

REGIONAL STANDARD OPERATING PROCEDURES

Fire Investigations

#: 103.16

REV: 07/2015

SCOPE:

This policy applies to fires of questionable origin in which the Incident Commander determines the need to conduct a formal investigation of the fire's origin and cause.

PURPOSE:

The purpose of this guideline is to establish recommendations for a safe and systematic investigation or analysis of fire and explosion incidents. The goal is to assist in determining the origin and cause of a fire as well as to correlate information and/or evidence as it relates to the circumstances specific to the incident.

Because every incident is in some way different or unique, this procedure is designed to assist the investigating officer with written parameters that will serve as a systematic framework which is essential during fire origin and cause investigations.

Reference materials may include, and shall not be limited to, the current adopted edition of the International Fire Code (IFC), National Fire Protection Association (NFPA) 921 - Fire and Explosion Investigations, and 1033 - Standard for Professional Qualifications for Fire Investigator, and other local jurisdictional requirements.

SAFETY:

Fire investigators are faced with a multitude of hazards. Therefore, investigators have a duty to protect themselves and others from hazards that are present at the fire scene.

The fire investigator may be expected to operate in areas that contain toxic atmospheres, compromised structural systems, and sometimes even dangerous criminals, so caution must always be exercised. As dangerous as these situations are,

an assertive effort must also be extended to safeguarding bystanders and technical personnel.

The physical and biological hazards encountered at any fire scene mandates the need to don PPE appropriate to a given incident. The minimum requirements shall be coveralls and/or turnout pants and coat; helmet; eye protection; foot protection; gloves; - all which are NFPA approved.

Respiratory protection is an on-going concern during the investigations phase of the incident. Air monitoring shall be performed throughout this phase and whenever Carbon Monoxide (CO) levels on the scene are found to be greater than zero parts per million (PPM), SCBA shall be worn. Due the extended nature of the fire investigations phase of the incident and the risk of prolonged exposure to suspended particulates, the minimum level of respiratory protection during investigations (even when CO levels are zero PPM) shall be a filter mask with particulate filtering capability.

The fire scene contains many hazards that can affect the health and safety of the fire investigator. Whenever an investigation is conducted where a hazardous condition exists, the investigator shall not work alone.

The investigator shall always carry a two-way radio, cell phone, or walkie-talkie as a means to communicate within and outside of the fire scene.

PROCEDURE:

Authorized Personnel

The authority or responsibility of any fire investigation will rest with the Incident Commander, Battalion Chief / Captain or other designee. The reason for conducting any fire investigation, no matter who is conducting it, is to arrive at the truth in an attempt to prevent an incident's recurrence.

Official Call Out

- Chief Officer, Fire Marshal, Battalion Chief, Fire Captain, other designee.
- Law Enforcement assigned to the call. In specific cases, such as criminal damage or arson fires, detectives will be dispatched to the scene to assist with further investigation.

Recognizing the Need for Assistance

The first step is to realize that there is a problem to be resolved – something that is self-evident because the investigator is notified of an incident and asked to determine its origin and cause. Every attempt will be made to provide a Fire Investigator, when available, to assist with the origin and cause investigation of fires occurring within participating jurisdictions.

Information critical to the investigation is:

1. Who made the call to 9-1-1 (Name, address, phone number).
2. What the caller observed.
3. The address of the fire incident.
4. What type of mutual aid the local jurisdiction is requesting.

Planning the Investigation

For any fire investigation, planning is an important first step. Considerations should include size and complexity of the fire scene, level of safety at the scene, potential loss of life, number of investigators, staffing, and budget.

It is essential to utilize the team concept whenever possible. A fire scene investigation includes photography, sketching, evidence collection, witness interviews/statements, and other varied tasks that require diverse skills. The “team” concept affords the investigation the ability to delegate the above tasks to the individual(s) best qualified to perform them – thus ensuring a thorough and professional investigation.

Given the complexity of an investigation, planning should always allow for the possibility that sometime during the investigation it will be necessary to bring in additional personnel or consultants - people with specialized expertise to assist in analyzing the incident or specific aspects of the investigation.

Experts may be available from other government agencies (local law enforcement, Arizona State Fire Marshal’s Office, CCSO, ATF, DEA, DPS, FBI), prosecutors, IAAI, AZIAAI, insurance agents/carriers, and private investigators or consulting firms. Specialists to consider should include accelerant canine team; mechanical, structural, electrical, fire protection and chemical engineers, attorney, and insurance agent/adjuster.

Fire Scene Coordination

Protection of the fire scene and preservation of physical evidence is a primary concern once life safety and fire control are achieved. An attempt to identify the victims and witnesses at the fire scene will be made as soon as possible.

Fire scene personnel will delay non-essential overhaul and secure the fire scene to assist the Fire Investigator. Salvage and all unnecessary interim activities which may alter, contaminate the fire scene, or interfere with a subsequent origin and cause investigation must be discontinued until authorized to continue by the Fire Investigator.

The local fire agency will assign personnel to protect and maintain custody of the fire scene until the arrival of a Fire Investigator, especially when there is no Fire Investigator on duty and a delayed response is expected. If a physical fire watch is enforced, allow no unauthorized person to enter. The local fire department has the authority to close the scene, even to the owner.

After achieving fire control, the local fire agency may release personnel not required for the completion of the investigation and/or overhaul. Upon arrival at the fire scene, the Fire Investigator will report to the local incident commander to obtain an initial briefing. The local fire agency will make every effort to provide personnel and equipment necessary to support the investigation.

Evidence Preservation:

Every fire scene contains evidence. Firefighting operations present the greatest potential for damage to evidence, which may be used by the Fire Investigator and law enforcement in subsequent court cases and prosecution. It is imperative to preserve evidence as found in place and not to move fire debris unnecessarily.

Special care exercised during extinguishment will avoid the destruction of evidence through the misuse of fire streams. If arson is suspected, use electric fans instead of gas fans, or ventilate naturally. If gas fans must be used, refuel the unit away from the fire scene and clean off any spilled fuel before returning the fan to ventilation operations.

Salvage operations should be minimal until the initial fire investigation is complete and should be confined to diminishing loss.

During fire suppression activities, suspects and/or witnesses may be encountered. Do not make accusations or attempt to question these individuals on anything other than

the basic events leading up to the fire (where they were, how it was discovered, what steps they took, etc.). The best guideline would be to limit questioning to information that you would need to complete your basic fire report.

The fire scene must be secured. Evidence cannot be used in court unless the Fire Investigator can establish a chain of custody by proving who found the evidence, where it was found, and that the evidence was not tampered with while in official custody. If evidence is readily identifiable, take steps to protect it IN PLACE. If it is essential that evidence be moved, or if necessary fire fighting operations may damage evidence, the evidence should be photographed and covered if possible, and carefully moved to a secure location as a last resort.

The Fire Investigator will search the scene carefully and thoroughly, photograph and diagram if necessary, and collect and preserve evidence. If evidence needs to be collected, the local law enforcement and local fire investigator will identify, photograph, and collect it in a suitable manner. Any evidence collected will be turned over to the local law enforcement agency having jurisdiction for safekeeping and processing if required.

In the event that a fire is believed to have been caused by a mechanical or electrical failure or misuse of an appliance which may result in civil litigation, the appliance or assembly should be released to the occupant after proper evidence identification is obtained. Owners shall be advised to follow up with their insurance carrier representative regarding the loss.

When arson is suspected, the Fire Investigator will notify the law enforcement agency having jurisdiction in order to initiate a joint investigation. It should be the role of the Fire Investigator to provide technical support for the criminal investigation by developing an opinion on the origin and cause of the fire, identifying critical evidence, and ruling out other possible fire causes. The law enforcement agency having jurisdiction is responsible for collection of information and feedback regarding any witness/suspect interviews.

Documentation of the Investigation (921, Chapter 13)

The investigator's goal is to record the scene through a medium that will allow the investigator to recall his or her observations at a later date. This will be obtained through thorough written reports with supporting documentation via photographs, video, audio, and sketches.

Digital cameras shall be the major mode of photographing a fire scene. Photo development shall be produced using photo printers located at the stations.

Copies of the photos shall be filed with each incident report. All documentation must be approved by the Fire Marshal before any media or public information release.

Origin Determination (921, Chapter 15)

The origin of the fire is the location at which the fire started. If the origin cannot be identified, the cause cannot be determined. This may be achieved by a thorough examination of fire scene assessment, fire damage assessment, scenario development, interior and exterior reconstruction, fire spread and total burn as they relate to the origin determination.

The fire's **area of origin** refers the room, building or general area in which the point of origin is located.

The fire's **point of origin** is the exact physical location where the heat source and the fuel come into contact with each other and the fire begins - such as where a lighted match comes into contact with a container of gasoline. Determining the area and point of origin is essential to determining its cause. The task may be difficult depending on the amount of evidence, facts or data that has been gathered; the reliability of the evidence; and the amount of destruction.

To determine the origin of a fire, the investigator must be systematic in examining the fire scene. By being systematic and using a scientific approach, the investigator can reduce any potential errors or oversights that may creep into the process, while developing a standard approach that addresses the requirements of a complete fire scene investigation.

A recommended approach is for the investigator to work from the outside of the fire in toward the area of origin – or the area of least damage to the area of the most fire damage. This will direct investigators to a specific search of the area of fire area, while analyzing burn patterns can identify potential areas of origin that are supported by facts. Using the opposite procedure can lead the investigator to develop a hypothesis (assumption) as to what the area of origin is and collect data to support additional theories. However, there are times when the investigator can vary from this procedure based on information that is available at the time of the investigation.

The preliminary scene assessment provides an overall look of the structure. It enables the investigator to determine what resources may be needed (equipment, staffing, security). It also helps the investigator to identify safety concerns-utilities, unstable structures, weather – and identify areas that require further study, which provides an important element in addressing the “big picture” perspective of the scene and damage.

The preliminary scene assessment should include examination of the ***surrounding areas, weather, exterior and interior*** observations.

Reports

The purpose of a report is to effectively communicate observations, analyses, and conclusions made during an investigation.

Descriptive Information: Generally, reports should contain the following information, preferably in the introduction:

- 1) Date, time and location of the incident
- 2) Date and location of examination
- 3) Date the report was prepared
- 4) Name of the person or entity requesting the report
- 5) The scope of the investigation (tasks completed)
- 6) Nature of the report (preliminary) interim, final, summary, supplementary)

Pertinent Facts: A description of the incident scene. Items examined and evidence collected should be provided. The report should contain observations and information relevant to opinions. Photographs, diagrams, and laboratory reports may be referenced.

Opinions and Conclusions: The report should contain the opinions and conclusions rendered by the investigator. The report should also contain the foundation(s) on which the opinion and conclusions are based as well as the names and contact information of each person who has rendered an opinion.

All reports and supplements will be submitted on department letterhead in an expeditious manner to the Fire Marshal for review and approval. The Fire Marshal will then forward the report to the local fire department/law enforcement agency for their approval and release.

ALL FIRES “UNDER INVESTIGATION” SHALL MAINTAIN CONFIDENTIALITY WITH LIMITED TO NO INFORMATION RELEASED, INCLUDING ANY REPORTS

ASSOCIATED WITH THE INCIDENT, UNTIL APPROVED BY THE FIRE CHIEF, FIRE MARSHAL, OR LOCAL LAW ENFORCEMENT IF A JOINT INVESTIGATION.

Joint Operations

At times a request will be made for mutual aid from an out-of-jurisdiction agency. Every attempt will be made to provide a Fire Investigator, when available, to assist with the origin and cause investigation of fires occurring outside our jurisdiction.

An out-of-jurisdiction response should be supported by the law enforcement agency having jurisdiction as well as the local fire department. The law enforcement agency with jurisdiction is responsible for collection of information and feedback regarding any witness/suspect interviews.

Depending on the circumstances surrounding the investigation, the Fire Investigator may elect to limit the scope of out-of-jurisdiction investigations to a preliminary scene examination only. In these instances, the investigator will work with the local jurisdiction in a consultant mode, ensuring the local authorities have the information they need to guide them in completing the investigation.

Any documents supporting the investigation shall be submitted on department letterhead in an expeditious manner to the Fire Marshal for review and approval. The Fire Marshal will then forward the documentation to the local fire department/law enforcement agency for their approval and release.