report and Management Evaluation Report are not final once the SAIT drafts them. They will be sent to a bureau Board of Review (BOR) before going final. The purpose of the BOR is to review the draft Factual and Management Evaluation Reports. They review, accept, reject, or modify recommendations contained in the Management Evaluation Report (MER). Development of the Accident Prevention Action Plan (commonly referred to as the Corrective Action Plan) is the last task of the Board. This action plan is based on the recommendations approved by the BOR.

11.2. BOARD OF REVIEW COMPOSITION

The agency/bureau DASHO shall appoint the Chair of the BOR *within 60 days from date of accident occurrence*. This appointment may occur concurrently as the SAI continues. The BOR Chair will appoint members and convene the BOR *within 30 calendar days of the DASHO's receipt of the Factual Report and MER.*

The BOR is made up of the Chair, Affected Unit/Site Manager, Bureau Safety Manager or designee, and a National-level subject-matter expert(s). These members will be "*voting*" members. There will be times when non-board members will need to be present and make comments during the BOR proceedings. Such participation is at the discretion of the Chair. However, non-Board members are not voting members of the Board and attendees must be limited to individuals who have a connection to the accident or incident and who can contribute in a positive manner to the process. Parties to litigation, insurance representatives, and news media are specifically prohibited from attending any portion of the proceedings.

11.3. DUTIES AND RESPONSIBILITIES

Chair. The Chair, a voting member of the Board, is appointed by the DASHO and is charged with managing the BOR proceedings. At the conclusion of the BOR's proceedings, the Chair will transmit the *final* Factual Report and Management Evaluation Report, recommendations, and action plans to the Bureau DASHO.

Unit/Site Manager. Management Officials are voting members of the Board who are selected from the unit where the accident occurred. They provide information and advice to the BOR on management-specific policies and procedures as related to the accident.

Bureau Safety Manager. The Bureau Safety Manager provides advice on safety and health matters as they relate to the accident and suggested preventative measures.

National Level Program Manager. Provides the BOR national level program management direction.

Team Leader. The Team Leader presents the *draft* Factual and Management Evaluation Reports to the BOR, and provides assistance with the Report of the BOR. He or she is not a member of the Board and does not vote.

Chief Investigator. The Chief Investigator assists the Team Leader in the presentation of the *draft* Factual and Management Evaluation Reports. He or she is not a member of the Board and does not vote.

Technical Specialists. Technical Specialists are selected to provide technical assistance to the BOR within their area of expertise as needed. They are not voting members of the Board.

Recorder. The Recorder will document the decisions and action plans of the BOR and submit that documentation to the BOR Chair. The Recorder is not a member of the Board and does not vote.

11.4. CONVENING THE BOARD OF REVIEW

The Chair calls the BOR to order, introduces the Board Members and attendees, and discusses the purpose and objectives of the accident review process. The Team Leader and Chief Investigator present the *draft* Factual Report. The Chair opens the draft Factual Report for discussion and comment by the BOR Members. The BOR Members either accept or request clarification of items within the draft Factual Report.

The Team Leader and Chief Investigator present the *draft* Management Evaluation Report to be finalized by the BOR. The BOR accepts, rejects, modifies, or makes new recommendations. Recommendations must be reasonable, feasible, and relate to the cause(s) of the accident. However, every cause need not have a recommendation. A reasonableness test must be applied to each recommendation. Resources required to implement a recommended corrective action must be weighed against value received, practicality, and allow for definitive closure.

Note: Vague recommendations, which address the importance of simply doing one's job properly, are inappropriate.

Examples of possible recommendations:

- Referral to a management official for corrective action(s) related to hazardous conditions or practices
- Referral to a staff area (e.g., Health and Safety, Missoula Technology and Development Center (USFS), or a Resource Staff) for corrective design of equipment or job procedures

From the recommendations contained in the MER, the BOR develops the BOR Management Report and Corrective Action Plan (See Exhibit 11-1 courtesy of the NPS) to prevent similar accidents. The final Management Evaluation Report includes probable cause(s), contributing factors, and recommendations.

Exhibit 11-1

BOR Management Report and Corrective Action Plan

BOARD OF REVIEW MANAGEMENT REPORT

AND

CORRECTIVE ACTION PLAN

For

The Employee Name Accident Investigation

DATE HERE

NATIONAL PARK SERVICE

UNITED STATES DEPARTMENT OF THE INTERIOR

BOARD OF REVIEW MEMBERS

_____/s/_____
NAME, TITLE, UNIT
National Park Service
Chair, Board of Review

_____/s/ _____
NAME, TITLE, UNIT
National Park Service
SAIT Team Leader

_____/s/_____
NAME, TITLE, UNIT
United States Public Health Service, National Park Service
Technical Expert – Occupational Safety and Health

_____/s/_____
NAME, TITLE, UNIT
National Park Service
Management Liaison

_____/s/_____
NAME, TITLE, UNIT
National Park Service
Technical Expert – Facility Management

EMPLOYEE NAME HERE - INVESTIGATION

TABLE OF CONTENTS

Preface

This report is provided in accordance with the National Park Service (NPS) Director's Order/Reference Manual 50B, Section 1.6 for the purpose of relaying the facts, incident investigation results, and recommendations for future prevention associated with the death of NPS employee Employee's Name at Location on Date. This report is based on a thorough incident investigation and a root cause analysis completed by a Serious Incident Investigation Team (SAIT). The Board of Review met in Location on Date and has accepted, as written, the Factual Report dated September 20, 2010.

Employee's Name was a hardworking, congenial and dedicated employee who enjoyed his work as a maintenance worker at Location. Employee's Name family, friends and co-workers have suffered a tragic loss by his passing. Our thoughts go out to his family during this difficult time.

EMPLOYEE NAME HERE - **INVESTIGATION**

Executive Summary

On Date, NPS maintenance employee Employee's Name of Location, was fatally injured in a motor vehicle accident while performing routine maintenance duties along Virginia State Route 24. Employee's Name and Tractor Operator (the UTV operator) were struck in a Kawasaki Mule, a utility terrain vehicle (UTV), on State Route 24, approximately one tenth of a mile east of State Route 627. Employee's Name was ejected from the UTV and fatally injured. The investigation by the Virginia State Police indicates that the Kawasaki Mule had traveled onto the roadway from the eastbound road shoulder and was struck by a van travelling in the eastbound lane. Both employees were involved with the removal of trash along the road shoulder.

A national SAIT met at the park headquarters on Wednesday, Date and concluded the initial phase of the investigation on Thursday, Date. The SAIT inspected the accident site, the NPS vehicle, and interviewed Location staff, Virginia State Police responding officers, and the Virginia State Police Accident Reconstruction Team Leader. A state police reconstruction team assembled on the site on Date to reconstruct the accident. The SAIT investigator was present at the accident reconstruction.

This tragic accident occurred during debris removal operations along State Route 24. State Route 24 has a posted speed limit of 55 mph as it treks approximately 4 miles through the park. This speed limit has long concerned park managers and the park has requested it be lowered. The NPS will forward another request to the Virginia Department of Transportation (VDOT) for an updated speed study and for VDOT to reconsider their previous rejections for lowering the speed of SR-24 through Location.

It is incumbent on park managers and employees to increase their efforts to ensure any NPS operations along this stretch of highway are conducted in a safe manner. The corrective actions forwarded in this report are designed to ensure we learn from this tragic accident and do what we can do to keep it from occurring again at any unit of the National Park System.

EMPLOYEE NAME - INVESTIGATION

Findings of the Serious Accident Investigation Team

ENVIRONMENT

- Employee's Name death was due to traumatic injuries from a motor vehicle accident.
- Employee's Name was ejected from a Kawasaki UTV struck by a private van while operating in the center of State Route 24.
- Employee's Name was not wearing seatbelts and was ejected from the Kawasaki.
- The Kawasaki did not have a slow moving vehicle sign or yellow warning light.
- The Kawasaki brake lights and tail lights were not operable when inspected post crash.

HUMAN

- Employee's Name and [the UTV operator] were not wearing seat belts.
- Employee's Name and [the UTV operator] were not wearing helmets.
- The UTV was operating in the center of State Route 24.
- No traffic control devices were posted during the maintenance effort.

MANAGEMENT

- Employee's Name and [the UTV operator] were collecting trash on the shoulder of State Route 24.
- The park does not have an agreement to collect trash on State Route 24.
- Park records show the presence of a Job Hazard Analysis (JHA) for operation of ATV/UV (sic)
- The JHA does not specify that the use of seat belts is required when operating UTVs (Seatbelt use when riding UTVs is required by RM5OB §6. I V. A.). The JHA requires the use of helmets for UTV operation.
- The park documented safety program requires seat belt use for "motor vehicles" but does not specifically address UTV operation.
- The JHA does not prohibit operation of UTVs on paved public roads, i.e. Virginia State Route 24.
- Park records do not show a record of annual maintenance inspections of the UTVs as required by RM5OB §6.1 VI K.
- Park records do not show a record of pre-ride inspection checks of the UTVs as required by RM5OB §6.1 VI J.
- There were no Standard Operating Procedures (SOP's) for operation of UTV's.
- There were no Standard Operating Procedures (SOP's) for trash pick-up in the State Route 24 corridor.
- UTVs were not restricted from operation on paved public roads as recommended by the manufacturer of the Kawasaki and RM5OB §6. I VI B.

EMPLOYEE NAME - INVESTIGATION

Recommendation and Corrective Action Plan

Recommendation #1 – Leadership and Personnel Management

Corrective Action Items:

- Personnel and associated job task(s) need to be monitored and evaluated with updated Employee Performance Appraisal Plans (EPAP) reflecting rating criteria. Supervisors need to increase their interaction with subordinate personnel involved in field work and projects, to personally observe employee work habits and to assure accuracy and safe job performance.

Action	Modify the EPAP Critical Element and Rating Criteria to include safe performance of duties
Responsibility	Location Park Management with assistance from Virginia Servicing Human Resource Office and the Northeast Regional Office.
Due date	October 30, 2010

- Supervisory oversight of training and implementation of UTV policy should be conducted and documented to assure personnel are fully aware of the duties of their position and their job performance requirements.

Action	Revise park UTV policy to remove ATV usage references; train employees on new policy and meet training standards.
Responsibility	Location Management & Park Facility Management w/ Assistance from NER
Due date	March 31, 2011

Action	Review available commercial applications and instruction for Servicewide UTV use. Adopt Best Practices in operations based on research.
Responsibility	WASO Risk Management
Due date	March 31, 2011

- Supervisors and employees must determine how and when assigned tasks should be performed. Incorporate Operational Leadership principles of open communication (including GAR scoring) to determine risk level and mitigation strategies.

Action	Teach and practice Operational Leadership to all NPS employees
Responsibility	Regional Directors/Park Superintendents/Location Management/WASO RM
Due date	Location: Completed August 2010

- Activity reports need to be completed bi-weekly by field personnel to ensure projects and associated work are performed, completed as planned, and properly documented.

Action	Initiate, approve, and track work orders with Job Safety Plans into FMSS as they relate to operations on SR24
Responsibility	Location Management & Park Facility Management
Due date	December 31, 2010

Recommendation #2 – Policy and Procedure

Corrective Action Items:

- Respond to specific OSHA citations for the fatality at Location.

Action	Provide Abatement Certification in response to OSHA notice of Unsafe or Unhealthful Working Conditions
Responsibility	Location Park Management & NERO Risk Management
Due date	Completed July 2010.

- The region should evaluate the use of Safety personnel throughout the region.

Action	Identify and evaluate the use of safety personnel in the NER. Include evaluation of Permanent Full Time Safety Officers by zone (cost, roles and responsibilities, strategic placement, range of supervision, range of hazards, number of systems, facilities, IMR Zone model)
Responsibility	NERO Risk Management with assistance by WASO Risk Management
Due date	March 31, 2011

- Supervisors and personnel need to comply with RM 50B, Occupational Health and Safety and Health Programs, Job Hazard Analysis (JHA) requirement. Supervisors, in all park operations involving UTV's need to develop individual JHA(s) for operations of UTV's and tractors with Roll Over Protection Systems (ROPS) to assure appropriate and proper Personal Protective Equipment (PPE) and operation directions are provided and used correctly.

Action	Completion of Job Hazard Analysis and SOP for UTV and ROPS. Includes ROPS and UTV in transportation to different work sites within the SR24 corridor
Responsibility	Location Management & Park Facility Management
Due date	December 31, 2010

Action	Develop GAR Risk Assessments for UTV and assess risk for ROPS tractor operations due to seatbelt usage; develop JHA to mitigate risk for both after risk is identified and assessed
Responsibility	Location Park Management & NERO
Due date	December 31, 2010

- Management procedures developed for roadway activities on SR 24 through park

Action	Completion of Job Hazard Analysis and if warranted, an SOP* - one for mowing; one for trash pick-up procedures (includes signage, vehicle use, and personal protection) *See recommendation re: Action Plan with VDOT.
Responsibility	Location Management & Park Facility Management
Due date	November 5, 2010

Action	Discontinue use of UTVs along SR24
Responsibility	Location Management & Park Facility Management
Due date	Completed per Superintendent Direction October 2010

The Board of Review makes the following additional recommendations:

1. The Line of Duty Death (LODD) Protocol Manual is complete and available to park management officials. This document provides additional, valuable information and guidance for park managers and staff in the event of a line of duty death. The Manual can be found on *Inside NPS* under the WASO Visitor and Resource Protection intranet site. The Board recommends each park manager become familiar with its contents.
2. It is recommended that an Incident Command General Staff be delegated the responsibility to coordinate the work of the Serious Incident Investigation Team, Critical Incident Stress Management, Family Liaison, and additional tasks outlined in the LODD Protocol Manual.
3. Finalize the draft SAIT Field Handbook.

- End of Board of Review Management Report and Corrective Action Plan -

Chapter 12
Follow-Up

12.1. GENERAL

All accident reports must be followed up on and closed out in accordance with 485 DM Chapter 7, Appendix 1. Although this occurs after the SAIT has completed its work, and is not a function of the SAIT, it is important that the process be understood.

12.2. REQUIREMENTS

The SAIT Investigation Final Report, consisting of the Factual Report and the MER, is *due to the Bureau DASHO within 60 calendar days from the date of accident occurrence*.

Within *14 calendar days from the receipt of the BOR's Report*, the BOR must have convened and produced a final BOR Report, to include a corrective action plan, for DASHO review and concurrence.

Within *120 to 150 days of the accident*, the Bureau's First Executive Level Manager, whose organization incurred the accident, will personally brief the Bureau head (e.g., Bureau Director or Administrator) on the accident, with an emphasis on identifying and correcting any management deficiencies contributing to the accident.

The Bureau DASHO, or their designee, must forward the reports, along with the corrective action plan, to the Departmental DASHO. The transmittal will include a statement of concurrence or non-concurrence (See Exhibit 12-1) with the BOR opinions and recommendations, identify any corrective actions already taken or proposed, and identify recommendations for actions by higher management and/or other agencies. This constitutes the final, complete, serious accident investigation report to the Department.

A status report to the Departmental DASHO, through the Bureau's First Executive Level Manager, *must be provided at least every 90 days from the date of the Director/Administrator briefing until all appropriate corrective actions are implemented*.

Once all corrective actions have been accomplished, the Bureau Director/Administrator, through the Bureau DASHO, will notify the DOI DASHO and the DOI Office of Occupational Safety and Health. At this point the investigation is considered closed.

Chapter 12—Board of Review

Exhibit 12-1

Board of Review - Director's Concurrence Memorandum

United States Department of the Interior
NATIONAL PARK SERVICE
1849 C Street, N.W.
Washington, D.C. 20240

IN REPLY REFER TO:
A7615 (2430)

Memorandum

To: Director

From: Associate Director, Visitor and Resource Protection

Subject: Serious Accident Investigation – Somewhere Beautiful NHP

I. Acceptance of the Investigation and Corrective Actions

The Serious Accident Investigation Team (SAIT) assigned to investigate the circumstances that led to the death of Mr. John Doe, a seasonal maintenance employee assigned to Somewhere Beautiful NHP, has concluded. The SAIT presented their investigative findings, causes, and recommendations to the Board of Review (BOR). The BOR submitted its report with the finalized corrective actions believed necessary to prevent similar accidents.

Based on the information presented during this Formal SAIT briefing, please initial adjacent to your preferred option from the following choices:

_____1. Accept the investigation and report as written

_____2. Accept the investigation and report with changes

_____3. Direct further investigation

II. Proposed Communications Method

The factual report, minus the Chief Medical Officer's report and the Maryland State Police Crash Team Report, will be made available to all NPS employees. An article announcing the completion of the investigation with a message from you will be drafted for your signature. The article will be prominently posted on InsideNPS with a link to the factual report accessible to all personnel with access to InsideNPS.

Appendix 1
Multi-Agency Investigations

The Memorandum of Understanding between the U.S. Department of Interior and the U.S. Department of Agriculture states that interagency serious accidents will be investigated by interagency investigation teams. An SAI will be conducted according to the following:

- **Agency Lead Investigations** will be conducted whenever only one agency is responsible for managing operations and a serious accident occurs affecting only personnel and equipment of that same agency. The agency responsible for managing operations will lead the investigation.
- **Co-Lead Investigations** will be conducted whenever a Serious Accident occurs involving multiple agencies. Team Leaders from the jurisdictional and affected agencies will be assigned (e.g., accident occurred on state lands and US Forest Service employee is a victim). No more than two Team Leaders will be assigned to any SAI regardless of numbers of agencies involved. However, additional agency representatives may be assigned other roles as needed.

Appendix 2
Wildland and Prescribed Fire Investigation Supplemental Protocols

A2.1. GENERAL

The wildland fire organization operates under a concept of total interagency mobilization that moves firefighters across the country. Because of this mobilization, it is imperative that information about specific entrapments and the lessons learned from these situations be disseminated to all wildland firefighters in a timely manner. For this reason, most wildland fire agencies that experience an entrapment or shelter deployment conduct an investigation to review the circumstances of the incident. Such a review can provide important insights and recommendations to improve wildland fire safety.

Fire entrapments and/or shelter deployments that do not meet the definition of a DOI Serious Accident in accordance with 485 DM 7, *Incident/Accident Reporting/Serious Accident Investigation* are not considered requiring a formal SAI; however, they may be investigated per Wildland Fire management policy as an SAI utilizing this protocol. DOI 485 DM 7 defines a serious accident as a Department-related incident that is a result of an employee action or Departmental condition that results in:

- One or more duty-related employee fatalities or imminently fatal injuries or illnesses or non-employee fatality caused by a Departmental operation
- Three or more DOI personnel (i.e. employees, volunteers, contractors, or emergency fire fighter) hospitalized as a result of the same accident
- Property damage (including site mitigation or cleanup) of $250,000 or more
- Consequences that the Designated Agency Safety and Health Official (DASHO) judges warrant further investigation

If the fire-related incident/accident meets the definition of an SAI, a SAIT is formed and conducted per the guidance set forth within the chapters of this guide book.

The investigation process, Factual Reports, and Management Evaluation Reports are the same as for any other serious accident investigation. This protocol addresses the terms and procedures that are unique to wildland fire accidents not meeting the DOI SAI definition. In the case of a wildland fire incident the SAIT will be chartered by the National Fire Management Officer. If other agency personnel were involved in the incident the Wildland Fire SAIT will have co-chairs with the involved agencies represented.

A2.2. WILDLAND FIRE SHELTER DEPLOYMENTS AND ENTRAPMENTS

The following information is specific to Wildland fire deployments and entrapments in conjunction with the previously stated general information. In a wildland fire environment:

- A deployment refers to the use of a fire shelter for protection against fire.

- An entrapment is a situation where personnel are unexpectedly caught in a fire behavior-related, life-threatening position where planned escape routes or safety zones are absent, inadequate, or have been compromised. An entrapment may or may not include deployment of a fire shelter for its intended purpose. This situation may or may not result in injury. They include "near misses" (Reference: Investigating Wildland Fire Entrapments, MTDC 9551-2845).
- All motorized fire equipment vehicles involved in a burnover (e.g., a fire engine) will be considered as an entrapment when personnel are involved; otherwise, it will be considered damaged or destroyed property and investigated in accordance with DM 7 and this guide.
- A fatality is any death that occurs in the line of fire duty. This includes travel to and from assigned incidents and will be investigated in accordance with DM 7 and this guide book.

A2.3. INITIAL RESPONSE

The unit or Incident Management Team that has experienced a fire entrapment or deployment needs to take some immediate actions.

As soon as an entrapment or shelter deployment is verified, the local unit agency dispatcher shall initiate the notification process to meet legal and logistical requirements. As a minimum, the following shall be notified:

- The National Interagency Coordination Center (NICC)
- Higher level headquarters of the agency/bureau or office involved (e.g., DASHO, National Fire Management Office, etc.)
- Respective Bureau Safety and Health Manager
- Agency law enforcement personnel, if applicable, to assist in securing the site
- Any other agencies and/or individuals as required by local incident response plans

The unit or Incident Management Team shall report preliminary information about a fire entrapment, deployment or fatality, associated with Wildland fire operations, on the Wildland Fire Entrapment/Fatality Initial Report Form. This form needs to be forwarded to the agency administrator and NICC within 24 hours of the accident or incident. Fatality investigations will be conducted in accordance with DOI DM 7 and this guide book, to include the Firefighter Autopsy Protocol.

A2.4. TEAM COMPOSITION

As soon as a fire entrapment, deployment, or fatality occurs the agency having jurisdiction moves to establish a SAIT for the specific incident.

If joint Wildland fire operations are underway and a fire-related serious accident occurs, the interagency SAIT will be formed, per the Memorandum of Understanding (MOU) between the United States Department of the Interior and the United States Department of Agriculture

(Exhibit A2-1). This means there will be at least one interagency representative from the Department of Agriculture on Department of Interior incidents and vice-versa.

Co-lead Investigations: Co-lead investigations will be conducted in accordance with the MOU (Exhibit A2-1).

When a serious fire-related accident occurs that affect only personnel of one agency, the Chief Investigator may be assigned by the responsible agency DASHO. Chief Investigators must be from another unit and not closely connected to the unit that sustained the accident.

Other individuals that may be assigned to an entrapment or deployment investigation as technical specialists are:

- Fire operations specialist (normally at the Operations Section Chief level)
- Fire safety officer
- Fire behavior analyst (with experience in the incident fuel type)
- Fire weather meteorologist from the National Oceanic and Atmospheric Administration (NOAA) Fire Weather Service
- Fire equipment specialist from the Missoula Technology and Development Center
- Technical (professional) photographer
- Incident information officer

Investigators visiting active firelines shall be currently red carded or escorted and trained in the use of and have the following personal protective equipment (PPE):

- 8–inch high, lace-type work boots with non-slip (Vibram type), melt-resistant soles & heels
- Aramid (Nomex) shirts and trousers
- Hard hat with chinstrap
- Leather gloves
- Fire shelter
- Hand tool
- Water canteen
- Personal first aid kit

A2.5. INVESTIGATION ELEMENTS

The investigation team will use procedures that apply to all serious accident investigations. However, they will pay particular attention to the following elements as they relate to this fire event.

- Fire behavior
- Environmental factors
- Incident management
- Control mechanisms
- Involved personnel profiles
- Equipment

A2.6. ON-SCENE ACTIVITIES

When a fatality occurs on an entrapment, the victim should not be moved without the specific permission of the sheriff or coroner/medical examiner. Injured persons should receive emergency medical treatment and transportation to a medical facility as soon as possible.

Tools, vehicles, personal equipment, and PPE (to include fire shelters and other associated items) should be left where they are until cleared for removal by the SAIT Chief Investigator. Law Enforcement personnel should be used to secure the site from outside disturbance and from unauthorized visits by the media. Information gathered at the site of an entrapment is often critical in reconstructing the events that occurred and for identifying lessons learned so that recurrence can be avoided.

Once the SAI Team arrives on the site (usually within 24 hours), the following tasks are undertaken:

- Photograph the entire scene before any items are removed. Specific areas requiring photographic documentation include overviews of the entrapment scene from the air. Aerial photographs show critical factors such as fuel types and burn patterns that may have contributed to the entrapment. When photographing from helicopters, be cognizant of rotor downwash that could disturb the site
- Take general area photographs of the scene from the ground and large-format close-ups of damage to PPE and other firefighting equipment. (Note: Laying a new yellow Nomex shirt and green Nomex trousers where an individual was burned over helps a photograph better show conditions as they were found.)
- Make a detailed site diagram showing the specific locations of individuals, equipment, roads, structures, and other important features. Small entrapment scenes can be mapped using a compass and pacing method from known landmarks or control points. On larger scale entrapments, which occur over areas covering more than a 3/8-mile area, engineering level global positioning system (GPS) and GIS mapping may be a useful tool. A detailed site diagram is an essential part of the final investigation report
- Observe the position of all items to help reconstruct the events that took place. After the visual review is complete, individual items of personal protective clothing and other equipment should be collected, tagged to indicate which person used them, and removed to the investigation team headquarters. These items should be protected and secured in the same manner as evidence
- Natural terrain features at entrapment scenes can provide valuable information. Slope, aspect, drainage, fuel type, fuel loading, heat-set on grass and needles, and evidence of winds can all aid the investigator in determining the events that led to the entrapment.

A2.7. ANALYSIS OF PROTECTIVE EQUIPMENT

PPE should be inspected for compliance with DOI policies on mandatory and optional equipment for wildfires. It should also be inspected to determine the manufacturer and if it was constructed in accordance with accepted standards. The National Fire Protection Association (NFPA) 1977 compliance label is a good indicator of compliance. Note: National Cache items may not indicate that they are NFPA compliant.

Clothing subjected to radiant heat or direct flame contact should be compared with industry examples to show temperature ranges in the entrapment. Comparing after-burn conditions of equipment with the design standard for the individual items can often help determine the survivability of an entrapment. The Missoula Technology and Development Center should analyze all PPE.

A2.8. FIREFIGHTER AUTOPSY PROTOCOL

This protocol was developed by the U.S. Fire Administration for the purpose of providing medical examiners and pathologists with uniform recommended procedures for investigating the causes and contributing factors related to firefighter deaths.

Family members are entitled to benefits under the U.S. Department of Justice, Public Safety Officer Benefits Program, when "public safety officers found to have died as the direct and proximate result of a personal injury sustained in the line of duty." (28 CFR 32.1)

To acquire these benefits, claimants are required to demonstrate that the injury resulting in death was the direct result of activities performed in the line of duty (as opposed to personal health, such as coronary artery disease).

While every attempt will be made to provide this protocol to the medical examiner at the same time the SAIT is dispatched, you should follow up with the medical examiner to ensure it was received and is being utilized (See Firefighter Autopsy Protocol).

Appendix 2
Wildland & Prescribed Fire Investigation Supplemental Protocols

Exhibit A2-1

Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
Between the
United States Department of the Interior
and the
United States Department of Agriculture

I. Purpose. This Memorandum of Understanding establishes the basis for interagency investigation of serious fire-related accidents.

II. Introduction. If the causal factors of a serious fire-related accident are identified, effective corrective actions to prevent a recurrence can be taken. Interagency investigations add perspective and enhance the mix of skills and knowledge on the investigation team. Interagency investigations are especially important where there are common management and corrective action issues.

III. Policy. Interagency investigations will be conducted whenever a serious fire-related accident occurs on a USDA Forest Service managed fire, Department of the Interior managed fire, or a jointly managed fire. The National Transportation Safety Board, the USDA Forest Service, and the Department of the Interior in accordance with established laws and agreements will investigate aircraft accidents occurring during wildland fire operations.

IV. Definitions.

a. Serious Fire-Related Accidents. Accidents occurring to personnel participating in wildland fire suppression or prescribed burning operations, or to personnel working in direct support of those activities, which result in one or more fatalities or the hospitalization of three or more personnel.

b. Co-Lead Investigations. Team Leaders from both Departments and team members from both Departments.

c. Agency-Lead Investigations. Single team leader and team members from both Departments.

V. Procedures. Interagency investigation teams will include personnel from both the Department of the Interior and the Department of Agriculture. Representatives of the Department of Labor, Occupational Safety and Health Administration, will be invited to participate in these investigations, or will be given full support to conduct their own investigation.

a. Co-Lead Investigations will be conducted whenever:

1. A serious fire-related accident occurs on a USDA Forest Service/Department of the Interior jointly managed fire, or,

2. A serious fire-related accident involving USDA Forest Service personnel occurs on a Department of the Interior managed fire, or,

3. A serious fire-related accident involving Department of the Interior personnel occurs on a USDA Forest Service managed fire.

b. Agency-Lead Investigations will be conducted whenever only one agency is responsible for managing a fire, and a serious fire-related accident occurs affecting only personnel of that same agency. The agency responsible for managing the fire will lead the investigation.

VI. Timeframes. The report should be completed and a copy submitted to the appropriate Departmental Designated Agency Safety and Health Official(s) within 45-calendar days of the accident.

VII. Training and Qualifications. Team Leaders, Investigators, and Specialists will meet minimum training and qualification standards as jointly established by the Department of Agriculture, the Department of the Interior, and the National Wildfire Coordinating Group.

Assistant Secretary Operations
Director of U.S. Department of Agriculture

Director of Operations
U.S. Department of the Interior

10/26/95