Incident Safety Officer

ISO-Student Manual

4th Edition, 3rd Printing-February 2020

Incident Safety Officer

FEMA

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Acronyms

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ACKNOWLEDGMENTS

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COURSE GOAL

The goal of this course is to provide students with the knowledge and skills needed to perform the duties of the Incident Safety Officer (ISO) during incident operations and training evolutions.

AUDIENCE, SCOPE AND COURSE PURPOSE

This course is designed for fire and Emergency Medical Services (EMS) responders who may be designated by the Incident Commander (IC) as an ISO while working within an Incident Command System (ICS). These assignments may occur during firefighting, EMS, special-operations-type incidents, and training evolutions.

This course is an incident-specific, scenario-oriented course designed to teach students what an ISO needs to know at an incident. The course uses instructor-led discussion, multimedia activities, and small group discussions to convey instructional points.

DELIVERY METHODOLOGY

This course is designed for delivery in a classroom with instructor-facilitated lectures, discussions and multiple hands-on activities designed to enable participants to learn, practice and demonstrate their knowledge. The course will include:

- Individual activities/self-discovery/self-reflection — This methodology is the application of student-centered learning. Students are expected to explore topics and tools that are relevant to their own situations.
- Mini-lectures — chunks of content presented in 10 minutes or less.
- Facilitated discussions — class discussions led by the facilitator(s)/instructor(s).
- Small group discussions — discussions held in groups of three to five.
- Small group activities — Participants are divided into small groups and must work together to complete a task or analyze a scenario.
- Research — A variety of tools will be provided, including articles, online references, and links to short videos, as an alternative to readings or lecture.
- Knowledge checks — Knowledge checks are quick assessments done for formative (nongraded) evaluation of whether students are grasping content, and if the transfer of learning has taken place. It ensures that the terminal and enabling objectives are being met.

The Student Manual (SM) is available in both print and digital formats.

GRADING METHODOLOGY

The required performance to successfully complete the course is attained by completing the examination with a "C" or by answering correctly a minimum of 18 out of 25 questions.

The following course grading plan should be used to determine the assigned course grade for each student in the class.

Minimum Number of Questions Answered Correctly	Number of Incorrect Answers	Letter Grade to be Assigned to Student
23	2	A
20	5	B
18	7	C
17 or fewer	8 or more	F

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SCHEDULE

TIME	DAY 1	DAY 2
8:00 – 9:00	Introduction, Welcome and Administrative	Unit 3: Operational Scene Safety Analysis
9:00 – 9:10	*Break*	*Break*
9:10 – 10:20	Unit 1: The Role of the Incident Safety Officer Activity 1.1: What Does Incident Safety Officer Mean to Your Incident Command System Organization?	Unit 3: Operational Scene Safety Analysis (cont'd) Activity 3.1: Incident Safety Considerations Activity 3.2: Evaluating Level of Risk
10:20 – 10:30	*Break*	*Break*
10:30 – 12:00	Unit 1: The Role of the Incident Safety Officer (cont'd) Activity 1.2: Determine the Significance of the Incident Safety Officer Job Performance Requirements Found in National Fire Protection Association 1521 Activity 1.3: Incident Safety Officer Roles in Incident Investigations	Unit 3: Operational Scene Safety Analysis (cont'd) Activity 3.3: Suspend, Alter or Terminate
12:00 – 1:00	*Lunch Break*	*Lunch Break*
1:00 – 2:15	Unit 1: The Role of the Incident Safety Officer (cont'd) Activity 1.4: Describe Each Role of the Incident Commander, Incident Safety Officer, and Health and Safety Program Manager, and How They Interrelate to Safety Activity 1.5: Defining the Need for a Safety Officer Unit 2: Risk Analysis	Unit 4: Post-Incident Considerations Activity 4.1: Incident Safety Officer Roles in Post-Incident Operations
2:15 – 2:30	*Break*	*Break*
2:30 – 5:00	Unit 2: Risk Analysis (cont'd) Activity 2.1: Differentiate Between Hazards and Risks Activity 2.2: What is Risk-Benefit Analysis? Activity 2.3: Frequency/Severity Case Studies Activity 2.4: Incident Command System Safety Forms Activity 2.5:Assessment of Your Fire Agency	Unit 4: Post-Incident Considerations (cont'd) Activity 4.2: Post-Incident Analysis Activity 4.3: Incident Documentation

Day 1 Homework
A. Review Units 1 and 2

Note: This schedule is subject to modification by the instructors and approved by the training specialist.

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FIREFIGHTER CODE OF ETHICS
Background

The Fire Service is a noble calling, one which is founded on mutual respect and trust between firefighters and the citizens they serve. To ensure the continuing integrity of the Fire Service, the highest standards of ethical conduct must be maintained at all times.

Developed in response to the publication of the Fire Service Reputation Management White Paper, the purpose of this National Firefighter Code of Ethics is to establish criteria that encourages fire service personnel to promote a culture of ethical integrity and high standards of professionalism in our field. The broad scope of this recommended Code of Ethics is intended to mitigate and negate situations that may result in embarrassment and waning of public support for what has historically been a highly respected profession.

Ethics comes from the Greek word ethos, meaning character. Character is not necessarily defined by how a person behaves when conditions are optimal and life is good. It is easy to take the high road when the path is paved and obstacles are few or non-existent. Character is also defined by decisions made under pressure, when no one is looking, when the road contains land mines, and the way is obscured. As members of the Fire Service, we share a responsibility to project an ethical character of professionalism, integrity, compassion, loyalty and honesty in all that we do, all of the time.

We need to accept this ethics challenge and be truly willing to maintain a culture that is consistent with the expectations outlined in this document. By doing so, we can create a legacy that validates and sustains the distinguished Fire Service institution, and at the same time ensure that we leave the Fire Service in better condition than when we arrived.

FIREFIGHTER CODE OF ETHICS

I understand that I have the responsibility to conduct myself in a manner that reflects proper ethical behavior and integrity. In so doing, I will help foster a continuing positive public perception of the fire service. Therefore, I pledge the following…

- Always conduct myself, on and off duty, in a manner that reflects positively on myself, my department and the fire service in general.

- Accept responsibility for my actions and for the consequences of my actions.

- Support the concept of fairness and the value of diverse thoughts and opinions.

- Avoid situations that would adversely affect the credibility or public perception of the fire service profession.

- Be truthful and honest at all times and report instances of cheating or other dishonest acts that compromise the integrity of the fire service.

- Conduct my personal affairs in a manner that does not improperly influence the performance of my duties, or bring discredit to my organization.

- Be respectful and conscious of each member's safety and welfare.

- Recognize that I serve in a position of public trust that requires stewardship in the honest and efficient use of publicly owned resources, including uniforms, facilities, vehicles and equipment and that these are protected from misuse and theft.

- Exercise professionalism, competence, respect and loyalty in the performance of my duties and use information, confidential or otherwise, gained by virtue of my position, only to benefit those I am entrusted to serve.

- Avoid financial investments, outside employment, outside business interests or activities that conflict with or are enhanced by my official position or have the potential to create the perception of impropriety.

- Never propose or accept personal rewards, special privileges, benefits, advancement, honors or gifts that may create a conflict of interest, or the appearance thereof.

- Never engage in activities involving alcohol or other substance use or abuse that can impair my mental state or the performance of my duties and compromise safety.

- Never discriminate on the basis of race, religion, color, creed, age, marital status, national origin, ancestry, gender, sexual preference, medical condition or handicap.

- Never harass, intimidate or threaten fellow members of the service or the public and stop or report the actions of other firefighters who engage in such behaviors.

- Responsibly use social networking, electronic communications, or other media technology opportunities in a manner that does not discredit, dishonor or embarrass my organization, the fire service and the public. I also understand that failure to resolve or report inappropriate use of this media equates to condoning this behavior.

Developed by the National Society of Executive Fire Officers

A Student Guide to End-of-course Evaluations

Say What You Mean ...

Ten Things You Can Do to Improve the National Fire Academy

The National Fire Academy takes its course evaluations very seriously. Your comments and suggestions enable us to improve your learning experience.

Unfortunately, we often get end-of-course comments like these that are vague and, therefore, not actionable. We know you are trying to keep your answers short, but the more specific you can be, the better we can respond.

Actual quotes from student evaluations:	Examples of specific, actionable comments that would help us improve the course:
1 "Update the materials."	• The (ABC) fire video is out-of-date because of the dangerous tactics it demonstrates. The available (XYZ) video shows current practices. • The student manual references building codes that are 12 years old.
2 "We want an advanced class in (fill in the blank)."	• We would like a class that enables us to calculate energy transfer rates resulting from exposure fires. • We would like a class that provides one-on-one workplace harassment counseling practice exercises.
3 "More activities."	• An activity where students can physically measure the area of sprinkler coverage would improve understanding of the concept. • Not all students were able to fill all ICS positions in the exercises. Add more exercises so all students can participate.
4 "A longer course."	• The class should be increased by one hour per day to enable all students to participate in exercises. • The class should be increased by two days so that all group presentations can be peer evaluated and have written abstracts.
5 "Readable plans."	• The plans should be enlarged to 11 by 17 and provided with an accurate scale. • My plan set was blurry, which caused the dotted lines to be interpreted as solid lines.
6 "Better student guide organization," "manual did not coincide with slides."	• The slide sequence in Unit 4 did not align with the content in the student manual from slides 4-16 through 4-21. • The instructor added slides in Unit 4 that were not in my student manual.
7 "Dry in spots."	• The instructor/activity should have used student group activities rather than lecture to explain Maslow's Hierarchy. • Create a pre-course reading on symbiotic personal relationships rather than trying to lecture on them in class.
8 "More visual aids."	• The text description of V-patterns did not provide three-dimensional views. More photographs or drawings would help me imagine the pattern. • There was a video clip on NBC News (date) that summarized the topic very well.
9 "Re-evaluate pre-course assignments."	• The pre-course assignments were not discussed or referenced in class. Either connect them to the course content or delete them. • The pre-course assignments on ICS could be reduced to a one-page job aid rather than a 25-page reading.
10 "A better understanding of NIMS."	• The instructor did not explain the connection between NIMS and ICS. • The student manual needs an illustrated guide to NIMS.

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UNIT 1:
THE ROLE OF THE INCIDENT SAFETY OFFICER

TERMINAL OBJECTIVE

The students will be able to:

1.1   Define the roles of the Incident Safety Officer (ISO).

ENABLING OBJECTIVES

The students will be able to:

1.1   Explain the basic duties of the ISO.

1.2   Determine the significance of the job performance requirements (JPRs) found in National Fire Protection Association (NFPA) 1521, Standard for Fire Department Safety Officer Professional Qualifications.

1.3   Identify the process and procedure for an investigation.

1.4   Determine how the roles of the Incident Commander (IC), Health and Safety Program Manager (HSPM), and ISO interrelate.

1.5   Appraise the potential impact of health and safety programs on firefighter and Emergency Medical Services (EMS) personnel deaths and injuries.

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FEMA

U.S. Fire
Administration

**UNIT 1:
THE ROLE OF THE INCIDENT
SAFETY OFFICER**

Slide 1-1

TERMINAL OBJECTIVE

Define the roles of the Incident Safety
Officer (ISO).

Slide 1-2

ENABLING OBJECTIVES

- Explain the basic duties of the ISO.
- Determine the significance of the job
  performance requirements (JPRs) found in
  National Fire Protection Association (NFPA)
  1521, *Standard for Fire Department Safety
  Officer Professional Qualifications.*
- Identify the process and procedure for an
  investigation.

Slide 1-3

ENABLING OBJECTIVES (cont'd)
- Determine how the roles of the Incident Commander (IC), Health and Safety Program Manager (HSPM), and ISO interrelate.
- Appraise the potential impact of health and safety programs on firefighter and Emergency Medical Services (EMS) personnel deaths and injuries.

Slide 1-4

I.   INCIDENT SAFETY OFFICER INTRODUCTION

INCIDENT SAFETY OFFICER INTRODUCTION

The purpose of the ISO is to ensure the safety of all personnel.
- Uses a proactive and ongoing risk analysis.
- Identifies and mitigates hazards to personnel at any incident scene, planned event, or training exercise where there is an operational deployment.

Slide 1-5

A.   The Incident Safety Officer (ISO) is a member of the Command Staff under the Incident Command System (ICS).

B.   The ISO ensures the safety of personnel

C.   The purpose of the ISO is to ensure the safety of all personnel through a proactive and ongoing risk analysis that identifies and mitigates hazards to personnel at any incident scene, planned event, or training exercise where there is an operational deployment.

II. INCIDENT SAFETY OFFICER ROLE IN DEVELOPING A SAFETY CULTURE

INCIDENT SAFETY OFFICER ROLE IN
DEVELOPING A SAFETY CULTURE

- Culture.
- Safety culture.
- ISO role.

Slide 1-6

INCIDENT SAFETY OFFICER ROLE IN
DEVELOPING A SAFETY CULTURE (cont'd)

- Culture:
  - The beliefs, way of life, art and customs that are shared and accepted by people in a particular society.
  - The attitudes and beliefs about something that are shared by a particular group of people, or those beliefs shared in a particular organization.

Slide 1-7

A.   Culture.

1.   The beliefs, way of life, art and customs that are shared and accepted by people in a particular society.

2.   The attitudes and beliefs about something that are shared by a particular group of people, or those beliefs shared in a particular organization.

INCIDENT SAFETY OFFICER ROLE IN
DEVELOPING A SAFETY CULTURE (cont'd)

- Safety culture:
  – A safety culture is an organizational atmosphere
  where safety and health are understood to be, and
  are accepted as, a high priority.
  – It is the way safety is perceived, valued, prioritized
  and integrated in an organization's activities and
  operations.
  – It is an overall reflection of the real commitment to
  safety at all levels of the organization.

Slide 1-8

B.   Safety culture.

1.   A safety culture is an organizational atmosphere where safety and health are
understood to be, and are accepted as, a high priority.

2.   In an organization, it is the way safety is perceived, valued, prioritized and
integrated in its activities and operations.

3.   It is an overall reflection of the real commitment to safety at all levels of the
organization.

INCIDENT SAFETY OFFICER ROLE IN
DEVELOPING A SAFETY CULTURE (cont'd)

- ISO role:
  – ISO must drive the culture change by demonstrating
  their own commitment to safety.
  – Their messages about safety must be consistent
  and sustained.
  – ISO must instill the right perceptions about the
  organization's culture regarding safety.

Slide 1-9

C.   ISO role.

1.   The ISO must drive the culture change by demonstrating their own
commitment to safety and providing the resources to achieve results.

2.   The ISO messages about safety must be consistent and sustained.

3.   The ISO must instill the right perceptions about the organization's culture
regarding safety.

ACTIVITY 1.1

What Does Incident Safety Officer Mean to Your Incident Command System Organization?

Purpose

Use the educational concepts of self-reflection and self-discovery to share your experience with your own organizations in identifying the duties of the ISO in your own ICS organization.

Directions

1.   Use your own self-reflection and self-discovery to discuss the following among the class:

    a.   Does your ICS organization have an official designated ISO?

    b.   What are the duties the ISO fulfills within your ICS organization?

    c.   Does your organization have a formal policy identifying the duties and responsibilities of the ISO in your ICS organization?

    d.   Does your organization have a formal job description identifying the duties and responsibilities of the ISO in your ICS organization?

2.   Be prepared to discuss similarities and differences with the class.

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III.   INCIDENT SAFETY OFFICER COMPETENCIES

INCIDENT SAFETY OFFICER
COMPETENCIES

- An ISO is designated at the time of an incident by the IC.
- An ISO, if designated, is part of the Command Staff.
- The ISO is closely linked to the HSPM in fire or EMS departments.

Slide 1-11

A.   An ISO is designated at the time of an incident by the Incident Commander (IC).

B.   An ISO, if designated, is part of the Command Staff.

C.   The ISO is closely linked to the Health and Safety Program Manager (HSPM) position in fire or Emergency Medical Services (EMS) departments.

INCIDENT SAFETY OFFICER
COMPETENCIES (cont'd)

- Defined by NFPA 1521 (2015 edition).
  – Chapter 5: Incident Safety Officer (ISO).
  – Specifies 12 competencies.

Slide 1-12

D.   Defined by National Fire Protection Association (NFPA) 1521, *Standard for Fire Department Safety Officer Professional Qualifications* (2015 edition):

1.   Chapter 5: Incident Safety Officer (ISO).

2.   Specifies 12 competencies.

```
INCIDENT SAFETY OFFICER
COMPETENCIES (cont'd)

Twelve ISO competencies:
1. Meet the requirements of Fire Officer I
   (NFPA 1021, Standard for Fire Officer
   Professional Qualifications).
2. Perform the role of an ISO at an incident
   or planned event.
3. Manage the transfer and expansion of
   ISO duties as required.

                                    Slide 1-13
```

E.   Twelve competencies of an ISO:

1.   Meet the requirements of Fire Officer I (NFPA 1021, *Standard for Fire Officer Professional Qualifications*).

2.   Perform the role of an ISO at an incident or planned event.

3.   Manage the transfer and expansion of ISO duties as required.

```
INCIDENT SAFETY OFFICER
COMPETENCIES (cont'd)

4. Stop, alter or suspend operations based
   on imminent threats posed to firefighter
   safety.
5. Monitor and determine the incident-scene
   conditions, and report to the IC on the
   status of hazards and risks to members.
6. Ensure the implementation and effective
   use of an accountability system on the
   incident or event scene.

                                    Slide 1-14
```

4.   Stop, alter or suspend operations based on imminent threats posed to firefighter safety.

5.   Monitor and determine the incident-scene conditions, and report to the IC on the status of hazards and risks to members.

6.   Ensure the implementation and effective use of an accountability system on the incident or event scene.

INCIDENT SAFETY OFFICER
COMPETENCIES (cont'd)

7. Determine hazardous incident conditions, and establish and maintain control zones for an incident.
8. Identify motor vehicle incident-scene hazards, and ensure compliance with safety management in accordance with NFPA 1500, *Standard on Fire Department Occupational Safety, Health, and Wellness Program*.
9. Monitor incident communications so that barriers are identified and corrective actions implemented.

Slide 1-15

7.　Determine hazardous incident conditions, and establish and maintain control zones for an incident.

8.　Identify motor vehicle incident scene hazards, and ensure compliance with safety management in accordance with NFPA 1500, *Standard on Fire Department Occupational Safety, Health, and Wellness Program.*

9.　Monitor incident communications so that barriers are identified and corrective actions implemented.

INCIDENT SAFETY OFFICER
COMPETENCIES (cont'd)

10. Identify the incident strategic requirements for the incident type and the corresponding hazards.

Also identify the size, complexity, and duration of the incident, including the risk, so that the ISO can expand the scope as needed with additional assistant ISOs and technical specialists.

Slide 1-16

10.　Identify the incident strategic requirements for the incident type and the corresponding hazards, as well as the size, complexity, and duration of the incident, including the risk, so that the ISO can expand as needed with additional assistant ISOs and technical specialists.

INCIDENT SAFETY OFFICER COMPETENCIES (cont'd)

11. Determine the hazards associated with the designation of a landing zone, and interface with helicopters so that special requirements for aircraft safety can be implemented.

Slide 1-17

11.   Determine the hazards associated with the designation of a landing zone, and interface with helicopters so that special requirements for aircraft safety can be implemented.

INCIDENT SAFETY OFFICER COMPETENCIES (cont'd)

12. Notify the IC of the need for intervention resulting from an occupational exposure to stressful events so that psychological health and safety can be protected.

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12.   Notify the IC of the need for intervention resulting from an occupational exposure to stressful events so that psychological health and safety can be protected.

ACTIVITY 1.2

Determine the Significance of the Incident Safety Officer Job Performance Requirements Found in National Fire Protection Association 1521

Purpose

Use the educational concepts of self-reflection and self-discovery to share your experience with distinguishing the significance of the job performance requirements (JPRs) of the ISO found in NFPA 1521.

Directions

1.   Use your own self-reflection and self-discovery to discuss the following among the class:

      a.   Identify the competency requirements of the ISO per NFPA 1521.

      b.   Reference Section III ISO Competencies numbered 1 through 12.

      c.   Prioritize the competency requirements of the ISO per NFPA 1521 for your own organizations.

      d.   Identify and prioritize any gaps your organization may have with the competency requirements of the ISO per NFPA 1521.

      e.   Does your organization understand the significance of the competency requirements of the ISO per NFPA 1521 in your organization?

      f.   How does your organization address the significance of the competencies of the ISO per NFPA 1521 in your organization?

2.   Be prepared to discuss similarities and differences with the class.

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IV. INCIDENT SAFETY OFFICER INCIDENT INVESTIGATIONS

INCIDENT SAFETY OFFICER
INCIDENT INVESTIGATIONS

- Purpose of ISO investigations:
  – Prevent a recurrence.
  – Fact finding.
  – What happened?
  – Determine root cause.
  – Determine preventability.

Slide 1-20

A. Purpose of ISO investigations.

1. Prevent a recurrence.

2. Fact finding.

3. What happened?

4. Determine root cause.

5. Determine preventability.

INCIDENT SAFETY OFFICER
INCIDENT INVESTIGATIONS (cont'd)

- ISO's role in investigations:
  – Applicable department procedures are identified for review.
  – Critical incident data elements are collected.
  – Gather information.
  – Document and prepare information for Health and Safety Officer (HSO) or other designated person to continue the investigation.

Slide 1-21

B. ISO's role in investigations.

1. Applicable department procedures are identified for review.

2.   Critical incident data elements are collected.

3.   Gathered information is documented and prepared for the Health and Safety Officer (HSO) or other designated person to continue the investigation.

INCIDENT SAFETY OFFICER
INCIDENT INVESTIGATIONS (cont'd)

– Potential witnesses are identified.
– The chain of evidence is started and maintained.

Slide 1-22

4.   Potential witnesses are identified.

5.   The chain of evidence is started and maintained.

ACTIVITY 1.3

Incident Safety Officer Roles in Incident Investigations

Purpose

Identify the process and procedure for an investigation, including chain of custody, documentation, personal protective equipment (PPE), and other equipment sequestration.

Directions

Incident investigation may be a role of the ISO, based upon the nature of an incident and whether it is part of the incident to which the ISO is assigned. These types of incidents may include near-miss, fire fighter injuries, line-of-duty deaths (LODDs), equipment failure, or vehicle accidents. It is the responsibility of the ISO, when assigned to this function, to thoroughly investigate such occurrences. In this activity, each group will simulate the investigative process as carried out by the ISO. Each group will do the following:

1.   Review and discuss the scenario assigned to your group.

   a.   Discuss/List any resources required by the ISO to investigate (police, forensics, HSO).

   b.   Determine/List contributing factors.

   c.   Determine/List root causes.

   d.   Identify whether or not this was preventable.

   e.   Provide recommendations from the investigation to prevent recurrence.

2.   Prepare/Present a brief report to the class with recommendations.

Scenario 1 (Near-Miss):

You are the shift Safety Officer for B shift, and you have responded on a first-alarm dwelling fire in a two-story frame dwelling. A "working fire" was declared by the first arriving engine. Upon your arrival, you are assigned as the ISO. You have just completed a 360 of the structure and are ensuring that a Rapid Intervention Crew (RIC) is in place. You suddenly notice an increase in smoke volume from the structure, and the smoke is very dark. The Division 2 supervisor is requesting additional lines due to increasing heat.

As the additional engine company makes entry, you discover what you believe are "pre-flashover" conditions and order an immediate evacuation of the structure. In accordance with standard operating procedure (SOP), an evacuation tone is sounded, and a transmission is made to evacuate. In concert with the IC, you have a Personnel Accountability Report (PAR) conducted to account for all personnel. All personnel are PAR, and no injuries are being reported. The IC has now announced that the strategy will be "defensive only."

Scenario 2 (Equipment Failure):

You are a driver operator at a rural all-volunteer fire department. Your station is dispatched as the "first due" engine for an abandoned farmhouse. En route, you and the crew notice a glow in the sky. Upon arrival, you drop about 800 feet of a 5-inch supply line at the end of a gravel driveway. Your engine carries 1,500 gallons of water. The officer assumes command and advises a defensive strategy. The crew of six begins to pull several attack lines for exposure protection. This includes the front bumper 1.75-inch "jump line." Several minutes into the incident, you are now pumping two lines at 300 gallons per minute (gpm), and a tender drops its portable tank at the end of the driveway and fills it with 3,000 gallons. Suddenly the entire discharge on the front bumper comes apart and sends the discharge gated wye flying for about 100 feet. As the second arriving chief is assigned as the ISO, he learns of this failure and requires you to shut down the operations with the attack engine.

Scenario 3 (Injured Personnel):

You are the junior firefighter/paramedic on your shift at Station 17. Today you are detailed to Station 1 to ride Medic 1, and as you arrive, you are alerted for a call. You arrive on the scene at a nursing facility and find that your patient weighs about 400 kilograms (kg) (880 pounds) and is located in the bariatric wing. You request an engine company and the closest bariatric medic, who is coming from Station 10 about three miles away. When the additional resources arrive, you are requested to raise the bariatric litter. You have never been trained on this equipment, but you make an attempt to operate it in order to avoid dealing with moving the patient. In attempting to adjust the litter, you strain and fall, injuring your back. An additional unit is called, and you are transported to the fire department occupational health clinic. Your EMS supervisor arrives at the clinic. He advises you that he will be the investigating officer for your injury and hands you the requisite first report of injury form.

Scenario 4 (Line-of-Duty Death):

As a recently promoted division chief, you have been assigned as the department's HSPM-HSO. Since you have a degree in Occupational Safety and Health, you feel very comfortable in your new role. You also served as one of the shift Safety Officers five years ago. While off-duty at home, your pager and smart phone alert you to a three-alarm apartment fire, with a Mayday being declared. Given the serious nature of the incident, you elect to respond.

While en route, you monitor the tactical talk-group and hear the confirmation of the recovery of a firefighter. He is taken from the fourth floor, is unconscious, and later is in cardiac arrest. As you arrive at the scene, the firefighter is being transported to the nearest trauma center with unknown injuries and is still in cardiac arrest. The ISO on the scene gives you an update, and you also confer with the IC.

This is a four-story platform-frame apartment complex constructed in the 1960s that is non-sprinklered. The involved firefighter had become separated from his crew on the fourth floor while doing a search. A flashover occurred, and an evacuation was ordered as the Mayday was declared. Your assistant HSO contacts you from the hospital an hour later to confirm that the firefighter has expired after exhaustive resuscitation attempts. This is the department's first fireground fatality in 26 years.

Scenario 5 (Vehicle Accident):

An advanced life support (ALS) transport unit is operating at the scene of a cardiac arrest, along with an engine crew and an EMS supervisor. All hands are engaged in the resuscitation of a 45-year old male, who was a witnessed arrest with prompt automated external defibrillator (AED) deployment and aggressive CPR. As the patient is stabilized, he is packaged and placed on a mechanical CPR device. The senior paramedic requests the engine officer to provide a driver for the medic unit to the hospital. As the assigned firefighter backs the medic unit up for patient loading, he sideswipes an illegally parked vehicle in a fire lane. There is damage to the ambulance (cosmetic), as well as some body damage to the parked vehicle. The police are on the scene and were going to write a citation for the parking. The firefighter driving the ambulance has five years in the department and has not been assigned to a transport unit for the past two years. This is a larger unit than he had initially been certified to operate.

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V.   INCIDENT COMMAND SYSTEM — INCIDENT SAFETY OFFICER

INCIDENT SAFETY OFFICER

- Member of the Command Staff under the Incident Command System (ICS).
- Ensures the safety of personnel.

Slide 1-24

INCIDENT SAFETY OFFICER
(cont'd)

Incident Commander

Safety

PIO

Liaison

Operations   Planning   Logistics   Finance/Administration
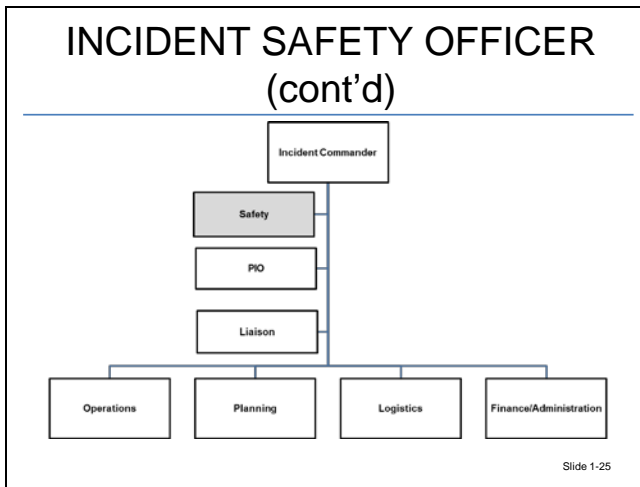
Slide 1-25

A.   The ISO is an incident/event-specific position of the ICS organization.

INCIDENT COMMAND SYSTEM —
INCIDENT SAFETY OFFICER

- The ISO is a Command Staff component of ICS.
- Responsibilities.
- ISO scope.
- ISO qualifications.

Slide 1-26

B.   The ISO is a Command Staff component of ICS.

C.   Responsibilities.

      1.   Monitors incident operations.

      2.   Advises the IC or unified command on all matters relating to operational safety.

      3.   Performs ongoing assessment of hazardous environments.

      4.   Implements measures for general safety of incident operations.

      5.   Reviews responder-focused ICS Form 206, Medical Plan.

      6.   Has emergency authority to stop and/or prevent unsafe acts during incident operations.

      7.   Identifies and mitigates hazardous situations.

      8.   Ensures that safety briefings are made, using ICS Form 215A, Incident Action Plan Safety Analysis.

      9.   Stops and prevents unsafe acts.

      10.   Reviews Incident Action Plan (IAP).

      11.   Assigns assistants as needed (Assistant Safety Officers).

            There may need to be a number of Assistant Safety Officers.

      12.   Initiates investigations of accidents within incident area.

      13.   Participates in planning meetings.

D.   ISO's scope.

      1.   Most agencies have an ISO with limited scope.

      2.   Need ISOs for structural fire incidents.

      3.   ISO needs to address safety for special operations.

      4.   ISOs must be credentialed for the areas/incidents in which they perform a safety role.

E.   Safety Officer qualifications.

      1.   Defined by NFPA 1521.

      2.   Professional qualifications standard.

      3.   Requirements in JPR format.

      4.   Certification available via International Fire Service Accreditation Congress (IFSAC) and the National Professional Qualifications System (NPQS) — ProBoard.

VI.   HEALTH AND SAFETY PROGRAM MANAGERS IN FIRE DEPARTMENTS

HEALTH AND SAFETY PROGRAM
MANAGERS IN FIRE DEPARTMENTS
- HSPMs produce the safety groundwork used by fire departments at events and incidents.
  – Safety standards.
  – Standard operating procedures (SOPs).
  – Training.
  – Health and fitness.

Slide 1-27

A.   HSPMs produce the safety groundwork used by fire and EMS departments at events and incidents.

      1.   Safety standards.

      2.   SOPs.

      3.   Training.

      4.   Health and fitness.

HEALTH AND SAFETY PROGRAM MANAGERS
IN FIRE DEPARTMENTS (cont'd)

- Position created to help establish and maintain organizations' compliance with NFPA 1500.
- Key HSPM functions:
  – Develops, implements and manages the agency's risk management plan.
  – Develops, implements and manages the Occupational Safety and Health Program.
  – May become the designated ISO at incidents.

Slide 1-28

B.   Position created to help establish and maintain organizational compliance with NFPA 1500.

C.   Key HSPM functions.

1.   Development, implementation and management of risk management plan for the agency.

2.   Development, implementation and management of the Occupational Safety and Health Program.

3.   May become designated as an ISO at incidents.

HEALTH AND SAFETY PROGRAM MANAGERS
IN FIRE DEPARTMENTS (cont'd)

- HSPM/ISO relationships:
  – ISO has primarily on-scene duties.
  – An HSPM's work is generally pre-emergency.
  – Both focus on responder safety.
  – They partner at the scene and on investigations.

Slide 1-29

D.   HSPM/ISO relationships.

1.   ISO duties are primarily on-scene.

2.   An HSPM's work generally is pre-emergency and post-emergency.

3.   Both focus on responder safety.

4.   Partnership at scene and on investigations.

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ACTIVITY 1.4

Describe Each Role of the Incident Commander, Incident Safety Officer and Health and Safety Program Manager, and How They Interrelate to Safety

Purpose

Use the educational concepts of self-reflection and self-discovery to share your experience describing each role of the IC, ISO and HSPM, and how they interrelate to safety.

Directions

1.   Use your own self-reflection and self-discovery to discuss the following among the class:

   a.   Describe the IC's role in regard to safety. Even when the IC delegates and staffs the ISO position, the IC is still responsible for the overall safety of the scene and incident.

   b.   Describe the ISO's role in regard to safety.

   c.   Describe the HSPM's role in regard to safety.

   d.   Describe how your organization addresses the roles of IC, ISO and HSPM, and how they interrelate to safety.

2.   Be prepared to discuss similarities and differences with the class.

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ACTIVITY 1.5

Defining the Need for a Safety Officer

Purpose

Given one of the five identified National Institute for Occupational Safety and Health (NIOSH) LODD reports, define the need for an ISO.

Directions

1.   You will assigned to a group.

2.   Each group will be assigned one of five NIOSH LODD investigative reports, and the correlating handout will be distributed.

3.   Individually, you will read the executive summary and the recommendations section of your assigned report.

4.   As a group, identify the following:

     a.   Was there a Safety Officer present on the incident scene?

     b.   What impact did or could the Safety Officer make on the incident?

     c.   What safety issues can be identified?

     d.   Describe at least three to five causal factors related to the LODD.

5.   Select a group representative, and place answers on the easel pad.

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VII.   SUMMARY

SUMMARY

- ISO introduction.
- ISO competencies.
- ICS — ISO.
- HSPM in fire departments.

Slide 1-32

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REFERENCES

FEMA. (2012, February 10). *Safety officer position checklist*. Retrieved from https://training.fema.gov/emiweb/is/icsresource/assets/so_pcl.pdf

Incident safety officer: Duties and responsibilities. (2003, April 1). *FIREHOUSE*. Retrieved from http://www.firehouse.com/article/10570851/incident-safety-officer-duties-and-responsibilities

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UNIT 2:
RISK ANALYSIS

TERMINAL OBJECTIVE

The students will be able to:

2.1   Formulate a risk management matrix for various incidents and planned events.

ENABLING OBJECTIVES

The students will be able to:

2.1   Differentiate between hazard and risk.

2.2   Explain the concept of risk-benefit analysis.

2.3   Summarize the elements of the risk assessment process.

2.4   Complete an assessment of their fire agency.

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**UNIT 2:
RISK ANALYSIS**

Slide 2-1

TERMINAL OBJECTIVE

Formulate a risk management matrix for various incidents and planned events.

Slide 2-2

ENABLING OBJECTIVES

- Differentiate between hazard and risk.
- Explain the concept of the risk-benefit analysis.
- Summarize the elements of the risk assessment process.
- Complete an assessment of their fire agency.

Slide 2-3

I.   RISK ANALYSIS DATA

RISK ANALYSIS DATA

• Ten-year fire data: line-of-duty deaths
  (LODDs) and injuries from 2005 to 2014.
  – Provided by the U.S. Fire Administration
    (USFA) and the National Fire Protection
    Association (NFPA).
  – Look at multiple data points.
  – Can be created from site specificity.

Slide 2-4

A.   Ten-year fire data: line-of-duty deaths (LODDs) and injuries from 2005 to 2014.

1.   Provided by the U.S. Fire Administration (USFA) and the National Fire
      Protection Association (NFPA).

2.   Looks at multiple data points.

3.   Can be created from site specificity.

RISK ANALYSIS DATA (cont'd)

• Multiple sources of data:
  – USFA.
  – NFPA.
  – Centers for Disease Control and Prevention
    (CDC).

Slide 2-5

B.   Multiple sources of data.

1.   Overview.

a.   USFA.

b.   NFPA.

c.   Centers for Disease Control and Prevention (CDC).

RISK ANALYSIS DATA (cont'd)

– The National Institute for Occupational
  Safety and Health (NIOSH).
– International Association of Fire Fighters
  (IAFF).
– National Fallen Firefighters Foundation
  (NFFF).

Slide 2-6

d.   National Institute for Occupational Safety and Health (NIOSH).

e.   International Association of Fire Fighters (IAFF).

f.   National Fallen Firefighters Foundation (NFFF).

2.   USFA.

a.   Official data repository.

b.   One year behind current year.

c.   Impacts funding (Assistance to Firefighters Grant (AFG), Staffing for Adequate Fire and Emergency Response (SAFER)) and prevention.

d.   USFA website for resources. This is accessible at https://apps.usfa. fema.gov/firefighter-fatalities/fatalityData/reportBuilder.

3.   NFPA.

a.   Works in concert with the USFA.

b.   Death and injury data.

c.   Provides analysis of data.

4.   CDC/NIOSH.

a.   Performs all LODD firefighter fatality investigations.

        b.   Provides in-depth analysis/causes.

        c.   Recommends corrective actions/describes safety implications.

    5.   IAFF.

        a.   Represents firefighter organized labor.

        b.   Internal occupational safety/health expertise.

        c.   Advocates/Actively participates in fatality reviews/data.

    6.   NFFF.

        a.   Advocacy for LODD benefits/families.

        b.   Training for risk avoidance.

        c.   Reviews data and collaborates with Public Safety Officers.

        d.   16 Firefighter Life Safety Initiatives.

ACTIVITY 2.1

Differentiate Between Hazards and Risks

Purpose

Use the educational concepts of self-reflection and self-discovery to share your experience within your own organization in differentiating between hazards and risks.

Directions

1.   Use your own self-reflection and self-discovery to discuss the following among the class:

    a.   What is the definition of a hazard?

    b.   What is the definition of a risk?

    c.   Does your organization address hazards and risks?

    d.   How does your organization address hazards and risks?

2.   Be prepared to discuss similarities and differences.

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II.   BASIC PRINCIPLES OF RISK MANAGEMENT

BASIC PRINCIPLES OF RISK
MANAGEMENT

- Overview.
- Five-step risk management process.
- Risk identification.
- Risk evaluation.

Slide 2-8

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

- Overview:
  - Five-step risk management model.
  - Hazard versus risk.
  - Risk versus benefit.
  - Frequency/Severity model and its application.

Slide 2-9

A.   Overview.

   1.   Five-step risk management model.

   2.   Hazard versus risk.

   3.   Risk versus benefit.

   4.   Frequency/Severity model and its application.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

• Five-step risk management process:
– Risk identification.
– Risk evaluation.
– Risk control techniques.
– Risk management monitoring.
– Program review and evaluation.

Slide 2-10

B.   Five-step risk management process as outlined in NFPA 1500, *Standard on Fire Department Occupational Safety, Health, and Wellness Program.*

    1.   Risk identification.

    2.   Risk evaluation.

    3.   Risk control techniques.

    4.   Risk management monitoring.

    5.   Program review and evaluation.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

• Risk identification:
– What might go wrong?
– Primary role of the Incident Safety Officer (ISO).
– Ongoing scene observation.
– Responsibility of all responders.

Slide 2-11

C.   Risk identification:

    1.   A list of the risks to which members are or may be exposed.

    2.   What might go wrong?

3.   Primary role of the Incident Safety Officer (ISO).

4.   Ongoing scene observation.

5.   Responsibility of all responders.

BASIC PRINCIPLES OF RISK MANAGEMENT (cont'd)

- Risk evaluation:
  - Frequency: likelihood of occurrence.
  - Severity: How bad is the risk/quantitative?

Slide 2-12

D.   Risk evaluation.

1.   Frequency: likelihood of occurrence.

2.   Severity: How bad is the risk/quantitative?

BASIC PRINCIPLES OF RISK MANAGEMENT (cont'd)

- Prioritizing risks:
  - Is there a high probability of risk?
  - Could there be serious injury or death?
  - What are the other consequences?
  - The ISO makes determinations in concert with the Incident Commander (IC).

Slide 2-13

E.   Prioritizing risks.

1.   Is there a high probability of risk?

2.   Could there be serious injury or death?

3.   What are the other consequences?

4.   The ISO makes determination in concert with the Incident Commander (IC).

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

- Risk control techniques:
  – Solutions for elimination or mitigation of potential problems.
  – Implementation of the best solution.
  – Eliminate or avoid the activity.
  – Reduce or control the risk.
  – Develop, adopt and enforce safety programs and standard operating procedures (SOPs).
  – Provide training.

Slide 2-14

F.   Risk control techniques.

1.   Solutions for elimination or mitigation of potential problems.

2.   Implementation of the best solution.

3.   Eliminate or avoid the activity.

4.   Reduce or control the risk.

5.   Develop, adopt and enforce safety programs and standard operating procedures (SOPs).

6.   Provide training.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

- Monitoring control measures:
  – Evaluate to measure effectiveness.
  – Reduce risks to lower frequency.
  – Reduce consequences to lower risk.

Slide 2-15

G.   Risk management monitoring.

      1.   Evaluate to measure effectiveness.

      2.   Reduce risks to lower frequency.

      3.   Reduce consequences to lower risk.

BASIC PRINCIPLES OF RISK MANAGEMENT (cont'd)

- Periodic evaluations should be made to determine how effectively the plan is working and to identify modifications that should be made.

Slide 2-16

H.   Program review and evaluation.

Periodic evaluations should be made to determine how effectively the plan is working and to identify modifications that should be made.

I.   Hazard versus risk.

BASIC PRINCIPLES OF RISK MANAGEMENT (cont'd)

- Hazard:
  - A condition, material or situation that has a potential to subject operating personnel to harm.

Slide 2-17

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      1.   Hazard.

A condition, material or situation that has a potential to subject operating personnel to harm.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

• Risk:
– The likelihood that a hazard will cause harm
to operating personnel based upon proximity,
tactics or protective measures being
employed.

Slide 2-18

2.   Risk.

The likelihood that a hazard will cause harm to operating personnel based
upon proximity, tactics or protective measures being employed.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

• Risk-benefit analysis:
– There is a basic level of risk which must be
measured and controlled.
– There is no acceptable level of risk if there is
no potential to save lives or property.
– Potential for consequences from a risk
strategy implementation.
– Value of taking action versus taking no action
to avoid a risk.

Slide 2-19

3.   Risk-benefit analysis.

a.   There is a basic level of risk which must be measured and controlled.

b.   There is no acceptable level of risk if there is no potential to save
lives or property.

c.   Potential for consequences from a risk strategy implementation.

d.   Value of taking action as opposed to taking no action to avoid a risk.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

- Three primary means of reducing risks:
  – Administrative controls.
  – Engineering controls.
  – Personal protective equipment (PPE).

Slide 2-20

J.   Three primary means of reducing risks.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

- Administrative controls:
  – Administrative controls are typically those controls that provide avoidance of the hazard or risk during operations involving hazards.
  – Examples include:
    -- Safety zones.
    -- Crew rotation.
    -- Rehabilitative efforts.

Slide 2-21

1.   Administrative controls.

        a.   Administrative controls are typically those controls which provide avoidance of or support during operations involving hazards.

        b.   Examples include:

                -       Safety zones.

                -       Crew rotation.

                -       Rehabilitative efforts.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

• Engineering controls:
  – Engineering controls typically involve those
    activities directly related to removing the
    hazards from the operational area.
  – Examples include:
    -- Ventilation.
    -- Control of energy sources, such as electricity and
       gas.
    -- Lockout and tagout procedures.

Slide 2-22

2.   Engineering controls.

      a.   Engineering controls typically involve those activities directly
            related to removing the hazards from the operational area.

      b.   Examples include:

            -      Ventilation.

            -      Control of energy sources, such as electricity and gas.

            -      Lockout and tagout procedures.

BASIC PRINCIPLES OF RISK
MANAGEMENT (cont'd)

• PPE:
  – PPE is used to provide protection from
    hazards that cannot be mitigated during
    operations.
  – Examples include:
    -- Infection control PPE.
    -- Structural firefighter protective clothing.
    -- Respiratory protective equipment.

Slide 2-23

3.   Personal protective equipment (PPE).

      a.   PPE is used to provide protection from hazards that cannot be
            mitigated during operations.

b.   Examples include:

-        Infection control PPE.

-        Structural firefighter protective clothing.

-        Respiratory protective equipment.

ACCEPTABLE VERSUS UNACCEPTABLE RISK

- Fire and Emergency Medical Services (EMS) Golden Rule:
  – "Risk a lot to save a lot; risk a little to save a little."

Slide 2-24

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4.   Acceptable versus unacceptable risk.

Fire and Emergency Medical Services (EMS) Golden Rule: "Risk a lot to save a lot; risk a little to save a little."

ACCEPTABLE VERSUS UNACCEPTABLE RISK (cont'd)

- The Bricktown Fire Department prioritizes firefighter safety, human life, property and environment. Risk is determined by a constant evaluation based on the expertise, education, experience and resources of the department.

Slide 2-25

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5.   The Bricktown Fire Department prioritizes firefighter safety, human life, property and environment. Risk is determined by a constant evaluation based on the expertise, education, experience and resources of the department.

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ACTIVITY 2.2

What is Risk-Benefit Analysis?

Purpose

Use the educational concepts of self-reflection and self-discovery to share your experience within your own organizations in identifying the benefit of a risk-benefit analysis.

Directions

1.   Use you own self-reflection and self-discovery to discuss the following among the class:

      a.   What is the definition of a risk-benefit analysis?

      b.   Do you know the components of a successful risk-benefit analysis?

      c.   Does your organization implement a risk-benefit analysis?

      d.   What are the different components of your organization's risk-benefit analysis?

2.   Be prepared to discuss similarities and differences.

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III.   RISK MANAGEMENT

DVD PRESENTATION

"GORDON GRAHAM — RISK
MANAGEMENT"

Slide 2-27

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ACTIVITY 2.3

Frequency/Severity Case Studies

Purpose

Apply a risk assessment process to various incidents.

Directions

The level of risk to personnel at an incident is determined by the frequency of such incidents, along with the potential consequences or severity of the incidents. In this activity, we will gain an understanding of the frequency/severity model by discussing various incidents and determining their level of risk. Statistically, both LODDs and disabling injuries to firefighters occur primarily during high-risk incidents of both low and high frequency. If we can accurately predict the types of incidents that present as high-risk (severity), we can then implement safety strategies to lessen the impact of these incidents on our survival.

1.   You will be divided into your respective table groups.

2.   Develop the following four incident examples (one of each type) to illustrate levels of risk:

   a.   Low-frequency/high-risk incident.

   b.   Low-frequency/low-risk incident.

   c.   High-frequency/low-risk incident.

   d.   High-frequency/high-risk incident.

Note: These should not be solely fire examples, but should also reflect all-hazard/all-risk operations.

3.   Discuss and justify your incidents in terms of risk.

4.   Record on an easel pad, and select a group representative.

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IV. INCIDENT COMMAND SYSTEM FORM 215A, INCIDENT ACTION PLAN SAFETY ANALYSIS

INCIDENT COMMAND SYSTEM FORM 215A,
INCIDENT ACTION PLAN SAFETY ANALYSIS

Slide 2-36

A. The purpose of Incident Command System (ICS) Form 215A, Incident Action Plan Safety Analysis, is to aid the ISO in completing an operational risk assessment to prioritize hazards, safety and health issues, and to develop appropriate controls.

B. ICS Form 215A is typically prepared by the ISO during the incident action planning cycle.

C. When the Operations Section Chief (OSC) is preparing for the tactics meeting, the ISO collaborates with the OSC to complete ICS Form 215A.

D. This worksheet is closely linked to ICS Form 215, Operational Planning Worksheet.

E. Incident areas or regions are listed, along with associated hazards and risks.

F. For those assignments involving risks and hazards, mitigations or controls should be developed to safeguard responders, and appropriate incident personnel should be briefed on the hazards, mitigations and related measures.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Incident Number	Enter the number assigned to the incident.
3	Date/Time Prepared	Enter date (month/day/year) and time (using the 24-hour clock) prepared.
4	Operational Period • Date and Time From • Date and Time To	Enter the start date (month/day/year) and time (24-hour clock) and end date and time for the operational period to which the form applies.
5	Incident Area	Enter the incident areas where personnel or resources are likely to encounter risks. This may be specified as a Branch, Division or Group.
6	Hazards/Risks	List the types of hazards and/or risks likely to be encountered by personnel or resources at the incident area relevant to the work assignment.
7	Mitigations	List actions taken to reduce risk for each hazard indicated (e.g., specify use of PPE, buddy system or escape routes).
8	Prepared by (Safety Officer and Operations Section Chief) • Name • Signature • Date/Time	Enter the name of both the Safety Officer and the Operations Section Chief, who should collaborate on form preparation. Enter date (month/day/year) and time (24-hour clock) reviewed.

V.   INCIDENT COMMAND SYSTEM FORM 208, SAFETY MESSAGE/PLAN
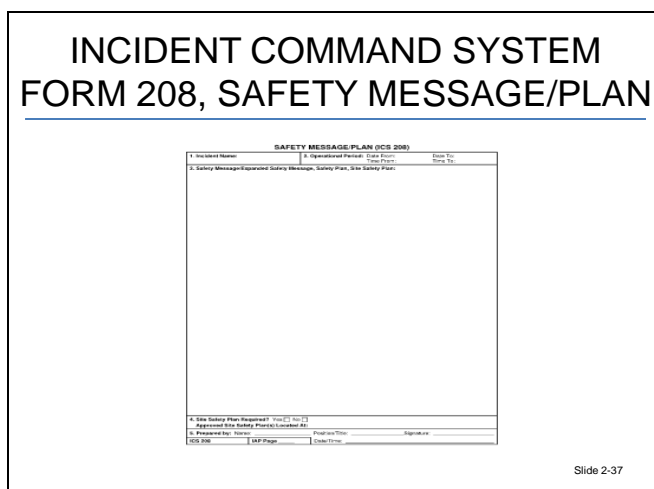
ICS Form 208, Safety Message/Plan expands on the Safety Message and Site Safety Plan.

A.   ICS Form 208 is an optional form that may be included and completed by the Safety Officer for the Incident Action Plan (IAP).

B.   ICS Form 208, if developed, will be reproduced with the IAP and given to all recipients as part of the IAP.

C.   All completed original forms must be given to the Documentation Unit.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period • Date and Time From • Date and Time To	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Safety Message/Expanded Safety Message, Safety Plan, Site Safety Plan	Enter clear, concise statements for safety message(s), priorities, and key command emphasis/decisions/directions. Enter information such as known safety hazards and specific precautions to be observed during this operational period. If needed, additional safety message(s) should be referenced and attached.
4	Site Safety Plan Required? Yes ☐ No ☐ Approved Site Safety Plan(s) Located at	Check whether or not a Site Safety Plan is required for this incident. Enter where the approved Site Safety Plan(s) is or are located.
5	Prepared by • Name • Position/Title • Signature • Date/Time	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).

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ACTIVITY 2.4

Incident Command System Safety Forms

Purpose

Demonstrate the correct documentation and completion of ICS Form 215A and ICS Form 208.

Directions

1.   Given a simulated emergency incident, your table group will appropriately complete and document ICS Forms 215A and 208.

2.   Discuss and justify your documentation in terms of risk.

3.   Record on an easel pad, and select a group representative.

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ACTIVITY 2.4 (cont'd)

ICS Form 215A

INCIDENT ACTION PLAN SAFETY ANALYSIS (ICS 215A)

1. Incident Name:		2. Incident Number:	
3. Date/Time Prepared: Date: Time:		4. Operational Period: Date From: Date To: Time From: Time To:	
5. Incident Area	6. Hazards/Risks		7. Mitigations

8. Prepared by (Safety Officer): Name: _____ Signature: _____
Prepared by (Operations Section Chief): Name: _____ Signature: _____

ICS 215A	Date/Time: _____

Incident Action Plan Safety Analysis (ICS 215A) form. This link is accessible at https://www.fda.gov/downloads/EmergencyPreparedness/NIMS/UCM270452.pdf.

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ACTIVITY 2.4 (cont'd)

ICS Form 208

SAFETY MESSAGE/PLAN (ICS 208)

1. Incident Name:	2. Operational Period:	Date From: Time From:	Date To: Time To:

3. Safety Message/Expanded Safety Message, Safety Plan, Site Safety Plan:

4. Site Safety Plan Required? Yes ☐ No ☐
Approved Site Safety Plan(s) Located At:

5. Prepared by: Name: _____ Position/Title: _____ Signature: _____

ICS 208	IAP Page _____	Date/Time: _____

Safety Message/Plan (ICS 208) form. This link is accessible at
https://training.fema.gov/emiweb/is/icsresource/assets/ics%20forms/ics%20form%20208,%20safety%20message-plan%20(v2).pdf.

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ACTIVITY 2.5

Assessment of Your Fire Agency

Purpose

Determine the level of operational safety within your fire and EMS service agency. This will be accomplished by the completion of an assessment checklist. Once completed, the checklist will be scored, and the results will indicate the level of safety preparedness of your department.

Directions

1. Complete the checklist by checking either "yes" or "no" next to each safety area.

2. Count the total number of "yes" responses and multiply by four for a safety preparedness value.

3. Indicate your department's score as follows:

    a. 90 to 100 percent = A: Your department is practicing outstanding safety/risk management.

    b. 80 to 89 percent =B: Your department is practicing good safety/risk management.

    c. 70 to 79 percent = C: Your department is complacent and needs improvement.

    d. 60 to 69 percent = D: Your department is not safe and should develop a plan.

    e. 59 percent or less = F: Your department is dangerous and should report to the Occupational Safety and Health Administration (OSHA) for remediation.

4. Once you have completed your individualized assessment, form into your table groups and complete the following:

    a. Discuss your results of the checklist and your score with the group.

    b. Determine the top five areas of deficiency among the group.

    c. Write the group's top five areas on the easel pad.

    d. Discuss and provide a resolution/direction to correct each of these five areas.

    e. Choose a representative to report to the class for your group.

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ACTIVITY 2.5 (cont'd)

Assessment of Your Fire Agency

Operational Safety Assessment	Yes	No
1. A Safety Officer responds or is appointed on every "working" incident.	____	____
2. National Incident Management System (NIMS)/ICS is used on every incident.	____	____
3. The decision for emergency response is "risk-based."	____	____
4. An incident's communications SOP is in place for operational use.	____	____
5. There is a portable radio for each "riding position" on the apparatus.	____	____
6. Safety Officers are trained to the NFPA 1521, *Standard for Fire Department Safety Officer Professional Qualifications* standard.	____	____
7. Firefighters are trained to the NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.	____	____
8. Officers are trained to the NFPA 1021, *Standard for Fire Officer Professional Qualifications*.	____	____
9. An incident accountability system/SOP is in place.	____	____
10. Incident staffing is adequate and meets NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*/1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments*.	____	____
11. At a minimum, personnel always operate in teams of two.	____	____
12. The "two in/two out" rule is always followed when in an incident immediately dangerous to life and health (IDLH).	____	____
13. All operational personnel receive an annual physical exam per NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*.	____	____
14. All personnel maintain the proper level of PPE based on the incident.	____	____
15. Hazard control zones are created, as required, on incidents.	____	____

16.   Advanced life support (ALS)-level EMS transport is on standby
      at "working" incidents.   _____   _____

17.   Special operations teams are adequately trained, staffed and equipped.   _____   _____

18.   A system is in place to address "rehab" at all "working" incidents.   _____   _____

19.   There is an SOP in place for operations at traffic incidents.   _____   _____

20.   Rapid Intervention Crew (RIC) is established and deployable at all
      "working" incidents.   _____   _____

21.   There is an SOP in place for response to "violent incidents."   _____   _____

22.   There is radio inter-operability among law and mutual-aid agencies.   _____   _____

23.   There is a Certified Information Security Manager process in place
      and available to incidents.   _____   _____

24.   There is an SOP in place for accident/incident investigations.   _____   _____

25.   There is a process in place for post-incident analysis/review.   _____   _____

# of Yes responses: _____   **x 4 =** _____ **% Total:** _____

- 90-100% = A: Your department is practicing outstanding safety/risk management.

- 80-89% =B: Your department is practicing good safety/risk management.

- 70-79% = C: Your department is complacent and needs improvement.

- 60-69% = D: Your department is not safe and should develop a plan.

- 59% or < = F: Your department is dangerous and should report to OSHA for remediation.

If your department/agency received a low score, you may be "at risk"! Please consider what you and the organization can do to create a "culture of safety" and compliance with the prevailing laws and standards relative to firefighter safety and survival.

VI.   SUMMARY

<table>
<tr>
<td>

SUMMARY

- Risk analysis data.
- Basic principles of risk management.
- "Gordon Graham — Risk Management."
- Incident Command System (ICS) Form 215A.
- ICS Form 208.

Slide 2-40

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UNIT 3:
OPERATIONAL SCENE SAFETY ANALYSIS

TERMINAL OBJECTIVE

The students will be able to:

3.1   Evaluate incidents for unacceptable risks, and recommend remediation opportunities.

ENABLING OBJECTIVES

The students will be able to:

3.1   Detect hazards, evaluate their level of risk, and recommend remediation for any risks that are unacceptable.

3.2   Differentiate between suspending, altering and terminating unsafe incident activities.

3.3   Determine the potential impacts on the incident objectives when taking such actions.

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**UNIT 3:
OPERATIONAL SCENE
SAFETY ANALYSIS**

Slide 3-1

TERMINAL OBJECTIVE

Evaluate incidents for unacceptable risks, and recommend remediation opportunities.

Slide 3-2

ENABLING OBJECTIVES

- Detect hazards, evaluate their level of risk, and recommend remediation for any risks that are unacceptable.
- Differentiate between suspending, altering and terminating unsafe incident activities.
- Determine the potential impacts on the incident objectives when taking such actions.

Slide 3-3

I. OPERATIONAL SCENE SAFETY ANALYSIS

```
OPERATIONAL SCENE
SAFETY ANALYSIS

During this unit, you will evaluate incidents
for unacceptable risks.
•  Evaluate incident types.
•  Identify safety elements for incidents in
   your community.
•  Identify methods to reduce risks.

                                        Slide 3-4
```

A. This unit is intended to draw students' attention to clues that will aid in identifying safety problems at various common incidents.

B. During this unit, you will evaluate incidents for unacceptable risks.

   1. Evaluate incident types.

   2. Identify safety elements for incidents in your community.

   3. Identify methods to reduce risks.

II. COMMON INCIDENT SAFETY CONSIDERATIONS

```
COMMON INCIDENT SAFETY
CONSIDERATIONS

•  Personnel.
•  Incident Command System (ICS).
•  Communications.
•  Situational awareness.
•  No freelancing.
•  Rehabilitation.
•  Accountability systems.
•  Rapid Intervention Crews (RICs).

                                        Slide 3-5
```

A. Personnel.

1.   Are the personnel that are present on the scene appropriate for the incident?

2.   National Fire Protection Association (NFPA) 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* and 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments*.

B.   Incident Command System (ICS).

C.   Communications.

D.   Situational awareness.

E.   No freelancing.

F.   Rehabilitation.

G.   Accountability systems.

H.   Rapid Intervention Crews (RICs).

III.   SAFETY CONSIDERATIONS FOR SPECIFIC INCIDENT TYPES

A.   Overview.

1.   Wildland fire safety.

2.   Structural fire safety.

3.   Emergency Medical Services (EMS) incident safety.

4.   Technological incident safety.

SAFETY CONSIDERATIONS
SPECIFIC INCIDENT TYPES
• Wildland fire safety.
  – How wildland fires differ.
    -- Weather impacts.
      • Temperature.
      • Humidity.
      • Solar radiation.
    -- Wildland fuel's potential varies by the minute.

Slide 3-6

B.   Wildland fire safety.

1.   How wildland fires differ.

        a.   Weather impacts.

                -       Temperature.

                -       Humidity.

                -       Solar radiation.

        b.   Wildland fuel's potential varies by the minute.

2.   Ten standard fire orders.

        a.   Keep informed on fire weather conditions and forecasts.

        b.   Know what your fire is doing at all times.

        c.   Base all actions on current and expected behavior of the fire.

        d.   Identify escape routes and safety zones, and make them known.

        e.   Post lookouts where there is possible danger.

        f.   Be alert. Keep calm. Think clearly. Act decisively.

        g.   Maintain prompt communications with your forces, your supervisor, and adjoining forces.

        h.   Give clear instructions, and be sure that they are understood.

      i.   Maintain control of your forces at all times.

      j.   Fight fire aggressively, ensuring safety first.

3.   "Watch out" situations.

      a.   Developed by the U.S. Forest Service.

      b.   "Watch out" situations are standardized conditions that may indicate significant safety issues.

      c.   Any firefighter engaging in wildland firefighting operations should be thoroughly familiar with the 18 "watch out" situations.

      d.   The "watch out" situations are:

- Fire not scouted and sized up.

- Country not seen in daylight.

- Safety zones and escape routes not identified.

- Lack of familiarity with weather and local factors influencing fire behavior.

- Individuals uninformed on strategy, tactics and hazards.

- Instructions and assignments not clear.

- No communication link with crew members or supervisors.

- Constructing line without safe anchor point.

- Building fireline downhill with fire below.

- Attempting frontal assault on fire.

- Unburned fuel between you and fire.

- Cannot see main fire; not in contact with someone who can.

- Location on hillside where rolling material can ignite fuel below.

- Weather becoming hotter and drier.

- Wind increasing and/or changing direction.

- Getting frequent spot fires across lines.

- Terrain and fuels make escape to safety zones difficult.

- Taking a nap near fire line.

4. LCES

a. **L**ookout.

b. **C**ommunications.

c. **E**scape routes.

d. **S**afety zones.

DVD PRESENTATION

"FIREFIGHTER SAFETY IN WILDAND/URBAN INTERFACE"

Slide 3-7

SAFETY CONSIDERATIONS SPECIFIC INCIDENT TYPES (cont'd)

– How wildland fires differ.
  -- Greater human resource needs.
  -- Greater logistical support needs.
  -- Greater geographical area to monitor.
  -- Unique safety concerns.
  -- Requires unique Safety Officer training.

Slide 3-8

5. Key wildland fire concepts.

    a. Greater human resource needs.

    b. Greater logistical support needs.

    c. Greater geographical area to monitor.

    d. Unique safety concerns.

    e. Requires unique Safety Officer training.

SAFETY CONSIDERATIONS SPECIFIC INCIDENT TYPES (cont'd)

- Structural fire safety.
  - Occupancy considerations.
  - Construction considerations.
  - Construction type.
  - Fire progression.

Slide 3-9

C. Structural fire safety operations.

    1. Occupancy considerations.

        a. Single-family and multifamily dwellings.

        b. Commercial structures.

        c. Industrial structures.

    2. Construction considerations.

        a. Single story.

        b. Multistory.

        c. High-rise.

        d. Below ground.

        e. Large footprint.

3.   Construction type.

    a.   Fire-resistive.

    b.   Noncombustible/Limited-combustible.

    c.   Ordinary.

    d.   Heavy timber.

    e.   Wood frame.

4.   Fire progression.

    a.   Current day versus legacy materials.

        -        Implication for time to flashover.

    b.   Controlling airflow.

    c.   Transitional attacks.

```
VIDEO PRESENTATION

"UL TEST FURNISHINGS
COMPARISON"

https://www.youtube.com/watch?v=
mulnwTNhV6Q

                              Slide 3-10
```

VIDEO PRESENTATION

"LAcoFD EXTERIOR WATER APPLICATION TRAINING"

https://www.youtube.com/watch?v=MpG_HC1Q9M4

Slide 3-11

SAFETY CONSIDERATIONS SPECIFIC INCIDENT TYPES (cont'd)

- Emergency Medical Services (EMS) incident safety.
  - Highway incidents
    -- Proper blocking and staging.
    -- Roadway shutdown.
    -- Proper lighting.
    -- Proper reflective clothing.

Slide 3-12

D.   EMS incident safety.

    1.   Highway incidents.

        a.   Proper blocking and staging.

        b.   Roadway shutdown.

        c.   Proper lighting.

        d.   Proper reflective clothing.

SAFETY CONSIDERATIONS
SPECIFIC INCIDENT TYPES (cont'd)

– Type of responses.
-- Gunshots.
-- Suicides.
-- Mass gatherings.
-- Active shooter.
– Crowd control.

Slide 3-13

2.   Type of responses.

        a.   Gunshots.

        b.   Suicides.

        c.   Mass gatherings.

        d.   Active shooter.

3.   Crowd control.

SAFETY CONSIDERATIONS
SPECIFIC INCIDENT TYPES (cont'd)

• Technological incident safety.
– Hazardous materials.
– Confined-space rescue.
– Below-grade/trench rescue.
– High-angle rescue.
– Structural collapse operations.
– Others depending upon your organization.

Slide 3-14

E.   Specialized technical incidents.

        1.   Technological incident safety.

                a.   Hazardous materials.

    b. Confined-space rescue.

    c. Below-grade/Trench rescue.

    d. High-angle rescue.

    e. Structural collapse operations.

    f. Others depending upon your organization.

  2. Unique characteristics contributing to safety.

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ACTIVITY 3.1

Incident Safety Considerations

Purpose

Given an emergency (structure fire, technological, EMS, hazmat or wildland incident), identify hazards, evaluate their level of risk, and recommend remediation for any that are unacceptable.

Directions

1. In your assigned group, develop a list of Safety Officer considerations for your designated emergency incident.

2. Record your list on an easel pad, with the event type in bold letters at the top.

3. Be prepared to present your Safety Officer considerations to the rest of the class.

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IV.   SAFETY OFFICER RESPONSE TO THE SCENE

SAFETY OFFICER RESPONSE
TO THE SCENE

- Responding to the scene.
- On-scene arrival.
- Face-to-face.

Slide 3-16

A.   Responding to the scene.

B.   On-scene arrival.

C.   Face-to-face.

SAFETY OFFICER RESPONSE
TO THE SCENE (cont'd)

- Responding to the scene.
  – Incident types.
    -- Frequency.
    -- Risk level.

Slide 3-17

1.   Incident types.

   a.   Frequency.

   b.   Risk level.

SAFETY OFFICER RESPONSE
TO THE SCENE (cont'd)

– Potential operational mode and impacts on
risk.
-- Offensive/Defensive.
-- Rescue/Recovery mode.
-- Transitional attack.

Slide 3-18

2.   Potential operational mode and impacts on risk.

a.   Offensive/Defensive.

b.   Rescue mode.

c.   Transitional attack.

SAFETY OFFICER RESPONSE
TO THE SCENE (cont'd)

– Audible indicators.
-- Command presence.
-- Clear communications.
-- Decisiveness.
-- Vocal inflection.

Slide 3-19

3.   Audible indicators.

a.   Command presence.

b.   Clear communications.

c.   Decisiveness.

d.   Vocal inflection.

SAFETY OFFICER RESPONSE
TO THE SCENE (cont'd)

- On-scene arrival.
  – Avoidance of tunnel vision.
  – The "10,000-foot look."
  – Scene organization and command presence.
  – Immediate life-safety issues.

Slide 3-20

D.   On-scene arrival.

1.   Avoidance of tunnel vision.

2.   The "10,000-foot look."

3.   Scene organization and command presence.

4.   Immediate life-safety issues.

SAFETY OFFICER RESPONSE
TO THE SCENE (cont'd)

- Face-to-face.
  – Meet with the Incident Commander (IC).
  – Maintain supportive attitude.
  – Gain situational awareness.

Slide 3-21

E.   Face-to-face.

1.   Meet with the Incident Commander (IC).

2.   Maintain supportive attitude.

3.   Gain situational awareness.

a.   Priorities (**L**ife safety, **I**ncident stabilization, **P**roperty conservation (LIP)).

b.   Incident objectives.

c.   Strategies.

d.   Resource deployment.

e.   Command structure.

SAFETY OFFICER RESPONSE
TO THE SCENE (cont'd)

- Conditions.
- Predict potential hazards/risks.

Slide 3-22

F.   Conditions.

1.   Stability.

a.   Based upon incident type.

b.   Structure, ground, vehicles, containers.

2.   Escalating, static, de-escalating.

3.   Control zones.

a.   Collapse.

b.   Hot, warm, cold.

c.   Trench sides.

d.   Other.

4. Personal protective equipment (PPE).

5. Means of egress.

6. Softening of structures.

7. Power.

8. Cue sheets.

VIDEO PRESENTATION

"INVESTIGATIVE REPORT INTO
THE MEADOWOOD COURT FIRE
IN LOUDOUN COUNTY, VA"

https://www.youtube.com/watch?v=
ihc_Lz7Yh_4

Slide 3-23

G. Predict potential hazards/risks.

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ACTIVITY 3.2

Evaluating Level of Risk

Purpose

Given specific incident types, identify hazards, evaluate their level of risk, and recommend remediation for any that are unacceptable.

Directions

1. In your table group, list the potential hazards for the incident assigned to you. View the photos for your incident on the following SAWs.

    a. One EMS.

    b. One working structure fire.

    c. One highway incident.

    d. One hazardous materials incident.

    e. One technical rescue.

2. Be prepared to share your results with the rest of the class.

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ACTIVITY 3.2 (cont'd)

Incident Photos

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V. MANAGING SCENE SAFETY

MANAGING SCENE SAFETY
- The Incident Safety Officer (ISO) brings appropriate attention to all safety aspects of operations.
- The ISO reports to and supports the IC.
- Safety policies and procedures developed by the organization lay the groundwork for proper safety management on the scene.

Slide 3-30

A. The ISO brings appropriate attention to all safety aspects of operations.

B. The ISO reports to and supports the IC.

C. Safety policies and procedures developed by the organization lay the groundwork for proper safety management on the scene.

D. Ultimate responsibility.

1. The IC has ultimate responsibility for safety during the incident.

2. The ISO serves as the eyes and ears of the IC on all matters dealing with scene safety.

3. Safety issues are typically identified during the development of the Incident Action Plan (IAP).

a. The action plan may be developed while the initial IC implements initial objectives and strategies.

b. A formal IAP is developed for implementation after the initial operational period.

4. The ISO must contribute to the IAP with regard to safety-related issues.

5. The initial incident strategies and the formal IAP **must** embody principles of safety.

MANAGING SCENE SAFETY
(cont'd)

• Ultimate responsibility.
• Safety Officer responsibilities.

Slide 3-31

E.   Safety Officer responsibilities.

    1.   Ongoing assessment of hazardous environments (ICS Form 215A, Incident Action Plan Safety Analysis).

    2.   Development of the Incident Safety Message (ICS Form 208, Safety Message/Plan).

    3.   Coordination of multiagency safety efforts.

    4.   Action to ensure the implementation of appropriate safety measures.

    5.   Monitoring safety of incident operations.

F.   Assistant ISO.

    An individual appointed or assigned at an incident scene by the IC to assist the ISO in the performance of ISO functions at complex or technical emergency incidents.

VI.   MONITORING THE SCENE

MONITORING THE SCENE

- Situational awareness.
  - Situational awareness is paying attention to and understanding what is going on in the environment around you.

Slide 3-32

A.   Situational awareness.

   1.   Perceiving situational cues, understanding what is going on around you, and accurately predicting future events (Endsley, 2000).

   2.   According to the Army Field Manual 1-02 (September 2004), situational awareness is:

   "Knowledge and understanding of the current situation which promotes timely, relevant, and accurate assessment of friendly, competitive, and other operations within the battlespace in order to facilitate decisionmaking. An informational perspective and skill that foster an ability to determine quickly the context and relevance of events that are unfolding."

   3.   In general, having situational awareness means paying attention to and understanding what is going on in the environment around you.

VIDEO PRESENTATION

"ATLANTA FIREFIGHTERS HELD HOSTAGE"

https://www.youtube.com/watch?v=FLs8HrXkg4o

Slide 3-33

MONITORING THE SCENE
(cont'd)

- Safety Officer must avoid the desire to engage in tactical control activities.
- The Safety Officer continuously monitors the scene.
- Incident rehabilitation considerations.

Slide 3-34

B.   The ISO must avoid the desire to engage in tactical control activities.

    1.   Takes the ISO's eye off the ball.

    2.   Creates too narrow a focus.

MONITORING THE SCENE
(cont'd)

- Standard outline requirements of all personnel.
- Rehabilitation process.
- Continued use of respiratory protective equipment during overhaul.

Slide 3-35

C.   The ISO continuously monitors the scene for:

    1.   Standard outline requirements of all personnel.

    2.   Rehabilitation process.

    3.   Continued use of respiratory protective equipment during overhaul.

    4.   Use of proper PPE.

5.   Compliance with organizational policies.

    a.   Monitor scene control.

    b.   Monitor accountability systems.

    c.   Ensure rehabilitation.

    d.   Crew rotation.

6.   Absence of freelancing.

MONITORING THE SCENE (cont'd)

- Key functions defined by National Fire Protection Association (NFPA) 1521, *Standard for Fire Department Safety Officer Professional Qualifications*:
  - Suspend.
  - Alter.
  - Terminate.

Slide 3-36

D.   Key functions defined by NFPA 1521, *Standard for Fire Department Safety Officer Professional Qualifications*.

1.   Safety Officer has the authority to suspend, alter or terminate unsafe acts or hazardous activities.

    a.   Suspend — to delay to allow proper safety measures or conditions to be achieved.

    b.   Alter — to change the activity being conducted in such a manner as to allow the activity to be completed more safely.

    c.   Terminate — to stop an activity completely due to changing safety conditions or unsafe practices.

2.   The IC must be notified of any action taken which has the potential to affect incident objectives and ongoing strategies.

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ACTIVITY 3.3

Suspend, Alter or Terminate

Purpose

Determine the times at which actions should be suspended, altered or terminated.

Directions

1.   As a large group, you will be presented with incident situations. For each situation, you should determine whether to suspend, alter or terminate actions.

2.   After reviewing each incident, briefly discuss the recommendations, whether or not the action warrants immediate notification of the IC, and why the actions do or do not warrant notification of the IC.

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VII.   SUMMARY

SUMMARY

- Common incident safety considerations.
- Safety considerations for specific incident types.
- Safety Officer response to the scene.
- Introduction to managing scene safety.
- Monitoring the scene.

Slide 3-43

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APPENDIX A

FULTON COUNTY RULES OF ENGAGEMENT
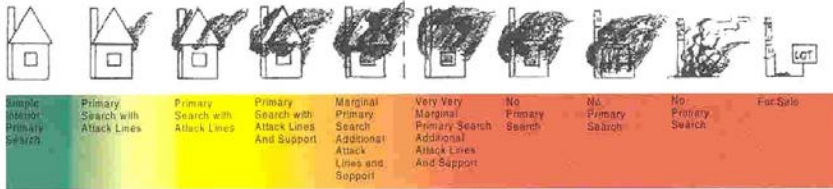
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10 Rules of Engagement for Structural Fire Fighting

Acceptability of Risk

1 No building or property is worth the life of a fire fighter.

2 All interior fire fighting involves an inherent risk.

3 Some risk is acceptable, in a measured and controlled manner.

4 No level of risk is acceptable where there is no potential to save lives or savable property.

5 Fire fighters shall not be committed to interior offensive fire fighting operations in abandoned or derelict buildings.

Risk Assessment

1 All feasible measures shall be taken to limit or avoid risks through risk assessment by a qualified officer.

2 It is the responsibility of the Incident Commander to evaluate the level of risk in every situation.

3 Risk assessment is a continuous process for the entire duration of each incident.

4 If conditions change, and risk increases, change strategy and tactics.

5 No building or property is worth the life of a fire fighter.

Simple Interior Primary Search	Primary Search with Attack Lines	Primary Search with Attack Lines	Primary Search with Attack Lines And Support	Marginal Primary Search Additional Attack Lines and Support	Very Very Marginal Primary Search Additional Attack Lines And Support	No Primary Search	No Primary Search	No Primary Search	For Sale

Risk Assessment/Rules of Engagement			
Fire Fighter Injury/ Life Safety Risk	**High Probability of Success**	**Marginal Probability of Success**	**Low Probability of Success**
Low Risk	Initiate offensive operations. Continue to monitor risk factors.	Initiate offensive operations. Continue to monitor risk factors.	Initiate offensive operations. Continue to monitor risk factors.
Medium Risk	Initiate offensive operations. Continue to monitor risk factors. Employ all available risk control options.	Initiate offensive operations. Continue to monitor risk factors. Be prepared to go defensive if risk increases.	Do not initiate offensive operations. Reduce risk to fire fighters and actively pursue risk control options.
High Risk	Initiate offensive operations only with confirmation of realistic potential to save endangered lives.	Do not initiate offensive operations that will put fire fighters at risk for injury or fatality.	Initiate defensive operations only.

10 Rules of Engagement for Structural Fire Fighting. This link is available at https://www.everyonegoeshome.com/wpcontent/uploads/sites/2/2015/01/fultonroe.pdf#page=7.

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APPENDIX B

EVALUATION OF HAZARDS IN THE POST-FIRE ENVIRONMENT

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PROBLEM/ISSUE

Today's emergency responders, including fire service, law enforcement, EMS, and other disciplines, spend a considerable amount of time in the "post-fire" environment. Work in this environment includes, but is not limited to victim recovery, salvage and overhaul, origin and cause investigation, and criminal investigations. Current research suggests that the airborne hazards associated with the post-fire environment are likely much greater than previously understood[123]. The InterAgency Board for Equipment Standardization and Interoperability (IAB) has been asked to respond to questions regarding the use of multi-gas detection instrumentation to drive decisions on selection of Personal Protective Equipment (PPE) for protection of fire fighters and other personnel from airborne hazards in the post-fire environment.

BACKGROUND

The IAB is a collaborative panel of emergency preparedness and response practitioners from a wide array of professional disciplines representing the public safety sector at all levels of government. Based on direct field experience, IAB members advocate for and assist the development and implementation of performance criteria, standards, test protocols, technical/operating guidance, and training requirements for all-hazards incident response with an additional special emphasis on Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) issues. The Equipment SubGroup (ESG) of the IAB focuses on identifying appropriate response equipment and promoting the development of associated standards and operational considerations. The IAB recommendations are published as the Standardized Equipment List (SEL) found at both https://www.iab.gov and https://www.rkb.us
.
DISCUSSION

The primary question at hand is whether the use of handheld multi-gas detectors[4] is appropriate and sufficient for determining the level of PPE to be worn during operations in a given post-fire environment. As more research is conducted, it is becoming clear that the post-fire environment presents a broad spectrum of chemical hazards, *including gases, vapors and particulates*, and that the hazards are likely *not limited to the immediate fire area*. Areas contiguous to the fire area, and even far downwind from the fire area, may contain concentrations of chemical hazards that jeopardize the health of those exposed to or contaminated by them. Thus, effective assessment of the post-fire environment requires not only the detection of multiple toxic gases and vapors, but also (and perhaps more importantly) assessing the presence and makeup of suspended particulates that may contain significant additional health risks including polycyclic aromatic hydrocarbons (PAHs). These risks include not only direct exposure, but also secondary exposure from contaminated garments or equipment.

Given the time spent by responders in these environments every day, the lack of complete and verifiable data on post-fire hazards is in itself, a serious issue. Given the natural inclination of personnel to doff PPE at the earliest opportunity, every structure fire, car fire, or other incendiary incident creates an unknown health risk to emergency responders. The InterAgency Board's recommendations include both modifications to existing procedures, and continued research to determine the full extent of post-fire hazards.

RECOMMENDATIONS

The InterAgency Board (IAB) recommends the following:

1. **Organizations should not rely solely on multi-gas detectors to determine PPE donning and doffing action levels.**

   While multi-gas detection instrumentation can be used to provide qualitative and quantitative information for some gaseous and vapor hazards, it cannot provide a comprehensive assessment – not only is the scope of its gas/vapor detection limited, but it also lacks the capability for particulate detection. This is not to say that these detectors are not useful. The issue here is whether they provide sufficient information for PPE donning and doffing decisions, and they do not. Assuring the safety of personnel in during post-fire operations requires broader information than these devices can provide. Standard operating procedures should treat a negative reading from multi-gas devices as "helpful but insufficient" for determination of appropriate conditions for the removal of personal protective equipment.

2. **Organizations should alter their procedures to conduct field expedient decontamination procedures as soon as reasonably feasible after post-fire operations, and laundering and decontamination of garments must, at a minimum, be conducted in accordance with NFPA and manufacturer recommendations.**

   It is clear that particulates with potential significant health hazards are readily deposited onto equipment, protective ensembles and skin surfaces. However, because departments lack clear guidance on the hazards associated with deposited particulates found in the post-fire environments, practices on decontamination and laundering vary widely. As with any unknown hazard, we recommend erring on the side of safety. Use of field expedient decontamination procedures, ensemble/equipment decontamination and personal hygiene showers should be implemented as soon as reasonably feasible after exposure to these environments.

3. **Further research should be conducted to identify and quantify the full spectrum of post-fire environment hazards, as well as appropriate protection and decontamination technologies.**

   When compared to the amount of research on fire and explosive incidents, the hazards of the post-fire environment have received relatively scant attention. This is unfortunate, since in general the amount of exposure time in this environment far exceeds the duration of the

active incident. We strongly recommend that priority be given to research in the following areas:

- Comprehensive identification and quantification of the hazards, threats and risks to human health presented in post-fire environment
- Efficacy of current respiratory protective equipment in the post fire environment, and identification of alternatives if necessary
- Determination as to whether currently available air-purifying respiratory protective equipment may have applicability in the post-fire environment when used in conjunction with commonly available basic gas detection technologies
- Efficacy of structural firefighter protective ensemble against identified dermal hazards and potential "workable" enhancements that would reduce skin absorptive risks
- Development of a set of mitigation strategies and PPE selection guidelines based upon the above findings
- Efficacy of methods and determination of best practices for decontamination (including field expedient decontamination) from post-fire hazards
- Identification of man-portable or vehicle transportable detection and analysis capabilities capable of identifying and quantifying the full spectrum of risks to responders and the public

**As the InterAgency Board identifies new information concerning this topic, it will be posted in the "Documents" area of the IAB website. Please contact the InterAgency Board at info@interagencyboard.us with any comments, feedback, and questions. Additional information on the InterAgency Board is available at www.IAB.gov.

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UNIT 4:
POST-INCIDENT CONSIDERATIONS

TERMINAL OBJECTIVE

The students will be able to:

4.1   Summarize the Incident Safety Officer's (ISO's) responsibilities during post-incident operations.

ENABLING OBJECTIVES

The students will be able to:

4.1   Articulate the importance of proper post-incident operations.

4.2   Identify the importance of appropriate incident documentation.

4.3   Identify and discuss the ISO role in post-incident operations.

4.4   Recommend activities for post-incident follow-up.

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**UNIT 4:
POST-INCIDENT
CONSIDERATIONS**

Slide 4-1

TERMINAL OBJECTIVE

Summarize the Incident Safety Officer's (ISO's) responsibilities during post-incident operations.

Slide 4-2

ENABLING OBJECTIVES

- Articulate the importance of proper post-incident operations.
- Identify the importance of appropriate incident documentation.
- Identify and discuss the ISO role in post-incident operations.
- Recommend activities for post-incident follow-up.

Slide 4-3

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ACTIVITY 4.1

Incident Safety Officer Roles in Post-Incident Operations

Purpose

Use the educational concepts of self-reflection and self-discovery to share your experience within your own organizations in identifying the elements of conducting post-incident operations that involve the ISO.

Directions

1.   Use your own self-reflection and self-discovery to discuss the following with the class:

    a.   What are the elements of the ISO roles in post-incident operations?

    b.   What are the elements of the ISO roles in post-incident operations in your organization?

2.   Be prepared to share your responses with the class.

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I.   TERMINATING YOUR ROLE AS INCIDENT SAFETY OFFICER

TERMINATING YOUR ROLE AS
INCIDENT SAFETY OFFICER
- Incident information is exchanged.
- Reports and plans for the subsequent operational period are completed.
- Continuity of authority and situational awareness are maintained.
- Changes in incident or planned event complexity are accounted for.

Slide 4-5

A.   Incident information is exchanged.

B.   Reports and plans for the subsequent operational period are completed.

C.   Continuity of authority and situational awareness are maintained.

D.   Changes in incident or planned event complexity are accounted for.

II.   INCIDENT SAFETY OFFICER ROLE IN INCIDENT DEBRIEFINGS

INCIDENT SAFETY OFFICER ROLE
IN INCIDENT DEBRIEFINGS
- Members' psychological health and safety are addressed and protected.
- Safety and health issues.
- Best safety practices.

Slide 4-6

A.   Members' psychological health and safety are addressed and protected.

B.   Safety and health issues.

C.   Best safety practices are followed.

INCIDENT SAFETY OFFICER ROLE
IN INCIDENT DEBRIEFINGS (cont'd)

• Deviations are noted from established
  procedures.
• Recommendations for future events are
  documented.
• The information is in a presentable format
  for fire department official review.

Slide 4-7

D.   Deviations from established procedures are noted.

E.   Recommendations for future events are documented.

F.   The information is in a presentable format for fire department official review.

III.   INCIDENT SAFETY OFFICER ROLE IN POST-INCIDENT ANALYSIS

INCIDENT SAFETY OFFICER ROLE
IN POST-INCIDENT ANALYSIS

• General risk profile of the incident.
• Effectiveness of crew tracking and
  accountability.
• Rehabilitation effectiveness.
• Personal protective equipment (PPE) use.
• Equipment failures.
• Close calls.
• Injury status.

Slide 4-8

A.   General risk profile of the incident.

B.   Effectiveness of crew tracking and accountability.

C.   Rehabilitation effectiveness.

D.   Personal protective equipment (PPE) use.

E.   Equipment failures.

F.   Close calls.

G.   Injury status.

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ACTIVITY 4.2

Post-Incident Analysis

Purpose

Identify contributing factors during a post-incident analysis.

Directions

1.   Read the executive summary of a NIOSH Firefighter Fatality Report.

2.   In your table group, review and discuss the information and list items that you feel contributed to the event.

3.   Be prepared to share your list with the remainder of the class.

Executive Summary 1

On July 28, 2011, a 37-year-old career captain died and nine firefighters were injured in a six-story medical building fire while searching for the seat of the fire. At 1228 hours, dispatch sent four companies (two engines, one truck, and a squad company) to an automatic fire alarm at a multistory medical building. Engine 2 reported a working fire with heavy smoke and fire showing on the top floor at the rear of the structure and requested a second alarm. Instead, the dispatch center sent a Division Chief, battalion chief, Safety Officer, engine company, rescue company, and fire marshal as the complement for a working fire first alarm. Engine 2 firefighters connected 100 feet of 2.5-inch hoseline to the standpipe in the stairwell on the top floor. Engine 2 flowed water for several seconds when their low-air alarms went off, and they exited the structure. Rescue 3 took the hoseline, but had issues getting water to flow. The top two floors and north stairwell were now heavy with smoke. Ladder 1 was setting up at the A/B corner to access a window on the sixth level (labeled fifth floor), side B. Two of Rescue 3's members were getting low on air, and the crew moved to the stairwell to exit the building. Two of the members exited the stairwell, but the captain (the victim) went down the hallway and two firefighters followed him. The low-air alarms of the victim and two firefighters were sounding when they reached the hallway that was connected to the fire rooms. One of the firefighters grabbed the victim, who was acting confused, and started back to the stairwell. The other firefighter got separated in heavy smoke, went toward the fire room, and made it to a window where the platform of Ladder 1 was located just as he ran out of air. The victim ran out of air and told his partner they needed to buddy breathe. The victim unclipped his regulator as his partner connected the buddy breather, and all the partner's air escaped through the victim's self-contained breathing apparatus (SCBA). The victim transmitted a Mayday and activated his personal alert safety system (PASS). The firefighter also attempted to activate his PASS, called several Maydays prior to removing his mask, and began looking for an escape path. At some point, the victim vomited into his facepiece and removed it. The firefighter crawled down a hallway trying to open several doors unsuccessfully, until he found a door he could open to the south stairwell. The firefighter placed his axe in the door and then returned to the victim. The firefighter grabbed the victim and pulled him to the south stairwell, where he collapsed and the pair fell down a flight of stairs. The victim and the firefighter were eventually located in the south stairwell by another officer who had exited the north stairwell and heard the victim's PASS alarm sounding. Medic units transported the victim and the firefighter to the hospital.

Executive Summary 2

On Feb. 15, 2013, a 36-year-old male career lieutenant (Victim 1) and a 54-year-old male career lieutenant (Victim 2) were killed, and two career firefighters were injured (Firefighter 1 and Firefighter 2) at an assembly hall fire. At approximately 2320 hours, the fire department responded to a reported assembly hall fire with visible flames. Upon arrival, fire was observed by the fire department burning at the roof level in the area of the A/B corner. After arriving, units conducted 360-degree walk-arounds, and offensive interior operations were employed to stop the fire's progression. The first interior attack crew (Victim 1 and his probationary firefighter) advanced a hoseline toward what they believed was the seat of the fire. After discovering the fire in the A/B corner and flowing water on it, Victim 1 and his probationary firefighter both became low on air. Victim 1 told his probationary firefighter they needed to exit. Both began following the hoseline out, with the probationary firefighter in front. However, for an unknown reason, Victim 1 was unable to follow the hoseline, and he became separated from his probationary firefighter. Victim 1 radioed for help. The probationary firefighter called out to Victim 1, but did not receive an answer, nor did he hear any alarms. The probationary firefighter then continued following the hoseline to the outside. At this time, an engine company (Victim 2, Firefighter 1, and Firefighter 2) that was designated as the Rapid Intervention Team (RIT) was immediately deployed into the structure to locate Victim 1. The RIT followed the hoseline in and was able to locate Victim 1, who was responsive. While dragging Victim 1 toward the exit, the RIT was caught in a flashover. Following the flashover, all of them were quickly removed and transported to local hospitals. Unfortunately, Victim 1 did not survive his injuries. Firefighter 1, Firefighter 2 and Victim 2 were transferred for extensive treatment to a regional burn center, where Victim 2 later succumbed to his injuries.

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Executive Summary 3

On Dec. 9, 2014, a 37-year-old female career firefighter/emergency medical technician (EMT) died after becoming lost and running out of air in a residential structure fire. The firefighter/ EMT was the third firefighter on a hoseline crew attacking the fire when the fire overran their position. One firefighter and the officer escaped, but the firefighter/EMT was trapped and radioed a Mayday. However, before she could be located, her buddy breather hoseline burnt through, and she lost her available air.

At 0249 hours, two engines, two trucks, and a battalion chief were dispatched to a residential structure fire. Four minutes later, the first-arriving engine, Engine 73, reported nothing showing, but was informed by dispatch that a resident might be trapped. The Engine 73 officer investigated and informed Command, who was on-scene, that they had a possible fire in the basement. The battalion chief investigated the first floor and noticed only light smoke. The battalion chief walked upstairs, found an elderly woman in the bedroom, and carried her outside. The Engine 73 officer and two firefighters stretched a 1 3/4-inch hoseline into the kitchen and requested water. Engine 63 was in the rear of the structure and reported fire in the first-floor kitchen window. Engine 73 flowed water toward the basement door and then advanced, but the hoseline came up short at the door. Command upgraded the response to a full box. Command ordered Ladder 8 to ventilate the structure, but Ladder 8 was still en route. Engine 63 made entry into the basement from the rear. Command made several attempts to contact the Engine 73 officer over the radio. Ladder 21 reported a negative primary search on the second floor. Command radioed Engine 73 to back out. At 0302 hours, a Mayday was heard and believed to be from Engine 63. Command radioed the Engine 63 officer; then the Mayday was repeated by the Engine 73 firefighter/EMT that she was trapped on the first floor. Over the next several minutes, the Engine 73 firefighter/EMT called for help several times. The Engine 73 officer went inside to search for her. Engine 63 was advancing on the fire in the basement, and Ladder 21 was ventilating the roof and windows. Engine 51 and Engine 72 were fighting fire on the first floor and searched for the Engine 73 firefighter/EMT. At 0316 hours, Engine 72 found the Engine 73 firefighter/EMT and brought her out. The Engine 73 firefighter/EMT was transported to the hospital, where she was pronounced dead.

Executive Summary 4

On March 5, 2013, a 39-year-old male volunteer firefighter was struck and killed by an enclosed car hauler with trailer (used to haul luxury vehicles) on an interstate highway. The fire department was operating at the scene of a multiple-vehicle crash when a fire department pumper, a fire department utility vehicle, and an Illinois State Police vehicle were struck by a car hauler. The fire department was preparing to clear the original incident when this incident occurred. Utility 105 (fire department utility vehicle) was initially positioned approximately one-half to three-quarters of a mile from the incident blocking the left lane of the interstate. The IC radioed Utility 105 to move behind the State Police vehicle. The car hauler was approaching the scene in the left lane and failed to stop for the initial incident. The victim was leaning against the rear passenger seat on the driver's side of Utility 105 with the door open. Members of the fire department were in the median of the interstate and witnessed the car hauler approaching the crash scene at a rate of speed that was excessive for road conditions. Realizing the car hauler was not going to be able to stop, members yelled for everyone to get out of the way of the car hauler. The victim moved away from the utility vehicle. He was struck by the car hauler and pushed onto the shoulder of the interstate. After striking the victim and the utility vehicle, the car hauler struck the State Police vehicle and then struck Engine 102. After the crash scene was secured, the IC initiated a Personnel Accountability Report (PAR). Utility 105 was located in the median between a trailer from the initial crash and the car hauler. The victim was located by a state trooper and was unresponsive. Despite receiving cardiopulmonary resuscitation (CPR) and basic life support (BLS) at the scene, and advanced life support (ALS) in the ambulance and in the local hospital's emergency department, the victim died.

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Executive Summary 5

On March 4, 2012, a 34-year-old male volunteer lieutenant (the victim) lost his life at a theatre fire after the roof collapsed, trapping him within the theatre. At approximately 1215 hours, an on-duty patrol officer (also chief of the victim's fire department) radioed dispatch for a structure fire (flames visible). The first-due fire department arrived on scene, set up operations on the A-side of the structure, and directed the incoming mutual aid department (victim's department) to the rear of the structure. No fire was visible from the rear. The two departments attacked the theatre fire from opposite sides (A-side and C-side) of the structure, establishing their own IC/officer in charge, fireground operations, and accountability systems. The first-due fire department initially fought the fire defensively from the A-side, while the victim and two additional firefighters (Firefighter 1 and Firefighter 2) entered through the C-side, advancing a hoseline until they met A-side firefighters near the theatre's lobby (area of origin). The first-due fire department eventually placed an elevated master stream into operation, directing it into the lobby and then onto the roof while firefighters were operating inside. Roof conditions deteriorated until the roof collapsed into the structure, trapping the victim, Firefighter 1, and Firefighter 2. Firefighter 1 and Firefighter 2 recalled speaking with the victim immediately following the collapse, but nothing was heard from the victim following the activation of a PASS device. All three were eventually located, removed from the structure, and transported to a local hospital, but the victim had already succumbed to his injuries.

IV. INCIDENT SAFETY OFFICER DOCUMENTATION REQUIREMENTS

INCIDENT SAFETY OFFICER
DOCUMENTATION REQUIREMENTS

- During the incident, the ISO may complete:
  - Incident Command System (ICS) Form 201, Incident Briefing.
  - ICS Form 206, Medical Plan.
  - ICS Form 208, Safety Message/Plan.
  - ICS Form 214, Activity Log.
  - ICS Form 215, Operational Planning Worksheet.
  - ICS Form 215A, Incident Action Plan Safety Analysis.

Slide 4-10

A. During the incident, the ISO may complete:

1. Incident Command System (ICS) Form 201, Incident Briefing.

2. ICS Form 206, Medical Plan.

3. ICS Form 208, Safety Message/Plan.

4. ICS Form 214, Activity Log.

5. ICS Form 215, Operational Planning Worksheet.

6. ICS Form 215A, Incident Action Plan Safety Analysis.

INCIDENT SAFETY OFFICER
DOCUMENTATION REQUIREMENTS (cont'd)

- After the incident, the ISO may be responsible for reports of injury, death and exposure.
- The ISO may complete documentation of:
  - Violations of department standard operating procedures (SOPs).
  - Poorly defined procedures.
  - Unforeseen situations.
  - Training deficiencies.

Slide 4-11

B. The ISO may be responsible for documenting reports for injury, death and exposure that occurred while operating on the scene of an incident.

After the incident, the ISO may complete the documentation for:

1.   Violations of department SOPs.

2.   Poorly defined procedures.

3.   Unforeseen situations.

4.   Training deficiencies.

ACTIVITY 4.3

Incident Documentation

Purpose

Use the educational concepts of self-reflection and self-discovery to share your experience within your own organizations in identifying the importance of incident documentation.

Directions

1.   Use your own self-reflection and self-discovery to discuss the following with the class:

    a.   What is incident documentation?

    b.   Does your organization use appropriate incident documentation?

    c.   What are the legal requirements for incident documentation?

2.   Be prepared to discuss the similarities and difference in the way organization address incident documentation.

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V. SUMMARY

SUMMARY

- Terminating your role as ISO.
- ISO role in incident debriefings.
- ISO role in post-incident analysis.
- ISO documentation requirements.

Slide 4-13

VI. COURSE CONCLUSION

VII. FINAL EXAMINATION

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ACRONYMS

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ACRONYMS

AED	automated external defibrillator
AFG	Assistance to Firefighters Grant
ALS	advanced life support
BLS	basic life support
CDC	Centers for Disease Control and Prevention
CPR	cardiopulmonary resuscitation
CVD	cardiovascular disease
DOT	Department of Transportation
EMS	Emergency Medical Services
EMTs	emergency medical technicians
ERSI	Emergency Responder Safety Institute
gpm	gallons per minute
HSO	Health and Safety Officer
HSPM	Health and Safety Program Manager
IAFF	International Association of Fire Fighters
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IDLH	immediately dangerous to life and health
IFSAC	International Fire Service Accreditation Congress
ISO	Incident Safety Officer
JPRs	job performance requirements

kg	kilogram
LCES	**L**ookouts, **C**ommunications, **E**scape routes, and **S**afety zones
LIP	**L**ife safety, **I**ncident stabilization, **P**roperty conservation
LODD	line-of-duty death
NFA	National Fire Academy
NFFF	National Fallen Firefighters Foundation
NFPA	National Fire Protection Association
NIMS	National Incident Management System
NIOSH	National Institute for Occupational Safety and Health
NPQS	National Professional Qualifications System
NUG	National Unified Goal
NWCG	National Wildfire Coordinating Group
OSC	Operations Section Chief
OSHA	Occupational Safety and Health Administration
PAR	Personnel Accountability Report
PASS	personal alert safety system
PPE	personal protective equipment
RIC	Rapid Intervention Crew
RIT	Rapid Intervention Team
SAFER	Staffing for Adequate Fire and Emergency Response
SCBA	self-contained breathing apparatus
SM	Student Manual
SOPs	standard operating procedures
TIM	Traffic Incident Management
USFA	U.S. Fire Administration