

Safety Program Operations

SPO-Student Manual

1st Edition, 3rd Printing-October 2013



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U.S. DEPARTMENT OF HOMELAND SECURITY

UNITED STATES FIRE ADMINISTRATION

NATIONAL FIRE ACADEMY

FOREWORD

The U.S. Fire Administration (USFA), an important component of the Department of Homeland Security (DHS), serves the leadership of this nation as the DHS's fire protection and emergency response expert. The USFA is located at the National Emergency Training Center (NETC) in Emmitsburg, Md., and includes the National Fire Academy (NFA), National Fire Data Center (NFDC), and the National Fire Programs (NFP). The USFA also provides oversight and management of the Noble Training Center in Anniston, Ala. The mission of the USFA is to save lives and reduce economic losses due to fire and related emergencies through training, research, data collection and analysis, public education, and coordination with other federal agencies and fire protection and emergency service personnel.

The USFA's NFA offers a diverse course delivery system, combining resident courses, off-campus deliveries in cooperation with state training organizations, weekend instruction, and online courses. The USFA maintains a blended learning approach to its course selections and course development. Resident courses are delivered at both the Emmitsburg campus and the Noble facility. Off-campus courses are delivered in cooperation with state and local fire training organizations to ensure this nation's firefighters are prepared for the hazards they face.

In recent years, increasing responses to a wide variety of emergency situations have raised dramatically the fire and Emergency Medical Services' (EMS) awareness of the need for safety programs. These programs are crucial for all fire and EMS personnel who respond to emergency situations. Currently, this is potentially any firefighter or EMS responder whether in a large department or in a small, rural company.

In 1996, the NFA developed two courses, "Incident Safety Officer" (ISO) and "Health and Safety Officer" (HSO), for field delivery. The focus of these field courses was the incident scene safety officer and the departmental safety officer.

"Safety Program Operations" (SPO) is the 2011 revision of the previous "Advanced Safety Operations and Management" (ASOM). It is a six-day on-campus course directed toward personnel with health and safety responsibilities within their department. SPO focuses on strategies to manage the risks associated with the health and safety aspects of all fire and EMS department operations.

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TABLE OF CONTENTS

	PAGE
Foreword	iii
Table of Contents	v
Course Goal	vii
Course Overview	vii
How to Use This Manual	ix
Schedule	xi
Firefighter Code of Ethics	xv
Student Information Sheet	xvii
A Student Guide to End-of-course Evaluations.....	xix
UNIT 1: THE FIREFIGHTER FATALITY AND INJURY PROBLEM	SM 1-1
UNIT 2: RISK MANAGEMENT PROCESS.....	SM 2-1
UNIT 3: SAFETY RESPONSIBILITIES.....	SM 3-1
Appendix Incident Safety Officer Checklists	
UNIT 4: REGULATIONS, STANDARDS AND POLICIES.....	SM 4-1
UNIT 5: HEALTH AND WELLNESS	SM 5-1
UNIT 6: INVESTIGATIONS	SM 6-1
UNIT 7: OPERATIONAL RISK MANAGEMENT	SM 7-1
Appendix The 10 Rules of Engagement for Structural Fire Fighting and the Acceptability of Risk	
UNIT 8: SITUATION-SPECIFIC HAZARDS AND MITIGATION STRATEGIES.....	SM 8-1
Appendix Exhibits	
UNIT 9: AFTER ACTION REVIEW.....	SM 9-1
Appendix Phoenix Regional Standard Operating Procedures Critique Sector/ Incident Analysis	
Appendix A Sources of Additional Information	
Appendix B OSHA Log 300	
Appendix C Accident and Injury Reporting Forms	
Appendix D Public Safety Officers' Benefits Program Fact Sheet	
Appendix E Suggested Guidance for Supervisors at Disaster Rescue Sites	
Appendix F Epworth Sleepiness Scale	

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COURSE GOAL

One of the USFA's five-year operational objectives is to reduce the loss of life of firefighters by 25 percent. The goal of this course is to further that operational objective by providing participants with the knowledge, skills and abilities (KSAs) to develop strategies to manage risk associated with the provision of firefighting, EMS and special operations services that focus on the reduction of firefighter and emergency services fatalities and injuries.

COURSE OVERVIEW

The SPO course will provide the student with an inventory of advanced leadership and management skills that can be taken back to the work environment and demonstrated on the job. SPO uses an innovative teaching methodology that requires the student to demonstrate effective management skills rather than just indicating knowledge of management skills through rote testing. Teaching management skills is not effective unless there is ample opportunity to practice the appropriate behaviors in a job-relevant context followed by feedback on the ability to effectively demonstrate appropriate behaviors. Only in active practice of these skills will there be improved management skills.

SPO is comprised of 10 units of instruction that, taken together, progress through issues that may confront managers who have department-level health and safety responsibilities. Day One of the course provides for coverage of NFA administrative material, student/instructor introductions, a discussion of the firefighter fatality and injury problem, and an introduction to the activities that will unfold during the course. The course will provide the student with realistic activities that can relate back to the job. The remainder of the course expands upon topics such as the risk management process, regulations, standards and policies, documentation, health and wellness, operational risk management, situation-specific hazards and mitigation strategies, investigations, communications, post-incident analysis and current management issues in health and safety. Most of the requisite technical data (knowledge) is presented through outside reading assignments. The student is accountable for the technical knowledge through demonstration and practice as the learning experience progresses.

The scope of SPO is by design very broad and affords ample opportunity to explore many health and safety areas and issues. The student is encouraged to expand the scope of any discussion to include specific problem areas or issues that have been encountered. Instructors have a responsibility to keep the course on track, but also have the leeway to meet the needs of individual classes. However, coverage of an unplanned topic may require after-hours discussion to complete.

As an on-campus program course at NFA, SPO puts the student into a unique campus environment that enhances the learning experience. Although students are from a health and safety background, and face many of the same types of problems, students will quickly discover there are many different approaches and solutions to resolve those same problems. The resident environment encourages student sharing of issues, ideas, problems and solutions — both in and out of the classroom. Research indicates that students often benefit as much from professional out-of-class learning opportunities as they do from the course itself. Classroom activities are designed to promote maximum student interaction, group participation, and shared study. At the same time, the requirement for independent research affords students with an opportunity to leave their own mark on the class. What is taken home from the SPO course is directly related to the student's willingness to participate and learn from the experience.

The staff and faculty at NFA trust that participation in the SPO course will be rewarding and beneficial to the student personally and, after leaving the NFA, will benefit the agency and community represented.

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HOW TO USE THIS MANUAL

The Student Manual (SM) is the student's to keep. Students are encouraged to take notes in it, underline key text, and generally use it in any way that enhances learning.

We believe that the student will find the teaching approach used in the SPO course to be very innovative. The course presupposes knowledge of the technical aspects of health and safety. Therefore, the course will concentrate upon application of technical information and the skills and knowledge taught in the course units. In addition to being able to apply knowledge, the student will be required to demonstrate skills based on acquired knowledge. Because of the proactive nature of the course, there is less classroom time allocated for lectures and conventional learning activities in relation to the activities. Instructors will briefly review topical material for each learning unit. During those sessions, students are encouraged to maximize personal development opportunities through active participation in class discussions. In addition, they are encouraged to take notes that will facilitate recall of the material and use of the SM after returning to their department.

The student will be accountable for the applicable reading assignments at the beginning of each class day. At the end of each unit, a list of suggested readings appears, if applicable. Suggested reading material may be found at the NFA Learning Resource Center (LRC). The student should take advantage of the LRC by using the various texts, journals and other reference material to expand his or her knowledge of health and safety. The SM text material and material covered by reading assignments will be the basis for the in-class activities. Each of the activities will place the student into real-world scenarios requiring applying health and safety knowledge and demonstrating such skills as leadership, analysis, decision-making, problem-solving and interpersonal communications. For the purpose of this educational program, all of the geographic locations and personalities encountered during the activities are fictional. Any similarity to actual locations or personalities is purely coincidental and should not be considered relevant to the activities. Following each activity, performance will be assessed and feedback will be provided.

The student should use the SM to prepare for the upcoming day's discussion topics. The student should **not** try to follow the manual during the class discussions.

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SAFETY PROGRAM OPERATIONS

SCHEDULE

TIME	DAY ONE	DAY TWO
	Intro: Welcome and Introductions	Unit 2: Risk Management Process (cont'd)
	<i>Break</i>	<i>Break</i>
	Intro: Welcome and Introductions (cont'd)	Unit 2: Risk Management Process (cont'd)
	<i>Break</i>	<i>Break</i>
	Unit 1: The Firefighter Fatality and Injury Problem	Unit 2: Risk Management Process (cont'd) Unit 3: Safety Responsibilities
	<i>Lunch Break</i>	<i>Lunch Break</i>
	Unit 1: The Firefighter Fatality and Injury Problem (cont'd)	Unit 3: Safety Responsibilities (cont'd)
	<i>Break</i>	<i>Break</i>
	Unit 2: Risk Management Process	Unit 3: Safety Responsibilities (cont'd) Unit 4: Regulations, Standards and Policies Discussion of current issues LRC Orientation

SAFETY PROGRAM OPERATIONS

TIME	DAY THREE	DAY FOUR
	Unit 4: Regulations, Standards and Policies (cont'd)	Unit 6: Investigations (cont'd)
	<i>Break</i>	<i>Break</i>
	Unit 4: Regulations, Standards and Policies (cont'd)	Unit 7: Operational Risk Management
	<i>Break</i>	<i>Break</i>
	Unit 5: Health and Wellness	Unit 7: Operational Risk Management (cont'd)
	<i>Lunch Break</i>	<i>Lunch Break</i>
	Unit 5: Health and Wellness (cont'd)	Unit 7: Operational Risk Management (cont'd)
	<i>Break</i>	<i>Break</i>
	Unit 5: Health and Wellness (cont'd) Unit 6: Investigations Discussion of current issues	Unit 8: Situation-specific Hazards and Mitigation Strategies Work on outline for Activity 2.3: Emerging Issues Risk Management Plan

SAFETY PROGRAM OPERATIONS

TIME	DAY FIVE	DAY SIX
	Unit 8: Situation-specific Hazards and Mitigation Strategies (cont'd)	Activity 2.3: Emerging Issues Risk Management Plan Student Presentations
	<i>Break</i>	<i>Break</i>
	Unit 8: Situation-specific Hazards and Mitigation Strategies (cont'd)	Activity 2.3: Emerging Issues Risk Management Plan Student Presentations (cont'd)
	<i>Break</i>	<i>Break</i>
	Unit 9: After Action Review	Activity 2.3: Emerging Issues Risk Management Plan Student Presentations (cont'd)
	<i>Lunch Break</i>	<i>Lunch Break</i>
	Unit 9: After Action Review (cont'd)	Final Written Examination
	<i>Break</i>	<i>Break</i>
	Work on outline for Activity 2.3: Emerging Issues Risk Management Plan (cont'd)	Graduation

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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

STUDENT INFORMATION SHEET

NAME: _____

DEPARTMENT: _____

CITY (OR COUNTY), STATE: _____

POPULATION SERVED BY DEPARTMENT: _____

AREA SERVED BY DEPARTMENT (SQUARE MILES): _____

DEPARTMENT SIZE:

FULL-TIME/CAREER PERSONNEL: _____

PART-TIME/RESERVE PERSONNEL: _____

VOLUNTEER PERSONNEL: _____

NUMBER OF STATIONS: _____

ORGANIZATION DELIVERY PROFILE:

HAZARDOUS MATERIALS: YES/NO

CONFINED SPACE/TECHNICAL RESCUE: YES/NO

EMS: YES/NO

ALS FIRST RESPONSE: YES/NO

BLS FIRST RESPONSE: YES/NO

ALS TRANSPORT: YES/NO

BLS TRANSPORT: YES/NO

OTHER: _____

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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."	<ul style="list-style-type: none"> 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)."	<ul style="list-style-type: none"> 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."	<ul style="list-style-type: none"> 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."	<ul style="list-style-type: none"> 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."	<ul style="list-style-type: none"> 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."	<ul style="list-style-type: none"> 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."	<ul style="list-style-type: none"> 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."	<ul style="list-style-type: none"> 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."	<ul style="list-style-type: none"> 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."	<ul style="list-style-type: none"> 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 FIREFIGHTER FATALITY AND INJURY PROBLEM

TERMINAL OBJECTIVE

The students will be able to:

- 1.1 *Describe the scope of the national firefighter fatality and injury problem.*

ENABLING OBJECTIVES

The students will be able to:

- 1.1 *Identify the most common causes of firefighter deaths during the past decade.*
 - 1.2 *Identify the most common causes of firefighter injuries during the past decade.*
 - 1.3 *List the criteria for line-of-duty deaths (LODDs).*
 - 1.4 *Describe the correlation between the 16 Life Safety Initiatives and firefighter deaths and injuries.*
 - 1.5 *Analyze a given case study to determine factors contributing to a fatality.*
-

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UNIT 1: THE FIREFIGHTER FATALITY AND INJURY PROBLEM

Slide 1-1

ENABLING OBJECTIVES

- Identify the most common causes of firefighter deaths during the past decade.
- Identify the most common causes of firefighter injuries during the past decade.
- List the criteria for line-of-duty deaths (LODDs).

Slide 1-2

ENABLING OBJECTIVES (cont'd)

- Describe the correlation between the 16 Life Safety Initiatives and firefighter deaths and injuries.
- Analyze a given case study to determine factors contributing to a fatality.

Slide 1-3

FIREFIGHTER CASUALTIES (2000-2009)

Year	Deaths ¹	Fireground Injuries ²	Total Injuries ²
2000	105	43,065	84,550
2001	105 ³	41,395	82,250
2002	101	37,860	80,800
2003	113	38,045	78,750
2004	119 ⁴	36,880	75,840
2005	115	41,950	80,100
2006	107	44,210	83,400
2007	118	38,340	80,100
2008	118	36,595	79,700
2009	90	32,205	78,150

Slide 1-6

3. WTC is unique and skews numbers. Better idea of trend if these numbers are removed.
4. **The number of fatalities for (current year) is _____.**
5. A USFA historical overview reveals a slight downward trend in fatalities during the past 20 years.

CLARIFICATION TO STATISTICS

- ¹ Number of deaths as published in USFA's annual report on firefighter fatalities.
- ² Number of injuries published in the National Fire Protection Association's (NFPA's) annual report on firefighter injuries.
- ³ Includes 343 firefighters/responders killed in the line of duty at the World Trade Center (WTC).
- ⁴ Hometown Heroes Survivors Benefit Act of 2003 resulted in 10 percent fatality increase beginning with CY2004.

Slide 1-7

MOST COMMON CAUSES OF FATALITIES

- Unknown.
- Caught or trapped.
- Exposure.
- Fall.
- Stress/Overexertion.
- Struck by.
- Vehicle collision.



Photo courtesy of Jayson Coll

Slide 1-8

FIRE FIGHTER FATALITY INVESTIGATION AND PREVENTION PROGRAM



- In 1998, National Institute of Occupational Safety and Health (NIOSH) began investigating firefighter fatalities.
- Goals of NIOSH program.
- Reports are available online at <http://www.cdc.gov/niosh/fire/>.

Slide 1-9

B. Fire Fighter Fatality Investigation and Prevention Program (FFFIPP).

1. The National Institute of Occupational Safety and Health (NIOSH) was created in 1970 to help assure safe and healthful working conditions. Since 1998, the NIOSH FFFIPP has investigated approximately 40 percent of firefighter fatalities.
2. Goals of the NIOSH FFFIPP are:
 - a. Investigating firefighter line-of-duty deaths (LODDs).
 - b. Determining contributing factors.
 - c. Publishing reports on specific fatalities.
3. Reports on fatality investigation are available online at <http://www.cdc.gov/niosh/fire/>.

FIREFIGHTER INJURIES

- No comprehensive database on firefighter injuries.
- Three organizations currently collect injury data:
 - USFA.
 - International Association of Fire Fighters (IAFF).
 - NFPA.
- NIOSH may investigate selected injury and near-miss events.



Slide 1-10

C. Firefighter injuries.

1. No comprehensive database on firefighter injuries.
2. Three organizations currently collect injury data: USFA, International Association of Fire Fighters (IAFF) and National Fire Protection Association (NFPA).
3. Data is collected through the National Fire Incident Reporting System (NFIRS). However, IAFF does not collect data on career departments that are not represented by IAFF. NFPA uses statistical projections based on an annual department survey.
4. NFIRS also captures nonfire incident-related data, such as an injury suffered by a firefighter while providing Emergency Medical Services (EMS).
5. NIOSH may also investigate selected injury and near-miss events that represent the potential for new or emerging hazards to the fire service.

FIREFIGHTER INJURIES (cont'd)

- Analysis of firefighter injuries reported through NFIRS found:
 - Majority of injuries not life threatening.
 - Caused by overexertion and strain.
 - Violent acts — low number/high in severity.
 - Sprains most common minor/moderate injury.
 - Most severe — cardiac and respiratory.
 - Majority occur at residential occupancies.

Slide 1-11

- D. Analysis of firefighter injuries reported to USFA through NFIRS found the following:
1. Majority of firefighter injuries are not life threatening.
 2. A significant number of the most severe injuries are caused by overexertion and strain, including a large number of heart attacks and cardiac problems.
 3. Violent acts are small in number but high in severity.
 4. Sprains are the most common minor/moderate firefighter injury.
 5. The most commonly encountered severe injuries are cardiac and respiratory in nature.
 6. Majority of firefighter injuries occur at residential occupancies.

EMERGENCY MEDICAL SERVICES FATALITIES AND INJURIES
<ul style="list-style-type: none">• Little/No data on Emergency Medical Services (EMS) injuries and fatalities.• No central data collection for EMS injuries and fatalities.• Limited data through IAFF or USFA for fire department-based EMS.• National Safety Council (Injury Facts) may publish information on private agencies.
<small>Slide 1-12</small>

- E. EMS fatalities and injuries.
1. Little or no data exists on EMS responder injuries and fatalities.
 2. No central data-collection organization is identified for gathering EMS injury and death statistics.
 3. Limited data may be available through IAFF or USFA if EMS is fire department-based.
 4. National Safety Council (**Injury Facts**) may list accident and injury information.

II. LINE-OF-DUTY DEATH

LINE-OF-DUTY DEATH

- What constitutes a line-of-duty death (LODD)?
- Definitions may vary from state to state.
- USFA [Firefighter Fatality database](#) provides information on LODDs.

Slide 1-13

A. What constitutes an LODD?

LINE-OF-DUTY DEATH (cont'd)

- Fatal injury/illness sustained on duty.
- On-scene at emergency or nonemergency incident.
- Responding to/Returning from incident.
- Other officially assigned duties.
 - Examples: training, public education, inspection and fundraising.

Slide 1-14

1. On-scene at an emergency or nonemergency incident.
2. En route to or returning from incident.
3. Other officially assigned duties:
 - a. Training.
 - b. Maintenance.
 - c. Public education.
 - d. Inspection.

- e. Investigations.
- f. Court testimony.
- g. Fundraising.
- h. On-call or on standby at station (not at home).

LINE-OF-DUTY DEATH (cont'd)

- Fatality does not have to occur during the incident:
 - Emergency responders who experience a fatality at home or other location before or after an incident are considered on-duty.
 - Fatality caused directly by an accidental or intentional injury:
 - Emergency or nonemergency.
 - Occupationally related fatal illness.

Slide 1-15

- 4. An emergency responder who experiences a heart attack or other fatal injury at home or other location before or after an incident is considered on-duty.
- 5. A fatality may be caused directly by an accidental or intentional injury in either emergency or nonemergency circumstances, or it could be linked to an occupationally related fatal illness. The most common example is a heart attack.

TAKING CARE OF OUR OWN



- National Fallen Firefighter Foundation (NFFF):
 - Created program to assist agencies in preparing for a serious injury or LODD.
 - Developed resources/training to help establish state/regional [local assistance state teams \(LAST\)](#).
 - Created interactive map showing various benefits available to LODD survivors.

Slide 1-16

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ACTIVITY 1.1

Analysis of a Firefighter Fatality

Purpose

To analyze a given case study to determine factors contributing to a fatality.

Directions

1. Your group will go to the computer lab and retrieve a Firefighter Fatality Report from the NIOSH website at <http://www.cdc.gov/niosh/fire/>. The report you retrieve must be a fatality that occurred in the category assigned to your group.
2. You should print a copy of the report your group selects to analyze.
3. Your group should review the case study and complete the review sheet provided with this activity. You will have 45 minutes to complete this portion of the activity.
4. At the conclusion of your review, select a representative to present a five-minute summary analysis to the class. Your presentation should be organized as follows:
 - a. Give a short summary of the incident and the cause of the firefighter's death.
 - b. Discuss **five** factors that contributed to the firefighter's death.
 - c. Discuss **five** actions that need to be taken by the fire department to prevent a similar fatality in the future.

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ACTIVITY 1.1 (cont'd)

Analysis of a Firefighter Fatality

Read the entire report and then answer the following questions:

1. What was the medical cause of death for the firefighter? If more than one firefighter was killed in association with this incident, select one for your consideration.

2. Was the firefighter properly trained for his or her job?

3. Was the proper level of personal protective equipment (PPE) in use?

4. Was an Incident Command System (ICS) in place and properly used?

THE FIREFIGHTER FATALITY AND INJURY PROBLEM

5. Which of the first five recommendations requires action by the Fire Department Safety Officer?

6. What circumstances, actions or lack of actions contributed to the firefighter's death?

7. Which of the first five recommendations requires changes in actions or behavior for firefighters, Company Officers (COs), Chief Officers, and fire department management?

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UNIT 2: RISK MANAGEMENT PROCESS

TERMINAL OBJECTIVE

The students will be able to:

- 2.1 *Describe the goal and apply the steps involved in instituting a risk management program.*

ENABLING OBJECTIVES

The students will be able to:

- 2.1 *Identify and discuss risk management and the necessity for fire and Emergency Medical Services (EMS) departments to do risk management.*
 - 2.2 *Identify the methods of detecting risk within a department.*
 - 2.3 *Identify risks (current and potential) involved in both emergency and nonemergency operations.*
 - 2.4 *Discuss the liability issues related to organizational risks.*
 - 2.5 *Identify documentation necessary to support/defend the risk management program.*
 - 2.6 *Use the risk management process to analyze and develop a plan for managing three emerging risks within the student's organization.*
 - 2.7 *Present to the class a plan outline to deal with an emerging health and safety issue (Day Six project).*
-

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ENABLING OBJECTIVES (cont'd)

- Use the risk management process to analyze and develop a plan for managing three emerging risks within the student's organization.
- Present to the class a plan outline to deal with an emerging health and safety issue (Day Six project).

Slide 2-4



Slide 2-5

I. RISK MANAGEMENT PROCESS

DEFINITION

Risk management is the process of planning, organizing, directing and controlling the resources and activities of an organization in order to minimize detrimental effects on that organization.

Slide 2-6

A. Risk management process.

1. Definition of risk management: the process of planning, organizing, directing, and controlling the resources and activities of an organization to minimize detrimental effects on that organization.

RISK!!!!!!!!!!!!!!

- We face it every day.
- Insurance companies recognize it.



Slide 2-7

2. Daily risk.
 - a. Is faced every day.
 - b. No activity is free from risk.
 - c. Insurance companies know this; it is how they sell insurance.

RISK (cont'd)

- We avoid risk.
- Make conscious choices to avoid risk.
- Some are automatic.
- Emergency responders face risk every day.
- IT IS "RISK MANAGEMENT."

Slide 2-8

3. Risk.
 - a. Steps are taken to avoid risk.

- b. There are conscious decisions to avoid risk.
- c. Some avoidance is automatic.
- d. Emergency responders face risk every response.
- e. It is necessary to identify and control risk. This is called risk management.

Why do
risk management?



Slide 2-9

- 4. Why should organizations do risk management?
 - a. It's not just about monetary loss.
 - b. It is to prevent loss of life and property.
 - c. It is to prevent irreparable business and/or service loss.
 - d. It is to protect organizational reputation.

**RISK MANAGEMENT
OVERALL GOAL**

To reduce the frequency and severity of preventable, adverse events that create loss.

Slide 2-10

5. Reduce the frequency and severity of preventable loss and reduce the adverse events that cause loss.

RISK MANAGEMENT

Is comprised of many elements:

- Liability.
- Insurance.
- Safety and health.
- Financial impacts, etc.

Emergency service risks:

- Emergency response.
- Violence.
- Bloodborne pathogens (BBP)/Airborne pathogens (ABP).
- Toxic releases, etc.

Slide 2-11

6. Risk management is comprised of many elements.
- a. Liability.
 - b. Insurance.
 - c. Safety and health.
 - d. Financial impacts.
 - e. Loss of reputation.

RISK MANAGEMENT (cont'd)

- Risk is managed through a "risk management program."
- Primary focus of the risk management program must be member safety and health.

Slide 2-12

7. How risk is managed through a risk management program or plan.
- a. Focus of the plan should be member safety and health.

- b. Consider all risks in the organization.

NATIONAL FIRE PROTECTION ASSOCIATION 1500

- Contains minimum recommendations for occupational safety and health program.
- Applicable to fire or EMS departments.
- Develops a risk management plan in accordance with Chapter 4.

Slide 2-13

- 8. National Fire Protection Association (NFPA) 1500.
 - a. Minimum recommendations for fire department safety and health program.
 - b. Applicable to public, private, governmental, military and industrial fire departments.
 - c. Risk management plan should be developed in accordance with Chapter 4 of NFPA 1500.

EMERGENCY SERVICES RISK MANAGEMENT CATEGORIES

- Nonemergency risk management.
- Pre-emergency risk management.
- Emergency risk management.

Slide 2-14

- 9. Primary focus of organizational risk management is fire/Emergency Medical Services (EMS) safety and health.
 - a. Nonemergency risk management — hazards common to all work places.

- b. Pre-emergency risk management — activities that take place prior to the emergency.
- c. Emergency risk management — duty of every responder.

**RISK MANAGEMENT
CONSIDERATIONS**

- Administration and facilities.
- Training.
- Vehicle operations.
- Protective clothing and equipment.
- Emergency incidents operations.
- Nonemergency incidents operations.
- Other related activities.

Slide 2-15

- 10. Risk management considerations (briefly discuss each point).
 - a. Administration.
 - b. Facilities.
 - c. Training.
 - d. Vehicle operations.
 - e. Protective clothing and equipment.
 - f. Operations at emergency incidents.
 - g. Operations at nonemergency incidents.
 - h. Other related activities.

RISK MANAGEMENT OVERVIEW

Five-step process:

1. Risk Identification.
2. Risk Evaluation.
3. Risk Prioritizing.
4. Risk Control.
5. Risk Monitoring.

Slide 2-16

11. Risk management process (overview).
 - a. Identification.
 - b. Measurement to determine probability of potential losses (evaluation).
 - c. Prioritization.
 - d. Development of risk-control strategies.
 - e. Monitoring.

RISK IDENTIFICATION

- Pertains to actual or potential hazards.
- Based on department's organizational statement.
- Involves daily risks encountered.

Slide 2-17

12. Identifying risks.
 - a. Actual or potential hazards.
 - b. Based on department's organizational statement.

RISK EVALUATION

- Likelihood of occurrence of given hazard and severity of consequences.
- Evaluation of accidents and injuries.
- Based on frequency and severity.
- Assessment of underlying causes.
- Awareness of organizational culture.

Slide 2-19

13. Risk evaluation.

- a. Likelihood of occurrence of a given hazard and the severity of its consequences.
- b. Evaluation of accidents and injuries.
- c. Based on frequency and severity.
- d. Examines underlying causes for risk.
- e. Monitor extra-organizational risk (outside influences).
- f. Organizational culture that magnifies or creates risk.
- g. Is planning for the worst.

PRE-EMERGENCY RISK

- Pre-emergency activities or those that affect an emergency.
- May have major impact on safety.
- Should use laws, regulations, standards, policy or procedure to reduce risk.
- Should consider engineering, administration or other methods to reduce risk.

Slide 2-20

14. Pre-emergency risk management.

RISK MANAGEMENT PROCESS

- a. Considers activities that take place before the emergency or that may affect the emergency.
- b. May have a major impact on the safety of members responding to and from or working at the scene of an emergency.
- c. The organization should use laws, regulations, standards, policy or procedure to reduce the risk.
- d. Consideration may be given to engineering, administration or other methods to reduce risk.

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ACTIVITY 2.1

Pre-emergency Risk Management

Purpose

To identify pre-emergency risk management measures affecting emergency operations.

Directions

1. As you view the video, think about pre-emergency risk management measures related to the scenario.
2. At the conclusion of the video scenario, you will have five minutes to list on the worksheet the pre-emergency risk management measures that affect this incident.
3. After you complete your list, be prepared to discuss what you have identified with the class.

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ACTIVITY 2.1 (cont'd)

Pre-emergency Risk Management Worksheet

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

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I. RISK MANAGEMENT PROCESS (cont'd)

RISK PRIORITIZATION

- Based on:
 - Frequency and severity of occurrence.
 - Catastrophic incidents.
 - Firefighter fatalities, injuries, accidents and near misses.
- Any risk that has a high probability of occurring and serious consequences deserves immediate action.

Slide 2-23

- 15. Prioritizing risks.
 - a. Decide which risks will be controlled first.
 - b. Control high frequency/high severity first, then low frequency/low severity.
 - c. Difficult decision is up to the judgment of risk managers.
 - d. There is no one correct way to prioritize risks. The judgment of the risk manager is important.

CLASSIC RISK MANAGEMENT MATRIX MODEL

HIGH	HIGH FREQUENCY LOW SEVERITY	HIGH FREQUENCY HIGH SEVERITY
LOW	LOW FREQUENCY LOW SEVERITY	LOW FREQUENCY HIGH SEVERITY

Slide 2-24

- e. Classic matrix may help in classifying problems.
 - High frequency/high severity example — exposure to smoke at a fire.

- b. Also include situations marked by:
 - Team and organizational constraints.
 - Changing conditions.
 - Varying amounts of experience.
- 2. Background of NDM.
 - a. NDM movement originated at a conference in Dayton, Ohio, in 1989.
 - b. NDM conferences every two to three years, alternating between U.S. and European venues.
 - c. NDM books have been published.
- 3. NDM framework focuses on cognitive functions such as decision making, situational awareness, and planning.
 - a. Situations emerge in natural settings and take forms that are not easily replicated in the laboratory. (For example, it is difficult to replicate high fire situations, that provide stress, provide for immediate problem-solving, with extremely high levels of expertise, or to realistically incorporate team and organizational constraints.)
 - b. NDM researchers rely on cognitive field research methods such as task analysis to observe and study skilled performers.
 - c. NDM studies usually address the initial stages of observing phenomena.
 - d. Controlled laboratory studies emphasize the testing of hypotheses.
 - e. NDM is a complementary approach.
 - f. NDM provides the observations and models, and controlled experimentation provides the testing and formalization.
- 4. NDM is a model of how people make quick, effective decisions when faced with complex situations.
 - a. A decision-maker is assumed to:

- Generate a possible course of action.
 - Compare it to the constraints imposed by the situation.
 - Select the first course of action that is not rejected.
- b. NDM has been described in various groups including intensive care unit (ICU) nurses, fireground commanders, and stock market traders.
- c. It functions well in conditions of time pressure and in which information is partial and goals poorly defined.

NDM (cont'd)

- Limitations of NDM include:
 - The need for extensive experience.
 - The failure of recognition and modeling in unusual or misidentified circumstances.
- NDM appears to be a valid model for decision-makers.

Slide 2-27

- d. The limitations of NDM include:
- The need for extensive experience among decision-makers (in order to correctly recognize the salient features of a problem and model solutions).
 - The problem of the failure of recognition and modeling in unusual or misidentified circumstances.
- e. NDM appears to be a valid model for how human decision-makers make decisions.

NDM (cont'd)

- NDM identifies reasonable reaction as first one considered.
 - NDM combines two ways of developing a decision.
 - Recognizing course of action.
 - Evaluating cause of action through imagination.
 - Experienced or inexperienced.
 - It is a major factor in the decision-making process.

Slide 2-28

5. NDM model identifies a reasonable reaction as the first one that is immediately considered.
 - a. NDM combines two ways of developing a decision.
 - Recognizing which course of action makes sense.
 - Evaluating the cause of action through imagination to see if the actions resulting from that decision make sense.
 - b. Being experienced or inexperienced is a major factor in the decision-making process.
6. NDM reveals a critical difference between experts and novices when presented with recurring situations.
 - a. Experienced people will generally:
 - Be able to come up with a quicker decision.
 - May match the current situation to a prototypical situation they have encountered before.
 - b. Novices, lacking this experience, must:
 - Cycle through different possibilities.
 - Tend to use the first course of action that they believe will work.
 - Have the tendencies of using trial and error through their imagination.

THREE VARIATIONS IN NDM STRATEGY

- Variation 1 occurs when situational detail and detail of relevant courses of action are known.
 - Variation 1 is therefore essentially an “If ... then ... ” reaction.
 - Experienced decision-makers are likely to have knowledge of prototypical situations and established courses of action.

Slide 2-29

7. There are three variations in NDM strategy.
 - a. Decision-makers recognize the situation as typical in Variation 1.
 - It is a scenario where both the situational detail and the detail of relevant courses of action are known.
 - Variation 1 is therefore essentially an “If ... then ... ” reaction.
 - A given situation will lead to an immediate course of action because the situation is typical.
 - More experienced decision-makers are more likely to have the knowledge of both prototypical situations and established courses of action required for an NDM strategy to qualify as Variation 1.

THREE VARIATIONS IN NDM STRATEGY (cont'd)

- Variation 2 occurs in an unknown situation but a known course of action.
 - Variation 2 takes the form of “If (???) ... then ... ,”
 - Implies specific knowledge of courses of action but lack of knowledge of parameters of situation.

Slide 2-30

- b. Variation 2 occurs when the decision-maker diagnoses an unknown situation to choose from a known selection of courses of action.
 - Variation 2 takes the form of “If (???) ... then ... ,”
 - This implies specific knowledge of courses of action but lack of knowledge regarding the parameters of the situation.
 - To prevent situational complications and the accrual of misinformation, the decision-maker:
 - Models possible details of the situation carefully.
 - Chooses the most relevant known course of action.
 - Experienced decision-makers are more likely to correctly model the situation and more quickly choose the appropriate action.

THREE VARIATIONS IN NDM STRATEGY (cont'd)

- Variation 3 occurs with knowledge of a situation, but the course of action is unsure.
 - Variation 3:
 - Takes the form of “If ... then ... (???)”
 - Implements mental trial-and-error simulation for course of action.
 - Experienced decision-makers develop a viable course of action more quickly.

Slide 2-31

- c. Variation 3, the decision-maker is knowledgeable of the situation but unaware of the proper course of action.
 - The decision-maker implements a mental trial-and-error simulation to develop the course of action.
 - Variation 3 takes the form of “If ... then ... (???)”
 - The decision-maker models outcomes of new or uncommon courses of action.
 - Will cycle through different courses of action until a course of action appears appropriate.

-- Time constraints may force choosing the first course of action appearing to be.

-- Experienced decision-makers are likely to develop a viable course of action more quickly because their expert knowledge can rapidly be used to disqualify inappropriate courses of action.

NDM (cont'd)

- NDM is relevant to leaders or officers of emergency services organizations.
- NDM:
 - Is applied to the experienced and inexperienced decision-makers.
 - Has developed samples for organizations.

Slide 2-32

8. NDM is highly relevant to the leaders or officers of organizations that are affiliated with emergency services such as firefighters, search and rescue units, police, and other emergency services.
 - a. It is applied to both the experienced and the inexperienced, and how they manage their decision-making processes.
 - b. NDM has developed samples for organizations on how important decisions can affect important situations which may either save lives or take lives.

RISK CONTROL MEASURES

- Personal protective equipment (PPE).
- Standard operating procedures (SOPs).
- Training and education.
- Incident Command System (ICS).

Slide 2-33

- 9. Control measures.
 - a. Personal protective equipment (PPE).
 - b. Standard operating procedures (SOPs).
 - c. Training and education.
 - d. Incident Command System (ICS).
 - e. Risk avoidance.
 - f. Risk transfer (insurance).

MONITORING

- Evaluation of the whole process.
- Nine- to 12-month time frame.
- Indications the process is or is not working.
- Changes that can be made:
 - As needed, or
 - As systems change.



Slide 2-34

- 10. Monitoring (evaluation of effectiveness of control measures; plan should be evaluated yearly).

DOCUMENTATION

- Testimony tool.
- Retrospective review.
- Identified problems must be accompanied by documentation of action taken.



Slide 2-35

- 11. Documentation.
 - a. Testimony tool.
 - b. Retrospective review.
 - c. If problem is identified, must also indicate action taken.

DOCUMENTATION (cont'd)

What are some of the positive and negative results of documentation related to risk management problems?

+ -

Slide 2-36

SPECIAL CONCERNS

- Training.
- Hazardous operations.
- Technical rescue.
- Hazardous materials/Terrorism.
- Incidents involving violence.
- Community involvement.
- SOPs.



Slide 2-37

- 12. Areas of special concern:
 - a. Training.
 - b. Hazardous operations.
 - c. Technical rescue.
 - d. Hazardous materials/Terrorism (covered in Unit 8).

- e. May use technical experts for help.
- f. Heavily regulated.
- g. Incidents involving violence.
- h. Community involvement.
- i. SOPs.

**Table 2.1
Risk Management Plan**

Operation and Risk ID	Frequency/Severity	Rank/Priority	Control Measures
Emergency Mode Driving			
Collisions with other vehicles	Low/High	High	Emergency mode driving regulations Traffic control devices Warning lights/sirens Speed limitations Public education campaign Not all calls require emergency mode
Collisions with objects	Low/High	High	Emergency mode driving regulations Use of backers Automatic door openers
Injury to passengers	Low/High	High	Seatbelt provision and use Enclose equipment in cab
Injury to others	Low/High	High	Public education campaign Warning lights/sirens Traffic control devices

Table 2.2
Hazards and Control Measures

Apparatus and Vehicles

- All personnel seated in enclosed areas
- Seatbelts provided for all riders
- Equipment inside the passenger compartment secured or enclosed
- Self-contained breathing apparatuses (SCBAs) stored outside of the passenger compartment
- Driver safety training provided to all drivers on the following:
 - Stopping distances
 - Emergency maneuvering
 - Aerial operations
 - Pump operations
 - Backing hazards and the use of spotters
 - Vehicle does not move until all passengers are seated/belted
- Vehicle conspicuity (visibility) in emergency and nonemergency modes
- Emergency mode driving procedures
 - Stop signs and red lights
 - Negative right-of-way situations
 - One-way streets
 - Speed limits
 - Challenge and response routine between the driver and the officer
 - Railroad crossings
 - Dangers posed by engine brakes, retarders and brake limiting switches
- Weight and brake capacity
 - Loading of new vehicles
 - Weight balancing, side-to-side
 - Tank baffling
 - Military truck conversions; fuel tanker conversions
 - Antilock brakes on newer chassis
 - Automatic chains for colder climates
 - Supplemental braking devices such as jake brakes, transmission retarders, and magnetic driveline retarders

- Passenger heat and noise reduction (sirens, radios, air horns, engine, etc.)
- Patient lifting height for ambulances
- Child safety seats for pediatric riders
- Restraints for EMS providers and others in the back of an ambulance
- Compliance with the appropriate federal or NFPA standard
- Preventive maintenance and inspection program

Facilities

- Smoke detectors and automatic sprinklers
- Diesel exhaust emissions control
- Standard fire safety measures regarding storage, electrical appliances, safety with cigarettes and open flame, and regular inspections
- Dedicated area for the cleaning of EMS equipment, NFPA Standard 1581, *Standard on Fire Department Infection Control Program*

Protective Clothing and Equipment

- Compliance with the appropriate NFPA standard
- **Full** structural protective clothing: helmet, hood, coat, gloves, SCBA, flashlight, trousers and boots
- Protective clothing for EMS operations: exam gloves, eye and face protection, drapes, gowns and suits
- Clothing and equipment — and a means for cleaning them — must be provided by the agency
- Uniforms compliant with NFPA 1975
- Clothing worn by volunteer firefighters under structural protective clothing
- SOPs that govern the use and maintenance of protective clothing and equipment

- Right protective clothing for the occasion: structural, wild land, proximity, hazmat, etc.

Equipment

- Proper training for all members expected to use the equipment, a basic requirement
- Weight, center of gravity, and ease of carrying: Are handles in places to make the equipment easy to carry (portable pump)?
- Consideration of noise levels produced by the equipment

Firefighting

- Use of an incident management system
- Use of incident safety officers on the scene of an emergency
- Working in teams of at least two members in the hazard area
- Use of risk management techniques on the scene of the emergency (risk versus benefit)

Emergency Medical Services

- Use of proper levels of communicable disease protective equipment and clothing
- Proper decontamination of equipment
- Scene control (traffic accidents, violent incidents, etc.)
- Use of an incident management system
- Proper lifting techniques

ACTIVITY 2.2

Identifying and Prioritizing Risks

Purpose

To identify and prioritize risks associated with emergency and nonemergency functions of a fire department and present your findings to the class.

Directions

1. In this small group activity, you are to identify the risks associated with the function assigned to your group. These risks should be identified in the assigned column of the worksheet.
2. After you have identified the risks, you are to prioritize those risks in the assigned column and provide a brief rationale for your prioritization.
3. You have 20 minutes to complete this activity. You will then give a five-minute oral presentation of your findings to the entire class. Each presentation will be followed by a five-minute general discussion led by the instructor.

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ACTIVITY 2.3

Emerging Issues Risk Management Plan

Purpose

To use the risk management process to analyze and develop a plan for emerging safety risk management issues within your department.

Directions

1. In this individual activity, you are to develop a brief outline for a plan to address the emerging safety or risk management issues you identified in Unit 0 (Welcome and Introductions) for when you return home. You will present your plan outline to your classmates. You should use the USFA publication, *Risk Management Practices in the Fire Service*, (pp. 33-46) to assist you in this exercise.
2. You will be required to complete the majority of this activity outside of class hours. You will then be required to give a five-minute oral presentation of your plan to your classmates on Day Six of this course.
3. You must discuss how your plan outline will address the topics you have previously identified. You must develop a one-page sheet of bulleted items from your plan for posting for the class.
4. Your presentation should identify broad steps to address each emerging issue and the predicted or expected effect of your plan. The time and methods to implement your plan should be briefly outlined.
5. Your presentation should take **no longer than five minutes** and will be evaluated by your peers and your instructors. The feedback sheet is included in your SM. Use this evaluation sheet as a guide.

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ACTIVITY 2.3 (cont'd)

Emerging Issues Risk Management Plan Feedback and Grade Sheet

You are evaluating a student presentation of a Risk Management Plan. Specific comments will be very helpful as well as the numbers.

Reflect on the student's presentation. Using the following scale, first rate his or her performance on each of the components. After rating each of the behaviors, rate his or her overall performance in the skill area.

- 5 — extremely effective
- 4 — more than effective
- 3 — effective
- 2 — marginally effective
- 1 — not effective

Overall Score _____
(Figure score to no more than one decimal place)

Evaluating Emerging Issues or Risk Potential

- _____ Identify three emerging issues in your department for the plan.
- _____ Identify the probabilities improving safety in your department based on what you have learned in this class.
- _____ Identify probable consequences if they occur (**consider effects on human resources**).
- _____ Identify any known national experience with the emerging issues or risks identified.

Evaluating Emerging Issues or Risk Potential Comments

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UNIT 3: SAFETY RESPONSIBILITIES

TERMINAL OBJECTIVE

The students will be able to:

- 3.1 *Describe the responsibilities of all fire/Emergency Medical Services (EMS) agency personnel relating to safety and health.*

ENABLING OBJECTIVES

The students will be able to:

- 3.1 *Describe the Incident Command System (ICS) and the place of the Incident Safety Officer (ISO) within that system.*
- 3.2 *Describe the role and responsibilities of:*
- 3.2a *Fire/EMS Chief or Agency Director.*
 - 3.2b *ISO.*
 - 3.2c *Health and Safety Officer (HSO).*
 - 3.2d *Command Officer.*
 - 3.2e *Company Officer (CO).*
 - 3.2f *Firefighter/Emergency medical technician (EMT).*
 - 3.2g *Safety Committee.*
- 3.3 *Discuss the importance of clear and accurate communications between all levels of the department as they relate to safety.*
- 3.4 *Identify safe and unsafe practices, given a visual scenario.*
-

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**UNIT 3:
SAFETY RESPONSIBILITIES**

Slide 3-1

ENABLING OBJECTIVES

- Describe the Incident Command System (ICS) and the place of the Incident Safety Officer (ISO) within that system.
- Describe the role and responsibilities of:
 - Fire/Emergency Medical Services (EMS) Chief or Agency Director.
 - ISO.
 - Health and Safety Officer (HSO).
 - Command Officer.
 - Company Officer (CO).
 - Firefighter/Emergency medical technician (EMT).
 - Safety Committee.

Slide 3-2

ENABLING OBJECTIVES (cont'd)

- Discuss the importance of clear and accurate communications between all levels of the department as they relate to safety.
- Identify safe and unsafe practices, given a visual scenario.

Slide 3-3

I. OVERVIEW OF THE INCIDENT COMMAND SYSTEM

INCIDENT COMMAND SYSTEM

- Describes functions, responsibilities and standard operating procedures (SOPs) used to manage resources at an incident.
 - Based on defined objectives.
 - Recognize risk and reduce severity.



Slide 3-4

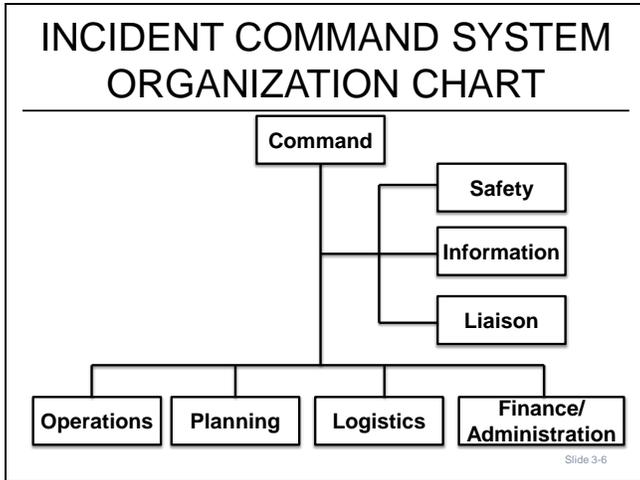
- A. Department’s policy describing functions, responsibilities and standard operating procedures (SOPs) used to manage and assign resources based on defined incident objectives.
- B. Goals — deliver effective service and ensure safety.
- C. Recognize risk and reduce severity through implementation of control measures.

INCIDENT ACTION PLAN

- Identifies:
 - Strategic goals.
 - Tactical objectives.
 - Risk management.
 - Member safety.
 - Support requirements.
- May be verbal or written.

Slide 3-5

- D. Incident Action Plan (IAP).
 1. Defines strategic goals, tactical objectives, risk management, member safety, and supporting requirements.
 2. May be verbal or written.



E. Roles and responsibilities.

INCIDENT COMMAND SYSTEM (cont'd)

- Incident Commander (IC):
 - Responsible for strategic planning, forecasting and developing priorities.
 - Evaluates acceptable risk in terms of salvageable lives and property.

Slide 3-7

1. Incident Commander (IC).
 - a. Focuses on strategic issues and planning, forecasting and developing priorities.
 - b. Evaluates acceptable risk levels regarding saving lives and property.

INCIDENT COMMAND SYSTEM
(cont'd)

- **Command Staff:**
 - Safety — responsible for safety of all responders; develops/recommends safety measures.
 - Information — develops/releases information about the incident; interfaces with media.
 - Liaison — contact for personnel assigned to incident by assisting or cooperating agencies.

Slide 3-8

- 2. **Command Staff.**
 - a. Safety — responsible for safety of all responders; develops/recommends safety measures.
 - b. Information — develops/releases information about the incident; interfaces with media.
 - c. Liaison — contact for personnel assigned to incident by assisting or cooperating agencies.

INCIDENT COMMAND SYSTEM
(cont'd)

- **General Staff:**
 - Operations:
 - All tactical operations.
 - Planning/Intelligence:
 - Collect, evaluate, disperse and use information about the incident and the status of resources.

Slide 3-9

- 3. **General Staff.**
 - a. Operations — tactical operations.
 - b. Planning — collection, evaluation, dispersion and use of information about the development of an incident and the status of resources.

**INCIDENT COMMAND SYSTEM
(cont'd)**

- General Staff
 - Logistics:
 - Provides facilities, services and materials.
 - Finance/Administration:
 - Handles all costs/financial transactions associated with an incident as well as administrative matters.

Slide 3-10

- c. Logistics — provides facilities, services and materials.
- d. Finance — all costs and financial transactions associated with an incident.

F. Incident Safety Officer (ISO) reports directly to IC, which allows direct communication.

II. ROLES AND RESPONSIBILITIES

ROLES/RESPONSIBILITIES

- Each member shares responsibility.
- Certain members have definitive roles.



Slide 3-11

A. Each member shares responsibility for ensuring participation and compliance with department’s occupational safety and health program.

FIRE/EMERGENCY MEDICAL SERVICES CHIEF

- Ensures safety, health and welfare of all members.
 - Risk management plan.
 - Occupational safety and health program.
 - Establishes a safety committee.
- Takes proactive approach.

Slide 3-12

B. Certain members have definitive roles.

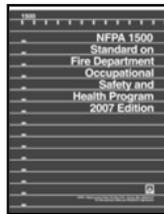
1. Fire/Emergency Medical Services (EMS) Chief or Agency Director.

- a. Responsible for ensuring safety, health and welfare of all members.
- b. Takes a proactive approach.
- c. Develops and implements occupational safety and health program.
- d. Establishes a Safety Committee to help evaluate the program.

THE HEALTH AND SAFETY OFFICER

ACCORDING TO NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 1500

- Primarily administrative position:
 - Responsible for coordination of safety and wellness programs.
- May assist/serve as ISO at emergencies.
- In volunteer department, ISO/HSO may be same individual.



Slide 3-13

2. Health and Safety Officer (HSO) (per National Fire Protection Association (NFPA) 1500, *Standard on Fire Department Occupational Safety and Health Program*).

- a. Must have an assigned HSO.

- b. Manages occupational health and safety program.
- c. Definition: department-level, primarily administrative position, responsible for coordination of safety and wellness aspects as they apply to organizational activities.
- d. May fill the role of ISO during an emergency.
- e. Must be an officer within the agency, reporting to the chief or chief's designee.
- f. Must be trained to Fire Officer Level I (NFPA 1521, *Standard for Fire Department Safety Officer*).
- g. In volunteer departments, HSO and ISO may be the same person.

DUTIES OF HEALTH AND SAFETY OFFICER

- Works to develop:
 - Occupational safety/health policy.
 - SOPs and standard operating guidelines (SOGs).
 - Safety training for delivery to members.
 - Injury/Exposure documentation systems, including management.
 - Health maintenance/physical fitness programs.

Slide 3-14

- 3. Major duties of HSO.
 - a. Develop an occupational safety and health policy detailing goals and objectives for prevention of illness, injury and fatalities.
 - b. Develop SOPs for high-risk activities.
 - c. Develop/Deliver safety training courses for members of fire/EMS agency.
 - d. Develop/Manage injury and exposure documentation systems.
 - e. Provide input into all department operations to ensure safety.
 - f. Develop/Support appropriate health maintenance and physical fitness programs.

DUTIES OF HEALTH AND SAFETY OFFICER (cont'd)

- Analyze injury and death studies.
- Assist with research, purchase and use of personal protective equipment (PPE).
- Know national standards for safety equipment and operational safety.

Slide 3-15

- g. Analyze fire department and national firefighter injury/death studies to develop means of preventing recurrence of such incidents.
- h. Help with research, purchase and use of personal protective equipment (PPE).
- i. Know national standards for safety equipment and operational safety.

EMERGENCY MEDICAL SERVICES SAFETY RESPONSIBILITIES

- Safety issues common.
- On-scene safety falls to everyone.
- EMS Safety Officer:
 - Key to reducing injuries and death.
- On-scene safety:
 - Outside stream of hands-on care.



Slide 3-16

- 4. EMS safety responsibilities.
 - a. Safety issues common across all EMS organizations.
 - Physical, environmental, traffic, strenuous labor and emotionally charged interaction.
 - b. Goal of safety falls to each responder.

- c. Role of Safety Officer.
 - ISO — on-scene safety.
 - HSO — manages health and safety program.
- d. Large scale incidents — ISO focuses on safety.
 - Operate outside stream of hands-on care.

<h3>THE INCIDENT SAFETY OFFICER</h3> <hr/> <ul style="list-style-type: none">• Member of Command Staff.• Sole job — emergency scene safety.• When delegated — has authority to alter, suspend or terminate hazardous activities.• Identifies/Mitigates potential hazards.• NFPA 1521, <i>Standard for Fire Department Safety Officer</i>, establishes requirements.• Training Officer may take role as ISO. <p style="text-align: right; font-size: small;">Slide 3-17</p>

- 5. ISO.
 - a. ICS helps minimize risk to responders.
 - b. ISO is member of IC's General Staff.
 - c. ISO focuses on safety aspects of incident.

Definition: monitors and assesses safety hazards or unsafe situations and develops measures for ensuring personnel safety.
 - d. NFPA 1521 and ICS provide guidance to IC who delegates authority to ISO to alter, suspend or terminate unsafe acts or hazardous activities.
 - e. Also responsible for identifying existing or potential hazards.
 - f. Member of department with knowledge of safety, hazards and safety procedures of agency. NFPA 1521 contains requirements for needed knowledge.
 - g. Training Officer may take on role of ISO.

INCIDENT SAFETY OFFICER JOB FUNCTIONS

- Protect the safety of responders.
- Knowledge of typical response incidents:
 - Structural fire.
 - EMS response.
 - Other types of operations.
- Understand tactics and strategies.



Slide 3-18

6. Duties of ISO.
 - a. Protect the safety of responders.
 - b. Know typical response incidents.
7. Structural fire.
 - a. Building construction.
 - b. Fire behavior and flame spread.
 - c. Reading and understanding smoke.
 - d. Understanding of strategy and tactics.
 - e. Familiarity with operation with self-contained breathing apparatus (SCBA).
 - f. Familiarity with work before needing rehabilitation (rehab).
8. EMS response.
 - a. Infection control procedures.
 - b. Scene security measures.
 - c. Wearing PPE Body Substance Isolation (BSI).
 - d. Critical Incident Stress Management (CISM).
9. Other types of operations.

- a. Methods of shore-based and boat water rescue.
- b. Proper operations at technical rescues (e.g., trench).
- c. Knowledge of high-rescue rigging.
- d. Product identification and PPE selection (hazmat).
- e. Use of technical experts.
- f. Wildland firefighting and National Wildfire Coordinating Group (NWCG) requirements.

**INCIDENT SAFETY OFFICER
AS RISK MANAGER**

- Plan for monitoring conditions and actions at incident.
- Rehab area.
- Proper documentation for After Action Review (AAR).

Slide 3-19

- 10. ISO as risk manager.
 - a. Has plan to monitor conditions and actions at incident.
 - b. Ensures that a rehab area is established and monitors responders.
 - c. Documents properly — important for After Action Review (AAR).

COMMAND OFFICER

- Manage the incident.
- Employ risk management principles.
- Identify, evaluate, manage and control risks.



Slide 3-20

- 11. Command Officer.
 - a. Manages the incident.
 - b. Focuses on strategic planning, forecasting and developing priorities.
 - c. Employs risk management principles.

COMPANY OFFICER

- Works within parameters of ICS.
- NFPA 1021, *Standard for Fire Officer Professional Qualifications* identifies competencies.
- Conducts risk analysis/size-up.
- Manages firefighters assigned.
- Provides training/education.
- Ensures compliance with policies.

Slide 3-21

- 12. Company Officer (CO).
 - a. Works within parameters of ICS.
 - b. Requirements listed in NFPA 1021, *Standard for Fire Officer Professional Qualifications* identify criteria.
 - c. Conducts initial risk analysis/size-up.

- d. Manages group of assigned firefighters.
- e. Provides training.
- f. Ensures compliance with policies.

**FIREFIGHTER/EMERGENCY
MEDICAL TECHNICIAN**

- Properly trained.
- NFPA 1001, *Standard for Fire Fighter Professional Qualifications* contains minimum requirements.
- Works within parameters of incident.



Slide 3-22

- 13. Firefighter/Emergency medical technician (EMT).
 - a. Works within the parameters of the incident.
 - b. Trained on:
 - Strategy and tactics.
 - Operational risk management.
 - Effective communications.
 - Personnel accountability.
 - Rapid Intervention Crew (RIC) process.
 - Incident scene rehab.
 - NFPA 1001, *Standard for Fire Fighter Professional Qualifications* contains minimum requirements for firefighters.

SAFETY COMMITTEE

- Identified recommendation in NFPA 1500.
- Foundation of health and safety program.
- Tasks:
 - Reviewing accident reports.
 - Investigating complaints.
 - Recommending improvements.
- Driven by commitment from membership and leadership.

Slide 3-23

14. Safety Committee.

- a. Identified recommendation in NFPA 1500.
- b. Foundation of department’s health and safety program.
- c. Key tasks: reviewing accident or injury reports, investigating safety complaints, and developing recommendations for improvements.
- d. Committee effectiveness is driven by strong commitment and support from the organizational membership and its leadership.

SAFETY COMMITTEE (cont’d)

- Membership represents all areas of department.
- Committee operation driven by mission statement.
- Goals and actions driven by safety history, regulatory requirements, and desire to change safety culture.



Slide 3-24

- e. Membership should represent all areas of the department from administration to operations to the HSO.
- f. Committee operation is driven by mission statement and bylaws.

- g. Goals and actions are derived from safety history, regulatory requirements, and desire to create a safer work environment.

III. RELATIONSHIP OF HEALTH AND SAFETY OFFICER AND INCIDENT SAFETY OFFICER

RELATIONSHIP OF HEALTH AND SAFETY OFFICER AND INCIDENT SAFETY OFFICER

- HSO — pre-emergency/nonemergency risk management activities — program.
- ISO — on-scene risk management at an emergency — “nuts and bolts.”



Slide 3-25

- A. HSO — pre-emergency or nonemergency.
- B. ISO — at scene of emergency.
- C. There may be assistant ISOs at the scene of a major incident.

RELATIONSHIP OF HEALTH AND SAFETY OFFICER AND INCIDENT SAFETY OFFICER (cont'd)

- HSO — pre-emergency/programs.
- ISO — emergency operations/training.
- HSO may perform ISO function or serve as an assistant at large incidents.
- The HSO relies on the ISO for contact after the incident.

Slide 3-26

- D. HSO relies on ISO for input after the incident.

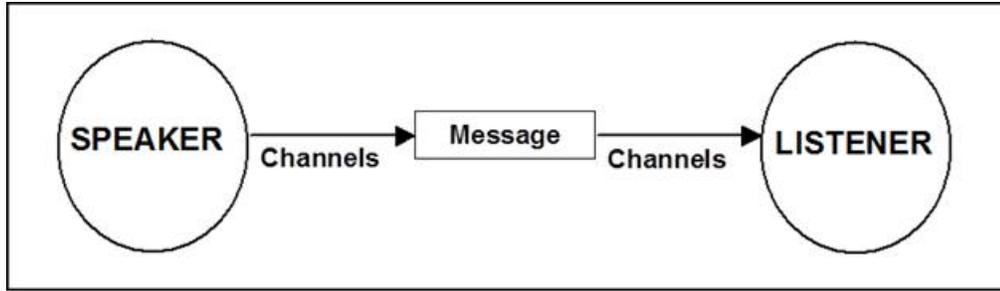


Figure 3.1
One-Way Communication

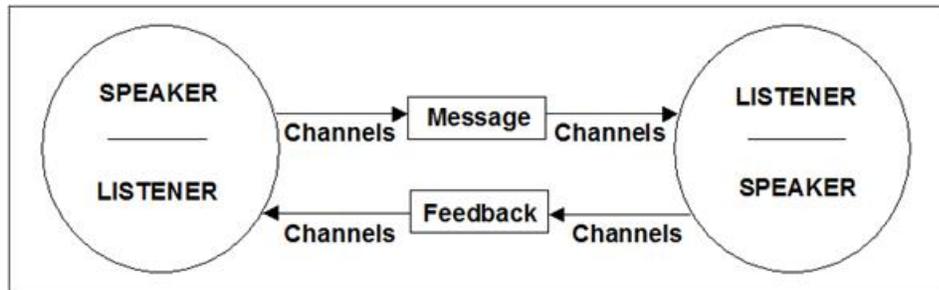


Figure 3.2
Two-Way Communication

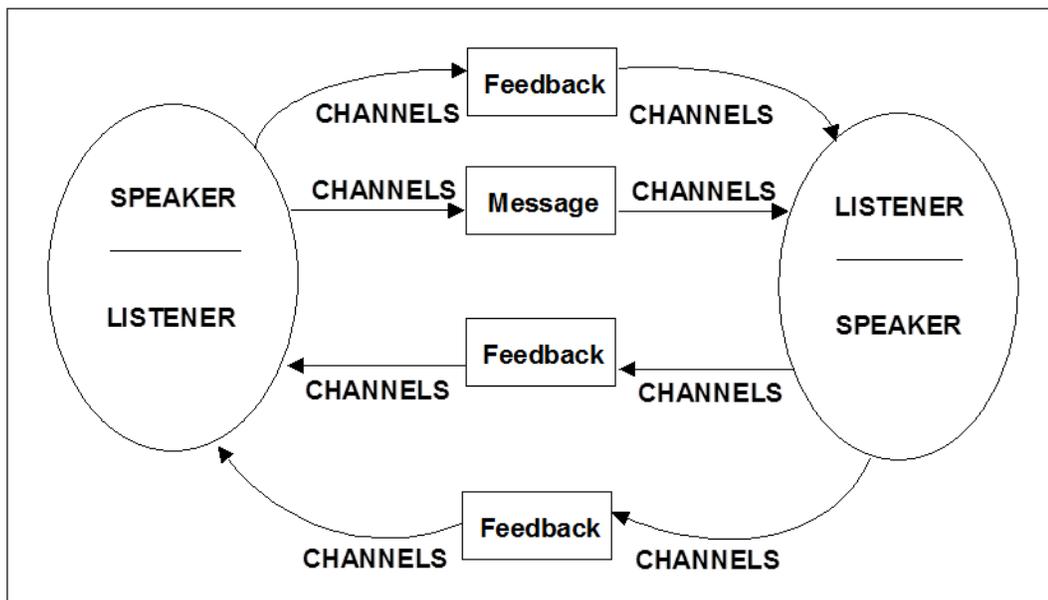
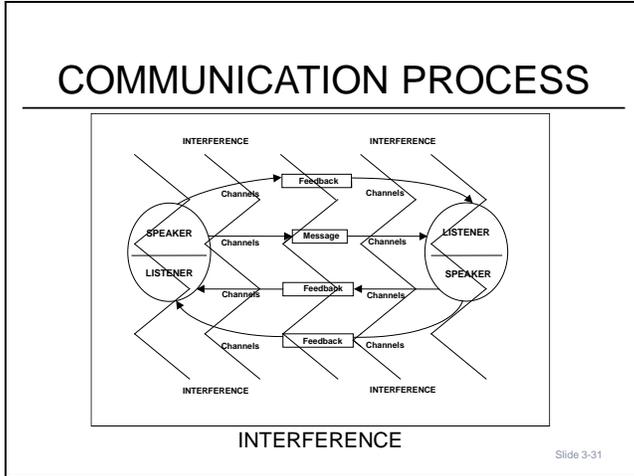


Figure 3.3
Authentic Dialogue



C. Causes of miscommunication.

INTERFERENCE

- External.
- Physiological.
- Psychological.
- Semantic.

Slide 3-32

1. **External interference:** all distractions outside the individual that make it difficult to hear (e.g., smoke, extreme temperatures, loud noises, crowds); external interference such as engine noise, road noise, car radios, ventilation fans, and modern sound-insulation techniques often make it difficult for drivers to hear emergency sirens.
2. **Physiological interference:** factors within the listener that disrupt the listener's ability to hear (e.g., effects of medication, alcohol, fatigue, illness).
3. **Psychological interference:** factors within the speaker and listener that make it difficult to comprehend and communicate effectively; several types:
 - a. Personality conflicts.
 - b. Stereotypes.

- c. Message doesn't agree with listener's attitudes/beliefs.
 - d. Emotions.
 - e. Boredom.
 - f. Information overload.
 - g. Status differences (real or perceived).
 - h. Hidden agendas.
4. **Semantic interference:** listener does not decode a message in a way that matches the speaker's meaning.
- a. Words or phrases with more than one meaning.
 - b. Relative words (e.g., big, small, fast, slow, easy, hard, etc.).
 - c. Abstract or general terms.
 - d. Unfamiliar vocabulary.
 - e. Message disorganization.

SPEAKER'S RESPONSIBILITY

- Make listener feel comfortable.
- Organized message.
- Familiar vocabulary.
- Insist on feedback.

Slide 3-33

5. The speaker's responsibility.
- a. Avoid undercutting the meaning of the message with:
 - **Hedges** (e.g., "I think that perhaps...", "I'm not sure...", "I'm kind of disappointed...", "I guess I'd like to...").

- **Tag questions** (e.g., “It’s about time we got started, isn’t it?” “Look at that thing, that doesn’t seem right, does it?”).

- **Disclaimers** (e.g., “I’m not really sure but...,” “I probably shouldn’t say this but...”).

- b. Avoid sending double messages.
- c. Use clear and specific language rather than general terms.
- d. Make the listener feel comfortable by establishing a climate conducive for communicating (i.e., try to minimize psychological and external interference).
- e. Verbalize the message in an organized fashion and use vocabulary familiar to the listener.
- f. Insist on feedback.

AUTHENTIC DIALOGUE

- Express thoughts and feelings.
- Express clearly and in an organized way.
- Be an active listener.
- Be nonjudgmental.



Slide 3-34

6. Listener’s responsibility.

Guidelines for establishing authentic dialogue.

- a. Be willing to express your thoughts and feelings.
- b. Express thoughts and feelings clearly and in an organized manner.
- c. Be an active listener.
 - Don’t be preoccupied with other thoughts.
 - Ask good questions.

- Put yourself in the place of the other person.
- Paraphrase others' messages to ensure understanding.
- d. Report behavior in specific and observable terms without judging right or wrong or making accusations about attitudes.
- e. Postpone evaluation of new ideas until they are fully understood.

AUTHENTIC DIALOGUE (cont'd)

- Avoid hostility.
- Keep an open mind.
- Be willing to confront.
- Think win-win.

Slide 3-35

- f. Avoid becoming hostile when another's viewpoint differs from your own.
- g. Keep an open mind; be willing to change your convictions as new information is uncovered.
- h. Be willing to confront; conflict is an integral part of life. It is not something to be avoided; rather, it is something to be guided and channeled for productive ends.
- i. Think win-win. Ask yourself, in this particular confrontation, "What might be done to ensure that both my adversary and I achieve our objectives? How can we both emerge as winners?"

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ACTIVITY 3.2

Role Responsibility and Identification of Safe and Unsafe Practices

Purpose

To recognize the specific roles of the ISO, HSO, Command Officer, CO, and Firefighter and identify safe and unsafe practices at a variety of emergency incidents, and to identify methods to acknowledge safe behavior as well as resolve unsafe practices.

Directions

Part 1

1. You will have the opportunity to look briefly at a series of slides. You are to identify and note in the spaces provided on the worksheet both the safe and unsafe practices you observe on each slide.
2. Be prepared to discuss who (ISO, HSO, IC, CO or Firefighter) likely had an influence on the safe and/or unsafe practices that were identified on the slides.
3. You will then be asked to discuss your observations with the class.

Part 2

1. After documenting your observations in Part 1, explain the approach you would use to resolve the unsafe practices you identified in each of the scenarios or to provide feedback to members who have demonstrated a safe practice.
2. Be prepared to discuss your approach with the class.

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ACTIVITY 3.2 (cont'd)

Role Responsibility and Identification of Safe and Unsafe Practices

Scenario 1: Fire

Safe Practices	Unsafe Practices

Scenario 2: EMS Incident

Safe Practices	Unsafe Practices

Scenario 3: Fire

Safe Practices	Unsafe Practices

Scenario 4: Hazardous Materials Incident

Safe Practices	Unsafe Practices

Scenario 5: Technical Rescue Incident (Trench)

Safe Practices	Unsafe Practices

Scenario 6: Vehicle Extrication

Safe Practices	Unsafe Practices

Scenario 7: Trapped Firefighter

Safe Practices	Unsafe Practices

Scenario 8: Vehicle Accident

Safe Practices	Unsafe Practices

Scenario 9: Structure Fire

Safe Practices	Unsafe Practices

Scenario 10: Technical Rescue (Confined Space)

Safe Practices	Unsafe Practices

V. SUMMARY



SUMMARY

- Commitment **starts** with Fire/EMS Chief.
- HSO manages occupational safety and health program.
- ISO takes a safety-oriented view at incidents.
- Effective ICS, risk management, and use of HSO and ISO reduces fatalities/injuries.
- Effective communication critical to ensuring personnel safety.

Slide 3-47

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APPENDIX

INCIDENT SAFETY OFFICER CHECKLISTS

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INCIDENT SAFETY OFFICER CHECKLIST

FIRE INCIDENTS

- _____ Incident Safety Officer (ISO) wearing appropriate protective clothing/equipment, including command identification vest.

- _____ Accountability tag given to Incident Commander (IC).

- _____ Face-to-face briefing with IC.

- _____ Understand the IC's Incident Action Plan (IAP).

- _____ Ensure suitable, safe Command Post (CP) is set up and visible.

- _____ Develop and implement an Incident Safety Plan.

- _____ Perform 360 degree walk-around.

- _____ Ensure appropriate use of protective clothing/equipment by all members.

- _____ Ensure Personnel Accountability System is being used appropriately.

- _____ Conduct rapid "emergency incident risk management" analysis:
 - _____ Risk a lot only to save a lot.
 - _____ Risk only a little to save a little.
 - _____ Risk nothing to save what is already lost.

- _____ Ensure appropriate safety zones are set up.

- _____ Ensure Rapid Intervention Crew (RIC) is in place as soon as practical.

- _____ Ensure provision for rehab has been made (rehab area established).

SAFETY RESPONSIBILITIES

_____ Ensure transport unit is committed at the scene.

_____ Consider the need for additional ISOs.

Notes/Comments or After Action Review (AAR) issues (positive and negative):

FIRE INCIDENTS

_____ Ensure that all personnel know the level of operation:

_____ Offensive.

_____ Defensive (time: _____).

_____ Monitor fire conditions:

_____ Increasing.

_____ Decreasing.

_____ Monitor structural conditions.

_____ Identify building construction indicators.

_____ Establish additional Incident Safety Officers (ISOs) as needed for scope of incident.

_____ Brief the Rapid Intervention Crew (RIC).

_____ Ensure that all personnel are in crews (**no freelancing**).

_____ Ensure roof operations are supervised.

_____ Ensure interior and roof crews have multiple means of egress.

_____ Ensure utilities are secured.

_____ Ensure crews are being rehabilitated.

_____ Have air quality monitored prior to self-contained breathing apparatus (SCBA) removal (level: _____).

SAFETY RESPONSIBILITIES

Other issues not covered (be specific):

Benchmarks (minutes):

10 20 30 40 50 60 70

INCIDENT SAFETY OFFICER CHECKLIST

MULTIPLE CASUALTY INCIDENTS

- _____ Incident Safety Officer (ISO) wearing appropriate protective clothing/equipment, including command identification vest.

- _____ Accountability tag given to Incident Commander (IC).

- _____ Face-to-face briefing with IC.

- _____ Understand the IC's Incident Action Plan (IAP).

- _____ Ensure suitable, safe Command Post (CP) is set up and visible.

- _____ Develop and implement an Incident Safety Plan.

- _____ Perform 360 degree walk-around.

- _____ Ensure appropriate use of protective clothing/equipment by all members.

- _____ Ensure Personnel Accountability System is being used appropriately.

- _____ Conduct rapid "risk assessment/risk benefit" analysis:
 - _____ Risk a lot only to save a lot.
 - _____ Risk only a little to save a little.
 - _____ Risk nothing to save what is already lost.

- _____ Ensure appropriate safety zones are set up.

- _____ Ensure Rapid Intervention Crew (RIC) is in place as soon as practical.

- _____ Ensure provision for rehab has been made (rehab area established).

SAFETY RESPONSIBILITIES

_____ Ensure transport unit is committed at the scene.

_____ Consider the need for additional ISOs.

Notes/Comments or After Action Review (AAR) issues (positive and negative):

MULTIPLE CASUALTY INCIDENTS

- _____ Scene safety and security is being addressed.

- _____ Monitor use of appropriate personal protective clothing/equipment.

- _____ Ensure proper use of Emergency Medical Services (EMS) Incident Management System (IMS) positions.

- _____ Ensure utilities are secured.

- _____ Ensure protective hoseline is in place (if applicable).

- _____ Consider infection/exposure control:
 - _____ Minimize exposure potential.
 - _____ Personal protective equipment (PPE).
 - _____ Decontamination.

- _____ Establish additional Incident Safety Officers (ISOs) as needed for scope of incident.

- _____ Brief the Rapid Intervention Crew (RIC).

- _____ Ensure that all personnel are in crews (**no freelancing**).

- _____ Monitor landing zone safety or brief LZ Officer.

- _____ Ensure crews report to rehabilitation.

- _____ Consider Critical Incident Stress Management (CISM).

SAFETY RESPONSIBILITIES

Other issues not covered (be specific):

Benchmarks (minutes):

10 20 30 40 50 60 70

INCIDENT SAFETY OFFICER CHECKLIST

HAZARDOUS MATERIALS INCIDENTS

- _____ Incident Safety Officer (ISO) wearing appropriate protective clothing/equipment, including command identification vest.

- _____ Accountability tag given to Incident Commander (IC).

- _____ Face-to-face briefing with IC.

- _____ Understand the IC's Incident Action Plan (IAP).

- _____ Ensure suitable, safe Command Post (CP) is set up and visible.

- _____ Develop and implement an Incident Safety Plan.

- _____ Perform 360 degree walk-around.

- _____ Ensure appropriate use of protective clothing/equipment by all members.

- _____ Ensure Personnel Accountability System is being used appropriately.

- _____ Conduct rapid "emergency incident risk management" analysis:
 - _____ Risk a lot only to save a lot.
 - _____ Risk only a little to save a little.
 - _____ Risk nothing to save what is already lost.

- _____ Ensure appropriate safety zones are set up.

- _____ Ensure Rapid Intervention Crew (RIC) is in place as soon as practical.

- _____ Ensure provision for rehab has been made (rehab area established).

SAFETY RESPONSIBILITIES

_____ Ensure transport unit is committed at the scene.

_____ Consider the need for additional ISOs.

Notes/Comments or After Action Review (AAR) issues (positive and negative):

HAZARDOUS MATERIALS INCIDENTS

- _____ All members briefed on Incident Action Plan (IAP) and Incident Safety Plan.

- _____ Adequate Resources at scene:
 - _____ Trained personnel.
 - _____ Specialized equipment.
 - _____ Technical experts (Occupational Safety and Health Administration (OSHA), etc.).

- _____ Product identified and health hazards addressed.

- _____ Ensure hot and warm zones are designated and marked.

- _____ Ensure Decontamination is set up prior to entry being made.

- _____ Monitor use of appropriate personal protective clothing/equipment.

- _____ Ensure proper use of Hazmat Incident Management System positions.

- _____ Establish additional ISOs as needed for scope of incident.

- _____ Brief the Rapid Intervention Crew (RIC) and Decontamination crew.

- _____ Ensure that all personnel are in crews (**no freelancing**).

- _____ Ensure that stability is addressed:
 - _____ Container.
 - _____ Trailer.
 - _____ Tank car.
 - _____ Other (specify).

- _____ Ensure crews are being rehabed/rotated.

- _____ Watch for complacency.

SAFETY RESPONSIBILITIES

_____ Extended operations concerns:

- _____ Food.
- _____ Water/Drinks.
- _____ Rest/Rotation of crews.
- _____ Personal hygiene.

Other issues not covered (be specific):

Benchmarks (minutes):

30 60 90 120 150 180 210 240 270 300

INCIDENT SAFETY OFFICER CHECKLIST

TECHNICAL RESCUE INCIDENTS

- _____ Incident Safety Officer (ISO) wearing appropriate protective clothing/equipment, including command identification vest.

- _____ Accountability tag given to Incident Commander (IC).

- _____ Face-to-face briefing with IC.

- _____ Understand the IC's Incident Action Plan (IAP).

- _____ Ensure suitable, safe Command Post (CP) is set up and visible.

- _____ Develop and implement an Incident Safety Plan.

- _____ Perform 360 degree walk-around.

- _____ Ensure appropriate use of protective clothing/equipment by all members.

- _____ Ensure Personnel Accountability System is being used appropriately:
 - _____ Conduct rapid "emergency incident risk management" analysis.
 - _____ Risk a lot only to save a lot.
 - _____ Risk only a little to save a little.
 - _____ Risk nothing to save what is already lost.

- _____ Ensure appropriate safety zones are set up.

- _____ Ensure Rapid Intervention Crew (RIC) is in place as soon as practical.

- _____ Ensure provision for rehab has been made (rehab area established).

- _____ Ensure transport unit is committed at the scene.

_____ Consider the need for additional ISOs.

Notes/Comments or After Action Review (AAR) issues (positive and negative):

TECHNICAL RESCUE INCIDENTS

- _____ All members briefed on Incident Action Plan (IAP) and Incident Safety Plan.
 - _____ Adequate Resources at scene.
 - _____ Trained personnel.
 - _____ Specialized equipment.
 - _____ Technical experts (Occupational Safety and Health Administration (OSHA), etc.).

- _____ Ensure hot and warm zones are designated and marked.

- _____ Ensure nonessential personnel removed from area.

- _____ All sources of vibration removed from the area.

- _____ Product (if any) identified and health hazards addressed.

- _____ All utilities locked out/tagged out.

- _____ Monitor use of appropriate personal protective clothing/equipment.

- _____ Ensure proper use of Special Operations Incident Management System positions.

- _____ Establish additional ISOs as needed for scope of incident.

- _____ Brief the Rapid Intervention/Backup Crew.

- _____ Ensure that all personnel are in crews (**no freelancing**).

- _____ Ensure that stability is addressed:
 - _____ Building.
 - _____ Container.
 - _____ Trench.
 - _____ Other (specify).

- _____ Ensure crews are being rehabed/rotated.

SAFETY RESPONSIBILITIES

_____ Watch for complacency.

_____ Extended operations concerns:

- _____ Food.
- _____ Water/Drinks.
- _____ Rest/Rotation of crews.
- _____ Personal hygiene.

Other issues not covered (be specific):

Benchmarks (minutes):

30 60 90 120 150 180 210 240 270 300

UNIT 4: REGULATIONS, STANDARDS AND POLICIES

TERMINAL OBJECTIVE

The students will be able to:

- 4.1 *Identify and describe the regulations, standards and policies that affect fire/Emergency Medical Services (EMS) agency personnel safety.*

ENABLING OBJECTIVES

The students will be able to:

- 4.1 *Compare and contrast the following terminology:*
- 4.1a *Regulation.*
 - 4.1b *Standard.*
 - 4.1c *Policy.*
- 4.2 *Identify and explain the impact of regulations, standards and policies that directly affect fire/EMS agency personnel safety.*
- 4.3 *Describe the recommendations contained within National Fire Protection Association (NFPA) 1500 and NFPA 1521.*
- 4.4 *Given a scenario, research, review and apply an actual law, standard or regulation to a given risk of emergency operations.*
-

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UNIT 4: REGULATIONS, STANDARDS AND POLICIES

Slide 4-1

ENABLING OBJECTIVES

- Compare and contrast the following terminology:
 - Regulation.
 - Standard.
 - Policy.
- Identify and explain the impact of regulations, standards and policies that directly affect fire/Emergency Medical Services (EMS) agency personnel safety.

Slide 4-2

ENABLING OBJECTIVES (cont'd)

- Describe the recommendations contained within National Fire Protection Association (NFPA) 1500 and NFPA 1521.
- Given a scenario, research, review and apply an actual law, standard or regulation to a given risk of emergency operations.

Slide 4-3

I. REGULATIONS, STANDARDS AND POLICIES

GROUPS AFFECTING HEALTH AND SAFETY

- Congress (public law).
- Occupational Safety and Health Administration (OSHA).
- Centers for Disease Control and Prevention (CDC).
- NFPA.

Slide 4-4

- A. Federal organizations play a critical role in establishing requirements and recommendations for health and safety.
1. Congress (public law).
 2. Occupational Safety and Health Administration (OSHA).
 3. Centers for Disease Control and Prevention (CDC).
 4. National Fire Protection Association (NFPA).

LAWS/REGULATIONS

- They are developed and executed by governmental agencies in response to public law enacted by legislative assemblies.
- Requirements are mandatory.

Slide 4-5

- B. Regulations.
1. Developed and executed by governmental agencies in response to public law enacted by legislative assemblies.

2. Mandatory requirements.

LAWS/REGULATIONS (cont'd)

- OSHA:
 - Branch of Department of Labor.
 - No direct power on state government.



Slide 4-6

3. OSHA.

- a. Branch of Department of Labor.
- b. No direct power on state/local government.

STATES/TERRITORIES WITH OSHA PLANS

Alaska	Michigan	South Carolina
Arizona	Minnesota	Tennessee
California	Nevada	Utah
Connecticut	New Jersey	Vermont
Hawaii	New Mexico	Virginia
Indiana	New York	Virgin Islands
Iowa	North Carolina	Washington
Kentucky	Oregon	Wyoming
Maryland	Puerto Rico	

State plans must meet or exceed federal OSHA.

Slide 4-7

- c. Twenty-six states/territories have state OSHA plans.
- d. State plans must meet or exceed federal plan.

**Table 4.1
States/Territories with OSHA Plans**

Alaska	Michigan	South Carolina
Arizona	Minnesota	Tennessee
California	Nevada	Utah
Connecticut	New Jersey	Vermont
Hawaii	New Mexico	Virginia
Indiana	New York	Virgin Islands
Iowa	North Carolina	Washington
Kentucky	Oregon	Wyoming
Maryland	Puerto Rico	

OSHA REGULATIONS

- 29 CFR 1910.120.
– *Hazardous Waste Operation and Emergency Response (HAZWOPER).*
- 29 CFR 1910.1030.
– Bloodborne Pathogens (BBP).
- 29 CFR 1910.20.
– *Access to Employee Exposure and Medical Records.*
- 29 CFR 1910.134.
– *Respiratory Protection.*

Slide 4-8

e. OSHA regulations affecting fire/EMS service:

- 29 CFR 1910.120 (*Hazardous Waste Operation and Emergency Response (HAZWOPER)*).
- 29 CFR 1910.1030 (Bloodborne Pathogens (BBP)).
- 29 CFR 1910.20 (*Access to Employee Exposure and Medical Records*).
- 29 CFR 1910.134 *Respiratory Protection* (provides for Two in/Two out).

**DOCUMENTATION
REQUIREMENTS**

- Occupational injury.
 - Loss of consciousness.
 - Restriction of work or motion.
 - Transfer to another job.
 - Medical treatment other than first aid.
- OSHA Log 300.
- Exposure medical records.

Slide 4-9

f. Documentation requirements.

- Occupational injury.
 - Loss of consciousness.
 - Restriction of work or motion.
 - Transfer to limited duty.
 - Medical treatment other than first aid.
- OSHA Log 300.
 - Occupational death.
 - Nonfatal occupational illness.
 - Nonfatal occupational injury.
 - Must be posted from Feb. 1 to March 1 each year.
- Exposure medical records must be maintained for 30 years after employment.

LAWS/REGULATIONS (cont'd)

- Environmental Protection Agency (EPA).
- Ryan White Act.
- United States Department of Transportation (DOT).
- National Institute of Occupational Safety and Health (NIOSH).



Slide 4-10

4. Environmental Protection Agency (EPA).
 - a. Superfund Amendments and Reauthorization Act (SARA).
 - b. Identical set of regulations covering those not covered by HAZWOPER.

5. Ryan White Act — notification to responders of exposure to communicable disease during treatment of patient (Renewed October 2009).
 - a. Renewal provides for suspension of the act in times of declared disaster.
 - b. Renewal charged the Department of Health and Human Services (HHS) with developing a list of diseases other than HIV that this law will apply to.

6. United States Department of Transportation (DOT).
 - a. Through the National Highway Traffic Safety Administration, Office of Emergency Medical Services (EMS) issues.
 - National Scope of Practice.
 - National EMS Educational Standards.
 - b. State EMS directors use these documents to set scope of practice and standard for EMS licensure or certification.

7. The National Institute of Occupational Safety and Health (NIOSH) is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness.

- a. NIOSH’s Fire Fighter Fatality Investigation and Prevention Program (FFFIPP) have made over 1,000 recommendations arising from over 300 investigations since its inception in 1998.
- b. The World Trade Center (WTC) disaster triggered a massive emergency response involving tens of thousands of emergency responders. These workers and members of the community were exposed to known toxic agents.
- c. In addition to providing technical assistance during the WTC disaster, NIOSH:
 - Designed medical monitoring and treatment programs for WTC disaster emergency responders and the surrounding community.
 - Oversees centers of excellence for assessing and treating the current physical and mental health conditions appearing in the WTC responder and community populations.
 - Provides periodic surveillance (WTC) to detect the appearance of longer-term effects in a population at high risk for developing multiple health conditions in the future.
- d. The NIOSH Emergency Responders Resource page can also be accessed at <http://www.cdc.gov/niosh/topics/emres/responders.html>.

STATE/LOCAL REGULATIONS

- Affect state or local jurisdictions.
- State law or regulation.
- Local:
 - Ordinance.
 - Regulation.
 - Policy/Procedure.

Slide 4-11

- 8. State/Local regulations.
 - a. Affect only state or local jurisdictions.
 - b. State may be law or regulation through state agency.

- c. Local may be by ordinance, regulation, policy or procedure.
- d. May be based on consensus standards (discussed next).
- e. Examples: vehicle emergency response, apparatus inspection programs.

STANDARDS

- Consensus standards:
 - Established by general consensus as procedure or document that can be implemented or adopted.
- Not mandatory.
- Developed using guidelines that dictate procedures for developing standards.

Slide 4-12

- C. Consensus standards.
 - 1. Established by general consensus as procedure or document that can be implemented or adopted — not mandatory.
 - 2. Developed by nonregulatory organizations.
 - 3. NFPA is a leading nonprofit organization dedicated to protecting lives and property from the hazards of fire.
 - 4. Developed using guidelines that dictate procedures for developing standards.

NFPA STANDARDS

- NFPA publishes more than 270 nationally recognized codes and standards.
- NFPA fire service occupational safety and health standards address specific safety and health issues.

Slide 4-13

D. NFPA Standards.

1. Consensus standards and guidelines for many different disciplines and areas of concern.
2. This includes NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program* (discussed in-depth later in unit).
3. The NFPA publishes more than 270 nationally recognized codes and standards, such as the National Electrical Code and the Code for Safety to Life from Fire in Buildings and Structures.
4. NFPA fire service occupational safety and health standards address specific safety and health issues.
5. NFPA 1500.

NFPA STANDARDS (cont'd)

- All have the same first three chapters:
 - Chapter 1 — Administration: discusses scope, purpose, definitions.
 - Chapter 2 — Referenced publications: discusses NFPA and other references.
 - Chapter 3 — Definitions.

Slide 4-14

6. All NFPA Standards have the same first three chapters:
 - a. Chapter 1 is dedicated to administration and includes the scope, purpose, application and other administrative items.
 - b. Chapter 2 lists any referenced publications, NFPA or otherwise.
 - c. Chapter 3 has definitions, general or NFPA-specific.

NFPA STANDARDS (cont'd)

- NFPA 1500 — *Standard on Fire Department Occupational Safety and Health Program.*
- Chapter 1 — Administration.
- Chapter 2 — Referenced publications.
- Chapter 3 — Definitions.

Slide 4-15

E. NFPA 1500.

1. Chapters 1 through 3 are the same as all NFPA.
 - a. Administration of standard.
 - b. Referenced standards.
 - c. Definitions.

NFPA 1500 CHAPTER 4 — FIRE DEPARTMENT ADMINISTRATION

- Recommends all items to be in writing.
- Recommends risk management plan be developed.
- Describes safety and health policy:
 - Specific goals for health and safety.
 - Evaluates plan every three years.

Slide 4-16

2. Chapter 4 — Fire Department Administration.
 - a. Recommends all items to be in writing.
 - b. Recommends risk management plan be developed.
 - Lays out requirements for plan.

- Describes items to be included.
- Specific goals and objectives for health and safety.
- Evaluates plan every three years for effectiveness.

**NFPA 1500 CHAPTER 4 — FIRE
DEPARTMENT ADMINISTRATION (cont'd)**

- Roles and responsibilities.
- Safety and Health Committee:
 - Hold regular meetings with written minutes.
- Records.
- Recommends appointment of Health and Safety Officer (HSO).

Slide 4-17

- c. Roles and responsibilities.
 - Investigation of accidents, near misses, injuries, fatalities, occupational illnesses and exposures.
 - Must take corrective actions identified.
- d. Safety and Health Committee.
 - Health and Safety Officer (HSO).
 - Management representative.
 - Individual members.
 - Hold regular meetings with written minutes.
- e. Records.
 - Database.
 - Collection method.
- f. Recommends appointment of HSO.

- Duties are in NFPA 1521, *Standard for Fire Department Safety Officer*.

- Requirements are in NFPA 1521.

NFPA 1500 CHAPTER 5 — TRAINING,
EDUCATION AND PROFESSIONAL
DEVELOPMENT

- Establish training requirements for all members.
- Member qualifications.
- Minimum requirements.
- Member proficiency.



Slide 4-18

3. Chapter 5 — Training, Education and Professional Development.

a. Establish training requirements for all members.

b. Member qualifications from appropriate NFPA Standard.

c. Training requirements.

- Programs must meet minimum requirements as outlined in standard.

- Members must practice skills regularly, not less than annually.

- Includes special operations training.

d. Member proficiency.

- Must be maintained.

- Must be monitored for progress and proficiency.

- Annual checklist of skills.

NFPA 1500 CHAPTER 6 — FIRE APPARATUS EQUIPMENT AND DRIVER/OPERATORS

- Fire department apparatus.
- Drivers/Operators of fire department apparatus:
 - Driver training program completed.
 - All people seated and belted.
- Inspection, maintenance and repair of apparatus.
- Tools and equipment.



Slide 4-19

4. Chapter 6 — Fire Apparatus Equipment and Driver/Operators.
 - a. Fire department apparatus.
 - Specification, design and construction.
 - Includes all apparatus — pumpers, tankers, marine, wildland, etc.
 - b. Driver/Operators of fire department apparatus.
 - Complete driver training program for apparatus to be operated.
 - Establish driving policy including operation in emergency and nonemergency modes.
 - Includes specific direction for establishing emergency response guidelines.
 - Specifics on lights/siren use and installation.
 - c. Riding in the apparatus.
 - All persons to be seated and belted.
 - Includes those giving medical care.
 - d. Inspection, maintenance and repair of apparatus.
 - Provisions for frequency of inspection.
 - Establishment of preventive maintenance program.

- List for declaring a vehicle out of service.
- e. Tools and equipment.
 - Power equipment.
 - Inspection standard and frequency.
 - Inventory records for each vehicle.

NFPA 1500 CHAPTER 7 — PROTECTIVE CLOTHING AND PROTECTIVE EQUIPMENT

- Protective clothing for each type of firefighting.
- Respiratory Protection Program.
- Personal alarm devices (e.g., Personal Alert Safety System (PASS)).
- Face and eye protection.
- Hearing protection.



Slide 4-20

- 5. Chapter 7 — Protective Clothing and Protective Equipment.
 - a. Protective clothing for each type of firefighting.
 - Structural.
 - EMS.
 - Hazmat.
 - Wildland.
 - Technical rescue.
 - Terrorism.
 - Maintenance of protective clothing.
 - b. Respiratory Protection Program.
 - Includes respiratory protection equipment.

- Assigning Safety Officer.
- This is simply put as continued size-up.
- c. Personnel accountability during emergency operations.
 - Written procedure.
 - Each member operating on-scene must participate.
 - Used at all incidents.

<p>NFPA 1500 CHAPTER 8 — EMERGENCY OPERATIONS (cont'd)</p> <hr/> <ul style="list-style-type: none">• Operating at emergency incidents:<ul style="list-style-type: none">– Adequate personnel for operations.– Rapid Intervention Crew (RIC).• Traffic incident guidance.• Rehabilitation guidelines.• Scenes of violence, civil unrest or terrorism.• Post-incident analysis. <p style="text-align: right; font-size: small;">Slide 4-22</p>	<hr/>
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- d. Members operating at emergency incidents.
 - Adequate personnel for operations.
 - Operate in crews of two or more.
 - Establish Rapid Intervention Crew (RIC).
 - Specific for establishing.
 - At least two people in RIC.
 - Establish control zones.
- e. Traffic incident guidance.
- f. Rehabilitation guidelines during emergency operations.
- g. Scenes of violence, civil unrest or terrorism.
 - Specific guidelines for operating at these scenes.

- Develop interagency guidelines for operations with law enforcement.

- Establish procedure for operations.

h. Post-incident analysis.

- Discussed at length in Unit 9.

- Now termed AAR.

**NFPA 1500 CHAPTER 9 —
FACILITY SAFETY**

- Facility safety requires:
 - Following standards, codes, etc.
 - Regular inspections.
 - A system for repairs to facilities.



Slide 4-23

7. Chapter 9 — Facility Safety.

a. Recommends following standards, codes, etc.

b. Recommends regular inspections.

c. Must establish a system for repairs to facilities.

**NFPA 1500 CHAPTER 10 — MEDICAL
AND PHYSICAL REQUIREMENTS**

- Medical and physical performance requirements.
- Health and fitness program.
- Infection control program.
- Establish health database.
- Department physician.
- Fitness for duty process.



Slide 4-24

NFPA 1500 CHAPTER 12 — CRITICAL INCIDENT STRESS PROGRAM

Establishes criteria for implementing a Critical Incident Stress (CIS) program.

Slide 4-26

- 10. Chapter 12 — Critical Incident Stress Program.
 - a. Establish criteria for implementing program.
 - b. Available to all members.

NFPA 1521

- NFPA 1521 — *Standard for Fire Department Safety Officer.*
 - Chapter 1 — Administration.
 - Chapter 2 — Referenced publications.
 - Chapter 3 — Definitions.

Slide 4-27

- F. NFPA 1521.
 - 1. Chapter 1 — Administration: discusses scope, purpose, definitions.
 - 2. Chapter 2 — Referenced publications: NFPA and other references.
 - 3. Chapter 3 — Definitions.

NFPA 1521 (cont'd)

Chapter 4 — Organization: provides recommendations for assignment of the HSO and Incident Safety Officer (ISO).

Slide 4-28

4. Chapter 4 — Organization: provides recommendations for assignment of the Health and Safety Officer (HSO) and Incident Safety Officer (ISO).
 - a. Appointed by fire chief or authority having jurisdiction (AHJ).
 - b. Includes qualifications and authority of each.

NFPA 1521 (cont'd)

- Chapter 5 — Functions of the HSO: defines responsibilities.
 - Development of procedures.
 - Investigations.
 - Safety committee(s).
 - Infection control program(s).
 - AAR.

Slide 4-29

5. Chapter 5 — Functions of the HSO: defines responsibilities.
 - a. Involved in risk management.
 - b. Development of procedures.
 - c. Investigations.
 - d. Safety committee(s).
 - e. Infection control program(s).

- f. AAR (formerly post-incident analysis).

NFPA 1521 (cont'd)

- Chapter 6 — Functions of the ISO: defines responsibilities.
 - Part of the Incident Command System (ICS) and National Incident Management System (NIMS).
 - Scene safety.
 - Accident review team(s).
 - AAR.

Slide 4-30

- 6. Chapter 6 — Functions of the ISO: defines responsibilities.
 - a. Part of Incident Command System (ICS) and NIMS.
 - b. Responsible for scene safety.
 - c. Accident review team(s).
 - d. AAR (formerly post-incident analysis).

NFPA 1710 AND 1720

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 NFPA 1720, ... *Volunteer Fire Departments*.

Slide 4-31

- G. 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 NFPA 1720, ... *Volunteer Fire Departments*.

NFPA 1710 AND 1720 (cont'd)

- Recommendations for deployment and organization for career, combination or volunteer departments.
- Establishment of benchmarks to assess fire departments.
- Explanations for differing standards between volunteer and career personnel.

Slide 4-32

1. Sets recommendations for deployment and organization for career, combination or volunteer departments.
2. Establishes benchmarks to assess effectiveness and efficiency of fire departments.
3. Standards differ slightly between volunteer and career.

OTHER NFPA STANDARDS

- Manufacturer's design criteria for protective clothing and equipment.
- Design criteria for various types for fire apparatus and equipment.
- Qualifications and competency standards.
- Training safety.

Slide 4-33

4. Other NFPA Standards address:
 - a. Manufacturer's design criteria for protective clothing and equipment.
 - b. Design criteria for various types for fire apparatus and equipment.
 - c. Professional qualifications and competency standards.

AMERICAN SOCIETY FOR TESTING AND MATERIALS

- F-30 EMS.
- Training standards.
- D 3578 *Standard Specification for Rubber Examination Gloves*.
- Personal protective equipment (PPE) for hazmat.

Slide 4-34

H. The American Society for Testing and Materials (ASTM) is a private, nonprofit organization that develops standards for materials, systems, products and services. It was founded in 1998 to provide these services for a variety of disciplines.

1. Developed standards for EMS by the ASTM Committee F-30 EMS.
2. ASTM D 3578, *Standard Specification for Rubber Examination Gloves*, 1991, includes requirements for sampling to ensure quality control, watertightness testing to detect holes in the gloves, physical dimension testing to ensure proper fit of gloves, and physical testing to ensure that gloves do not tear easily.
3. Testing methods for personal protective clothing include ASTM F 739, *Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids or Gases Under Conditions of Continuous Contact*, 1991, and ASTM F 1052, *Standard Practice for Pressure Testing of Gas-Tight Totally Encapsulating Chemical Protective Suits*, 1987. ASTM F 1052, referenced in NFPA 1991.

POLICIES

- Policies:
 - Specify methods for activities performed by members.
 - Must be based on recognized laws, regulations and standards.

Slide 4-35

OCCUPATIONAL SAFETY AND HEALTH PROGRAM

- Key elements:
 - Legal responsibilities.
 - Moral factors.
 - Economic considerations.




Slide 4-38

- D. Key elements of an occupational safety and health program.
1. Legal responsibilities.
 2. Moral factors.
 3. Economic considerations.
 4. Member health and safety.

III. SAFETY STANDARDS FOR THE FIRE/EMS SERVICE

SAFETY STANDARDS FOR THE FIRE/EMS SERVICE

Table 4.2 Authorities Having Jurisdiction

Federal	State	Local
U.S. Congress	State Legislature	Governing Body
Health and Human Services	Health Department	Health Department
OSHA	Fire Marshal	Sheriff/Local PD
EPA	State Police	Fire Chief
CDC	Labor Department	Fire Marshal
Dept. of Labor	Building Official	Building Official
Dept. of Transportation	Dept. of Transportation	Public Works
FBI	Insurance	Electrical Inspector
ATF	ISO	Insurance Agent
DHS/FEMA		Property Owner

Slide 4-39

- A. Table 4.2 Authority Having Jurisdiction.

OSHA Regulations

- Occupational safety and health requires that employers:
 - Furnish a place of employment free from recognized hazards.
 - Comply with occupational safety and health standards contained within requirements of the Department of Labor.

Slide 4-41

2. Occupational safety and health requirements.
 - a. Furnish a place of employment free from recognized hazards.
 - b. Comply with occupational safety and health standards contained within requirements of the Department of Labor.

IV. OCCUPATIONAL SAFETY AND HEALTH PROGRAM

OCCUPATIONAL SAFETY AND HEALTH PROGRAM

Minimum Components	
Program Administration	Vehicles and Equipment
Training and Education	Protective Clothing and Equipment
Facility Safety	Emergency Operations
Health and Wellness	Critical Incident Stress Management
Physical Fitness	Employee Assistance Programs

Slide 4-42

- A. Minimum components.
 1. Program administration and organization.
 2. Training and education.
 3. Vehicles and equipment.

4. Protective clothing and equipment.
5. Emergency operations.
6. Facility safety.
7. Health maintenance.
8. Physical fitness.
9. Employee assistance and wellness program.
10. Critical Incident Stress (CIS) management.

**OCCUPATIONAL SAFETY
AND HEALTH PROGRAM (cont'd)**

- Policy statement.
- Program requirements in writing.
- Evaluated, reviewed and revised routinely.

Slide 4-43

- B. Policy statement — sets tone for program.
- C. Requirements of program must be in writing.
- D. Procedures must be evaluated, reviewed and revised routinely.

ACTIVITY 4.1

Laws, Standards and Regulations

Purpose

To research and review an actual law, standard or regulation to a given risk of fire operations.

Directions

1. Review the scenario below.
2. In your table group, you are to prepare a bulleted list of risks associated with the scenario and a bulleted list of laws, regulations and standards that are applicable to this scenario (typed and double-spaced is preferred).
3. Your response must include:
 - a. Identification of the risks associated with an exposure.
 - b. Identification of the applicable laws, regulations and standards.
 - c. The requirements of the applicable laws, regulations and standards related to the scenario given.
4. Your report must be turned into the instructor at the beginning of class tomorrow morning.

Scenario

Your department responded to a vehicle crash three nights ago involving three victims. While caring for the victims, a responder from the engine company was exposed to the blood of one victim and a responder from the ambulance was exposed to the blood of another victim. The IC was not sure how the exposures should be handled or what documentation was required. The responders were extremely upset about the exposures and upset that the IC didn't know what to do. Upon returning to the station, the IC called the Safety Officer (you) to find out how the situation would be handled. You told him the proper steps to follow.

Based on this incident, the fire chief now wants to make sure that this type of confusion doesn't occur again and that the department is in compliance with all applicable laws, regulations and standards.

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**Table 4.3
Firefighter Safety and Health Standards and Regulations**

National Fire Protection Association (NFPA) Standards	
NFPA 403	Standard for Aircraft Rescue and Firefighting Services at Airports (2009 Edition)
NFPA 472	Standard for Professional Competence of Responders to Hazardous Materials Incidents (2008 Edition)
NFPA 473	Standard for Competencies for EMS Personnel Responding to Hazardous Materials/Weapons of Mass Destruction Incidents (2008 Edition)
NFPA 1001	Standard for Firefighter Professional Qualifications (2008 Edition)
NFPA 1002	Standard for Fire Apparatus Driver/Operator Professional Qualifications (2009 Edition)
NFPA 1006	Standard for Technical Rescuer Professional Qualifications (2008 Edition)
NFPA 1021	Standard for Fire Officer Professional Qualifications (2009 Edition)
NFPA 1026	Standard for Incident Management Personnel Professional Qualifications (2009 Edition)
NFPA 1031	Standard for Professional Qualifications for Fire Inspector and Plan Examiner (2009 Edition)
NFPA 1041	Standard for Fire Service Instructor Professional Qualifications (2007 Edition)
NFPA 1201	Standard for Developing Fire Protection Services for the Public (2010 Edition)
NFPA 1221	Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems (2010 Edition)
NFPA 1250	Recommended Practice in Emergency Service Organization Risk Management (2010 Edition)
NFPA 1403	Standard on Live Fire Training Evolutions (2007 Edition)
NFPA 1404	Standard for Fire Service Respiratory Protection Training (2002 Edition)
NFPA 1407	Standard for Training Fire Service Rapid Intervention Crews (2010 Edition)
NFPA 1410	Standard on Training for Initial Emergency Scene Operations (2010 Edition)
NFPA 1451	Standard for a Fire Service Vehicle Operations Training Program (2007 Edition)
NFPA 1500	Standard on Fire Department Occupational Safety and Health Program (2007 Edition)
NFPA 1521	Standard for Fire Department Safety Officer (2008 Edition)
NFPA 1561	Standard on Emergency Services Incident Management System (2008 Edition)
NFPA 1581	Standard on Fire Department Infection Control Program (2010 Edition)
NFPA 1582	Standard on Comprehensive Occupational Medical Program for Fire Departments (2007 Edition)
NFPA 1583	Standard on Health Related Fitness Programs for Firefighters (2008 Edition)

REGULATIONS, STANDARDS AND POLICIES

NFPA 1584	Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises (2008 Edition)
NFPA 1600	Standard on Disaster/Emergency Management and Business Continuity Programs (2010 Edition)
NFPA 1620	Recommended Practice for Pre-Incident Planning (2010 Edition)
NFPA 1670	Standard on Operations and Training for Technical Search and Rescue Incidents (2009 Edition)
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 (2010 Edition)
NFPA 1720	Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments (2010 Edition)
NFPA 1851	Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Firefighting and Proximity Firefighting (2008 Edition)
NFPA 1901	Standard for Automotive Fire Apparatus (2009 Edition)
NFPA 1911	Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus (2007 Edition)
NFPA 1912	Standard for Fire Apparatus Refurbishing (2006 Edition)
NFPA 1917	Standard for Automotive Ambulances (Proposed – 2013 Edition)
NFPA 1931	NFPA 1931: Standard for Manufacturer’s Design of Fire Department Ground Ladders (2010 Edition)
NFPA 1932	Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground Ladders (2010 Edition)
NFPA 1936	Standard on Powdered Rescue Tool Systems (2010 Edition)
NFPA 1961	Standard on Fire Hose (2007 Edition)
NFPA 1962	Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose (2008 Edition)
NFPA 1971	Standard on Protective Ensembles for Structural Firefighting and Proximity Firefighting (2007 Edition)
NFPA 1975	Standard on Station/Work Uniforms for Emergency Services (2009 Edition)
NFPA 1977	Standard on Protective Clothing and Equipment for Wildland Firefighting (2010 Edition)
NFPA 1981	Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services (2007 Edition)
NFPA 1982	Standard on Personal Alert Safety Systems (PASS) (2007 Edition)
NFPA 1983	Standard on Life Safety Rope and Equipment for Emergency Services (2006 Edition)
NFPA 1991	Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies (2010 Edition)
NFPA 1992	Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies (2010 Edition)
NFPA 1994	Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents (2007 Edition)

REGULATIONS, STANDARDS AND POLICIES

NFPA 1999	Standard on Protective Clothing for Emergency Medical Operations (2008 Edition)
Department of Labor, Occupational Safety and Health Administration	
29 CFR 1910.95	Occupational Noise Exposure
29 CFR 1910.120	Hazardous Waste and Emergency Operations
29 CFR 1910.1030	Occupational Exposure to Bloodborne Pathogens
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.146	Permit-Required Confined Spaces
29 CFR 1910.156	Fire Brigades
29 CFR 1910.133	Eye and Face Protection
29 CFR 1910.20	Access to Employees Exposure and Medical Records
American National Standards Institute (ANSI)	
ANSI/CGA G7.1	Commodity Specifications for Air (1989)
ANSI/Z87.1	Practice for Occupational and Educational Eye and Face Protection (1989)
ANSI/ X89.1	Protective Helmet
Environmental Protection Agency (EPA)	
40 CFR part 355	Emergency Planning and Notification
40 CFR Section 311 — 312	Emergency Planning and Community Right-to-Know Act (EPCRA) Local Emergency Planning Requirements
National Institute for Occupational Safety and Health (NIOSH) — Publications	
	Preventing Death and Injuries of Firefighters Operating Modified Excess/Surplus Vehicles
	Preventing Deaths and Injuries of Firefighters using Risk Management Principles at Structure Fires
	NIOSH Research Recommendations are Incorporated into National Standards to Enhance Protection for EMS Responders
	NIOSH Research Leads to a Reduction in Safety Hazards Among Ambulance Service Workers and EMS Responders

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- _____. (2000). NFPA 1561, *Standard on Emergency Services Incident Management System*. Quincy, MA.
- _____. (2001). NFPA 1710, *Organization and Deployment of Fire Suppression, Emergency Medical Operations, and Special Operations of the Public by Career Fire Departments*. Quincy, MA.
- _____. (2001). NFPA 1720, *Standard on Volunteer Fire Service Deployment*. Quincy, MA.
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SUGGESTED READINGS

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UNIT 5: HEALTH AND WELLNESS

TERMINAL OBJECTIVE

The students will be able to:

- 5.1 *Determine emergency responder health and wellness issues in relationship to existing standards, best practices and department issues.*

ENABLING OBJECTIVES

The students will be able to:

- 5.1 *Identify and discuss the components of a comprehensive firefighter/Emergency Medical Services (EMS) personnel health and wellness program.*
 - 5.2 *Discuss confidentiality in relation to a health and wellness program.*
 - 5.3 *Identify and describe the regulations and standards that apply to firefighter/EMS personnel health and wellness.*
 - 5.4 *Describe the effect of sleep deprivation on fire/EMS responders.*
 - 5.5 *Identify, describe and discuss issues dealing with the mental health and suicide of fire/EMS responders.*
 - 5.6 *Conduct an analysis to determine factors that would affect the implementation of a health and wellness program in a fire/EMS department.*
-

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**UNIT 5:
HEALTH AND WELLNESS**

Slide 5-1

ENABLING OBJECTIVES

- Identify and discuss the components of a comprehensive firefighter/Emergency Medical Services (EMS) personnel health and wellness program.
- Discuss confidentiality in relation to a health and wellness program.
- Identify and describe the regulations and standards that apply to firefighter/EMS personnel health and wellness.

Slide 5-2

ENABLING OBJECTIVES (cont'd)

- Describe the effect of sleep deprivation on fire/EMS responders.
- Identify, describe and discuss issues dealing with the mental health and suicide of fire/EMS responders.
- Conduct an analysis to determine factors that would affect the implementation of a health and wellness program in a fire/EMS department.

Slide 5-3

RISK CONTROL MEASURES

Education/Training
Consensus standards
Mandatory regulations
Health maintenance programs
Physical fitness
Wellness initiatives
Nutrition guidelines
Stress management programs
Infection control procedures

Slide 5-6

- B. Health and wellness are components of risk management process.
 - 1. Control measures require planning.
 - 2. Effective risk control measures include:
 - a. Education/Training.
 - b. Consensus standards.
 - c. Mandatory regulations.
 - d. Health maintenance programs.
 - e. Physical fitness.
 - f. Wellness initiatives.
 - g. Nutrition guidelines.
 - h. Stress management programs.
 - i. Infection control procedures.

- C. NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program* addresses:
 - 1. Medical.
 - 2. Physical performance.
 - 3. Physical fitness.

4. Member assistance and wellness programs.
5. Critical incident stress programs.

HEALTH AND SAFETY STANDARDS	
Standard	Title
NFPA 1500	Standard on Fire Department Occupational Safety and Health Program.
NFPA 1521	Standard for Fire Department Safety Officer.
NFPA 1561	Standard on Emergency Services Incident Management System.
NFPA 1581	Standard on Fire Department Infection Control Program.
NFPA 1582	Standard on Comprehensive Occupational Medical Program for Fire Departments.
NFPA 1583	Standard on Health-Related Fitness Programs for Fire Department Members.

Slide 5-7

D. NFPA 1500 Standards.

1. NFPA 1500.
2. NFPA 1521, *Standard for Fire Department Safety Officer.*
3. NFPA 1561, *Standard on Emergency Services Incident Management System.*
4. NFPA 1581, *Standard on Fire Department Infection Control Program.*
5. NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments.*
6. NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Department Members.*

**IAFF/IAFC WELLNESS/
FITNESS INITIATIVE**

- Incorporated 10 public professional fire departments in United States and Canada.
- Designed to improve wellness of members.



Slide 5-8

7. International Association of Fire Fighters (IAFF)/International Association of Fire Chiefs (IAFC) Wellness/Fitness Initiative.
 - a. Incorporated 10 public professional fire departments in United States and Canada.
 - b. Designed to improve wellness of members.
 - c. Includes:
 - Medical requirements.
 - Fitness.
 - Injury/Fitness/Medical rehabilitation.
 - Behavioral health.
 - Data collection.
 - Appendix material.
- E. Intent of wellness program is to help members handle stresses of life and occupation appropriately.
- F. Research shows endurance, muscle strength, flexibility and cardiovascular conditioning improve safety and effectiveness in job performance.

A. Job descriptions.

1. One for each position is necessary to develop an effective health maintenance program.
2. Medical requirements of NFPA 1582 are based on essential tasks identified in NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.
3. Based on mission statement, other job tasks may be incorporated.

FIRE/EMS DEPARTMENT PHYSICIAN
<ul style="list-style-type: none">• May be full-time, contract or volunteer.• Minimum requirements described in NFPA 1500, Chapter 10.
<small>Slide 5-12</small>

B. Fire/EMS department physician (per NFPA 1500/1582).

1. May be full-time employee in large department or contract.
2. May be volunteer.
3. **Note:** physician donates time and service, not necessarily a volunteer with the department.
4. Regardless of relationship with fire department, there are minimum requirements for physician.
5. These requirements are described in Chapter 10 of NFPA 1500.

FIRE/EMS DEPARTMENT PHYSICIAN (cont'd)

- Needs clearly defined list of activities provided by department.
- May need to be educated on fire service operations.

Slide 5-13

6. Needs a clearly defined list of activities provided by the department.
7. May need to be educated to understand and experience the fire service environment.

C. Wellness component.

NUTRITION

- Provides more energy.
- Speeds recovery.
- Increases resistance to disease.



Slide 5-14

D. Nutrition.

1. Major factor in physical fitness, wellness and general health.
2. Provides more energy, speeds recovery, increases resistance to disease.

III. MEDICAL EVALUATIONS

MEDICAL EVALUATIONS

- **Preplacement:**
 - Medically able to perform firefighting duties.
- **Periodic:**
 - Certifies continued ability to perform.
- **Return-to-duty:**
 - Certified member is medically fit after occupational injury/illness.



Slide 5-15

- A. Preplacement.
 - 1. Medically certifies candidate to perform firefighting duties.
 - 2. Physician must understand working environment and job requirements.
 - 3. Identify existing medical conditions and functional restrictions, and understand how job requirements will affect the condition.

- B. Periodic.
 - 1. Certifies member’s continued ability to perform assigned job tasks and identifies acute changes in health.
 - 2. Conducted yearly.
 - 3. Extent depends on medical condition.
 - 4. More comprehensive evaluation should be conducted based on age or medical condition.

- C. Return-to-duty.
 - 1. Certifies member is medically fit to return to duty after occupational injury or illness.
 - 2. Conducted after rehabilitation is completed.

BASELINE PHYSICAL

Basic medical exam	Electrocardiogram (EKG)
Height	Hepatitis antibodies
Weight	Carboxyhemoglobin
Vital signs	Chest X-ray
Complete medical history	Tuberculosis skin test
Triglycerides	Urinalysis
Complete blood count	Tetanus and vaccination updates
Chemistry 23 blood test	Vision and hearing tests
Cholesterol level	Check for skin cancer
Rectal exam for enlarged prostate, blood in stool	PSA blood test for persons over age of 50

Source: NFPA

Slide 5-16

D. Baseline (per NFPA 1582).

1. Basic medical exam.
2. Electrocardiogram (EKG).
3. Height.
4. Weight.
5. Vital signs (blood pressure, pulse, respirations).
6. Complete medical history and current medications.
7. Cholesterol level.
8. Triglycerides.
9. Complete blood count.
10. Chemistry profile (includes calcium, sodium, magnesium, potassium, chloride, bicarbonate, anion gap, BUN, creatinine, glucose, phosphorus, albumin, amylase, uric acid, bilirubin, alkaline phosphates, SGOT [liver enzymes], LDH, and CPK).
11. Hepatitis antibodies.
12. Carboxyhemoglobin (baseline CO level).
13. Chest X-ray.
14. Tuberculosis skin test.

- 15. Urinalysis.
- 16. Tetanus and vaccination updates as indicated.
- 17. Vision and hearing tests.

VACCINATIONS

- Hepatitis B.
- Hepatitis A.
- Tetanus.
- Flu.
- Measles.



Slide 5-17

- E. Vaccinations.
 - 1. Hepatitis B.
 - a. Antibody testing recommended for those who have blood contact.
 - b. Boosters no longer recommended since studies show immunity continues despite declining serum antibody levels.
 - 2. Hepatitis A — not routinely recommended.
 - 3. Tetanus boosters.
 - a. Effective for 10 years.
 - b. If cut injury occurs, should have booster if the last one was more than five years previous.
 - 4. Flu.
 - a. New strain each year leading to new vaccine.
 - b. Does not carry over from year to year.
 - 5. Measles — Measles, Mumps, and Rubella (MMR) vaccine.

6. Centers for Disease Control and Prevention (CDC) may have new or different recommendations based on new outbreaks of disease.

POST-EXPOSURE EXAMS

- Hazardous materials.
- Blood or body fluids.
- Exposure versus contamination.

Slide 5-18

- F. Post-exposure exams.
 1. Initial and follow-up for hazardous materials, infectious diseases.
 2. Follow-up may be necessary for months or several years.
 3. If infectious disease, should follow procedures outlined in infection control plan.
 4. The infection control plan should at a minimum include the following:
 - a. Prevention measure to prevent exposures.
 - b. Engineering methods to be used to prevent exposures.
 - c. Definition of exposure.
 - d. Definition of contamination.
 - e. Any actions to be taken for exposure or contamination.
 - f. Documentation for exposure or contamination.
 - g. Follow-up for exposure or contamination.

FIREGROUND REHABILITATION



Slide 5-19

G. Fireground rehabilitation.

1. On entry, take complete vitals and pulse-oximetry, if available.
2. Conduct further monitoring as indicated.
3. Those with complaints of chest pain and difficulty breathing should be transported to a hospital for further evaluation.
4. Firefighters should rest for a minimum of 15 to 20 minutes.
5. Recheck vitals before leaving.
6. Treatment area should be away from rehab area.
7. All personnel on scene should be checked at least once.

MEDICAL RECORDS

- Essential for:
 - Tracking occupational risks.
 - Long-term medical problems.
- Must be confidential.
- Requirements:
 - NFPA 1500.
 - Occupational Safety and Health Administration (OSHA).

Source: National Fire Incident Reporting System (NFIRS) Slide 5-20

- H. Medical records.
 - 1. Health database is essential in tracking occupational risks and long-term medical problems.
 - 2. Must be confidential.
 - 3. NFPA 1500 identifies requirements for database.
 - 4. Occupational Safety and Health Administration (OSHA) requires employers to keep records on employee exposures and occupational injuries and illnesses.
 - a. Confidentiality is the key.
 - b. Records must be maintained for length of employment plus 30 years.

IV. PHYSICAL PERFORMANCE

PHYSICAL PERFORMANCE

- Determined by job description of each position.
- Basis for candidate evaluation criteria.
- Foundation for physical fitness program.

Slide 5-21

- A. NFPA 1500, Chapter 10 defines requirements for physical performance.
- B. Determined by job description of each position.
- C. Basis for candidate evaluation criteria.
- D. Foundation for physical fitness program.

BACK INJURIES

- Largest category of workers' compensation.
- Key to controlling:
 - Proper lifting techniques.
 - Exercise to increase flexibility and strength.



Slide 5-24

- C. Back injuries.
 - 1. The biggest category of workers' compensation injuries.
 - 2. Key to controlling back injuries: using proper lifting techniques and exercise to increase flexibility and back strength.

HEALTH AND FITNESS COORDINATOR

- Responsible for management of wellness, physical fitness and health maintenance programs.
- Job description:
 - Medical evaluation (NFPA 1582).
 - Physical fitness program.
 - Data collection and analysis.
 - Prevention programs.
 - Liaison.
 - Wellness track.
 - Fitness evaluations.

Slide 5-25

- D. Health and Fitness Coordinator.
 - 1. Responsible for management of wellness, physical fitness and health maintenance programs.
 - 2. NFPA 1583: job description for the Health and Fitness Coordinator.
 - 3. Programs.
 - a. Medical evaluations/examinations per NFPA 1582 — schedule annual medical evaluations.

- b. Fitness evaluations — conducted annually.
- c. Physical fitness programs — prescribe physical fitness program based on fitness evaluation.
- d. Wellness track — develop wellness programs such as stress reduction/cessation, nutrition programs.
- e. Data collection and analysis — track and analyze fitness performance evaluations.
- f. Prevention programs — conduct cancer screening, vaccinations.
- g. Liaison — interact with Fire Medical Officer, HSO, Infection Control Officer.

AGING

- Older workforce.
- Critical to hiring and retirement policies.
- Increased age leads to:
 - Decreased physical work capacity.
 - Increased risk of injury.
 - Longer periods of recovery.
 - Greater risk of occupational-related fatality.
- Chronic conditions impair performance.

Slide 5-26

E. Aging.

1. Aging baby boomers, increased life expectancy and reduction in birth rates are producing an older workforce.
2. This is a critical issue relative to hiring and retirement policies of fire departments.
3. Increased age leads to decreased physical work capacity, increased risk of injury, longer periods of recovery and greater risk of occupational-related fatality.
4. Chronic conditions such as arthritis, hypertension, decreased vision and hearing loss impair job performance.
5. Aging-related resources are available through NFPA, IAFF, IAFC, USFA, and OSHA.

1. Departments must recognize that there is stress and mental trauma caused by responses.
2. Stress is part of firefighting.
3. Dispatch to an incident causes stress to kick in.
 - a. Enables firefighters to operate at a high level.
 - b. This response is positive stress, also called eustress.

STRESS (cont'd)

- Too much eustress causes unwanted consequences:
 - Clouded judgment.
 - Irrational thinking.

Slide 5-30

4. Too much eustress has unwanted consequences such as:
 - a. Creating an emotional high or surge of adrenalin.
 - b. Clouding judgment.
 - c. Causing irrational thinking.
 - d. Increasing the likelihood of doing things not normally done.

DISTRESS

- Excessive pressure creates painful stress, or distress.
- Distress consequences could be:
 - Negative feelings.
 - Pain.
- Acute stress (severe distress) results in:
 - Mental trauma.
 - Other mental health issues.

Slide 5-31

- 5. Too much pressure creates painful stress, or distress.
 - a. Distress consequences are negative feelings and pain.
 - b. An incident that causes severe distress may be called an acute stressor.

TRAUMATIC STRESS

- Multiple traumatic incidents may occur before signs of mental trauma manifest:
 - Not uncommon for post-traumatic stress disorder (PTSD) to develop after multiple traumatic or distressful events.
 - Possible to have mental trauma after one severe incident (i.e., child death at scene).

Slide 5-32

- 6. Research indicates firefighters experience an average of four or five potentially traumatic stressors before signs of mental trauma manifest themselves.
 - a. Not uncommon for post-traumatic stress disorder (PTSD) to develop after multiple traumatic or distressful events.
 - b. Possible to have mental trauma after one severe incident (i.e., child death at scene).

CRITICAL INCIDENT STRESS

- Normal reaction after abnormal event.
- Problems may surface immediately or be delayed for weeks.

Slide 5-33

7. Critical incident stress.
 - a. This is a normal reaction when experiencing an abnormal event.
 - b. Individuals handle difficult situations in variety of ways.
 - c. Problems may surface immediately after incident or days to weeks later.
 - d. NFPA 1500, Chapter 12 provides basic approach to addressing critical incident stress.

FIRE SERVICE STIGMA

- Dealing with the stigma:
 - Organizations should encourage openness toward mental health services.
 - Train supervisors to recognize signs of mental health issues.
 - Encourage employees to seek help.
 - Employers may be a primary barrier.

Slide 5-34

8. Fire service stigma regarding mental health care.
 - a. Changing due to organizations encouraging openness toward mental health services.

- b. Firefighters’ employers a possible primary barrier to reaching those in need.
- c. Firefighters’ concern that seeking mental health assistance may affect their job status.

MENTAL HEALTH SERVICES

- Failure to seek mental health services may lead to negative consequences such as:
 - An impaired ability to work.
 - A change in family life.
 - Medical leave or department dismissal.
- Seeking professional help does not equate to being unfit for duty.

Slide 5-35

- 9. Failure to seek mental health services may lead to symptoms and negative consequences, such as:
 - a. Impaired ability to work.
 - b. Change in family life.
 - c. Eventual placement on medical leave, or dismissal from the department.
- 10. Seeking professional help does not mean that a firefighter is unfit for duty.

**MENTAL HEALTH SERVICES
(cont'd)**

- Failure to seek help as soon as symptoms are recognized:
 - Leads to unhealthy coping methods.
 - Masks symptoms of depression/anxiety.
- Seek early treatment by mental health professionals.
- Mental health is just as important as physical health.

Slide 5-36

- 11. Firefighters should seek help as soon as symptoms are recognized to avoid negative consequences.
 - a. Often firefighters are more attuned to physical fitness rather than mental health.
 - b. Symptoms may lead to seeking out unhealthy coping methods (i.e., alcohol or substance abuse, or other destructive behaviors).
 - c. Coping methods often mask underlying symptoms of depression and anxiety.
 - d. Making unhealthy choices can be treated by mental health professionals.

- 12. Common behavioral effects of emotional distress include:

EMOTIONAL DISTRESS

Substance abuse	Feeling detached from the world
Compulsive behavior patterns	Feelings of ineffectiveness, shame, despair, hopelessness
Self-destructive/Impulsive behavior	Feeling permanently damaged
Loss of previously sustained values, morals, religion or beliefs	Uncontrollable unpleasant thoughts
Inability to make healthy professional or lifestyle choices	

Slide 5-37

EMOTIONAL TRAUMA

Inability to maintain close relationships	Arguing with others
Sexual problems	Constantly appeasing others
Hostility and irritability	Feeling constantly threatened
Social withdrawal	

Slide 5-38

- 13. Common effects of emotional trauma on relationships include:
 - a. Inability to maintain close relationships or choose appropriate friends.
 - b. Sexual problems.
 - c. Hostility and irritability.
 - d. Arguments with family members, employers or co-workers.
 - e. Social withdrawal.
 - f. Feeling constantly threatened.
 - g. Constantly appeasing others.

- 14. Fatigue is another stressor and relates to a complex interaction of physiological, cognitive and emotional factors. Fatigue results in:
 - a. Slowed reactions.
 - b. Poor judgment.
 - c. Reduced cognitive processing of information.
 - d. An inability to continue performing a task or to carry it out at a high, sustained level of accuracy or safety.

FATIGUE

- Fatigue is due to:
 - Lack of sleep.
 - Interrupted or poor quality of sleep.
 - Disrupted work and rest cycles.
 - Illnesses such as sleep apnea.

Slide 5-39

- 15. Fatigue is due principally to one or more conditions including:
 - a. Lack of sleep.
 - b. Interrupted or poor quality of sleep.

- c. Disrupted work and rest cycles.
- d. Illnesses such as sleep apnea.

National Fallen Firefighters Foundation (NFFF)

and National Volunteer Fire Council (NVFC)

recognize that stress and firefighter mental health is an issue.

Slide 5-40

- 16. National Fallen Firefighters Foundation (NFFF) and the National Volunteer Fire Council (NVFC) both recognize that stress and firefighter mental health is an issue.
 - a. Numerous resources are available to assist departments with this issue.
 - b. NFFF has partnered with the North American Fire Fighter Veterans Network (NAFFVN) to disseminate the stress message.

SUICIDE

- Firefighters do not want to discuss suicide.
- Suicide rate among firefighters is not well documented.
- Firefighter suicide strikes at the core of being a firefighter.

Slide 5-41

- B. Suicide is an issue that has presented itself in the past few years.
 - 1. Fire/EMS personnel do not want to discuss this sensitive topic.

- a. Suicide is often discussed among law enforcement professionals.
- b. Suicide rate among firefighters is not well documented.

SUICIDE (cont'd)

- Greatest impact emotionally and mentally on those left behind.
- Fire/EMS departments must take a closer look at the potential for suicide.
- Myth that suicide happens without warning.
- The more warning signs there are, the greater the risk for suicide.

Slide 5-42

- 2. A firefighter or emergency medical technician (EMT)/paramedic suicide strikes at the core value of being a firefighter or EMT/paramedic.
- 3. Suicide has the greatest impact emotionally and mentally on those left behind to grieve.
- 4. Fire/EMS departments should take a closer look at the potential for suicide — for example, train officers to identify and assist or refer suicidal members.
- 5. It's a myth that suicide happens without warning.
 - a. Suicidal persons give definite signals of their intentions.
 - b. Warning signs and clues include:
 - Statements by the individual.
 - Expressed emotions or actions.
 - The more warning signs, the greater the risk for suicide.
- 6. Warning statements can be direct or indirect.
- 7. Other warning signs are stronger indicators and should be given greater priority. These include:

SUICIDE WARNING SIGNS

Table 5.5
Direct and Indirect Suicide Indicators

Having difficulties at work	Making final or funeral arrangements
Experiencing a change in work habits	Ending significant relationships
Neglecting appearance	Having a suicide plan
Losing interest in normal activities	Overreacting to criticism
Dropping out of activities	Being overly self-critical
Relapsing into drug or alcohol abuse after recovery	Collecting means or tools to commit suicide
Displaying anger or rage	Taking unnecessary risks beyond safety standards
Giving away possessions	

Slide 5-43

8. Firefighters spend time together at the fire station, providing the opportunity to recognize personnel who may be suicidal and prevent such a tragedy.
 - a. Most firefighters will not seek help if they are having suicidal thoughts.
 - b. Often are embarrassed or afraid of being perceived as unable to handle personal affairs.
 - c. Fear being removed from duty, being ostracized by fellow firefighters, or not being understood by their peers.

DVD PRESENTATION

“FIREFIGHTER CLOSE CALLS —
PHOENIX FIRE DEPARTMENT
SUICIDES”



Slide 5-44

SLEEP DISORDERS

- Sleep disorders affect fire/EMS agencies now more than ever.
- Fire/EMS service part of 20 percent engaged in shift work:
 - Poses health risks to responders.
 - Shift work results in a deviation from daily rhythm and sleep schedule.

Slide 5-45

- C. Sleep disorders are affecting personnel in more fire/EMS agencies than ever before.
 - 1. Fire/EMS service workers are part of the estimated 20 percent of U.S. workers engaged in shift work.
 - 2. Necessity to provide 24/7/365 fire and rescue services and EMS.
 - a. Poses potential health risks to response personnel.
 - b. Shift work results in a deviation from biologically preferred daily rhythm and sleep schedule.

SLEEP DISORDERS (cont'd)

- Sleep disorders can lead to:
 - Lack of mental alertness.
 - Tiredness, depression.
 - Irritability.
 - Digestive disorders.
 - Obesity, diabetes.
 - Sleep apnea.
 - Heightened risk of cardiovascular disease.
- Threaten responder and civilian safety.

Slide 5-46

- c. Can lead to lack of mental alertness, tiredness, depression, irritability, digestive disorders, obesity, diabetes, sleep apnea and heightened risk of cardiovascular disease.
- d. Can threaten responder and civilian safety.

SLEEP DISORDERS (cont'd)

- Affect fire/EMS responders.
- Shift schedules can result in sleep deprivation:
 - Longer work hours have a direct relationship to stress and injury rates.
 - Disrupted sleep patterns are recognized as a source of occupational stress and vice versa.
 - Disruption of sleep, no matter the cause, is detrimental to health and safety.

Slide 5-47

3. Emergency response personnel affected by sleep deprivation include firefighters (career, volunteer and wildland) and EMS responders (EMTs, paramedics, and aeromedical personnel).
 - a. Shift schedules can vary based on the requirements of the community and preferences of the agency.
 - b. The 2007 report *Effects of Sleep Deprivation on Fire Fighters and EMS Responders*, a joint project of IAFC and USFA, reported that unique shift schedules in career fire departments result in 48 to 56 hour firefighter work weeks, excluding overtime.
 - c. Longer work hours have a direct relationship to stress and injury rates.
4. The normal (occupational) stress associated with the work of emergency responders can be compounded by incidents that exceed our normal coping abilities as well as life-threatening events (i.e., mayday situations).
 - a. Disrupted sleep patterns are recognized as a source of occupational stress and vice versa.
 - b. Disruption of sleep, no matter what causes it, is detrimental to health and safety.
5. EMS personnel typically work shift schedules of 54 to 60 hours per week.
 - a. EMS agencies use a shift distribution process based on call volume so that crews can get at least four to six hours of sleep during a night.

- b. Firefighters and EMS workers responding to calls at night usually get less than the average seven to eight hours of sleep.
- c. Disrupted sleep leads to shift work sleep disorder (SWSD).

EPWORTH SLEEPINESS SCALE

- Epworth Sleepiness Scale (ESS):
 - Self-administered series of eight questions.
 - Rates the severity of situational sleepiness on a scale from zero to three.
 - Tallies in excess of 10 identify other intrinsic sleep disorders.
- See Appendix F in Student Manual (SM).

Slide 5-48

- 6. Epworth Sleepiness Scale (ESS) (Appendix F), is a self-administered series of eight questions.
 - a. The questions rate the severity of situational sleepiness on a scale from zero to three.
 - b. Those who tally in excess of 10 may be identified with snoring, obstructive sleep apnea (OSA) or other intrinsic sleep disorders.

DVD PRESENTATION

“SLEEP DEPRIVATION, PARTS 1 AND 2”



Slide 5-49

SHIFT WORK SLEEP DISORDER

- Lessen effects of shift work sleep disorder (SWSD) by:
 - Limiting the number of third shifts.
 - Taking days off in-between.
- Helps with recovery from sleep deprivation.
- Limiting 12-hour shifts to four in a row.

Slide 5-50

7. Effects of SWSD can be lessened by limiting the number of third shifts to five or less, with days off in-between, which helps with recovery from sleep deprivation.
 - a. Working 12-hour shifts limited to four shifts in a row is beneficial.

SHIFT WORK SLEEP DISORDER (cont'd)

- Other methods to minimize SWSD include:
 - Avoiding long commutes.
 - Getting sufficient sleep on days off.
 - Practicing good sleep hygiene.
 - Avoiding use of over-the-counter and prescription stimulants.

Slide 5-51

- b. Other methods to minimize SWSD include:
 - Avoiding long commutes.
 - Sufficient sleep on days off.
 - Practicing good sleep hygiene by planning and arranging a sleep schedule.
 - c. Use of over-the-counter and prescription stimulants should be avoided.

- Fools the body into thinking it is functioning properly.
- Further complicates sleep disorder.

VOLUNTEER DEPARTMENTS

- Volunteer fire/EMS departments are not immune to sleep deprivation issues.
- Members may:
 - Have other occupations.
 - Have occupations with unusual shifts.
 - Not be scheduled on shifts.
 - Experience similar health effects as career responders.

Slide 5-52

8. Volunteer fire/EMS departments are not immune to sleep deprivation issues.
 - a. Departments may include a combination system.
 - b. Part-time or on-call firefighters may have other occupations.
 - c. Volunteer fire/EMS agencies may not staff their departments on shifts.
 - d. Members employed in other occupations may work shifts other than a typical 8 a.m. to 5 p.m. shift.
 - e. Volunteers face similar health effects as those working in the career field.

STOP

- **S**noring, **T**iredness (daytime), **O**bserved apnea, high blood **P**ressure.
- The STOP test consists of four questions:
 - **S**: Do you **snore** loudly?
 - **T**: Do you often feel **tired**, fatigued or sleepy during the daytime?
 - **O**: Has anyone **observed** you stop breathing during sleep?
 - **P**: Do you have or are you being treated for high blood **pressure**?

Slide 5-53

9. STOP (**S**noring, **T**iredness during daytime, **O**bserved apnea and high blood **P**ressure), is used to screen for OSA. The STOP test consists of four questions:
- a. **S**: Do you **snore** loudly?
 - b. **T**: Do you often feel **tired**, fatigued or sleepy during the daytime?
 - c. **O**: Has anyone **observed** you stop breathing during sleep?
 - d. **P**: Do you have or are you being treated for high blood **pressure**?

STOP (cont'd)

- Two or more yes answers = high risk for obstructive sleep apnea (OSA).
- When combined with other known risk factors, the risk for OSA is even greater and medical care should be sought.
- Factors include:
 - High body mass index.
 - Age over 50.
 - Large neck circumference.
 - Male gender.

Slide 5-54

10. Two or more yes answers ranks as being a high risk for OSA.
- a. Combined with other known risk factors for OSA, the sensitivity for predicting OSA is greater and medical care should be sought.

**INFECTION CONTROL
RESOURCES**

- NFPA 1581.
- U.S. Fire Administration (USFA), “Guide to Managing an Emergency Service Infection Control Program.”
- Centers for Disease Control and Prevention (CDC).
- State and local health departments.

Slide 5-56

B. Resources.

1. NFPA 1581 (this standard parallels OSHA bloodborne requirements).
2. USFA, “Guide to Managing an Emergency Service Infection Control Program.”
3. The CDC website (www.cdc.gov).
4. State and local health departments.

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ACTIVITY 5.1

Implementation of a Health and Wellness Program

Purpose

To conduct an analysis to determine factors that would affect the implementation of a health and wellness program in a fire/EMS department.

Directions

1. You are the Health and Safety Committee for your department.
2. Working in your group, answer the following four questions and designate one person as the representative for your group.
3. You have 25 minutes to work on your answers and five minutes to report to the class.

Question 1: What are the barriers for the development and implementation of a comprehensive health and wellness program in the department?

Question 2: Why must the key players identified during class discussion/lecture be involved in this process from start to implementation?

Question 3: What are the “selling” points for the health and wellness program to our members?

Question 4: What would be your program development priorities and why? What would you work on first, second, etc.?

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Firefighter Close Calls: <http://www.firefighterclosecalls.com/personal-survival.php>.

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San Jose Fire Department Suicide Manual: <http://www.firenuggets.com/suicide.htm>.

Signs of Suicide: <http://www.save.org/index.cfm?fuseaction=home.view>.

Suicide Prevention: <http://firefighterveteran.com/>.

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UNIT 6: INVESTIGATIONS

TERMINAL OBJECTIVE

The students will be able to:

- 6.1 *Explain the importance of and describe the methodology used in investigating near misses, mishaps, injuries and death.*

ENABLING OBJECTIVES

The students will be able to:

- 6.1 *Identify situations that merit investigation.*
 - 6.2 *Describe the need for proper investigation of mishaps, fire/Emergency Medical Services (EMS) personnel injuries, and deaths.*
 - 6.3 *Identify resources and outside agencies that can assist with investigations.*
 - 6.4 *Identify the need to document near-miss incidents and describe the International Association of Fire Chiefs' (IAFC) near-miss reporting process.*
 - 6.5 *Identify and discuss issues related to the initial stages of the investigation of a specific accident or near-miss incident.*
-

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**UNIT 6:
INVESTIGATIONS**

Slide 6-1

ENABLING OBJECTIVES

- Identify situations that merit investigation.
- Describe the need for proper investigation of mishaps, fire/Emergency Medical Services (EMS) personnel injuries, and deaths.
- Identify resources and outside agencies that can assist with investigations.

Slide 6-2

**ENABLING OBJECTIVES
(cont'd)**

- Identify the need to document near-miss incidents and describe the International Association of Fire Chiefs' (IAFC) near-miss reporting process.
- Identify and discuss issues related to the initial stages of the investigation of a specific accident or near-miss incident.

Slide 6-3

I. INVESTIGATIONS

THE VALUE OF A GOOD INVESTIGATION

- Accident — unforeseen and unplanned event or circumstance.
- Mishap — unfortunate accident.
- Never pass on an opportunity to examine mistakes.
- Accident investigation — best method to analyze and correct mistakes.

Slide 6-4

- A. The value of a good investigation.
1. An accident is an unforeseen and unplanned event or circumstance causing loss, injury or fatality.
 2. A mishap is defined as an unfortunate accident.
 3. Don't pass up the opportunity to examine our mistakes.
 4. As human beings, we make mistakes through inappropriate actions, decisions or inactions.
 5. We need to take time to learn from our mistakes to prevent future occurrences or we face further loss or injury, even death.
 6. A comprehensive accident investigation is the best method to analyze and correct mistakes if we are truly committed to reducing injuries, illnesses and fatalities.

DVD PRESENTATION

“HALF AN HOUR TO TRAGEDY”



Slide 6-5

WHY INVESTIGATE?

- Basis for standard operating procedures (SOPs).
- National Fire Protection Association (NFPA) 1500 and Occupational Safety and Health Administration (OSHA) establish criteria.
- Determine direct and contributing causes.
- Prevent occurrence of similar accidents.
- Trend identification.
- Basis for training.

Slide 6-6

- B. Why investigate?
1. Basis for standard operating procedures (SOPs).
 2. National Fire Protection Association (NFPA) 1500 and OSHA establish criteria.
 3. Determine direct and contributing causes.
 - a. Identify not only the immediate cause of the accident but also any systemic failures in the organization.
 - b. Investigation determines the direct and contributing causes of the incident.
 4. Prevent similar accidents from occurring.
 5. Trend identification.

- a. Identifying trends may lead to recommendations for changes.
- b. Recommendations for enhancements.
- 6. Basis for training.
 - a. Deficiencies in operations may relate to inadequate training.
 - b. Indicate need for remedial training.

WHEN TO INVESTIGATE

- All accidents, no matter how minor, should be investigated.
- When reported, initiate the investigation immediately.
- Health and safety of the affected personnel are a priority.
- When area is secured and notifications are made, begin investigation.

Slide 6-7

- C. When to investigate.
 - 1. All accidents, no matter how minor, should be investigated.
 - 2. When reported, initiate the investigation immediately.
 - 3. Delays in starting an investigation may increase the chance of obtaining inaccurate and incomplete information about the mishap.
 - 4. Make the health and safety of the affected personnel a priority.
 - 5. Measures to protect evidence that can help identify the cause should be taken after the involved parties are cared for.
 - 6. When the area is secured and appropriate notifications have been made, the investigation can begin.

WHAT SHOULD BE INVESTIGATED?

- Vehicle collisions.
- Injuries and fatalities.
- Near misses.
- Communicable disease and hazardous materials exposures.
- Occupational illness.
- Equipment failure.

Slide 6-8

D. What should be investigated?

1. Vehicle collisions.
2. Responder injuries and fatalities.
3. Near misses — although reporting is not required, do not wait for an accident to make a change for the better.
4. Exposure to communicable disease/hazmats.
5. Occupational illness.
6. Equipment failure.

WHO SHOULD INVESTIGATE?

- Injured member's immediate supervisor.
- Identified in risk management plan and SOPs.
- Health and Safety Officer (HSO) — reviews all reports and may be part of investigation.
- Municipality's risk manager, safety consultants, OSHA and police.
- Outside or third-party professional.

Slide 6-9

E. Who should investigate?

1. Injured member's immediate supervisor.

2. Identified in risk management plan and SOPs.
 - a. The department’s policies, risk management plan, or SOP should identify those responsible for investigating the mishap.
 - b. In volunteer organizations the ISO or fire chief may be the designated individual to conduct investigations of mishaps.
3. The HSO reviews all reports and may be a part of the investigation.
 - a. Should be directly involved in the investigations.
 - b. Investigations include: significant accidents, exposures, serious injuries, and fatalities of responders.
4. Municipality’s risk manager, safety consultants, OSHA and the police.
5. Outside or third-party professional.

INVESTIGATION OF THE INCIDENT

- Accurate, clear and complete information is derived from the investigation process.
- Never assign blame.
- Determine events/circumstances leading to incident.
- Determine facts of incident/after incident.

Slide 6-10

- F. Investigation of the incident.
1. Accurate, clear and complete information should be derived from the investigation process.
 2. Never assign blame — persons who may have incident knowledge or could provide critical information may become defensive and refuse to cooperate.
 3. Determine events/circumstances leading to incident — such as actions occurring at the moment of the incident, people directly/indirectly involved, tools and equipment directly involved, as well as the time of the incident.

- 4. Determine facts of incident/after incident — facts of events directly after the incident as well as relevant facts from events that occurred, such as injury or damage directly resulting from the incident, can be equally important.

INVESTIGATION OF THE INCIDENT (cont'd)

The interaction of human factors

- Consider human, situational and environmental factors.

The diagram consists of three overlapping circles. The top circle is labeled 'PEOPLE' and lists: Knowledge, competency, motivation, attitudes, goals, health, fatigue, age, sex, size, strength, stress, etc. The bottom-left circle is labeled 'WORKPLACES' and lists: Site design, floor plan design, general design, maintenance, etc.; Equipment design: Machines, controls, interfaces, functions, warning systems, ease of use; Work environment: Noise, vibration, lighting, visibility, temperature, dust, chemical exposure, etc. The bottom-right circle is labeled 'MANAGEMENT' and lists: Organizational objectives, structure, Organizational culture of safety, quality, production, management practices and leadership, etc.; Job design: Roles, workload, task design, job requirements, incentives, etc.; Information transfer: Communication barriers and tools, leadership, motivation, safety, signs, etc.

The State of Queensland (Department of Employment, Economic Development and Innovation) 2011. Slide 6-11

- 5. Consider human, situational and environmental factors:
 - a. Design factors such as poor system design, ineffective safety devices, etc.
 - b. Environmental factors, both physical and psychosocial.
 - c. Human behavioral factors such as failure to follow procedures or guidelines, failure to wear personal protective equipment (PPE), improper use of equipment, and horseplay.

INVESTIGATION OF THE INCIDENT (cont'd)

- Major weakness — failure to identify and consider factors that contributed to the incident.
- Constructive investigations yield:
 - Injury experience rates.
 - Trends.
 - Basic causes — direct/indirect.
 - Deficiencies in organizational practices/procedures.
 - Corrective actions to prevent recurrences.

Slide 6-12

- 6. Major weakness — failure to identify and consider all factors that contributed to the incident.
- 7. Constructive investigations yield:
 - a. Injury experience rates.
 - b. Trends.
 - c. Basic causes — direct and indirect.
 - d. Deficiencies in organizational practices/procedures.
 - e. Corrective actions to prevent recurrences.

II. SPECIFIC INVESTIGATIONS

SPECIFIC INVESTIGATIONS

- Vehicle collisions.
 - First concern: medical care for those involved.
 - Notification of family.
 - Minor collisions with no injury.

Slide 6-13

- A. Vehicle collisions.
 - 1. First concern is medical care for all involved in the collision.
 - 2. Notify family and transport to hospital if needed.
 - 3. The second-level supervisor may investigate minor collisions with no injury to responders or civilians, but the HSO should review **all** collision reports.

SPECIFIC INVESTIGATIONS (cont'd)

- Collision analysis.
 - Law enforcement usually performs actual analysis.
 - HSO trained as accident investigator if agency experiences large number of collisions yearly.

Slide 6-14

B. Collision analysis.

1. Law enforcement usually performs the actual analysis, but the HSO should have basic knowledge of the process.
2. If agency experiences a large number of collisions yearly, the HSO should be educated in the skills of accident investigator.

SPECIFIC INVESTIGATIONS (cont'd)

- Collision analysis (cont'd).
 - Photographs of scene.
 - Standard report with drawing.
 - Statements from responders and witnesses.
 - Inspect vehicle and all equipment.
 - Impound equipment.



Slide 6-15

3. The following should be completed for all collisions:
 - a. Photographs of the scene.
 - b. Standard report with drawing.
 - c. Statements from all responders and witnesses.
4. The vehicle and all equipment should be inspected before being placed back in service.

5. If there is suggestion of malfunction, equipment should be impounded.

SPECIFIC INVESTIGATIONS
(cont'd)

- Responder injury.
 - Reporting depends on severity.
 - Equipment impoundment.
 - Ensure chain of custody.
 - Statements.
 - Consultation with Incident Safety Officer (ISO).

Slide 6-16

C. Responder injuries.

1. Depending on the severity of the injury, the incident may be reported by an officer on the scene or by the HSO.
2. In cases where the responder requires transportation to a hospital or other medical attention beyond basic measures taken at the scene, the HSO should be involved directly.
3. If equipment failure is known or suspected to have played a part in the injury, impound the equipment.
4. Statements should be taken from the injured responder and others at the scene.
5. The HSO should consult with the ISO, if one was active at the time of the accident or incident.

SPECIFIC INVESTIGATIONS
(cont'd)

- Responder injury (cont'd).
 - Bystander video:
 - Evidence may have been posted on social media website already.
 - Surveillance cameras.
 - Public or private business in area.
 - Vehicle-mounted video camera.

Slide 6-17

6. Bystander video — in our current world, there is a good chance that someone in the area was using a video camera at the time of the incident.
 - a. Video may have been posted to a social media website.
 - b. Video posted before investigation is complete.
7. There may also be surveillance cameras in the area; check public or private businesses.
8. Vehicle-mounted video camera apparatus or private vehicles. Use these as resources for the investigation.

SPECIFIC INVESTIGATIONS
(cont'd)

- Responder fatality.
 - Extremely stressful.
 - Public Safety Officer’s Benefits (PSOB).
 - International Association of Fire Fighters (IAFF) and IAFC guides.
 - U.S. Fire Administration (USFA).
 - National Institute of Occupational Safety and Health (NIOSH).



Slide 6-18

D. Responder fatality.

1. The death of a responder is an extremely stressful event for any response organization, not to mention the deceased’s family and the families of all members of the organization and other response organizations.
2. The Public Safety Officer’s Benefits (PSOB) program has very specific requirements for submitting claims.
3. Not all line-of-duty deaths (LODDs) are eligible for benefit payment.
 - a. Deaths caused by trauma and other acute occupational exposures (e.g., smoke inhalation) are eligible.
 - b. Deaths that may be occupation-related (e.g., cancer, heart attack and stroke) are generally not eligible.
4. The International Association of Fire Fighters (IAFF) and the International Association of Fire Chiefs (IAFC) both publish excellent guides for the investigation of firefighter deaths.

5. Many firefighter deaths are investigated as a part of the Fire Investigations Program funded by USFA. These reports are available free of charge from USFA.
6. NIOSH also investigates firefighter fatalities.

**COMMUNICABLE DISEASE
EXPOSURE**

- Documentation by individual.
- Review by the HSO.
- Basis for further study and proof for future.



Slide 6-19

E. Communicable disease exposure.

1. In most situations, the individual involved will document these exposures.
2. The HSO and the agency's Infection Control Officer should review exposure reports. The HSO may see these reports without the names of the responders to ensure confidentiality. This depends on the response agency's policy. In some agencies, the HSO and the Infection Control Officer may be the same person.
3. These reports may serve as the basis for future decisions to determine whether an illness experienced by the responder is occupational in nature or is the result of the responder's lifestyle or heredity.

CONFIDENTIALITY

- Medical documentation.
- Witness statements.



Slide 6-20

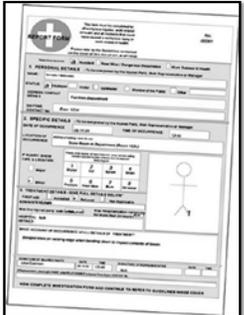
F. Confidentiality.

1. All medical documentation must be confidential.
2. The department should not maintain medical records, but if there is no alternative, they must be kept separate from personnel files.
3. Only the chief and fire department physician should have access.
4. Witness statements may also be confidential — if unsure, discuss with department’s legal representative.

III. WHAT HAPPENS AFTER THE INVESTIGATION

WHAT HAPPENS AFTER?

- Copy to file.
- Follow requirements for records retention.
- Pass on results; copy to head of organization.
- Discipline not HSO’s duties.



Slide 6-21

- A. A copy of the report or exposure record should be made part of the agency’s permanent file.
- B. Health records such as communicable disease exposure reports must become a part of the responder’s permanent file. (This file must be retained for 30 years after the employee leaves the agency.)
- C. The results and/or recommendations of the investigation should be passed on to the individual or group responsible for SOP development for that subject area.
- D. Discipline usually is not within the authority of the HSO. Disciplinary actions, if any, should be handled through the chain of command.

IV. DATA AND TREND ANALYSIS

DATA AND TREND ANALYSIS

- Review all reports as a group, regularly.
- Compare to national statistics:
 - IAFF.
 - NFPA.
 - National Fire Incident Reporting System (NFIRS).
 - Articles from the National Fire Academy's (NFA's) Learning Resource Center (LRC).

Slide 6-22

- A. The HSO should review all accident, collision and exposure reports as a group and on a regular basis.
- B. Single or isolated incidents spread over several months may not indicate a trend, unless reviewed together.
- C. Compare your agency's experience to the national statistics prepared by IAFF and NFPA. Look for places where your experience is different from theirs.
- D. An excellent source of information on all topics related to emergency services is the Learning Resource Center (LRC) at the National Fire Academy (NFA).

V. NEAR-MISS EVENTS

NEAR-MISS EVENTS

- Near miss — an unintentional, unsafe occurrence that could have resulted in an injury, fatality or property damage.
- Break in the chain of events prevented an injury, fatality or damage.
- Report near-miss events to www.firefighternearmiss.com/.

Slide 6-23

- A. Near miss — defined as an unintentional, unsafe occurrence that could have resulted in an injury, fatality or property damage.
- B. Break in the chain of events prevented an injury, fatality or damage.
- C. Report near-miss events to www.firefighternearmiss.com/.
 - 1. Near-miss reporting has worked effectively in other occupations, especially aviation.
 - 2. Team members readily recognize these events and take actions to share them with others.
 - a. EMS safety events (patient event, near-miss event or LODD event) can be reported to the EMS Voluntary Event Notification Tool (E.V.E.N.T.) at <http://event.clirems.org>.
 - b. This database was opened March 2012.

NEAR-MISS EVENTS (cont'd)

- Near-miss events involving **all** responders are important.
- Data is analyzed and used to identify trends:
 - Assists in formulating strategies to reduce firefighter injuries and fatalities.
- Take time to review near-miss events similar to situations in your department.

Slide 6-24

- D. Near-miss events involving **all** responders are important.
- E. Data is analyzed and used to identify trends:
 - 1. Assists in formulating strategies
 - 2. Reduces firefighter injuries and fatalities.
- F. Take time to review near-miss events similar to situations in your department.

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ACTIVITY 6.1

The Initial Stages of an Investigation

Purpose

To identify and discuss issues related to the initial stages of the investigation of a specific accident or near-miss event using the National Fire Fighter Near-Miss website.

Directions

1. Your group will be assigned one of four near-miss topics: driving, fire emergency, training or nonfire emergency from the National Fire Fighter Near-Miss website: www.firefighternearmiss.com/. Once on the site, go to the right column and click on “past reports of the week.”
2. Your group will answer the questions listed in the ROTW and list the report number that was used.
3. Answer the questions on the Activity 6.1 worksheet for the topic assigned. Answers will be based on the near-miss incident used.
4. Appoint a group representative to report out to the remainder of the class.

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ACTIVITY 6.1 (cont'd)

The Initial Stages of an Investigation Worksheet

Answer the following questions in relation to your segment. Appoint a group representative.

1. Who would investigate this incident internally?

2. Who would investigate this incident externally?

3. Is there any equipment that should be impounded or inspected prior to being returned to use? What?

4. Should statements be taken from anyone at the scene? Who?

5. What are your initial recommendations to avoid this situation in the future?

INVESTIGATIONS

6. Who would receive copies of the final investigation report?

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UNIT 7: OPERATIONAL RISK MANAGEMENT

TERMINAL OBJECTIVE

The students will be able to:

- 7.1 *Explain and apply risk management principles to emergency situations.*

ENABLING OBJECTIVES

The students will be able to:

- 7.1 *Identify and describe the use of an emergency risk management plan.*
- 7.2 *Describe the use of Geographic Information System (GIS) in emergency risk management.*
- 7.3 *Identify risk concerns for selected all-hazards events and incidents.*
- 7.4 *Given a video scenario, use the Naturalistic Decision Making (NDM) process to apply the emergency risk management plan to the following situations:*
- 7.4a *Immediate risks.*
- 7.4b *Forecasted risks.*
- 7.5 *Complete an Incident Action Plan (IAP) — Safety Analysis Form.*
-

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**UNIT 7:
OPERATIONAL
RISK MANAGEMENT**

Slide 7-1

ENABLING OBJECTIVES

- Identify and describe the use of an emergency risk management plan.
- Describe the use of Geographic Information System (GIS) in emergency risk management.
- Identify risk concerns for selected all-hazards events and incidents.

Slide 7-2

**ENABLING OBJECTIVES
(cont'd)**

- Given a video scenario, use Naturalistic Decision Making (NDM) process to apply the emergency risk management plan to the following situations:
 - Immediate risks.
 - Forecasted risks.
- Complete an Incident Action Plan (IAP) — Safety Analysis.

Slide 7-3

I. GEOGRAPHIC INFORMATION SYSTEM AND RISK ANALYSIS

GIS AND RISK ANALYSIS

- Fire and Emergency Medical Services (EMS) departments protect life and property:
 - Stay abreast of technology changes.
 - Risk management, planning and safety are increasingly important.
 - Responders must prepare for change.

Slide 7-4

- A. Fire and Emergency Medical Services (EMS) departments protect life and property.
1. Departments must stay abreast of technology changes to meet demands.
 2. Risk management, planning and safety are increasingly important.
 3. Responders must be prepared for change within the community.

**GIS AND RISK ANALYSIS
(cont'd)**

- GIS computer-based technology links geographic information and descriptive information to:
 - Assist emergency responders.
 - Preplan, respond and recover.
 - Locate information in real-time.
 - Tracks trends for planning.
- Tool for operations and administration.

Slide 7-5

- B. Geographic Information System (GIS) is a computer-based technology that links geographic information and descriptive information.
1. GIS technology can assist emergency responders with these items.
 2. GIS is a powerful tool for preplanning, response and recovery in response to large and small disasters.

3. For response, GIS can locate information in real-time.
 - a. Incident location.
 - b. Water sources.
 - c. Indicate hazards present.
 - d. Detail owner information.
4. In planning, GIS can track trends in fire and emergency locations as well as fire causes, show fire code violations, and other information.
5. GIS is a powerful tool for operations and administration.

GIS AND RISK ANALYSIS
(cont'd)

- GIS merges information and data, and analyzes it:
 - Displays information in easy-to-understand formats.
 - Layers can be added or removed.
 - Interactive maps.



Slide 7-6

- C. GIS merges and allows analysis of information and data.
1. Information is displayed in easy-to-understand formats.
 2. Data can be displayed in different layers depending on user's need.
 3. Layers can be added or removed by the user depending on need.
 4. GIS maps are interactive.

GIS AND RISK ANALYSIS
(cont'd)

Disaster Planning Aid

GIS LAYERS	FIRE	EMS	E-MGT
Streets, fire hydrant locations, water sources	X	X	X
Utilities — gas pipelines, electric substations, etc.	X		X
Target hazards — buildings, hazardous materials	X	X	X
Emergency response agency building locations	X	X	X
Predesignated evacuation routes	X	X	X
Predesignated evacuation areas/shelters	X	X	X
Predesignated helicopter landing zones	X	X	X
Imbedded building plans/Automated external defibrillator (AED) locations	X	X	X
Hospitals and schools	X	X	X

Slide 7-7

5. Layers for disaster planning:
 - a. Streets/Hydrants.
 - b. Utilities/Hazardous materials.
 - c. Predesignated landing zones (LZs).
 - d. Buildings, target hazard locations, imbedded building floor plans (and automated external defibrillator (AED) locations, etc.).
 - e. Emergency response locations (police, fire, EMS).
 - f. Target hazards/Hospitals, schools.
 - g. Predesignated evacuation areas and shelters.
 - h. Aerial imagery.
6. Tool is limited only on the amount of data available.
7. User can perform complex or simple analyses.

GIS AND RISK ANALYSIS (cont'd)

- Fire/EMS planning and response.
 - Calculates response time.
 - Performs run analysis.



Slide 7-8

D. GIS can be used for modeling in fire/EMS department planning or response.

1. Modeling can calculate response time based on actual roads and travel speeds.
2. Model can be adjusted as necessary, such as increasing or decreasing travel speeds.
3. Enables users to identify a station location, specify a travel time, and run a network analysis.
 - a. Illustrated by a polygon around the station.
 - b. It shows fire apparatus travel in a specified response time.

GIS AND RISK ANALYSIS (cont'd)

- Incident trend analysis:
 - Map historical incidents.
 - Access information.
- Event modeling:
 - Plume dispersion.
 - Exclusion zones.
 - Infrastructure damage.
 - Population effects.



Slide 7-9

E. With GIS, incident trend analysis can be performed quickly with all the relevant information.

1. Can map historical incidents.
 2. Can specify the type of incident, time range or specific geographic area.
 3. Can access all information for each incident.
- F. GIS can event model by allowing the user to identify a location, place a point on the map, and run a selected model.
1. May be anything from plume dispersion to an explosion.
 2. Can display the model on the map.
 - a. Delineate various levels of danger.
 - b. Identify exclusion zones.
 - c. Infrastructure damage.
 - d. Population effects.

GIS AND DISPATCH

- Aid dispatchers in processing incidents.
- Mobile computer display of:
 - Preplans.
 - Hazardous material locations.
 - Other details.



Slide 7-10

- G. GIS can aid dispatchers in processing incidents.
1. Ensures that appropriate units are dispatched based on type and urgency of the incident.
 2. Takes the address and automatically places the incident and displays it on a map.
 3. Can route responding units or send closest unit.
 4. Vehicles equipped with mobile computers and GIS can be provided with:

- a. Access to preplans.
- b. Hazardous material locations.
- c. Other location-based documents for specific locations.

GIS AND WIRELESS TECHNOLOGY

- Wireless technology adds to the necessity of GIS:
 - Emergencies not associated with an address.
 - Latitude/Longitude coordinates of cellphone.
 - Dispatch can send the closest units.
- Avert disasters and protect responders:
 - Collect and evaluate information.
 - Establish evacuation routes.

Slide 7-11

- H. Wireless technology and cellular telephone technology has added to the necessity of GIS.
 - 1. Wireless phone-reported emergencies are not associated with an address; callers may not know their address or street location.
 - 2. GPS-enabled cellphones can provide latitude and longitude coordinates.
 - 3. GIS can quickly display a latitude/ longitude or other coordinate location.
 - 4. GIS enables the dispatcher to see the incident location and send the closest response units.
 - 5. In a wireless system, GIS can avert disasters on-scene and protect responders.
 - 6. In a disaster, GIS can be used to collect and evaluate information during damage assessment.
 - 7. GIS can be used to establish evacuation routes or determine damage to shelters.

GIS AND SIZE-UP

**Incident location**

- Target hazard
- High risk location — school/hospital

**Quickest route**

- Closest station/unit
- Based on traffic/roadways

**Preplan information**

- Identify and assign resources
- Assist with Command decisions

Slide 7-12

- I. Responders must get to the emergency, size up the emergency, and take appropriate action.
 - 1. GIS can provide information for responders used in size-up, such as:
 - a. Incident location.
 - b. Quickest route.
 - c. Hydrant or water sources.
 - d. Preplans.
 - 2. Mobile computer technology allows responders quick and efficient access to important information.
 - a. Supports Incident Commander (IC).
 - b. Assists in making good decisions.

GIS ON SCENE

- Integrates information, graphic display in maps:
 - Modeling plumes and dispersion.
 - Evacuation requirements and routes.
 - Infrastructure threats.
 - Predict event and consequences.



Slide 7-13

- J. GIS integrates information, provides graphical maps to first responders, and allows acquisition of other critical information.
1. Can model explosions, plumes, other potential emergencies (e.g. pandemics, disease spread).
 2. Eliminates guesswork.
 3. Enhances safety for responders and citizens.
 4. Shows evacuation requirements and routes, transportation network issues, and other infrastructure threats.
 5. May provide prediction of the event and display the potential consequences.

GIS AND DISASTER RESPONSE

- Respond for emergencies, large or small.
- Natural disasters or human-caused:
 - Mass casualties.
 - Damage to infrastructure.
 - Evacuations.
- Assist in organizing information:
 - Provide comprehensive view of the emergency.

Slide 7-14

- K. Fire and EMS departments are usually among the first to respond for emergencies of all scales, large or small.

1. Disasters can be natural or man-made.
2. Large-scale emergencies may involve mass casualties and damage to infrastructure and evacuations, and can last for long periods of time.
3. Fire/EMS departments can assist in organizing information for deployment of resources, evacuation of people, and determining damage done from a disaster.
4. Assist the IC by providing a comprehensive view of the emergency.

GIS AT THE INCIDENT

- Create incident operating picture:
 - Emergencies are dynamic.
 - Reflect changes quickly.
 - Display information.
- Weather, location of responders, shelter and EMS info.



GIS Graphic – LSU Medical Shelter – Hurricane Katrina
Slide 7-15

- L. GIS can create a good operating picture of the incident.
1. Most emergencies are dynamic.
 2. GIS can reflect these changes quickly.
 3. GIS can display weather information, hazardous material locations, anticipated plume dispersal or the location of responders.

GIS AND THE INCIDENT COMMANDER

- Provide Incident Commander (IC) with an understanding of the incident.
- Assist in developing IAP.
- Assist Command in forecasting.
- Provide other pertinent data to manage the incident and develop the IAP.

Slide 7-16

4. GIS can model an evolving incident and what further damage might occur.
5. Models may give ICs an understanding of the incident and assist with developing the Incident Action Plan (IAP).
6. GIS can assist Command in forecasting.
7. GIS provides other pertinent data to manage the incident and develop the IAP.

II. RISK CONCERNS — ALL-HAZARDS SITUATIONS

RISK CONCERNS — ALL-HAZARDS SITUATIONS

- Fire/EMS play critical role in management of all community risk.
- All-hazards events — potentially harmful or undesirable:
 - Weather, natural disasters, (i.e., flood, earthquake), disease outbreak, etc.
- Emergency response is only one dimension of a responder's total mission.



Slide 7-17

- A. Fire and EMS organizations play a critical role in defending their communities against other situations that threaten lives and property:
 1. Fire departments and other emergency response organizations also conduct activities directly related to management of all community risks.

2. EMS responds to the health and welfare of the community's citizens.
3. Emergency management safeguards the community from the effects of natural and human-caused disasters.
4. Rescue teams safely remove citizens from dangerous predicaments.
5. Hazmat teams respond to mitigate hazardous materials situations.
6. The common thread among the missions — the community's need for protection from potentially harmful or undesirable events (i.e., all-hazards events).

**RISK CONCERNS —
ALL-HAZARDS SITUATIONS (cont'd)**

- Pandemic — disease outbreak:
 - Occurs without warning across wide geographic area.
 - Plan now to address challenges.
 - Implement workforce protection.
 - Understand impact to operations.

Slide 7-18

- B. Pandemic event is one type of all-hazards risk.
1. A pandemic would give little warning and hit wide geographic areas in multiple waves, lasting two to three months at a time.
 2. A flu pandemic will cause massive disruptions that could last for months, affecting business and government.

**RISK CONCERNS —
ALL-HAZARDS SITUATIONS (cont'd)**

- Pandemic — disease outbreak (cont'd):
– National Highway Traffic Safety Administration (NHTSA) developed pandemic planning guidelines for EMS agencies (<http://www.nhtsa.gov/people/injury/ems/PandemicInfluenzaGuidelines/>).



Slide 7-19

3. The potential is there to challenge fire/ EMS agencies, so planning for these events must occur now.
4. Workforce protection and infection control are the primary measures to control the risk.
5. The potential exists to overburden the EMS system with calls.
6. National Highway Traffic Safety Administration (NHTSA) developed pandemic planning guidelines for EMS agencies (<http://www.nhtsa.gov/people/injury/ems/PandemicInfluenzaGuidelines/>).

III. INCIDENT SAFETY OFFICER’S ROLE IN EMERGENCY RISK MANAGEMENT

**INCIDENT SAFETY OFFICER
AS RISK MANAGER**

- Ensure that pre-emergency risk management measures are used.
- Monitor hazards and changing environment.
- Ongoing/Rapid process.



Slide 7-20

- A. The Incident Safety Officer (ISO) as risk manager.
 1. Ensure pre-emergency risk management measures are used.

- a. Personal protective equipment (PPE)/Infection control.
 - b. Hazmat emergencies.
2. Monitor the emergency scene for hazards; use risk management tools.
 3. Risk management on the scene is an ongoing process.

**INCIDENT SAFETY OFFICER
AT EMERGENCY SCENE**

- Only job is safety.
- Look for immediate risks.
- Predict risks that may present hazard to responders.



Slide 7-21

B. ISO duties at emergency scene.

1. The ISO's only job at an emergency is safety.
2. ISO looks for risks that pose an immediate danger to responders.
3. ISO predicts developments that may place responders' lives or safety at risk.

PREPLANNING

- Life Safety Initiative No. 3
 - Calls to "focus greater attention on...planning responsibilities."
- Preplanning is a tool.
- It is more than filling in the blanks on a form.
- Must ensure all members know value of good plan.



Slide 7-22

**INCIDENT SAFETY OFFICER'S
KNOWLEDGE OF RISKS**

- Based on the following:
 - Training.
 - Experience.
 - Safety cues.
 - Intuition.

Slide 7-24

D. ISO's knowledge of risks.

1. Training.
2. Experience.
3. Safety cues.
 - a. Points to focus on.
 - b. Different in each situation.
4. Intuition.

ACTIVITY 7.1

Risk Management Application

Purpose

To identify immediate risks to emergency responders.

Directions

Part 1

1. As you view the video, think about immediate risks to emergency responders in the scenario.
2. At the conclusion of the video scenario, you have two minutes to list on the worksheet the risks that are an immediate danger to responders.

Part 2

1. Each group will be asked to select two critical risks off its list. Appoint a representative to present the two risks identified by your group.
2. For each risk, explain how you would manage that particular risk.

Part 3

1. In bullet format, explain why the risk management process is beneficial and how it is implemented.
2. Be prepared to discuss your responses during a facilitated discussion.

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ACTIVITY 7.1 (cont'd)

Risk Management Application Worksheet

Part 1

Part 2

Part 3

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IV. FORECASTING (10 min.)

FORECASTING

- Fires and other emergencies are dynamic.
- A safe situation at one moment may be unsafe a few moments later.
- Use experience, training, safety cues and intuition.

Slide 7-27

- A. The ISO must realize that fires and other emergencies are dynamic, and that a situation that appears safe at one moment may be completely unsafe a few minutes later.
- B. The ISO must use experience, training, safety cues and intuition to think ahead and to predict developments that will have an impact on responder safety.

FORECASTING (cont'd)

<small>Table 7.1</small> Perceived Risks/Risks to be Considered
Weather — extremes of heat/cold, electrical storms, high wind, type of precipitation, affect on incident
Time — receipt of call to arrival, travel time, traffic, availability of resources, duration of incident
Resources — human and equipment — type/availability, trained/experienced, adequate for future needs
Access/Egress — easy/difficult, scouted/marked, emergency provisions/protected pathway, known to all
Protection of crew — from surroundings, from people/animals, traffic, physical hazards, hazardous materials
Bloodborne Pathogens (BBP) — body substance isolation (BSI) in use, exposure reports, decontamination of personnel/equipment

Slide 7-28

**Table 7.1
Forecasting Risks**

The ISO must consider the long-term risks associated with a myriad of incidents facing responders and prepare to address them during the incident. Incidents with the propensity to develop into long-duration operations, assistant ISOs must be considered to ensure responder safety.

PERCEIVED RISKS/RISKS TO BE CONSIDERED	FIRE	EMS	HAZ MAT	TECH RESCUE
Weather — extremes of heat/cold, electrical storms, high wind, type of precipitation, etc.	X	X	X	X
Time — receipt of call to arrival, travel time, traffic, availability of resources, duration of incident	X	X	X	X
Resources — human and equipment — correct type/availability, trained/experienced adequate for future needs	X	X	X	X
Access/Egress — easy/difficult, scouted/marked, emergency provisions/protected pathway, known to all	X	X	X	X
Protection of crew — from surroundings, from people/animals, traffic, physical hazards	X	X	X	X
FIRE				
Features of structure — access, floor layout, utilities, type of occupancy/use	X			X
Fire Protection Systems — water sprinklers, special agents, auto smoke vents, etc.	X			
Construction type — lightweight combustible, non-combustible, age/renovation history	X			X
Potential for extension — type of building, distances between, weather (wind), etc.	X			
Amount of fire involvement — well involved = no survivors/early collapse, defensive vs. offensive operations	X			
Tactical Objectives — ISO must be familiar with IC's plan, alternatives, monitoring activity	X	X		
EMS				
Bloodborne Pathogens — BSI in use, exposure reports, decontamination	X	X		X
Physical Hazards — PPE during rescue, utility wires, work environment, sharps/cuts	X	X	X	X
Violent Acts — civil unrest, perpetrator in area, victim may be perpetrator, police avail?	X	X		
Other Incidents				
Collapse Rescue — indications of secondary collapse, technical experts needed, ICS/ISO	X	X		X
Trench Rescue — unknown soils, weather conditions, long duration; ventilation, etc.	X			X
High Angle Rescue — uneven/unfamiliar terrain, exposure to weather, access difficult	X			X
Water Rescue — hypothermia, boat/land based, swift water vs. open water	X	X		X
Wildland Fires — unfamiliar/unknown terrain, unexpected weather affects, overexertion	X	X		
Hazardous Materials — product ID, suit selection/decontamination, long duration	X	X	X	X
Confined Space — electrical/mechanical hazards, equipment limitations, long duration	X	X		X

- C. Structural fire forecasting — at a structural fire, the ISO’s forecast must consider the following:
1. Features of the fire building.
 - a. Access to the interior may be difficult for firefighters. Maze-like floor plans increase risk.
 - b. Utilities: gas, electricity, steam, etc.
 2. Fire protection systems.
 - a. Operating sprinklers indicate a working fire.
 - b. Added weight from sprinkler water eventually may cause structural problems.
 - c. Automatic or manual smoke vents may assist firefighters working in interior positions.
 - d. The presence of special agent systems, such as dry chemicals and Halon, indicate that a special hazard is present. These systems usually are designed to discharge only once.
 3. Access for fire crews.
 - a. Large buildings present fatigue problems.
 - b. If the fire appears to be in hidden spaces, opening up for suppression will be time-consuming and will cause firefighters to become fatigued.
 4. Egress for crews working on the interior.
 - a. Crews must be able to find their way out if an emergency occurs.
 - b. Ladders to upper-story windows provide alternative escape routes.
 5. Construction type.
 - a. Bowstring truss and lightweight truss roofs often fail early. Their failures can have dramatic and deadly consequences.
 - b. Look for presence of “stars” and other indications that steel rods have reinforced the structure.
 - c. Look and listen for early signs of structural failure (e.g., groaning, smoking mortar, bulge, etc.).

- d. Look for other construction hazards such as suspended loads.
- 6. Age of the fire building.
 - a. Older buildings generally do not have lightweight trusses.
 - b. Egress and access may be difficult.
 - c. Look for signs of structural weakness such as reinforcing rods.
 - d. A new building is just as likely to collapse as an older building.
- 7. Gauge the potential for fire extension into exposed buildings.
 - a. Amount of fire involvement.
 - b. Distance between buildings.
 - c. Wind conditions.
- 8. Amount of fire involvement.
 - a. Big fires usually mean no survivors and less benefit from risk to firefighters engaged in interior operations.
 - b. Greater fire involvement leads to early structural failure.
- 9. Roof hazards.
 - a. Ladders at two corners.
 - b. Firefighters walking on structural members.
 - c. Once the hole is cut, get off the roof.
 - d. If the fire is well vented, no hole is needed.
 - e. Potential for collapse with bowstring trusses, lightweight wood trusses, etc.
- 10. Time.
 - a. Time from ignition to flashover may be as little as two or three minutes.
 - b. The longer the fire burns, the weaker the structure becomes.

- c. Taking into account the time interval between the arrival of the first unit on the scene and the response time of the ISO, it is possible that the incident has been going on longer than the ISO has been there.
11. Tactical objectives.
- a. If things do not go as the IC hoped, firefighters must be able to remove themselves from the hazard area.
 - b. The ISO must know the IC's attack plan and how it will be carried out.
 - c. Water supply (hydrants or tanker operation) must be adequate to support safe operations. Insufficient water, or running out of water, can put firefighters in a dangerous position. Look for hydrants or recommend a tanker operation.
12. Weather.
- a. Extreme heat dictates the early initiation of rehab, and more frequent work/rest cycles.
 - b. Cold weather presents hazards in addition to hypothermia (e.g., slippery surfaces, mud, etc.).
 - c. Electrical storms may create lightning hazards.
 - d. Ground ladders can be blown over by strong winds.
- D. Medical emergency forecasting.
- 1. Protection from communicable diseases.
 - 2. Protection from physical hazards such as sharp surfaces; use full PPE during extrication.
 - 3. Violent acts.
 - a. If a crowd has gathered, individuals may become agitated or violent toward responder.
 - b. The person who committed the violent act may still be in the area.
 - c. Escape routes will be needed if situation worsens.
 - d. Law enforcement presence helps to ensure responder safety.

4. Protection from surroundings.
 - a. Moving traffic — emergency vehicles should be used to shield from traffic, if possible.
 - b. Car/Pedestrian accident — move patient onto curb and out of traffic for treatment, if possible.
 - c. Weather — heat, cold, rain, sleet, etc.
 5. Sufficient staffing.
 - a. Staffing must be adequate to carry and load the patient(s) into the ambulance.
 - b. Help may be available from bystanders or law enforcement officials.
 - c. If the patient is far from the road or from a paved surface, more people will be needed to carry the gurney.
- E. Special operations forecasting.
1. Incident durations will be longer.
 2. Technical experts.
 - a. Should be present at the scene.
 - b. Must be capable of ensuring the safety of responders engaged in special operations.
 3. Properly equipped responders should be available for rescue of members in hazardous areas.
 4. Time generally is less of a factor because more time is available to prepare for action.
 5. Time also can be an enemy to responders who may drop their guard as an incident drags on.

EMERGENCY MEDICAL SUPPORT

- EMS may respond automatically to structure fires.
- May be required by National Fire Protection Association (NFPA) 1500.
- Minimum level — basic life support (BLS) transport.



Slide 7-29

F. EMS.

1. In many communities, EMS responds routinely to structural fires — if not, ISO should forecast need.
2. May be required by National Fire Protection Association (NFPA) 1500, *Standard on Fire Department Occupational Safety and Health Program*.
3. Minimum level — basic life support (BLS).

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ACTIVITY 7.2

Forecasting Risk

Purpose

To forecast risks to emergency responders.

Directions

1. You will be viewing a video scenario. The scenario listed below sets the scene for the video.
2. As you view the video, think about what risks may present a danger to responders. These may be risks posed by the danger of the incident or by the improper actions of responders.
3. At the conclusion of the video scenario, you have 10 minutes to list on the worksheet the possible risks you identified.
4. After you complete your list, be prepared to discuss what you have identified with the entire class.

Scenario

This incident involves a tractor-trailer, a charter bus and an automobile. The charter bus had stopped due to traffic. The driver of the tractor-trailer was looking down to pick up his cup of coffee and did not see the traffic stopped ahead. He struck the automobile, pushing it under the bus. The tractor-trailer came to rest on top of the automobile. The automobile caught fire, causing the charter bus and tractor-trailer to also burn.

The charter bus is from Canada. The only English-speaking person is the bus driver. The passengers speak only French.

The tractor-trailer contains plastic toys and cans of “spray string.”

Additional concerns: There is a lack of water supply due to roadway construction.

The first alarm assignment consists of three engines, heavy rescue, an ALS ambulance and a chief. The tactical aspects of the incident are being managed. Your focus is the forecasting of risks to responders.

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V. RISKS

ACCEPTABLE RISK

- Emergency personnel action-oriented.
- Accept risks unacceptable to the public.
- Minimize risk:
 - What are some methods?



Slide 7-32

- A. Acceptable risks.
1. Emergency response personnel are action-oriented.
 2. Part of their job is to take risks that would be unacceptable to the general public.

RISK MANAGEMENT PLAN

- Should address all operations.
- Known to all.
- Simple, quick fallback plan.

Slide 7-33

- B. Risk management plan.
1. The agency’s risk management plan is a detailed look at all-hazards that may be faced by responders. This plan addresses specific risks.
 2. Everyone in the organization, including persons who may be designated as an ISO, should be familiar with the plan.

**OPERATIONAL RISK
MANAGEMENT**

- Risk lives to save a life.
- Moderate risk to save property.
- No risk to save what is already lost.

Slide 7-34

3. A simple risk management statement that can be used by an ISO for situations that are not specifically covered in the risk management plan includes:
 - a. Emergency responders may risk their lives in a calculated manner to save a life.
 - b. Emergency responders may place themselves in situations with moderate risk to save property.
 - c. Emergency responders will risk nothing to save lives that already have been lost or property that already has been destroyed.

RULES OF ENGAGEMENT FOR STRUCTURAL FIREFIGHTING

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.

Source: International Association of Fire Chiefs (IAFC).

Slide 7-35

4. The 10 rules of engagement for structural firefighting:
 - a. Acceptability of risk.
 - No building or property is worth the life of a firefighter.
 - All interior firefighting involves an inherent risk.
 - Some risk is acceptable, in a measured and controlled manner.
 - No level of risk is acceptable where there is no potential to save lives or savable property.

- Firefighters shall not be committed to interior offensive firefighting operations in abandoned or derelict buildings.

b. Risk assessment.

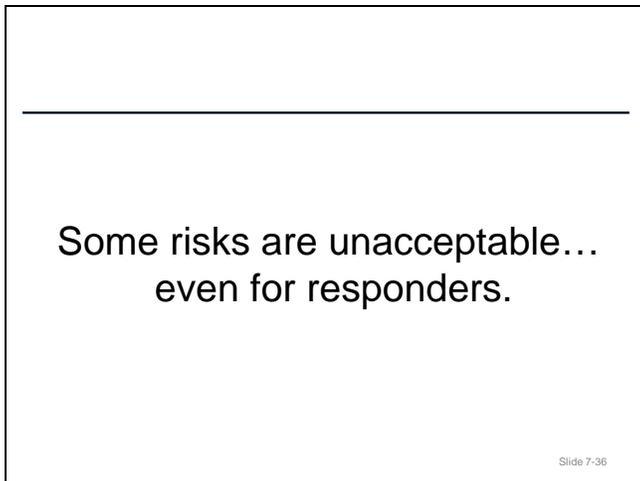
- All feasible measures shall be taken to limit or avoid risks through risk assessment by a qualified officer.

- It is the responsibility of the IC to evaluate the level of risk in every situation.

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

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

- No building or property is worth the life of a firefighter.



C. Unacceptable risks.

1. Some risks are unacceptable, even for emergency responders.
2. This fact should be addressed in the agency risk management plan.

UNACCEPTABLE RISK

- Gunfire or other extreme hazard.
- Interior attack on abandoned or derelict building.
- Fine line between acceptable and unacceptable risk.

Slide 7-37

D. When a risk is unacceptable.

1. There is no reason to risk the life of a responder in a situation where an injured person is inaccessible because of gunfire or some other extreme hazard.
2. There is no reason to risk the life of a firefighter by sending him/her to conduct an interior attack on a fire in an unoccupied building.

3. There is a fine line between an acceptable risk and an unacceptable risk.
4. Bad information or a lack of information can complicate the decision.
5. ISO input to decision-making process.
 - a. The IC may have judged that the risk of an operation is worth the potential benefit.
 - b. The IC may not be aware of all of the hazards posed by a particular activity.
 - c. The ISO may choose to inform the IC of hazards, or the ISO may choose to terminate an operation that is deemed unsafe.

VI. INCIDENT ACTION PLAN — SAFETY ANALYSIS

INCIDENT SAFETY

- Incident management must ensure the safety of:
 - Responders to the incident.
 - Persons injured or threatened by the incident.
 - Volunteers assisting at the incident.
 - News media and the general public who are on-scene observing the incident.

Slide 7-40

- A. Incident management must ensure the safety of:
1. Responders to the incident.
 2. Persons injured or threatened by the incident.
 3. Volunteers assisting at the incident.
 4. News media and the general public who are on-scene observing the incident.

INCIDENT ACTION PLAN

- Larger, complex incidents may exceed local management capabilities:
 - A regional or state Incident Management Team (IMT) may be called.
- On-scene safety personnel must be familiar with how IAP is developed:
 - An IAP worksheet (Incident Command System (ICS) 215) is used to plan resources and assignments.

Slide 7-41

- B. Larger, complex incidents such as mass casualty incidents (MCIs), large structure fires and hazmat incidents may exceed management capabilities of local agencies.
- C. A regional or state Incident Management Team (IMT) may be called to manage the incident.
- D. Safety personnel should be familiar with how the IAP is developed, and the importance of IAP Safety Analysis.
- E. An IAP worksheet (ICS 215) is used to plan resource requirements for the next operational period, based on tactics identified in a tactics meeting.
- F. The ICS 215 form identifies:
 - 1. Incident work location.
 - 2. Work assignments.
 - 3. Kind and type of resources required to complete the work.
 - 4. Reporting location and arrival time of resources.

INCIDENT SAFETY ANALYSIS

- The IAP Safety Analysis Form (ICS 215A) is used to:
 - Identify, prioritize, and mitigate the hazards and risks.
 - Identify hazardous tactics.
 - Determine the safety implications.
 - Develop control measures.
- Used in planning phase and for Operations Section briefings.

Slide 7-42

- G. The IAP Safety Analysis (ICS 215A) is designed to aid the ISO in completing a documented operational risk assessment to:
1. Identify and prioritize hazards as well as safety and health issues.
 2. Identify hazardous tactics so that alternatives can be considered.
 3. Determine the safety implications for the type of resources required.
 4. Develop appropriate control measures.
 5. Utilize in the planning phase and for Operations Section briefings.

IAP SAFETY ANALYSIS (ICS 215A)

- Prepared by ISO during IAP cycle.
- A tool used by ISO as a concise way of identifying hazards and risks.
- The IAP Safety Analysis is used to:
 - Develop the safety message.
 - Brief response personnel.

Slide 7-43

- H. The ICS 215A form is typically prepared by the ISO during the IAP cycle.
- I. ICS 215A is a tool used by the Safety Officer as a concise way of identifying hazards and risks present in different areas of the incident and specific ways of mitigating those issues during an operational period.

- J. The IAP Safety Analysis is used to develop the safety message and to brief response personnel on mitigative actions.

IAP SAFETY ANALYSIS (ICS 215A) (cont'd)

The Safety Officer or IC completes the Safety Analysis using ICS 215A for each operational period.

INCIDENT ACTION PLAN SAFETY & RISK ANALYSIS		1. INCIDENT NAME					2. DATE		3. TIME	
		Winter Storm					2-10		1100	
LCES* and Risk Analysis (Lookouts, Communications, Escape Routes, Safety Zones)						RISK MITIGATIONS				
Impacted Organizational Element	Extreme Weather	Bio-Hazard	Hazmat	Driving	Communications	Other	Other	Other	Other	Other
Div A	X			X						
						Drive with lights on, chain up before leaving for assignment. Maintain safe speed for conditions. Wear gloves, hat when operating out of vehicle.				

Organizational element at risk

Hazards

Mitigation strategies

Slide 7-44

ICS Form 215A, Incident Safety Analysis	
<p>The Safety Officer or the Incident Commander should coordinate, develop, and approve an ICS Form 215AW Incident Safety Analysis (LCES) or ICS Form 215AG Incident Safety Analysis (Generic) for each operational period with the Operations Section Chief.</p> <p>The ICS Form 215A, Incident Safety Analysis, is a tool used by the Safety Officer as a concise way of identifying hazards and risks present in different areas of the incident and specific ways of mitigating those issues during an operational period.</p> <p>The objective of the Incident Safety Analysis is to identify, prioritize, and mitigate the hazards and risks of each incident work location by operational period. The mitigation methods selected may affect the resources required for the incident work location. The Safety Analysis may also reveal that the proposed tactic is too hazardous to attempt and another tactic must be developed.</p> <p>The ICS Form 215A, Incident Safety Analysis Worksheet, is used as a display during the Planning Meeting. It provides information on:</p> <ul style="list-style-type: none"> ▪ Incident work location ▪ Tactical analysis elements ▪ LCES mitigations ▪ Other risk analysis elements ▪ Other risk mitigations ▪ Date (daily) prepared by Operation Sections/Safety Officer and approved by Safety Officer 	
<p>Techniques for Identifying Hazards</p> <ul style="list-style-type: none"> ▪ Personal observation and/or experience ▪ Checklist ▪ Communication with incident personnel ▪ Trends ▪ Local personnel 	<p>Types of Risks</p> <ul style="list-style-type: none"> ▪ Traffic ▪ Confined space ▪ Downhill fireline construction ▪ Air operations ▪ Radiation hazard ▪ Slip, trip, & fall
<p>Locations</p> <ul style="list-style-type: none"> ▪ Divisions ▪ Groups ▪ Helibase ▪ Staging Area ▪ Others 	<p>Mitigation of Hazards</p> <ul style="list-style-type: none"> ▪ Dusty narrow roads – dust abatement, one-way traffic pattern, close road to public, experienced drivers ▪ Long crew shuttle by bus – camps, aviation, split operational periods

ROLES/RESPONSIBILITIES UNDER THE SAFETY IAP

ICS POSITION	RESPONSIBILITIES
Command	Establishes the safety policy and assigns the ISO.
ISO	Implements the safety policy and analyzes IAP for risks.
Operations Section Chief (OSC)	Ensures safety considerations included in all tactical and strategic decisions.
Company Officer (CO)	Communicates safety information to assigned personnel and monitors activities to ensure compliance.
All personnel	Primary responsibility for performing in a safe manner at all times.

Slide 7-45

K. Roles and responsibilities under the Safety IAP include:

1. IC — establishes the safety policy and assigns the ISO.
2. Safety Officer — implements the safety policy.
3. Operations Section Chief (OSC) — ensures that safety considerations are included in all tactical and strategic decisions.
4. Company Officer (CO) — communicates safety information to all assigned personnel and closely monitors their activities to ensure compliance.
5. All personnel — primary responsibility for performing in a safe manner at all times.

OBJECTIVE OF THE INCIDENT SAFETY ANALYSIS

To identify, prioritize and mitigate the hazards and risks of each incident work location by operational period.

Slide 7-46

L. The objective of the Incident Safety Analysis is to identify, prioritize and mitigate the hazards and risks of each incident work location by operational period.

ACTIVITY 7.3

Incident Action Plan — Safety Analysis

Purpose

To identify information that should be entered into ICS 215A (IAP — Safety Analysis Form).

Directions

1. Students will work in their assigned table groups for this activity.
2. Each group, using the information from Activity 7.2 (“Fairfax County Tractor-Trailer/Bus Incident” video) and a completed ICS 215 Operational Planning Worksheet, should consider the safety risks to the emergency responders handling the incident in the scenario, as well as the forecasted risks. (A completed ICS 215, to be provided by your instructor, will form the basis from which to complete your ICS 215A.)
3. You have 15 minutes to list on the ICS 215A form the safety risks that are an immediate danger to responders and complete the form as you would for a prescribed operational period.
4. After you complete your form, be prepared to discuss what you have identified with the entire class.

The ICS 215A is an on-scene tool to help guide the ISO in identifying and developing a plan to manage hazards and risks through a specific operational period.

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**ICS 215A
Incident Action Plan Safety Analysis**

Purpose The purpose of the Incident Action Plan Safety Analysis (ICS 215A) is to aid the Safety Officer in completing an operational risk assessment to prioritize hazards, safety and health issues, and to develop appropriate controls. This worksheet addresses communications challenges between planning and operations, and is best utilized in the planning phase and for Operations Section briefings.

Preparation The ICS 215A is typically prepared by the Safety Officer during the incident action planning cycle. When the Operations Section Chief is preparing for the tactics meeting, the Safety Officer collaborates with the Operations Section Chief to complete the Incident Action Plan Safety Analysis. This worksheet is closely linked to the Operational Planning Worksheet (ICS 215). Incident areas or regions are listed along with associated hazards and risks. 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. Use additional sheets as needed.

Distribution When the safety analysis is completed, the form is distributed to the Resources Unit to help prepare the Operations Section briefing. All completed original forms must be given to the Documentation Unit.

Notes:

- This worksheet can be made into a wall mount, and can be part of the IAP.
- If additional pages are needed, use a blank ICS 215A and repaginate as needed.

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.
	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.
	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.
	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.
	Mitigations	List actions taken to reduce risk for each hazard indicated (e.g., specify personal protective equipment or use of a buddy system or escape routes).
	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.

VII. SUMMARY

	<h2>SUMMARY</h2>	
<ul style="list-style-type: none">• Identified and described use of an emergency risk management plan.• Described use of GIS in emergency risk management.• Identified risk concerns for select all-hazards events.• Used NDM process to apply risk management to immediate/forecasted risks.• Completed IAP Safety Analysis (ICS 215A).		
<small>Slide 7-48</small>		

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APPENDIX

THE 10 RULES OF ENGAGEMENT FOR STRUCTURAL FIRE FIGHTING AND THE ACCEPTABILITY OF RISK

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The 10 Rules of Engagement for Structural Fire Fighting and the Acceptability of Risk



Prepared by the
ICHIEFS Health and Safety Committee
August, 2001

ACCEPTABILITY OF RISK

All fire fighting and rescue operations involve an inherent level of risk to fire fighters.

- A basic level of risk is recognized and accepted, in a measured and controlled manner, in efforts that are routinely employed to save lives and property. *These risks are not acceptable in situations where there is no potential to save lives or property.*
- A higher level of risk is acceptable only in situations where there is a *realistic potential* to save known endangered lives. This elevated risk must be limited to operations that are *specifically directed toward rescue* and where there is a *realistic potential to save the person(s) known to be in danger.*

RULES OF ENGAGEMENT FOR STRUCTURAL FIREFIGHTING

All structural fire fighting operations involve an inherent level of risk to fire fighters. All feasible measures shall be taken to limit or avoid these risks through risk assessment, constant vigilance and the conscientious application of safety policies and procedures.

- The exposure of fire fighters to an elevated level of risk is acceptable only in situations where there is a realistic potential to save known endangered lives.
- *No property is worth the life of a fire fighter.*
- *No risk to the safety of fire fighters is acceptable in situations where there is no possibility to save lives or property.*
- Fire fighters shall not be committed to interior offensive fire fighting operations in abandoned or derelict buildings that are known or reasonably believed to be unoccupied.

RISK ASSESSMENT

It is the responsibility of the incident commander to evaluate the level of risk in every situation. This risk evaluation shall include an assessment of the presence, survivability and potential to rescue occupants. When there is no potential to save lives, firefighters shall not be committed to operations that present an elevated level of risk.

An incident command system shall be established, beginning with the arrival of the first fire department member at the scene of every incident. The incident commander must conduct an initial risk analysis to consider the risk to fire fighters in order to determine the strategy and tactics that will be employed.

The responsibility for risk assessment is a continuous process for the entire duration of each incident. The incident commander shall continually reevaluate conditions to determine if the level of risk has changed and a change in strategy or tactics is necessary. The incident commander shall assign one or more safety officers to monitor and evaluate conditions to support this risk analysis.

At a minimum the risk analysis for a structure fire shall consider:

Building Characteristics

- Construction type and size
- Structural condition
- Occupancy and contents

Fire Factors

- Location and extent of the fire
- Estimated time of involvement
- What are smoke conditions telling us?

Risk to Building Occupants

- Known or probable occupants
- Occupant survival assessment

Fire Fighting Capabilities

- Available resources
- Operational capabilities and limitation

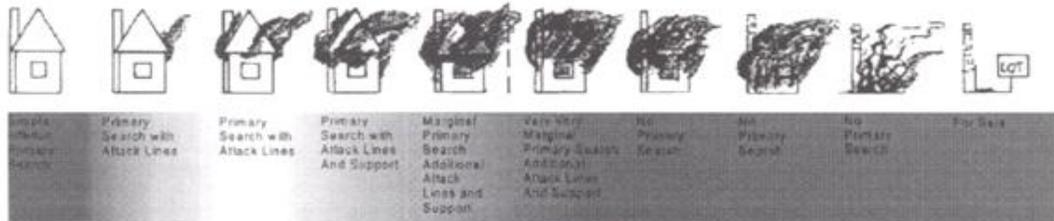
10 Rules of Engagement for Structural Fire Fighting

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.



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.

UNIT 8: SITUATION-SPECIFIC HAZARDS AND MITIGATION STRATEGIES

TERMINAL OBJECTIVE

The students will be able to:

- 8.1 *Identify specific hazards and conditions that present increased risk to fire/Emergency Medical Services (EMS) personnel and discuss general mitigation strategies to reduce the frequency and severity of fire/EMS personnel injuries.*

ENABLING OBJECTIVES

The students will be able to:

- 8.1 *Discuss the risks associated with:*
- 8.1a *Abandoned building operations.*
 - 8.1b *Hazardous materials/Terrorism.*
 - 8.1c *Technical rescue.*
 - 8.1d *Highway operations.*
 - 8.1e *Incidents involving violence.*
 - 8.1f *Wildland fires.*
 - 8.1g *Weather-related issues.*
 - 8.1h *Pandemic influenza.*
- 8.2 *Discuss the application of specific mitigation strategies, including Rapid Intervention Crews (RICs), personnel accountability system, and emergency incident rehabilitation.*
- 8.3 *Describe the Crew Resource Management (CRM) concept and its implications on emergency operations.*
- 8.4 *Given a scenario, develop a policy or procedure with appropriate support material.*
-

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UNIT 8: SITUATION-SPECIFIC HAZARDS AND MITIGATION STRATEGIES

Slide 8-1

ENABLING OBJECTIVES

- Discuss the risks associated with:
 - Abandoned building operations.
 - Hazardous materials/Terrorism.
 - Technical rescue.
 - Highway operations.
 - Incidents involving violence.
 - Wildland fires.
 - Weather-related issues.
 - Pandemic influenza.

Slide 8-2

ENABLING OBJECTIVES (cont'd)

- Discuss the application of specific mitigation strategies, including Rapid Intervention Crews (RICs), personnel accountability system, and emergency incident rehabilitation.
- Describe the Crew Resource Management (CRM) concept and its implications on emergency operations.
- Given a scenario, develop a policy or procedure with appropriate support material.

Slide 8-3

I. ABANDONED BUILDINGS

ABANDONED BUILDINGS

- Abandoned or vacant buildings are hazards.
- Cause higher rate of firefighter injury or death than other types of incidents.
- Industrial, commercial or residential.
- Urban, suburban or rural areas.
- Inspect vacant or abandoned properties.
- Preplan for structure and response strategies.

Slide 8-4

- A. Abandoned or vacant buildings are a hazard in any community.
1. They cause a higher-than-normal rate of firefighter injury or death than other types of incidents.
 - a. Buildings can be industrial, commercial or residential.
 - b. Can be in urban, suburban or rural areas.
 - c. Departments must inspect vacant or abandoned properties and document conditions on these properties.
 - d. Have preplan developed for the structure: Use preplan for response strategies.

VACANT AND ABANDONED BUILDINGS

- Unsightly, attract criminal activity, are a threat to public safety.
 - National Fire Protection Association (NFPA) estimates over 11,000 vacant/abandoned property fires annually.
 - Millions of dollars in direct property loss.
 - Significant expense for suppression and cleanup.

Slide 8-5

- 2. Vacant and abandoned structures are unsightly, attract criminal activity, attract rodents and other undesirable elements, and are a threat to public safety.
 - a. National Fire Protection Association (NFPA) estimates that there are more than 11,000 annual fires in vacant or abandoned properties.
 - b. Millions of dollars of direct property loss.
 - c. Significant expense for suppression and cleanup after the fire.

VACANT AND ABANDONED BUILDINGS (cont'd)

- Defined:
 - **Vacant** is defined as empty or unoccupied.
 - **Abandoned** is defined as forsaken, given up, free from restraint.



Slide 8-6

- 3. “Vacant” and “abandoned” are used interchangeably, but there is a difference.
 - a. “Vacant” is defined as empty or unoccupied.
 - b. “Abandoned” is defined as forsaken, given up, free from restraint.
 - c. Unoccupied buildings are generally secured and maintained.
 - d. Property in a derelict condition, with unauthorized access, is considered abandoned.
 - Abandoned structures are considered at the end of productive life.

ABANDONED BUILDINGS
(cont'd)

- Unsecured-building fires cause problems.
 - Burn longer before being reported.
 - Unprotected hazardous materials and fuel loads.
 - Weakened due to age, weathering or removal of structural components.
 - Open shafts, stairways, holes in floors.
- All increase danger while operating in vacant or abandoned structures.

Slide 8-7

4. Fires in unsecured buildings cause problems for firefighters.
 - a. Fires burn for longer periods before they are detected and reported.
 - b. May contain unprotected hazardous materials and fuel loads not found in occupied buildings.
 - c. Structure may be weakened due to age, weathering or removal of structural components.
 - d. Rapid failure during the fire, often earlier than normal.
 - e. Open shafts, stairways, holes in floors are additional hazards.
 - f. All increase the danger while operating in vacant or abandoned structures.

ABANDONED BUILDINGS
(cont'd)

- Communities must reduce fires in vacant/ abandoned buildings.
 - Enforceable building/fire codes and ordinances.
 - Anti-blight ordinances.
 - Regulations enforceable for success.

Slide 8-8

5. Communities must have the power to act to reduce fires in vacant and abandoned properties.
 - a. Enforceable codes and ordinances.
 - b. Building and fire codes.
 - c. Anti-blight ordinances for the community.
 - d. Rules must be enforceable to be successful.

ABANDONED BUILDINGS
(cont'd)

- Personnel must know buildings are vacant/abandoned:
 - Develop a list.
 - Consider building condition.
 - Mark on the exterior for condition.
 - List of structures.
 - Identify potential hazards, structural defects and condition of building materials.
 - Inspection/Preplan gives Incident Commander (IC) information.

Slide 8-9

6. Fire department personnel must know which buildings are vacant or abandoned.
 - a. Develop a list of vacant and abandoned buildings.
 - b. Consider the condition of the building.
 - c. Mark on the exterior as to the condition.
 - d. List of structures for responders and dispatch.
 - e. Identify potential hazards, structural defects and the condition of building materials, and any renovations that may not be obvious from the exterior.
 - f. Inspection gives the Incident Commander (IC) information to make informed decisions and implement a plan of attack to ensure the safety of responders.

7. Vacant and abandoned buildings should be secured.
 - a. NFPA estimates 72 percent of fires in vacant or abandoned structures are incendiary or suspicious.
 - b. U.S. Fire Administration's (USFA's) National Arson Prevention Initiative Board Up Procedures gives details on boarding up.
8. Warning placards should be used to warn firefighters of dangers.
 - a. Evaluation and preplanning enable rating of hazards present and determine if the building should be marked.
 - b. Significantly hazardous buildings should be attacked defensively.

**ABANDONED/VACANT
BUILDINGS**

- White **X** on a red background indicates extreme hazard:
 - Interior firefighting operations only if confirmed life hazard.
 - IC must give specific orders to enter the building.
- White slash (*/*) on a red background indicates enter with extreme caution.

Slide 8-10

9. The Official Fire Department, City of New York (FDNY) system uses a sign with a white **X** on a red background to indicate the structure is extremely hazardous.
 - a. Interior firefighting operations should be conducted only when there is a confirmed life hazard.
 - b. IC must give specific orders to enter the building.
 - c. Personnel entering the building should be extremely cautious.
 - d. If the building may be entered with extreme caution, the system uses a white slash (*/*) on a red background.

OPERATIONS AT ABANDONED BUILDINGS (cont'd)

- Use extreme caution for interior operations:
 - Enter only for confirmed life hazard.
 - IC must give specific orders to enter.
 - If no confirmed life hazard, consider defensive operations.
 - Often have low potential for occupancy when abandoned.
 - Size-up is a must **prior** to personnel commitment.

Slide 8-14

3. Due to increased rate of firefighter injuries and deaths in these structures, responders should conduct interior operations with extreme caution.
 - a. Risk taken only if there is confirmed life hazard in the building.
 - b. Size-up is a must **prior** to committing personnel to interior operations.
 - c. IC must give specific orders to enter the building.
 - d. If no confirmed life hazard, consider defensive operations.
 - e. These buildings often have low potential for civilian occupancy when abandoned.

OPERATIONS AT ABANDONED BUILDINGS (cont'd)

- Precautions for offensive operations include:
 - Limiting time and number of crews inside.
 - Conducting only specific, assigned tasks.
 - Use safety lines or operating hoseline.
 - Use thermal imagers to guide interior crews.
 - Constant monitoring of interior crews.

Slide 8-15

OPERATIONS AT ABANDONED BUILDINGS (cont'd)

- Develop standard operating procedures (SOPs) for response to vacant/abandoned buildings.
- Personnel aware of vacant/abandoned structures in district.

Slide 8-17

6. While operating at abandoned and vacant structures, firefighters must be extremely cautious and take an extra margin of safety.
 - a. Departments should develop standard operating procedures (SOPs) regarding response to vacant and abandoned buildings.
 - b. Personnel should be aware of vacant and abandoned structures in their district.

II. HAZARDOUS MATERIALS

HAZARDOUS MATERIALS



Slide 8-18

- A. Hazardous materials incident.
 1. Needs Incident Safety Officer (ISO) and hazmat team safety officer.
 2. ISO responsible for overall scene safety.

SELF-PROTECTION

- Time
- Distance
- Shielding





Slide 8-20

B. Self-protection for any incident.

1. Time — shortest amount of time in hazard area.
2. Distance — safe distance, upgrade, upwind.
3. Shielding — vehicle, building, personal protective equipment (PPE).

FIRST-IN OFFICERS

- Approach upwind, upgrade.
- Use binoculars to assess scene.
- Gather information.
- Personal protective equipment (PPE).
- Use monitoring devices.
- Assign responding units for multidimensional view.

Slide 8-21

C. First-in officer's must-do actions (hazmat/terrorism).

1. Approach upwind, upgrade.
2. Use binoculars to assess scene.
3. Gather information from citizens/other personnel who left immediate area.
4. Require full PPE.

5. Use monitoring devices.
6. Assign other responding units for multidimensional view.

INITIAL OPERATIONAL TEAM

- Provide safe operations.
- Rescue viable victims.
- Confine incident, loss of life, and damage to area of origin.

Slide 8-22

- D. Initial operations team strategic goals.
1. Provide safe operations for all public safety personnel.
 2. Rescue viable victims.
 3. Confine incident, loss of life, and damage to area of origin.

TERRORISM DEFINED

Use of force or violence against persons or property to intimidate or coerce a government, civilian population, or any segment thereof to further political or social objectives.



Slide 8-23

- E. Terrorism defined: Use of force or violence against persons or property to intimidate or coerce a government, civilian population, or any segment thereof to further political or social objectives.
1. Terrorism and clandestine drug lab incidents generally are handled the same as most hazmat incidents.

2. The number of terror attacks (both foreign and domestic groups) and clandestine drug labs has been increasing in recent years.

TERRORISM/CLANDESTINE DRUG LABS

- Armed resistance.
- Weapons.
- Booby traps.
- Secondary incidents.



Slide 8-24

- F. Terrorism and clandestine drug labs may have carefully timed sequence of events planned to inflict further harm to those who respond to the initial incident.

1. Armed resistance.
2. Use of weapons.
3. Booby traps.
4. Secondary incidents.

ARMED ATTACK MUST-DO ACTIONS

- Use hard barrier protection.
- Remain mobile.
- Maintain immediate communication with law enforcement.
- Remove viable victims.
- Establish treatment areas.
- Assign lookout.

Slide 8-25

- G. Armed attack must-do actions.

1. Protect with hard barrier.

2. Remain mobile.
3. Initiate communication with law enforcement immediately.
4. Remove viable victims if safe to do so.
5. Establish safe, mobile treatment areas with law enforcement support and hard cover.
6. Assign a lookout.

POTENTIAL INJURY CAUSES

- Chemical exposures.
- Trapped in building.
- Biological agent exposure.
- Infectious disease exposure.
- Burns.
- Overexertion/Fatigue.



Slide 8-26

H. Terrorism and clandestine drug lab incidents may include and result in the following potential injuries to responders.

1. Improvised explosive devices.
2. Secondary explosive devices.
3. Firearms.
4. Chemical exposures.
5. Trapped in building collapse.
6. Biological agent exposures.
7. Infectious disease exposures.
8. Burns from incendiary fire.
9. Injuries due to damaged buildings.

10. Overexertion.

What are some possible clues that an incident is a terrorist attack and not an accidental event?

Slide 8-27

- I. Additionally there are some clues to indicate a terrorism incident.
 - 1. Occupancy type.
 - 2. Type of event.
 - 3. Type of incident.
 - 4. Time of day.
 - 5. Dead animals/insects in area.
 - 6. Combine incident type with occupancy.
 - 7. Day of week.
 - 8. Historic event.
 - 9. Vapor clouds.
 - 10. Unexplained containers.
 - 11. Victims with abnormal injuries.

SAFE AND EFFICIENT TEAM OPERATIONS

- Determine source or material involved.
- Use appropriate monitors/PPE.
- Risk versus benefits.
- Operational zones.
- Properly trained/equipped.
- Viable victims.
- Situation/Resource status.

Slide 8-28

J. Team operations.

K. IC will order withdrawal or support based on the report from the initial operations team.

III. TECHNICAL RESCUE

TECHNICAL RESCUE



Photo Courtesy of Steve Weissman

Slide 8-29

A. Technical rescue includes:

1. Confined space rescue.
2. Structural collapse.
3. Rope rescue (high angle).
4. Trench rescue.

IV. HIGHWAY OPERATIONS

HIGHWAY OPERATIONS

- Preserve life.
- Prevent injury to emergency workers.
- Protect property.
- Restore traffic flow.

Slide 8-31

- A. Primary objectives.
1. Preserving life.
 2. Preventing injury to emergency workers.
 3. Protecting property.
 4. Restoring traffic flow.

TEAM EFFORT



Photo Courtesy of Steve Weyman
Slide 8-32

- B. Team effort.
1. Fire/Rescue.
 2. Law enforcement.

3. Department of Transportation (DOT).
4. Who is in charge of what?

COMMAND

- Incident Command System (ICS).
- Operational mode.
- Accountability.
- Unified Command (UC).
- Memorandums of agreement.
- Mutual-aid agreements.

Slide 8-33

C. Command.

1. Incident Command System (ICS).
2. Operational mode.
3. Accountability.
4. Unified Command (UC).
5. Memorandums of agreement between agencies.
6. Mutual-aid agreements.

RESPONDER SAFETY INFLUENCES

Improved training.	Proper use of high-visibility apparel.
Increased situational awareness.	Careless, inattentive or impaired drivers.
Establish temporary traffic control measures.	Reduced vision.
Properly position apparatus.	Altered traffic patterns.
Proper use of scene lighting.	

Slide 8-34

D. Factors influencing responder safety.

Table 8.4 Responder Safety	
Improved training.	Proper use of high-visibility apparel.
Increased situational awareness.	Careless, inattentive or impaired drivers.
Establish temporary traffic control measures.	Reduced vision.
Properly position apparatus.	Altered traffic patterns.
Proper use of scene lighting.	

E. Other considerations.

1. Impact of travel delay.
2. Economic impact.

ROLES AND RESPONSIBILITIES

- Fire department.
- Emergency Medical Services (EMS).
- Law enforcement.
- Department of Transportation (DOT).
- Vehicle recovery personnel.





Slide 8-35

F. Roles and responsibilities.

1. Fire department.
 - a. Control/Extinguish fires.
 - b. Establish safe work zones.
 - c. Deploy warning devices.

- d. Control/Mitigate hazardous materials.
 - e. Coordinate with law enforcement.
 - f. Assist emergency medical support.
 - g. Extricate trapped victims.
 - h. Preserve scene.
2. EMS.
- a. Evaluate patients.
 - b. Treat and transport.
3. Law enforcement.
- a. Coordinate with fire department for traffic control.
 - b. Secure scene.
 - c. Assist in identification of fatalities.
4. DOT.
- a. Coordinate with fire department for equipment use.
 - b. Provide resources/logistical support.
 - c. Establish message safety boards.
 - d. Assist with traffic control.
5. Vehicle recovery personnel.
- a. Coordinate with fire department and police for vehicle removal.
 - b. Assist with heavy extrication.

NONEMERGENCY RESPONSE

- Seatbelt/Restraint.
- Follow all traffic laws/normal speed.
- Assess need for additional resources.
- Establish safe work zones.

Slide 8-36

- G. Response.
 - 1. All responses.
 - a. Seatbelt/Restraint for all responses.
 - b. Follow all traffic laws and use posted speed.
 - c. Assess need for additional resources.
 - d. Establish safe work zones.

EMERGENCY RESPONSE

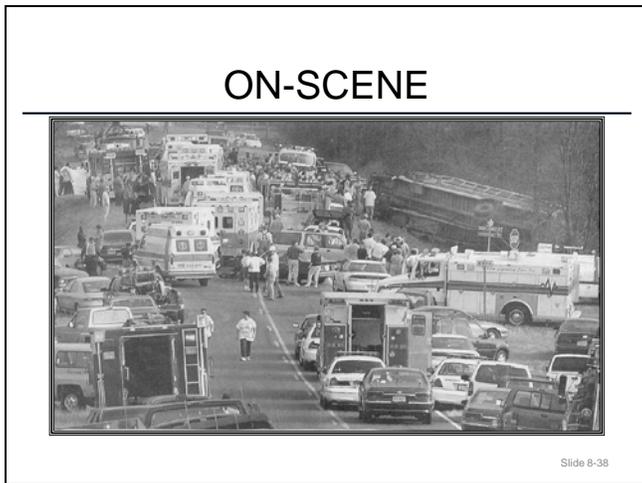
- PPE.
- Seatbelt/Restraint.
- Multiple unit travel.
- Traffic laws.
- Shoulder driving.
- Access ramps.
- Median crossovers.



Slide 8-37

- 2. Emergency.
 - a. Wear PPE — highly visible apparel.
 - b. Multiple units responding together travel in same direction in single file and close proximity.

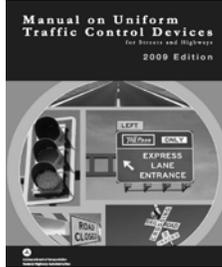
- c. Travel in left lane.
- d. Caution if using shoulder:
 - Road signs.
 - Debris.
 - Guard rails.
 - Oversized/Stopped vehicles.
 - Vehicles moving to right or onto shoulder.
- e. Follow all traffic laws governing emergency vehicle response.
- f. Shoulder speed should not exceed 35 mph.
- g. Normal direction of access ramps unless all oncoming traffic stopped.
- h. Do not use median crossovers.



- H. On-scene.
 - 1. NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program* recommends.
 - a. Use of high-visibility garments.
 - b. Use of protective devices (i.e., cones and signs).

ON-SCENE (cont'd)

- “Manual on Uniform Traffic Control Devices” (MUTCD).
- Sets standards for use of protective measures, devices and highway safety.
- Part 6: Temporary Traffic Control.
- Website for 2009 edition: http://mutcd.fhwa.dot.gov/kno_2009.htm.



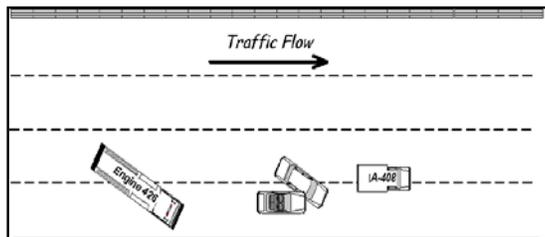
Slide 8-39

2. “Manual on Uniform Traffic Control Devices” (MUTCD) describes requirements for temporary traffic control zones, including use of protective devices and worker protection.

Website for 2009 edition is http://mutcd.fhwa.dot.gov/kno_2009.htm.

3. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) 207-2006, American National Standard for High-Visibility Public Safety Vests.
4. Proper spotting and placement of apparatus ensures easy access for other responders and safe work area.
5. Unit officer is responsible for safety of his or her crew.
6. Use engine driver as safety lookout until ISO appointed.

FIRST-ARRIVING APPARATUS



Slide 8-40

7. First-arriving apparatus.
 - a. Back some distance and used as safety shield to block travel lanes.
 - b. Placed at angle to lanes with pump panel toward incident and front wheels rotated away from incident — “fend-out” position.
 - c. If engine is impacted, will travel away from work zone.
 - d. Pump panel will protect operator while monitoring apparatus functions.
8. Position apparatus in area at least one lane wider than the width of the incident.
9. May be difficult on secondary and one-lane roads.
10. Position so EMS units and rescue squad can be in close proximity to incident.

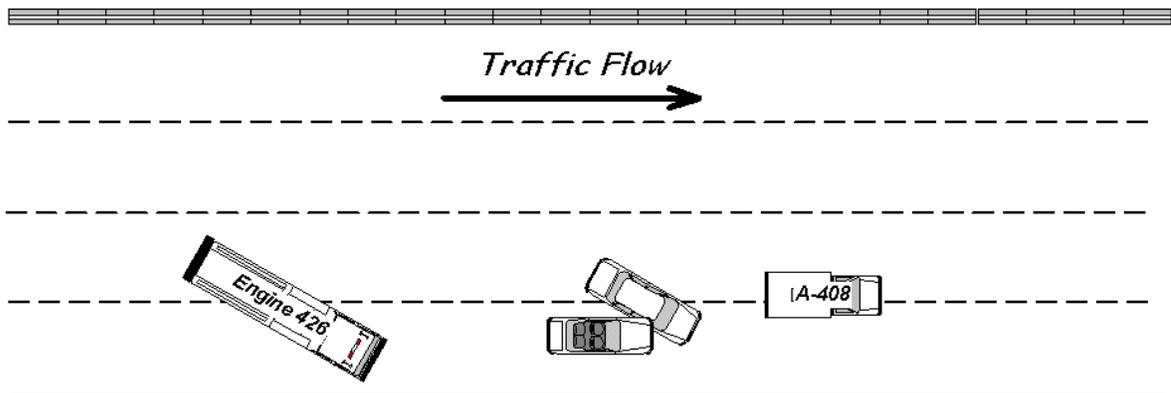


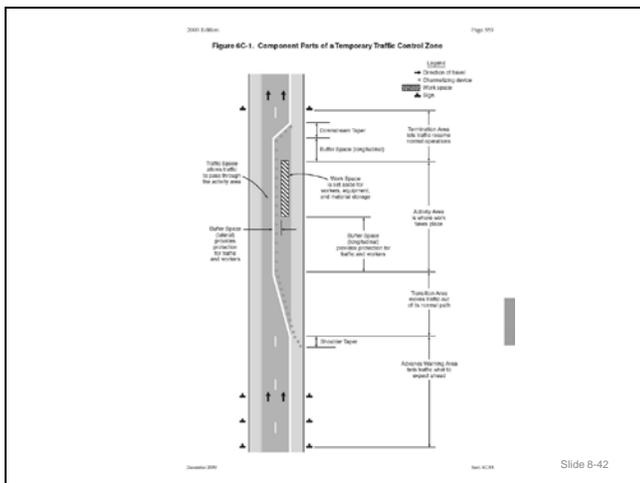
Figure 8.1 Engine Placement

SAFETY WHEN EXITING APPARATUS

- Ensure traffic is stopped.
- Communicate with all personnel.
- Check for debris.
- Wear full protective clothing/traffic vests.

Slide 8-41

11. Prior to exiting apparatus, personnel must:
 - a. Ensure traffic has stopped.
 - b. Communicate with all personnel.
 - c. Check for debris.
 - d. Wear full protective clothing/traffic vests.



Slide 8-42

12. Place traffic-directing devices as soon as possible.
 - a. Use whenever department vehicles are parked on/about any road surface.
 - b. Placement begins closest to incident, working toward oncoming traffic.

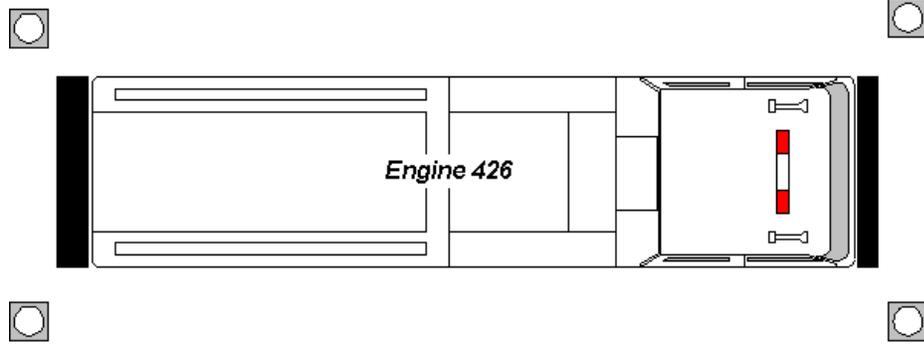


Figure 8.3. Four-Point System

VISIBILITY

- Night Vision:
 - First color to leave spectrum is red.
 - Strobe lights.
- Glare vision recovery.
 - Dark to light, three seconds.
 - Light to dark, six seconds.



Photo Courtesy of Steve Weisman
Slide 8-45

20. Apparatus visibility at night.

Night vision.

- a. As human eye adapts to dark, first color to leave spectrum is red.
- b. Many new vehicles now have strobes.

21. Glare.

- a. From dark to light takes three seconds for vision recovery.
- b. From light to dark takes six seconds.

22. Vehicle traveling at 50 mph travels 450 feet in six seconds.

PROTECTIVE CLOTHING



Photo Courtesy of Steve Weissman

Slide 8-46

23. Drivers could pass incident scene literally blind with no sense of apparatus placement.
 - a. Protective clothing/traffic vests do not improve ability to be seen after a driver has been blinded.
 - b. Data on driver visibility and effects of warning lamp color and intensity can be found in the USFA “Emergency Vehicle Visibility and Conspicuity Study and Effects of Warning Lamp Color and Intensity on Driver Vision.”

LIGHT COMBINATION

- Red warning lights on.
- Headlights off.
- Fog lights off.
- Pump panel lights on.
- Rear spotlights on and directed on traffic cone.
- Traffic directional boards operating.

Slide 8-47

24. Recommended combination of lights for maximum visibility.
 - a. Red warning lights on.
 - b. Headlights off.
 - c. Fog lights off.

- d. Pump panel lights on.
- e. Rear spotlights on and directed on traffic cone.
- f. Traffic directional boards operating.
- g. Low beams can be used to light area if directed only on immediate scene.



- 25. Clearing traffic lanes.
 - a. Reducing or closing traffic lanes increases risk of secondary incident from traffic backup.
 - b. One minute of stopped traffic causes a four-minute delay in traffic.
 - c. Delay can significantly affect businesses in region.
 - d. Managing major roadway incidents requires coordination of fire, law enforcement and DOT.
 - e. Closed lanes should be opened as soon as practical.
 - f. Protect scene preservation.

DVD PRESENTATION

“POUDRE FIRE AUTHORITY
HIGHWAY SAFETY”



Slide 8-49

V. INCIDENTS INVOLVING VIOLENCE

VIOLENCE AND RESPONDERS

- Is increasing.
- Occurs more often than thought.
- Statistics often aren't recorded.
- Training is lacking.
- Firefighter Life Safety Initiative No. 12:
“National protocols for response to
violent incidents should be developed
and championed.”

Slide 8-50

- A. Violence against emergency responders is increasing.
1. Occurs more often than we think.
 2. Nobody wants to discuss this subject.
 3. Many statistics do not get recorded.
 4. Training is lacking.
 5. Firefighter Life Safety Initiative No. 12: “National protocols for response to violent incidents should be developed and championed.”

AVAILABLE STATISTICS

- Estimated 700,000 assaults on EMS in 2005.
- In 2006, Executive Fire Officer (EFO) Survey of 461 respondents:
 - Threats — 89 percent.
 - Assaults — 55 percent.
 - Carried weapons for protection — 9 percent.
- Numbers indicate violence issues in fire/EMS field.

Slide 8-51

B. Available statistics.

1. Estimated 700,000 assaults on EMS in 2005.
2. In 2006, Executive Fire Officer (EFO) Survey of 461 respondents revealed the following percentages.
 - a. Threats — 89 percent.
 - b. Assaults — 55 percent.
 - c. Carried weapons for protection — 9 percent.

C. In 2009, Arizona surveyed 518 firefighters revealing the following percentages.

1. Violence was part of job — 43 percent.
2. Verbally threatened — 85 percent.
3. Assaults — 54 percent.

D. Numbers indicate violence issues in fire/EMS field.

VI. WILDLAND FIRE

WILDLAND FIRE

- Wildland and structural firefighters are in role reversals more frequently.
- Characteristics:
 - Humidity.
 - Solar heating.

Slide 8-52

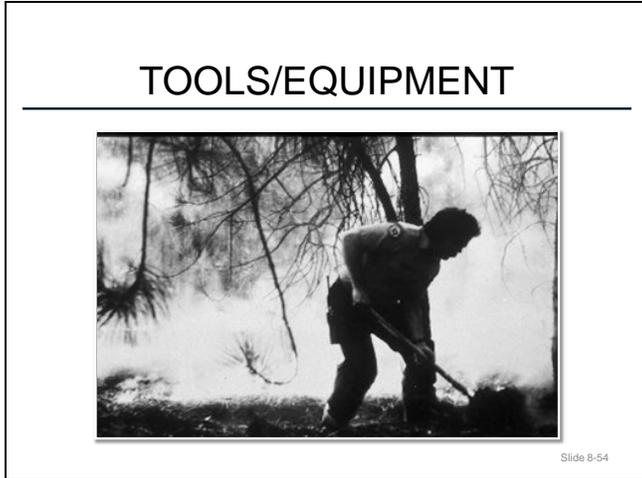
- A. Wildland and structural firefighters are in role reversals more frequently.
- B. Characteristics of wildland fires.
 - 1. Humidity.
 - a. Establishes baseline fuel moisture content.
 - b. Along with fuel moisture, measurements are useful to determine fire behavior potential.
 - c. Most accurate at night, under cloud cover.
 - 2. Solar heating.
 - a. Fuel bed temperature is highly variable in moisture due to variation of solar heating.
 - b. Variation of temperature is cause of variation in fuel flammability during daytime hours.

WILDLAND VERSUS STRUCTURAL



Photo by: John McColgan, Fairbanks, AK
Slide 8-53

- C. Wildland versus structural firefighting.
1. Larger in size.
 2. Requires more resources.
 3. Spread over larger area.
 - a. Harder to control resources.
 - b. Need for updates on conditions.
 - c. Changing weather conditions (wind shifts).
 - d. Terrain changes.
 4. Areas of concern.
 - a. Firefighter.
 - b. Area immediately surrounding firefighter.
 - c. Overall environment of fire itself.



5. Tools and protective equipment.
 - a. Flame-resistant trousers and shirts do not absorb moisture, allow air to pass through, and allow free movement.
 - b. Hard hat is lightweight, impact-resistant and well-ventilated to protect against heat stress.
 - c. Ventilated safety goggles with impact-resistant lenses minimize fogging.
 - d. Cotton bandana is for respiratory protection.
 - e. Leather gloves treated for thermal and flame resistance and designed with minimal seams to prevent blisters when using tools.
 - f. High-top, leather work boots worn with wool socks are lightweight enough to prevent fatigue over long periods.
 - g. Field packs distribute weight along the hips and can be easily removed in emergencies.
 - h. Wool jacket has natural fire-resistant properties and good air flow.
 - i. Fire shelter is last-chance lifesaver and used only when every possible means of escape is cut off.
 - j. Limitations.
 - k. No thermal/steam protection.

1. No self-contained breathing apparatus (SCBA) — vulnerable to smoke inhalation and carbon monoxide poisoning.

SAFETY CONCERNS

- Air drops.
- Helicopter operations.
- Exiting traffic.
- Emotions/Fatigue.
- Fire overrun.



Slide 8-55

D. Safety concerns.

1. Air drops of fire retardant.
 - a. Can cause injury on impact — lie face down with head toward incoming drop.
 - b. Slick on roadbed.
 - c. Air turbulence can cause erratic fire behavior.
2. Helicopter operations — safety working around turning rotor blades.
3. Exiting traffic.
 - a. Citizens may be distracted/panicked.
 - b. Decreased visibility due to smoke.
 - c. Firefighters should know evacuation routes.
4. Emotions and fatigue.
 - a. May be reluctant to accept defeat.
 - b. Must maintain constant vigil for signs of fatigue.
 - c. Take appropriate rest breaks and rehab.

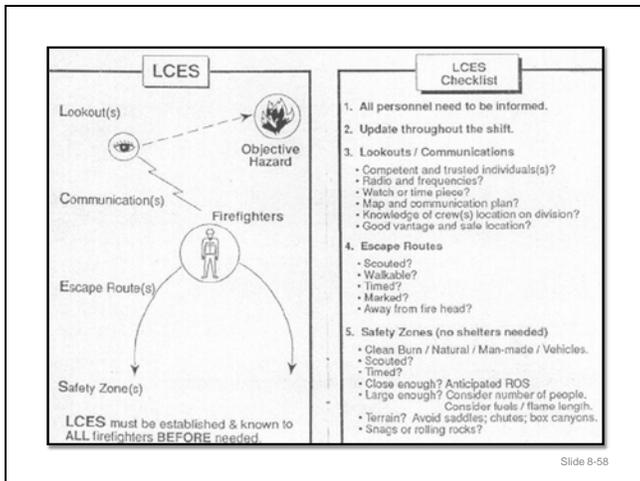
5. Fire overrun.
 - a. Occurs when wind, slope and solar preheat forces go into alignment.
 - b. Common mistake is when firefighters are positioned in front of fire that is coming into alignment.
 - c. Follow safety guidelines for box canyons, saddles and mid-slope road and structures with fire below.
 - d. Guidelines available from United States Forest Service (USFS).

WATCH-OUT SITUATIONS	
Table 8.5 Watch-Out Situations	
Source: National Wildfire Coordinating Group	
Fire not scouted or sized up.	Unburned fuel is between firefighter and fire.
Safety zones and escape routes are not identified.	Cannot see main fire, not in contact with someone who can.
Unfamiliar with weather and local factors influencing fire behavior.	On hillside where rolling material can ignite fuel below.
Uninformed on strategy, tactics and hazards.	Weather becomes hotter and drier.
Instruction and assignments not clear.	Wind increases and/or changes direction.
No communication link with crew member or supervisor.	Getting frequent spot fires across line.
Constructing line without safe anchor point.	Terrain and fuels make escape to safety zones difficult.
Building fire-line downhill with fire below.	Taking a nap near the fire-line.
Attempting frontal assault on fire.	Working in country not seen in daylight.

Slide 8-56

6. Watch-out situations.

Table 8.6 Wildland/Urban Watch-Outs Source: National Wildfire Coordinating Group	
Wooden construction and wood shake shingles.	Strong winds.
Poor access and narrow one-way roads.	Evacuation of public (panic).
Inadequate water supply.	Bridge load limits.
Natural fuels 30 feet or closer to structures.	Structures located in chimneys, box canyons or on steep slopes in flashy fuels.
Extreme fire behavior.	



E. LCES.

1. Lookouts.
 - a. Competent/Trusted.
 - b. Map and communication plan.
 - c. Knowledge of crew location.
 - d. Good vantage point and safe location.
 - e. Watch/Timepiece.

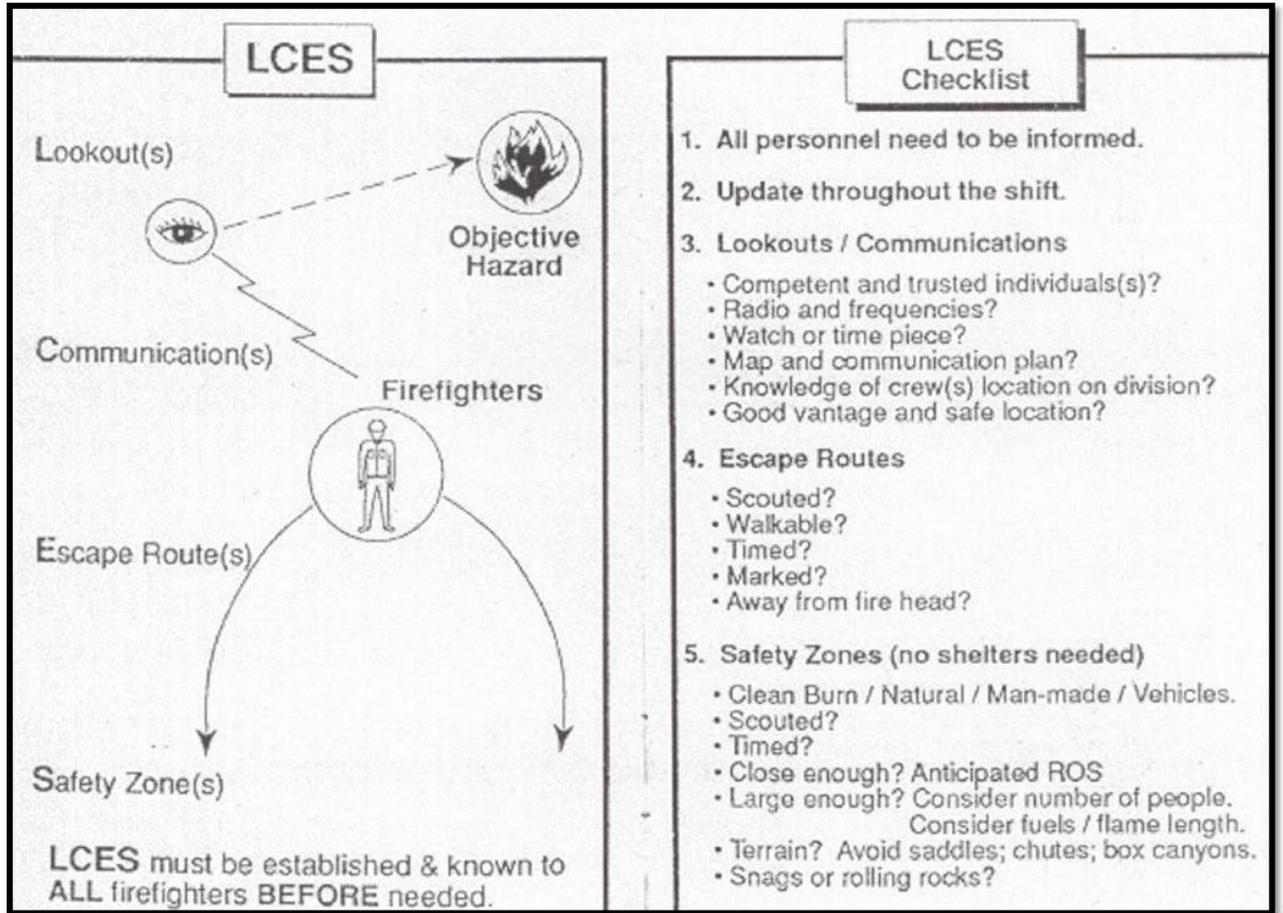


Figure 8.4 LCES Safety Plan

2. Communications.
 - a. Radio frequencies/communication plan.
 - b. Alternate communication plans.
 - c. Pencil/Paper and runner.
3. Escape routes.
 - a. Scouted.
 - b. Walkable.
 - c. Timed.
 - d. Marked.

- e. Away from fire head.
- 4. Safety zones.
 - a. Clean burn/natural/man-made/vehicle.
 - b. Scouted.
 - c. Timed.
 - d. Close enough.
 - e. Large enough.
 - f. Terrain.
 - g. Snags or rolling rocks.

STANDARD FIRE ORDERS	
Table 8.7 Standard Fire Orders Source: National Wildfire Coordinating Group	
1. Fight fire aggressively.	6. Remain in communication with crew members, supervisor and adjoining forces.
2. Initiate action based on current and expected fire behavior.	7. Determine safety zones and escape routes.
3. Recognize current weather conditions and obtain forecasts.	8. Establish lookouts in potentially hazardous situations.
4. Ensure that instructions are given and understood.	9. Retain control at all times.
5. Obtain current information on fire status.	10. Stay alert, keep calm, think clearly and act decisively.

Slide 8-59

F. Standard fire orders.

		Equivalent Temperature (°F)													
Wind Speed (mph)	calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25
	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65

"Calm-air" as used in wind chill determinations actually refers to the conditions created by a person walking briskly (at 4 mph) under calm wind conditions.

Figure 8.5 Wind Chill Chart

		Relative Humidity								
		10%	20%	30%	40%	50%	60%	70%	80%	90%
Temperature °F	104	98	104	110	120	132				
	102	97	101	108	117	125				
	100	95	99	105	110	120	132			
	98	93	97	101	106	110	125			
	96	91	95	98	104	108	120	128		
	94	89	93	95	100	105	111	122		
	92	87	90	92	96	100	106	115	122	
	90	85	88	90	92	96	100	106	114	122
	88	82	86	87	89	93	95	100	106	115
	86	80	84	85	87	90	92	96	100	109
	84	78	81	83	85	86	89	91	95	99
	82	77	79	80	81	84	86	89	91	95
	80	75	77	78	79	81	83	85	86	89
	78	72	75	77	78	79	80	81	83	85
	76	70	72	75	76	77	77	77	78	79
	74	68	70	73	74	75	75	75	76	77

NOTE: Add 10 °F when protective clothing is worn, and add 10 °F when in direct sunlight.

Figure 8.6 Heat Stress Index

Wind Chill	Cold Threat
41°F to 50°F	CHILLY. Generally unpleasant
21°F to 40°F	COLD. Unpleasant
1°F to 20°F	VERY COLD. Very unpleasant
-19°F to 0°F	BITTER COLD. Frostbite possible. Exposed skin can freeze within 5 minutes.
-20°F to -69°F	EXTREMELY COLD. Frostbite likely. Exposed skin can freeze within 1 minute. Outdoor activity becomes dangerous.
-70°F and lower	FRIGIDLY COLD. Exposed skin can freeze in 30 seconds.

Figure 8.7 Wind Chill Danger Categories

Temperature °F	Danger Category	Injury Threat
Below 60°	None	Little or no danger under normal circumstances
80° to 90°	Caution	Fatigue possible if exposure is prolonged and there is physical activity
90° to 105°	Extreme Caution	Heat cramps and heat exhaustion possible if exposure is prolonged and there is physical activity
105° to 130°	Danger	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity
Above 130°	Extreme Danger	Heat stroke imminent!

Figure 8.8 Temperature Danger Categories

WEATHER-RELATED EVENTS

- Develop procedures for response.
- Considerations for responders:
 - Operations.
 - Precautions.



Slide 8-63

C. Responders and their departments should consider and develop procedures for weather-related events such as:

1. Hurricanes.
2. Tornadoes.
3. Snowstorms.
4. Wind-related emergencies.
5. Thunderstorms (significant).

D. In considering response to weather-related events, consider the following:

1. Adverse conditions that responder will be operating in.
2. Any precautions necessary for the particular event (i.e., wind speeds).
3. Any condition related to the weather event causing responders to cease (i.e., high wind speeds).

- B. Food should be provided at the scene of an extended incident of three or more hours.
 - 1. A cup of stew, soup or broth is highly recommended.
 - 2. Fatty and/or salty foods should be avoided.

- C. The “two air bottle” rule.
 - 1. Forty-five minutes of work time is recommended as an acceptable level prior to mandatory rehab.
 - 2. Members should rehydrate while SCBA cylinders are being changed.
 - 3. Firefighters having worked for two full 30-minute-rated bottles, or for 45 minutes, should report to responder rehab.
 - 4. Rest shall not be less than 10 minutes and may exceed an hour, as determined by the responder rehab manager.
 - 5. Crews released from rehab should report to Staging to ensure that fatigued members are not required to return to duty.

- D. Vital signs.
 - 1. Heart rate should be measured for 30 seconds as early as possible in the rest period.
 - 2. If the member’s heart rate exceeds 110 beats per minute, an oral temperature should be taken.
 - 3. If the member’s temperature exceeds 100.6 F (38 C), he or she should not be permitted to wear protective equipment.
 - 4. If temperature is below 100.6 F (38 C) and the heart rate remains above 110 beats per minute, rehab time should be increased.
 - 5. All medical evaluations shall be recorded on standard forms.

- E. Members in responder rehab shall enter and exit as a crew.
 - 1. The crew designation, number of crew members, and the times of entry and exit shall be documented on the company’s check-in/checkout sheet.
 - 2. Crews shall not leave the responder rehab area until authorized by the responder rehab manager.

IX. RAPID INTERVENTION CREWS

RAPID INTERVENTION CREWS

- Discussed in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*; 1561, *Standard on Emergency Services Incident Management System*; and 1407, *Standard for Fire Service Rapid Intervention Crews* and include:
 - Identifying situation risk characteristics.
 - Evaluating specific risk factors.
 - A dedicated crew.

Slide 8-65

- A. NFPA 1500 recommends specifically designated rescue crews at the incident scene.
- B. NFPA 1561, *Standard on Emergency Services Incident Management System* defines the basic criteria for the Rapid Intervention Crew (RIC).
- C. NFPA 1407, *Standard for Fire Service Rapid Intervention Crews* establishes the criteria for training RIC members.

RAPID INTERVENTION CREWS
(cont'd)

- Required for:
 - Hazardous materials operations by 1910.120.
 - Immediately Dangerous to Life and Health (IDLH) atmosphere by 1910.134.
- Composition of RICS and their placement on emergency scenes should be:
 - Agency-specific.
 - Identified by written department procedures.



Slide 8-66

- D. Occupational Safety and Health Administration (OSHA) mandates the use of an RIC any time there is an Immediately Dangerous to Life and Health (IDLH) atmosphere (commonly known as Two in/Two out).
- E. Identify the risk characteristics of the situation and evaluate specific risk factors.

1. A situation involving a high level of risk requires a greater commitment to rapid intervention.
2. Risk may be increased if the fire situation is in an area where the ability of individuals to rescue themselves is reduced by the distance they would have to travel.
 - a. Large building.
 - b. Basement or an upper floor.
 - c. Hold of a ship.
 - d. High-rise building.
3. Staffing minimum of two — initial RIC.
 - a. Increase to four as soon as next units arrive.
 - b. More than four required for complicated incidents.
4. Risk is increased by the nature of the task in which firefighters are involved.
 - a. Hazardous materials spill.
 - b. Below-ground rescue.

RAPID INTERVENTION CREWS (cont'd)
<ul style="list-style-type: none">• Composition of RICS and their placement on emergency scenes should be (cont'd):<ul style="list-style-type: none">– Consistent with mutual-aid departments' procedures.– Must be a minimum — two members (Occupational Safety and Health Administration (OSHA) 1910.134).
<small>Slide 8-67</small>

- F. Composition and placement of RICs on emergency scenes may be agency-specific.
 1. NFPA 1500 permits flexibility of RIC.

2. RIC is agency-specific and dictated by individual needs and resources available.
 3. Written procedures/guidelines must be developed for the use of these teams.
 - a. Guidelines are especially important when teams are performing exterior operations in support of interior crews.
 - b. Procedures should include evacuation signals and guidelines for implementing evacuation and relocation of personnel from the area of danger.
 4. For agencies involved in auto/mutual-aid response, it is important to develop consistency.
 5. RIC must consist of at least two members, fully equipped with appropriate clothing, SCBA and necessary tools.
 6. They should monitor the tactical radio channel to maintain complete and accurate understanding of operations and conditions.
- G. Dedicated RICs.
1. In the early stages of an incident, personnel may perform other functions.
 2. Must remain prepared to redeploy to perform rapid intervention functions.
 3. As the incident expands in size or complexity, personnel should be assigned to a dedicated RIC.
- H. In a hazardous materials operation, the entry team leader must ensure that there is an RIC.
1. At least two personnel.
 2. Appropriate level of protection.
 3. Available before entry teams access the hot zone.
 4. Designated as the backup team.
 5. Same level of the required technical competency as the entry team.

- I. Whenever personnel are operating in positions or performing functions that subject them to immediate danger, at least one properly attired RIC must be available to provide assistance.

Rapid intervention
procedures should not be
confused with initial interior
structural firefighting
operations addressed in
NFPA 1500.

Slide 8-68

- J. Rapid intervention procedures should not be confused with initial interior structural firefighting operations addressed in NFPA 1500.
 - 1. NFPA 1500 requires the presence of four personnel before beginning interior structural firefighting.
 - a. Two members operate in the hazardous atmosphere.
 - b. Two members are the rescue team outside the hazardous atmosphere.
 - 2. Exception to this is that if there is an immediate life safety situation, rescue may be initiated.
 - 3. RIC can perform related tasks.
 - a. Reconnaissance.
 - b. Establishing emergency access/egress.

X. PERSONNEL ACCOUNTABILITY

PERSONNEL ACCOUNTABILITY

- Common elements.
- System location.
- System compatibility.

Slide 8-69

- A. Common elements of personnel accountability.
 - 1. Required use by department (to follow OSHA/NFPA).
 - 2. Hardware — nametags/documentation.
 - 3. Point-of-entry control of nametags.
 - 4. Accountability officers.
 - 5. Benchmarks for required roll calls throughout operations.
 - 6. Plans for describing the command organization response to reports of lost firefighters.
 - 7. Use of RICs.

- B. System must be able to locate every firefighter within a small geographic work area within the hazard zone at any moment.
 - 1. Must be able to determine if a firefighter is delayed from an assignment.
 - 2. Initiate an immediate rescue effort, if indicated.
 - 3. Must be able to be fully integrated into the ICS.

- C. All fire/EMS departments are strongly encouraged to develop and implement a workable accountability system for their department that is compatible with metro-area or regional accountability systems.

XI. OTHER MITIGATION STRATEGIES (?? min.)

PREINCIDENT PLANNING

- Prepares for incident at occupancies with known hazards.
- Complete for structures and occupancies considered target hazards.



Slide 8-70

A. Preincident Planning.

1. Prepares for an emergency incident at particular occupancies with known hazards.
2. Should be completed for those structures and occupancies that are considered target hazards.

TARGET HAZARD CONSIDERATIONS

Occupancy.	Conditions.
Property value.	Water supply.
Product storage.	Exposures.
Characteristics of the structure or occupancy.	Potential for delayed response.
Fire load.	Fire protection systems.

Slide 8-71

3. Target hazard has site-specific features that could impede or hinder normal operations.

Table 8.8 Target Hazard Considerations	
Occupancy.	Conditions.
Property value.	Water supply.
Product storage.	Exposures.
Characteristics of the structure or occupancy.	Potential for delayed response.
Fire load.	Fire protection systems.

B. Should be in a format that the IC can use from the Command Post (CP).

XII. PANDEMIC INFLUENZA

PANDEMIC INFLUENZA

- Pandemic influenza presents significant challenges to response organizations.
- Mutual-aid assistance hindered.
- Imperative to work together.
- Develop, test and refine plans.

Slide 8-72

- A. A pandemic influenza presents significant challenges to public safety response organizations and the communities they serve.
1. Mutual-aid assistance could be hindered by a loss of 30 to 40 percent of the regional workforce.
 2. Imperative for local government to work together to implement effective preparedness and protective strategies.
 3. Plans need to be developed, tested and refined to ensure that:
 - a. Public service responders remain healthy.
 - b. Essential capabilities to protect communities remain viable and available.

- b. Prioritization of prophylaxis allocation areas of a community under quarantine.
- D. Public education and information is important prior to the pandemic outbreaks.
- 1. Informed public is more compliant with emergency directives.
 - 2. Less likely to panic and create social disruption during a pandemic outbreak or other event of national significance.

PANDEMIC INFLUENZA PLANNING ASSUMPTIONS	
<ul style="list-style-type: none">• Identify/Prioritize maintaining essential services.• Prioritized distribution of prophylactics and PPE.• Allocation/Distribution of prophylactics may be inadequate/short supply.• Telecommunications overwhelmed.• Self-quarantine up to 90 days.	<hr/>
<small>Slide 8-74</small>	

- E. The following assumptions and planning considerations can assist in facilitating the development of community-wide pandemic influenza plans that addresses a variety of public service and emergency management concerns.
- 1. Planning assumptions.
 - a. Identification and prioritization of essential services to be maintained.
 - b. Prioritized distribution of prophylactics and PPE for mission-essential duties and potential exposures.
 - c. Inadequate supply or shortage for allocation and distribution of prophylactics and provision of health care services, requiring the prioritization of existing goods and services.
 - d. Telecommunications may be overwhelmed due to increased utilization caused by homebound citizens and public services search for resources.
 - e. Population may be directed to self-quarantine for up to 90 days per outbreak.

PANDEMIC INFLUENZA PLANNING QUESTIONS

Provision of food, supplies, fuel and access to healthcare?	Increase in neighborhood vigilantism?
Supply chain to maintain essential consumables/ supplies?	Societal breakdown?
Control to prevent price gouging?	Development of black market?
Financial concerns influence the ability to self-quarantine?	Theft of resources in an illegal distribution market?
Control measures to cover income dependent for purchasing essentials?	Counterfeit prophylaxis or PPE?
Financial institutions and contractual requirements?	Will healthcare facilities and citizens become victims?
Possible increase in foreclosures or repossessions?	Reaction of local government to potential problems?

Slide 8-75

2. The planning assumptions above raise the following questions which need to be addressed during the planning process:

Table 8.9 Planning Assumptions — Questions	
Provision of food, supplies, fuel and access to health care?	Increase in neighborhood vigilantism?
Supply chain to maintain essential consumables/ supplies?	Societal breakdown?
Control to prevent price gouging?	Development of black market?
Financial concerns influence the ability to self-quarantine?	Theft of resources in an illegal distribution market?
Control measures to cover income dependent for purchasing essentials?	Counterfeit prophylaxis or PPE?
Financial institutions and contractual requirements?	Will healthcare facilities and citizens become victims?
Possible increase in foreclosures or repossessions?	Reaction of local government to potential problems?

- F. Plan and prepare.
 1. Local government must plan and be prepared for a pandemic outbreak.
 2. Imperative to consider the questions above to ensure proper response by fire/EMS services in a community.

XIII. CREW RESOURCE MANAGEMENT

<h4>CREW RESOURCE MANAGEMENT</h4>
<ul style="list-style-type: none">• Introduced 30 years ago to airline industry and military.• Proven record in reducing errors.• Experts believed Crew Resource Management (CRM) could reduce injuries and fatalities in fire service.• CRM is now a tool to reduce firefighter fatalities.
<small>Slide 8-76</small>

A. Introduction.

1. Crew resource management (CRM) was introduced approximately 30 years ago to the airline industry and has been used by the military.
 - a. Proven record in reducing errors in both industries.
 - b. After a series of fire incidents, experts believed that it could help to reduce injuries and fatalities in the fire service.
 - Hackensack, N.J., car dealership fire that killed five firefighters.
 - Worchester, Mass., cold storage warehouse fire that killed six firefighters.
 - Keokuk, Iowa, rescue attempt killed two firefighters.
 - Other fires resulting in approximately 100 firefighters' deaths per year.
 - c. Authority of fire chief or airline captain was never questioned in the past.
2. Many organizations including the USFA and the National Fallen Firefighters Foundation (NFFF) are working to reduce this number.
 - a. CRM is a tool to work toward reducing firefighter fatalities in the United States.
 - b. Fire service can reduce annual fatality rate.

**CREW RESOURCE
MANAGEMENT (cont'd)**

- CRM defined: the effective use of all resources including software, hardware and personnel.
- The ultimate goal of CRM is achieving safe and efficient emergency operations.

Slide 8-77

3. CRM is defined as the effective use of all resources including software, hardware and personnel. The ultimate goal is achieving safe and efficient emergency operations. The specific listing of software, hardware and personnel is meant to emphasize the point that problem-solving involves using all available tools.

**CREW RESOURCE
MANAGEMENT (cont'd)**

- Not meant to relieve officer of responsibility or authority.
- CRM is meant to:
 - Develop cohesive and empowered teams.
 - Allow most effective use of available resources.
 - Reduce human error.
 - Maximize the performance of crew.

Slide 8-78

4. CRM is not meant to relieve the fire chief, IC or Company Officer (CO) of responsibility or authority. CRM's purpose is to do the following:
- a. Develop cohesive and empowered teams.
 - b. Optimize the use of resources available.
 - c. Reduce human error and maximize the performance of company members.

CREW RESOURCE MANAGEMENT (cont'd)

- Based on five factors.
 - Communication.
 - Situational awareness.
 - Decision-making.
 - Teamwork.
 - Barriers.
- Each factor depends on all others for CRM to be successful.

Slide 8-79

5. CRM is based on five factors (overview discussed in length).
 - a. Communication.
 - b. Situational awareness.
 - c. Decision-making.
 - d. Teamwork.
 - e. Barriers.
 - f. Each factor depends on the others for CRM to be successful.

CREW RESOURCE MANAGEMENT — COMMUNICATION

- Communication is important to be successful:
 - Firefighter fatality reports list communication at least partially at fault.
 - CRM focuses on good communication.
- Communication between two or more:
 - Sender and receiver clear on information.
 - Active participation.
 - Other factors interfere with good communication.

Slide 8-80

- B. Communication.
 1. Communication is important to be successful.

- a. Many firefighter fatality reports list communication breakdown as at least partially at fault.
 - b. CRM teaches focusing on good communication including speaking directly, respectfully and responsibly.
2. Communication is between two or more individuals.
- a. Sender and receiver must be clear on the information being exchanged.
 - b. Individuals involved in communication must be active participants, including the sender and the receiver.
 - c. Even with the sender and the receiver involved in communications, other factors interfere with good communications, technical or human.

**CREW RESOURCE MANAGEMENT —
COMMUNICATION (cont'd)**

- Two-way communication is critical.
- Reasons why two-way communication fails:
 - Message is not received.
 - Message is received, but not understood.
 - Message is received and misunderstood.
 - Message is received and understood, but not acted upon.
 - Message received and ignored.

Slide 8-81

3. Two-way communication is critical for safety and decision-making. Variety of reasons why two-way communication fails:
- a. Message is not received.
 - b. Message is received, but not understood.
 - c. Message is received and misunderstood.
 - d. Message is received and understood, but not acted upon.
 - e. Message is received and deliberately or selectively ignored.

**CREW RESOURCE MANAGEMENT —
COMMUNICATION (cont'd)**

- Levels of formal message acknowledgment:
 - Acknowledgment.
 - When receiving.
 - Give feedback.
 - Complex instructions.
- Acknowledging complex instructions provides opportunity to interpret instructions or request clarification.

Slide 8-82

4. Just one occurrence of any of these can prove fatal to personnel.
 - a. Formal acknowledgments should be required for every message.
 - b. “Wildland Firefighter Safety Awareness Study,” 1998, identifies three levels of formal message acknowledgment:
 - Simple acknowledgment when receiving routine information.
 - Acknowledgment and feedback of key information.
 - Acknowledgment of complex instructions.
 - c. Acknowledging complex instructions provides an opportunity to interpret the instructions or request clarification.

**CREW RESOURCE MANAGEMENT —
RADIO DISCIPLINE**

- Radio discipline is a must for effective communication.
- Face-to-face communication is best.
- Good radio skills center on good listening and speaking skills.



Slide 8-83

5. Sender has an obligation to monitor the radio until acknowledgment is received and the message is understood.
 - a. With no initial response, sender should follow up with a question such as “Did you copy?”
 - b. For messages broadcast to multiple receivers, all receivers should acknowledge the message.
 - c. Receivers have an obligation to acknowledge messages and request clarification if necessary.
 - d. Failure to receive an acknowledgment is cause for concern and the sender should follow up.

6. Face-to-face communication is best for vital messages, when the sender and the receiver are located in close proximity.
 - a. Added benefit of seeing nonverbal cues for better understanding.
 - b. Face-to-face communication reduces distractions, and questions can be asked during one-on-one dialogue.
 - c. Use of runners to deliver and obtain information from remote units can be helpful.

7. Good radio communication skills center on being a good listener and having good speaking skills.
 - a. A good listener reduces the need to rebroadcast nonurgent messages.
 - b. Listening skills help recognize potentially urgent information.
 - c. Ensures information is communicated to the IC.

**CREW RESOURCE MANAGEMENT —
RADIO DISCIPLINE (cont'd)**

- Messages should be transmitted:
 - Using a logical format.
 - At an appropriate volume.
 - With good enunciation.
 - At a moderate pace.
- Think before transmitting and speak clearly.

Slide 8-84

- d. Messages should be transmitted.
 - Using a logical format.
 - At an appropriate volume.
 - With good enunciation.
 - At a moderate pace.
 - e. Messages should be thought out before transmitting and stated clearly.
 - f. Messages that are clear and direct minimize unnecessary radio traffic.
 - g. Training and practice during training is necessary to develop good listening and speaking skills.
8. Dispatchers are a critical component of the communication process.
- a. Must have an understanding of the fireground to triage messages according to importance.
 - b. Rebroadcast vital messages to those responding to or at the scene.
 - c. Must guard against overriding important messages sent from units.

**CREW RESOURCE MANAGEMENT —
UNSUITABLE EQUIPMENT**

- Common communications concern using self-contained breathing apparatus (SCBA).
- Universal dissatisfaction with portable radios on fireground.
- Every firefighter entering a fire situation should have a portable radio.

Slide 8-85

C. Unsuitable equipment.

1. Most common technical communications-related concern is the difficulty communicating using SCBA.
 - a. Use of SCBA can interfere with both face-to-face and portable radio communication.
 - b. Products are available to deal with the problem including speech ports and facepiece bone microphones worn in the ear or on the forehead.
 - c. Recent technological advances have improved communications with SCBA.
 - d. Cost of the most effective systems may be prohibitive for many departments.
2. Every firefighter entering a fire situation should have a portable radio.
 - a. Should be worn where the channel selectors, display and emergency signaling device are readily accessible without breaching the PPE.
 - b. Channel selection should be made easy.
 - c. Spare batteries and battery chargers should be onboard.
3. Improved communications through SCBA.
 - a. Voice ports integrated into SCBA facepieces.

- Work best in normal to moderately loud tone of voice.
- High-pitched sounds do not transmit well.
- b. Speak calmly, using clear enunciation.
- c. Hold the remote microphone of the portable radio directly in front of the voice port.

**CREW RESOURCE MANAGEMENT —
EQUIPMENT FAILURE**

- Modern radio systems are complex/technical.
- Only qualified technicians should design, install and maintain communication systems.

Slide 8-86

- D. Equipment failure.
 - 1. Modern radio communication systems are complex and highly technical.
 - a. Systems encompass:
 - A multitude of fixed antenna sites.
 - CAD (computer-aided design) terminals.
 - Mobile radios.
 - Mobile display terminals (MDT).
 - Portable radios.
 - Pagers.
 - Cellular telephones.
 - Faxes.
 - Modems and laptop computers.

- b. Paramount that this equipment functions during an emergency incident.
 - c. For example, 800 megahertz (MHz) radio systems currently depend on technology to the extent that should one part of the system fail, even line-of-sight radio communications can be negatively affected.
2. Only qualified technicians should design, install and maintain communication systems.
- a. Regular preventive maintenance minimizes failure.
 - b. Radio checks should be conducted in departments not using radios on a daily basis.

CREW RESOURCE MANAGEMENT — INADEQUATE CAPACITY
<ul style="list-style-type: none">• Most likely happens during complex incidents.• Radio systems should have multiple channel capability.• Train to familiarize with radios and potential problems.
<small>Slide 8-87</small>

- E. Inadequate system capacity.
- 1. Problem is most likely to occur during complex, multialarm incidents with many operating units operating simultaneously.
 - a. Volume of radio traffic may overwhelm dispatchers and the IC.
 - b. Firefighters may turn down portable radios to remove the distraction.
 - 2. Radio communication systems should have multiple channel capability.
 - a. Prevents routine radio traffic from interfering with incident communications.

- b. Active incidents should be assigned to other channels for tactical operations.
 - c. “Trunked” radio systems may have enough available frequencies for each incident to use separate tactical channel.
 - d. Multiple-alarm fires or complex incidents such as hazardous materials or technical rescues may require multichannel operations.
3. Training to familiarize personnel with radios and potential problems is critical.
- a. Use during drills and routine operations will improve effective communication during unusual events.
 - b. Use of multiple channels requires constant monitoring so critical transmissions are not missed.

CREW RESOURCE MANAGEMENT — INTERFERENCE
<ul style="list-style-type: none">• Atmospheric, environmental and electronic interference.• Radio transmissions are compromised by background noise.• High-rise, medium, or high-density buildings or ships hamper communications.
<small>Slide 8-88</small>

F. Interference.

- 1. Atmospheric, environmental and electronic interference can hamper effective communication at an incident.
 - a. This interference can take many forms:
 - “Skip” created by solar disturbances.
 - Atmospheric fluctuations.
 - Topographical features like hills or tunnels.

- Topographical interference can often be identified and corrected before problems occur.
- b. Atmospheric interference can be mistaken for equipment problems or failure.
- c. Interference results in devices placed out of service for repair.
- 2. Finally, radio transmissions can be compromised by the background noise of sirens while responding to an incident.
- 3. High-rise, medium, or high-density buildings or ships can hamper communications.
 - a. May be necessary to install repeaters in vehicles to improve communications.
 - b. Another option is bidirectional amplifiers or hard-wired phone systems in medium- to high-density buildings.
 - Option places the expense on the building owner, not on public dollars.
 - Can be enforced through local building codes or ordinance.
 - c. Multiple antenna sites manage the interference problems in urban areas.
- 4. Background noise can result from road noise, audible warning devices, fire pumps, hydraulic rescue tools, hoselines and normal work on scene.
 - a. Depending on traffic conditions, it may be possible to use audible warning devices intermittently while transmitting critical information.
 - b. Headsets reduce noise and are often equipped with intercoms or two-way radio interfaces.
 - Headsets also protect members from hearing loss caused by exposure to high levels of noise.
 - Shielding the microphone will reduce “feedback” (squealing noise) from portable radios.

G. Radio discipline.

1. Personnel can cause issues in communications.
 - a. Radio discipline must be used for effective communication.
 - b. Inadequate capacities can overwhelm the system, compromising firefighter safety.
 - c. Balance must be achieved to ensure important information is broadcast.

**CREW RESOURCE MANAGEMENT —
STANDARDIZED MESSAGES**

- Develop SOPs for standard message formats.
- Distinguish routine, priority, urgent and mayday messages.
 - “Priority” — requiring a swift response without immediate danger.
 - “Urgent” — bodily harm is likely to occur without immediate action.
 - “**Mayday**” — only for potential life-threatening situation.

Slide 8-89

2. Develop SOPs describing standard message formats and distinguishing routine, priority, urgent and mayday messages.
 - a. “Priority” may be defined as those requiring a swift response without the implication of immediate danger.
 - b. “Urgent” may mean a situation where bodily harm is likely to occur without immediate action.
 - c. “**Mayday**” should be used only for immediate need of help or rescue from a potential life-threatening situation.
 - d. Standard terms for use should be defined to eliminate confusion.
3. Accurate, regular situation reports are critical for sound decision-making and ensuring fireground safety.
 - a. Regular situation reports are necessary for good strategic and tactical decisions.

- b. Without such information, the decisions are made on limited, incomplete or inaccurate data.

**CREW RESOURCE MANAGEMENT —
INCIDENT COMMAND**

- Effective communications minimize negative consequences to incident command.
- Coordination of units is more difficult with mutual-aid or interagency response.
- All have responsibility to listen for key words like “mayday,” “urgent” and “priority.”
- “Mayday” should clear channel of all nonurgent radio traffic.

Slide 8-90

H. Communications within the ICS.

- 1. Effective communications help minimize potentially negative consequences to incident command and accountability brought about by rapidly changing situations.
 - a. Proper coordination of assignments is vital to protecting firefighter safety and effectively fighting the fire.
 - b. Use of SOPs for arriving units reduces confusion.
 - c. Units arriving “out of order” may cause confusion about task assignments for units.
 - d. IC needs communication to make adjustments.
- 2. Coordination among units can be more difficult with a mutual-aid or interagency response.
 - a. Incompatible communication systems may result in the use of a “patch” to link agencies at an incident.
 - b. Unfamiliar terminology or expressions may result in confusion.
 - c. Plain English is recommended to avoid confusion, but firefighters should clarify any questionable message before taking action.
- 3. COs must listen to radio traffic to ensure that the activities around them do not have adverse effects.

4. Everyone on the scene is responsible for listening to radio communications for key words such as “mayday,” “urgent” and “priority.”
5. “Mayday” transmission should clear the channel of all nonurgent radio traffic to determine the location and status of the sender. If unclear the mayday is heard, firefighters should not hesitate to report the message to the CP.
6. Good, respectful communication is important in resolving conflict at all levels of the organization. Clear communication is necessary for situational awareness.

**CREW RESOURCE MANAGEMENT —
SITUATIONAL AWARENESS**

- Means remaining alert to the circumstances.
- Department culture can cloud situational awareness:
 - Responders are aggressive, action-oriented, ability to overcome obstacles.
 - Fireground decisions based on organizational values and safety.

Slide 8-91

- I. Next within CRM is situational awareness.
 1. Situational awareness means remaining alert to the circumstances of the incident.
 - a. Incidents are dynamic, and changing conditions demand awareness.
 - b. Often called size-up.
 - c. Changing conditions must be communicated upward or downward as appropriate.
 2. Fire department culture can cloud the situational awareness of many individuals.
 - a. Typically responders are aggressive, action-oriented, with the ability to overcome obstacles.

- b. IC must make good fireground decisions based on organizational values and safety.

**CREW RESOURCE MANAGEMENT —
SITUATIONAL AWARENESS (cont'd)**

- Firefighters may delay requesting help to avoid being stigmatized:
 - Delay can cause loss of life and/or property.
 - Request resources necessary to resolve incident.
- Personnel don't report difficulties:
 - Fear of being judged slow, incompetent or not aggressive.
 - Contradictory to fire department values.

Slide 8-92

- 3. When a flawed concept of bravery exists, firefighters may delay requesting help for as long as possible to avoid being stigmatized.
 - a. Negative effects of this are obvious.
 - b. Risk assessment is a continual process, and requests for assistance should be placed as soon as the situation indicates.
 - c. Any delay in a request for assistance may result in unnecessary loss of life and/or property and force firefighters to work for an extended period without relief.
 - d. Be aware of safety and situation.
 - e. Request resources as necessary to resolve incident.
- 4. Personnel may sometimes be reluctant to report difficulties for fear of being judged slow, incompetent or not aggressive; all are contradictory to fire department values.
 - a. Likely that firefighters operating inside a fire environment lack situational awareness of time passing, or other emergency ground activities.
 - b. Easy to develop “tunnel vision” on scenes.
 - c. IC should ask for a situation report if one is not received after an appropriate period.

**SITUATIONAL AWARENESS LOSS
ATTRIBUTED TO EIGHT FACTORS**

1. Ambiguity is being open to more than one interpretation or being unclear about the situation.	5. Complacency is the false sense of comfort masking deficiencies or dangers.
2. Distraction from the original focus of the situation.	6. Failing to resolve conflicts during a situation is unresolved discrepancy.
3. Fixation is focusing on one item at the exclusion of all others.	7. Improper use of an SOP without justification.
4. Overload is the problem of being too busy to stay on top of the situation.	8. Freelancing is the concept of "nobody flying the plane" or no one in charge.

Slide 8-93

5. Loss of situational awareness is often attributed to eight factors.

Table 8.10 CRM Situational Awareness	
1. Ambiguity is being open to more than one interpretation or being unclear about the situation.	5. Complacency is the false sense of comfort masking deficiencies or dangers.
2. Distraction from the original focus of the situation.	6. Failing to resolve conflicts during a situation is unresolved discrepancy.
3. Fixation is focusing on one item at the exclusion of all others.	7. Improper use of an SOP without justification.
4. Overload is the problem of being too busy to stay on top of the situation.	8. Freelancing is the concept of "nobody flying the plane" or no one in charge.

**CREW RESOURCE MANAGEMENT —
DECISION-MAKING**

- Considers information available:
 - Uses risk-benefit analysis.
 - Good exchange of information is necessary.
- Correct amount of information exchanged:
 - Too little information results in errors.
 - Too much causes information overload.
 - Both contribute to poor decision-making.

Slide 8-94

J. Decision-making in CRM.

- 1. Decision-making considers the information available and uses the risk-benefit analysis process.
 - a. Good exchange of information is necessary for good outcome to emergencies.
 - b. Correct amount of information must be exchanged.
 - Too little results in errors.
 - Too much causes information overload.
 - Either contributes to poor decision-making.

**CREW RESOURCE MANAGEMENT —
DECISION-MAKING (cont'd)**

Life-threatening (emergency)/nonlife-threatening (nonemergency).

- Nonlife-threatening situations allow:
 - Time to weigh information/options.
 - Decide on best option.
- Life-threatening situations require decisions to be made:
 - Quickly.
 - Without all the information available.

Slide 8-95

2. Decision-making can be life-threatening (emergency) and nonlife-threatening (nonemergency).
 - a. Nonlife-threatening allows.
 - Time to weigh all the information.
 - Time to weigh each option.
 - Opportunity to decide on the best option.
 - b. Life-threatening situations require rapid decisions, without all the information being available.
 - c. Fire officers make decisions based on their experience and knowledge of incidents of the same type.
 - d. One study found that fire officers usually choose the first decision that comes to mind. This is called Naturalistic Decision Making (NDM).

**CREW RESOURCE MANAGEMENT —
DECISION-MAKING (cont'd)**

Some officers have little or no experience.

- Reduced knowledge can cause mistakes:
 - Omissions are unintentional.
 - Commissions are actions resulting in incorrect application of procedures/practices.
- CRM allows for empowerment.

Slide 8-96

3. Newer officers or officers in smaller departments are arriving at scenes with little or no experience.
 - a. Reduced knowledge to handle the situation.
 - b. Inexperience can cause mistakes of omission or commission.
 - Omissions are usually considered unintentional (i.e., missing a step in a procedure).

- Commissions are actions that result in incorrect application of procedures or normally accepted practices.

- c. CRM allows for empowerment to overcome mistakes and improve the team.

**CREW RESOURCE MANAGEMENT —
DECISION-MAKING (cont'd)**

- Teamwork is vital to CRM:
 - Emphasizes crew performance/leadership/followership.
 - Leaders recognize limits of abilities.
 - Others have strengths to assist them in decisions.
- CRM improves team's ability to work together and solve problems.

Slide 8-97

- 4. Teamwork is part of initial training and is vital to CRM.
 - a. CRM emphasizes crew performance and the leadership/followership principle.
 - b. Team has leaders and followers, with each being important for the team's success.
 - c. CRM leaders recognize the limits of their abilities and that others have strengths to assist them in making correct decisions.
- 5. CRM improves the team's ability to work together and solve problems.
 - a. Removes barriers to team members' ideas and concepts.
 - b. Each team member has input into decisions, but the leader makes the decision.
 - c. Input from the members allows for more eyes, ears, knowledge and experiences to improve the decision.

**CREW RESOURCE MANAGEMENT —
DECISION-MAKING (cont'd)**

- Six-step process:
 - Determine the problem.
 - Evaluate the scope of the problem.
 - Consider available options for mitigating problem.
 - Identify the most appropriate option.
 - Do the most appropriate option.
 - Evaluate the effectiveness of actions.
- Process can be used in making any decision.

Slide 8-88

6. Dr. Ludwig Benner developed a six-step process known as “DECIDE” to assist in making decisions. The acronym DECIDE stands for:
- a. **D**etermine the problem.
 - b. **E**valuate the scope of the problem.
 - c. **C**onsider available options for mitigating the problem.
 - d. **I**dentify the most appropriate option.
 - e. **D**o the most appropriate option.
 - f. **E**valuate the effectiveness of actions.

**CREW RESOURCE MANAGEMENT —
BARRIERS**

- Include any factor that inhibits previous concepts.
- May be external or internal.
- External barriers are physical.
- Internal barriers are mental items.
- Barriers can be broken down and eliminated.

Slide 8-99

- K. Barriers for CRM.
- 1. Barriers are the last concept in the CRM concept.

2. Barriers include any factor that inhibits each of the previous concepts.
 3. May be external or internal.
 4. External barriers are physical (i.e., radios, talking in an SCBA, background noise).
 5. Internal barriers are mental items (i.e., attitudes, prejudices, opinions, stress).
 6. Barriers can be broken down and eliminated if recognized.
- L. CRM summary.
1. CRM is not intended to usurp the power of the leader, nor is it rule by committee.
 2. Information is directed to the leader or officer to provide better teamwork.
 3. Enables team members to provide input (communicate) on the situation (awareness).
 4. Allows the officer to make good decisions.
 5. Teamwork has not been specifically discussed as part of CRM; it is the element that is enhanced and improved by CRM.
 6. CRM allows barriers to teamwork to be overcome.

ACTIVITY 8.1

Situation-specific Hazards and Mitigation Strategies

Purpose

To analyze a given scenario and develop a policy or procedure with appropriate support material.

Directions

1. Your group will be assigned one of the four situation-specific scenarios listed after these directions.
2. You are to complete the requirements set out in the scenario.
3. Appoint a group representative.
4. You have 30 minutes to complete this project. At that time you should be prepared to give a five-minute presentation to the class.

Scenario 1: Highway Operations

The fire chief of your department has sent a memo to the Health and Safety Officer (HSO) and the Occupational Safety and Health (OSH) Committee asking for the revision of the department's Highway Safety SOP. The department will soon be responding in a 10-mile section of interstate that was recently incorporated into the city limits with annexation. The memo requires that the OSH Committee develop interim procedures to ensure the safety of department members.

You must develop strategy and an initial action plan. Your plan should provide a timeline for the implementation and how training and education will occur.

Scenario 2: RIC

Recently, two firefighters from a neighboring department died in the line of duty at a commercial strip shop structure fire when they became trapped after the roof collapsed very early in the incident.

The current staffing levels of your department are an officer and two firefighters on each engine company and an officer and two firefighters on each truck company. You must develop a suggested procedure and supporting material that will ensure compliance with applicable codes and standards. The chief will use your material as the basis for funding additional staff to support the concept of RICs.

Scenario 3: Wildland Firefighting

Your fire department's responses to brush/wildland fires have increased in the last year, primarily due to drought conditions. The department's OSH Committee recognizes the need to review the department's current use of protective clothing for wildland firefighting. The current standard response to a brush/wildland fire is structural firefighting protective clothing. The deputy chief in charge of operations has asked for documentation to support the purchase of garments that meet applicable NFPA standard(s), and a written SOP for brush/wildland fires (including a response matrix for brush fire based upon risk, e.g., first alarm assignment).

You must address the following key points:

- Purchase of brush/wildland protective clothing.
- Brush/Wildland SOP.
- Response matrix.

Scenario 4: Incident Scene "Rehab"

Your battalion chief has selected you to participate in the development and implementation of an incident scene rehabilitation SOP in your department. The department has no formal procedures addressing incident scene rehabilitation. You are to develop an action plan for addressing the development of this new SOP, including researching any applicable codes or standards that require an incident scene rehabilitation process.

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APPENDIX

EXHIBITS

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EXHIBIT A

Inspection Form

Date: / /

Building Marking

Vacant/Abandoned Building Evaluation Form

Address: _____

Property Name: _____

Owner Name: _____ Telephone: _____

Owner Address: _____

Answer each of the following questions about the building. Select multiple options, if necessary; explain response.
Draw a simple sketch of the location and explain your observations in a brief narrative.

Building Security	
<input type="checkbox"/> Secure	<input type="checkbox"/> Open/unsecured <input type="checkbox"/> Signs of recent entry
Utilities (Note Entry Points for each active utility on sketch)	
Active Utilities	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes: <input type="checkbox"/> Gas <input type="checkbox"/> Electricity <input type="checkbox"/> Oil <input type="checkbox"/> Water
Building Use (The original use of the building and how it was last used)	
Building Construction	
Number of Floors _____	Basement: <input type="checkbox"/> Yes <input type="checkbox"/> Sub-Basement <input type="checkbox"/> Multi Sub-Levels
Exterior Walls	<input type="checkbox"/> Block/Brick <input type="checkbox"/> Curtain Wall <input type="checkbox"/> Wood <input type="checkbox"/> Metal Tie Rods (stars)
Openings in Exterior Walls (Windows, Doors, etc.)	<input type="checkbox"/> Many <input type="checkbox"/> Few <input type="checkbox"/> Windowless
Structural Members (Beams, Girders, Columns)	<input type="checkbox"/> Steel <input type="checkbox"/> Concrete <input type="checkbox"/> Wood <input type="checkbox"/> Mixed (Describe)
Truss Construction	<input type="checkbox"/> Roof <input type="checkbox"/> Floors
Exposed Structural Members (Beams, Girders, Columns & Trusses)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Ceiling Type	<input type="checkbox"/> None <input type="checkbox"/> Suspended <input type="checkbox"/> Metal <input type="checkbox"/> Sheetrock/Plaster <input type="checkbox"/> Wood
Condition of Interior Walls and Floors (Integrity of compartmentation)	
<input type="checkbox"/> Good <input type="checkbox"/> Deteriorating	<input type="checkbox"/> Multiple penetrations that would allow fire spread <input type="checkbox"/> Walls <input type="checkbox"/> Floors
Condition of Roof	
<input type="checkbox"/> Good <input type="checkbox"/> Some instability/deterioration	<input type="checkbox"/> Major deterioration
General Condition of Structure	
<input type="checkbox"/> Good <input type="checkbox"/> Minor structural instability	<input type="checkbox"/> Major deterioration of structural elements
Fire Protection Systems	
Operational Fire Alarm System	<input type="checkbox"/> Yes <input type="checkbox"/> No
Operational Sprinkler System (Valves open, pressure showing on gauges)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> System off, but usable if supplied through FD connection
Operational Standpipe System	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fire Department Connection (If Yes, note location on sketch)	<input type="checkbox"/> Yes <input type="checkbox"/> No

SITUATION-SPECIFIC HAZARDS AND MITIGATION STRATEGIES

Fire Potential			
Fuel Packages (Fuel Load)			
Quantity	<input type="checkbox"/> Numerous	<input type="checkbox"/> Moderate	<input type="checkbox"/> Limited
Distribution	<input type="checkbox"/> Concentrated	<input type="checkbox"/> Spread out	
Housekeeping	<input type="checkbox"/> Good	<input type="checkbox"/> Poor	
Interior Finish	<input type="checkbox"/> Combustible	<input type="checkbox"/> Non-combustible	<input type="checkbox"/> Mixed (Describe)
Room Size	<input type="checkbox"/> Large	<input type="checkbox"/> Moderate	<input type="checkbox"/> Small
Potential for a delay in FD notification	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low		
Exposures (Note locations on sketch)			
Location	<input type="checkbox"/> A side	<input type="checkbox"/> B side	<input type="checkbox"/> C side <input type="checkbox"/> D side
Separation (ft)	___	___	___
Occupied (Y/N)	___	___	___
Suppression Operations			
Hazards In Building	<input type="checkbox"/> Holes in Floors	<input type="checkbox"/> Missing Stairs	<input type="checkbox"/> Open Shafts/pits
Building Access:	<input type="checkbox"/> 4 sides	<input type="checkbox"/> 3 sides	<input type="checkbox"/> 2 Sides <input type="checkbox"/> Limited
Interior Layout	<input type="checkbox"/> Complicated	<input type="checkbox"/> Normal - Walls/Partitions	<input type="checkbox"/> Open
Water Supply:	<input type="checkbox"/> Adequate	<input type="checkbox"/> Inadequate	(Note Locations on Sketch)

Hazardous materials located on the site Yes None Observed
 (If Yes, describe in detail)

Conditions that require immediate correction Yes No
 (If Yes, describe in detail)

Analysis of the building (provide <i>your</i> analysis of the building)	High	Moderate	Low
Potential for an exposure fire (extension to another building)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potential for a Multi-Room fire on arrival of first due company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potential for structural collapse early in the fire development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potential for fire fighters to become lost or trapped during operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Narrative:

Inspected by:

Posting Authorized by:

Data Entered by:

EXHIBIT B

Abandoned Building Markings

Placards or marks on vacant and abandoned properties provide a visual indication of the potential hazard the structure poses to emergency responders. The markings system shown here is based on the system used by Fire Department New York (FDNY) in New York City. Other jurisdictions may use different systems, but the objective should be to warn firefighters and other emergency responders that the building poses hazards that are significantly greater than buildings that are maintained and in good repair. Buildings may be marked using signs, or the marks may be painted on outside walls of the building. Markings should be readily visible from normal access points of the building.

The sign depicted here is 2 ft.×2 ft. and is printed on corrugated plastic sign stock.



Exterior operations only — Enter only for known life hazards



Interior operations permitted — Enter building with extreme caution

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UNIT 9: AFTER ACTION REVIEW

TERMINAL OBJECTIVE

The students will be able to:

- 9.1 *Discuss the importance of and describe the appropriate methodology for an After Action Review (AAR).*

ENABLING OBJECTIVES

The students will be able to:

- 9.1 *Describe the AAR process.*
- 9.2 *Describe the roles of students, specifically the Incident Safety Officer (ISO) and the Health and Safety Officer (HSO) in the AAR process.*
- 9.3 *Define the outcome applications of the AAR.*
- 9.4 *Given a scenario, determine what safety issues should be addressed in the AAR and develop an improvement plan.*
-

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**UNIT 9:
AFTER ACTION REVIEW**

Slide 9-1

ENABLING OBJECTIVES

- Describe the After Action Review (AAR) process.
- Describe the roles of students, specifically the Incident Safety Officer (ISO) and the Health and Safety Officer (HSO) in the AAR process.

Slide 9-2

**ENABLING OBJECTIVES
(cont'd)**

- Define the outcome applications of the AAR.
- Given a scenario, determine what safety issues should be addressed in the AAR and develop an improvement plan.

Slide 9-3

AFTER ACTION REVIEW
(cont'd)



- Like Incident Command System (ICS) – AAR useful for all-hazards incidents.
- Organizational progress driven by:
 - Individual learning.
 - Improvement throughout the organization and beyond.

Slide 9-6

4. Like Incident Command System (ICS) — the AAR is useful for any situation, large or small, extraordinary or routine.
5. Organizational progress driven by individual learning and improvement transferred throughout the organization and beyond.

AFTER ACTION REVIEW
(cont'd)

- Systematic evaluation of operations.
- Significant players should be involved.
- Evaluate circumstances, operations and effect of circumstances.
- Information available to all personnel.

Slide 9-7

6. Systematic evaluation of operations after an emergency incident.
7. All significant players should be involved.
8. Evaluate circumstances, operations, and effect of circumstances and operations on safety.
9. Information should be available to all department personnel.

NATIONAL FIRE PROTECTION ASSOCIATION 1500 STANDARD

- Develop criteria and standard operating procedures (SOPs) for AAR.
- ISO shall be involved.
- Review:
 - Conditions present and actions taken.
 - Effects of both on safety and health.
- Identify action necessary to change.
- Standardized action plan.



Slide 9-8

B. NFPA 1500 Standard.

1. Develop criteria and standard operating procedures (SOPs) for post-incident analysis of significant incidents or those involving serious injury/death.
2. Incident Safety Officer (ISO) shall be involved in post-incident analysis as defined in NFPA 1521.
3. In the analysis, conduct a basic review of conditions present, actions taken, and effect of conditions and actions on safety and health of members.
4. In the analysis, identify any action necessary to change or update safety/health program elements.
5. Standardized action plan.

AAR PROCESS

- Include both positive/negative aspects.
- Preliminary fatality report should be released as soon as possible.
- Identify operations and performance needing change/revision.
- Participants include Command, General Staff and all companies.

Slide 9-9

C. AAR process.

1. Positive and negative aspects of operations should be included.
2. Preliminary report of fatality should be released as soon as possible to eliminate/squelch rumors.
3. Operations and performance that need to be changed/revised are identified.
4. Students include companies responding (or representatives from each company) and Command and General Staff.

AAR FORMAT

- Opening statement and event description by Incident Commander (IC).
- Company Officers (COs) in order of arrival.
- Summary.
- May be facilitated by neutral individual.



Slide 9-10

5. AAR format.
 - a. Opening comment and event description from Incident Commander (IC).
 - b. Company Officers (COs)/Chief Officers, in order of arrival, describe what they said and what they had the crews do.
 - c. Summary of lessons learned and actions necessary to correct.
 - d. May be facilitated by neutral individual so that AAR results in a truly objective review.
6. Someone should take written notes throughout, to help in summary.

IMPROVEMENT PLAN

- What needs to be changed?
- What actions are required to make change?
- Who is responsible?
- Dates of effect and implementation?
- How will change be evaluated?

Slide 9-11

D. Improvement plan.

1. All required changes should be addressed using an improvement plan.
2. Components of the plan include:
 - a. What the change is.
 - b. What actions are required to make the change.
 - c. Whoever is responsible.
 - d. Date the change will be effective.
 - e. Date the change will be implemented.
 - f. How the change will be evaluated.

E. ISO.

1. The ISO shall provide objective input on fire/Emergency Medical Services (EMS) personnel safety and health issues.

**NATIONAL FIRE PROTECTION
ASSOCIATION 1521
ISO RESPONSIBILITIES**

- Prepare written report.
- Documentation of incident safety action.
- Include information on issues relating to:
 - Protective clothing/equipment.
 - Personnel accountability system.
 - Rapid Intervention Crew (RIC).
 - Rehab.

Slide 9-12

- 2. NFPA 1521 ISO responsibilities.
 - a. Prepare a written report of the AAR that includes pertinent safety and health information.
 - b. Document pertinent information about incident.
 - c. Include information about issues relating to use of protective clothing and equipment, personnel accountability system, Rapid Intervention Crew (RIC), and rehab operations.

ISO REPORT

Operations	<ul style="list-style-type: none">• Apparatus/Equipment placement.• Hose, ladder/roof/vent functions, etc.
Communications	<ul style="list-style-type: none">• Two in/Two out, accountability, rehabilitation.• Safety actions during incident.
Injuries/Fatalities	<ul style="list-style-type: none">• Reporting/Investigating injuries.• Investigating fatalities.

Slide 9-13

- 3. ISO report should include the following regarding safety and health:
 - a. Communications.
 - b. Apparatus and equipment placement.
 - c. Personal protective equipment (PPE).

2. ISO must be focal point for information from outside agencies, test results.

HEALTH AND SAFETY OFFICER (cont'd)	
• Other topical areas considered during an AAR.	
– Resource management.	– Attitude impacts.
– Communications.	– Safety concerns.
– Stress/Fatigue impacts.	– Roles and responsibilities.
– Equipment malfunction.	– Organizational issues or cultural problems.
– Procedures/Policy adherence.	
<small>Slide 9-15</small>	

3. Other topical areas to be considered during AAR.

- a. Resource management.
- b. Use of preplan information.
- c. Communications.
- d. Perception of events.
- e. Stress/Fatigue impacts.
- f. Equipment malfunction.
- g. Procedures/Policy adherence.
- h. Environmental attributes or changes.
- i. Attitude impacts.
- j. Safety concerns.
- k. Roles and responsibilities.
- l. Organizational issues or cultural problems.

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ACTIVITY 9.1

After Action Review and Analysis

Purpose

To use the After Action Report and analysis process to develop an action plan to correct the problems identified in a given scenario.

Directions

Part 1

In your small group, you have 20 minutes to complete the After Action Report Worksheet on the following page in preparation for an AAR. Prepare to present the ISO's portion of the AAR to the class (based on your worksheet). As other groups present their findings, add to/amend your group's worksheet.

Part 2

In your group, convert the items listed on your After Action Report Worksheet under the "How could things have been done better?" section to the Lessons Learned — Improvement Plan Worksheet on the following page. You have 20 minutes to complete the worksheet including the lesson, how it should be addressed and by whom, an implementation time frame, and how the change will be evaluated.

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ACTIVITY 9.1 (cont'd)

After Action Report Worksheet

Based on the viewpoint of the ISO at the incident shown in the video, complete the following:

- What was done well?

- What could have been done better?

- How could things have been done better?

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ACTIVITY 9.1 (cont'd)

Lessons Learned — Improvement Plan Worksheet

Evaluation Method						
Implementation Time Frame						
Responsible Party						
How to be Addressed						
Lesson Learned						

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II. SUMMARY

	<h2>SUMMARY</h2>	
<ul style="list-style-type: none">• AAR identifies operations and procedures that need to be changed or revised.• Changes required in SOPs, policies, training.• Improvement plan to address:<ul style="list-style-type: none">– Changes/Revisions.– Whoever is responsible.– Dates by which changes will be made.– When changes will be effective.		
<small>Slide 9-18</small>		

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SUGGESTED READINGS

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APPENDIX

PHOENIX REGIONAL STANDARD OPERATING PROCEDURES CRITIQUE SECTOR/INCIDENT ANALYSIS

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PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES

CRITIQUE SECTOR/INCIDENT ANALYSIS

M.P. 201.05G 03/02-R Page 8 of 14

CRITIQUE PRESENTATION FORMAT--STRUCTURAL FIRES

- Critique should be limited to a maximum of 1 to 1-1/2 hours in duration if possible.
- Conflict should be moderated by the Critique Officer so that the critique remains a productive learning experience.

- I. Introduction
 - a. General introduction on the incident
 - b. Unique circumstances/problems, etc.
 - c. Review Tactical Preplan information

- II. Building Structure/Site Layout
 - a. Review type of structure, and post-incident structure analysis, or incident site layout.

- III. Review Fire Code History
 - a. Review code requirements, deficiencies etc., as applicable.
 - b. Review file history on building alterations, inspections, etc.

- IV. Dispatch and Response
 - a. Play tapes of reporting, dispatch, on scene reports
 - b. Analyze dispatch, on scene reports
 - c. Was dispatch appropriate for nature of reports?

- V. Site Operations
 - a. Analyze structural integrity of building based fire conditions on arrival, at 10 minutes, at 20 minutes, at 30 minutes
 - b. Review/analyze size-up decisions by Command
 - c. Review/analyze strategy/action plan
 - d. Review/analyze offensive/defensive decisions by Command
 - e. Review risk analysis applied to the incident
 - f. Review/analyze sector operations
 - g. Review/apparatus positioning
 - h. Review attack line selection/positioning, etc.
 - i. Review ventilation operations
 - j. Review loss control operations
 - k. Review night time and interior lighting operations

- VI. Rescue Sector
 - a. Review/analyze Sector activities
 - b. Review apparatus positioning
 - c. Review hoseline selection
 - d. Review search plan
 - e. Review rescue plan
 - f. Discuss problems encountered

PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES

CRITIQUE SECTOR/INCIDENT ANALYSIS

M.P. 201.05G

03/02-R

Page 9 of 14

- VII. Staging
 - a. Early Level II
 - b. Location adequacy
 - c. Communications
 - d. Site Access

- VIII. Communications
 - a. Review dispatch and deployment functions during incident
 - b. Review/analyze the communication process
 - c. Did Command receive adequate, accurate and timely information?
 - d. Did Command effectively communicate his/her plan, objectives and other information to sectors/companies?
 - e. Did sectors effectively communicate plans, objectives and other information to companies?

- IX. Support Functions
 - a. Review rehab operations
 - b. Review equipment/apparatus failures, repairs
 - c. Review water supply

- X. Safety Sector
 - a. Discuss safety aspects of incident
 - b. Review injuries, causes, etc.
 - c. Review corrective actions

- XI. Accountability
 - a. Discuss fireground accountability
 - b. Determine if accountability was accurate
 - c. Were accountability locations easily identified
 - d. Have Accountability officers describe accountability operations, problems
 - e. Discuss, Review Accountability Sector operations
 - f. Accountability Benchmarks

- XII. Investigations
 - a. Review cause, point of origin, fire spread
 - b. Update on investigation

PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES

CRITIQUE SECTOR/INCIDENT ANALYSIS

M.P. 201.05G 03/02-R Page 10 of 14

PRESENTATION
CRITIQUE FORMAT--MAJOR MEDICAL

- Critique should be limited to a maximum of 1 to 1-1/2 hours in duration if possible.
- Conflict should be moderated by the Critique Officer so that the critique remains a productive learning experience.

I. Introduction

- A. General Introduction
- B. Unique circumstances, problems, etc.

II. Scene Operations

- A. Unique Problems
- B. Situation on arrival, 10 minutes, 20 minutes, 30 minutes
- C. Size-up
 - 1. Early call for assistance
 - 2. Updates/progress reports
 - 3. Action plan updates/progress reports
- D. Plan of action/strategy
- E. Command Operations
- F. Sector Operations
 - 1. Scene safety, extrication, treatment, transportation, staging, occupant services, AR vans
- G. Scene arrangement/layout
 - 1. Sectors, apparatus positions, lighting, rescue access, loading points, obstacles, barriers
- H. Outside Agencies
 - 1. Private Ambulance
 - 2. Hospitals
 - 3. Police
 - 4. City Transit
 - 5. Medical Examiner
 - 6. Airport

III. Communications

- A. Dispatch, On-scene reports
- B. Dispatch and Deployment Operations
 - 1. Notifying hospitals, outside agencies
 - 2. Progress Reports
 - 3. Problems encountered
- C. Transportation Sector Communications/Coordination

PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES

CRITIQUE SECTOR/INCIDENT ANALYSIS

M.P. 201.05G 03/02-R Page 11 of 14

IV. Support Functions

- A. Safety Sector
- B. Rehab Sector
- C. Resource Management - Equipment/Supplies

V. Staging Operations

- A. Early Level II?
- B. Rescues
- C. Fire Apparatus
- D. Other agencies

VI. Triage/Patient Outcomes

- A. Accuracy of Triage Decisions
- B. Appropriate Treatment & Packaging

VII. Conclusion

- A. Patient Follow-ups/Outcome
- B. Department Medical Physician - Review/Input
- C. Lessons Learned
- D. At-A-Boy's

APPENDIX A

SOURCES OF ADDITIONAL INFORMATION

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SOURCES OF ADDITIONAL INFORMATION

U.S. Fire Administration
16825 South Seton Ave.
Emmitsburg, MD 21727
800-238-3358
<http://www.usfa.fema.gov>

National Fire Academy
16825 South Seton Ave.
Emmitsburg, MD 21727
800-238-3358
<http://www.usfa.fema.gov/dhtml/fire-service/nfa.cfm>

Learning Resource Center
National Emergency Training Center
16825 South Seton Ave.
Emmitsburg, MD 21727
800-638-1821
<http://www.lrc.fema.gov>

Occupational Safety and Health Administration
Publication Information 202-219-9631
Public Information 202-219-8151
or contact your local office
<http://www.osha.gov>

Centers for Disease Control and Prevention
1600 Clifton Road, NE
Atlanta, GA 30333
404-639-3311
<http://www.cdc.gov>

National Institute of Occupational Safety and Health
Appalachian Laboratory for Occupational Safety and Health
944 Chestnut Ridge Road
Morgantown, WV 36505
800-356-4674
<http://www.cdc.gov/niosh/homepage.html>

U.S. Government Printing Office
Superintendent of Documents
Washington, DC 20402
202-512-1800
<http://www.access.gpo.gov>

National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269
617-770-3000
<http://www.nfpa.org>

International Association of Fire Fighters
Occupational Safety and Health Department
1750 New York Ave., NW
Washington, DC 20006-5395
202-737-8484
<http://www.iaff.org>

International Association of Fire Chiefs
Health and Safety Committee
4025 Fair Ridge Drive
Fairfax, VA 22033
<http://www.iafc.org>

National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
630-285-1121
<http://www.nsc.org>

Fire Department Safety Officers Association
P.O. Box 149
Ashland, MA 01721
508-881-3114
<http://www.fdsoa.org>

APPENDIX B

OSHA LOG 300

NOTE: The OSHA Log 300 can be downloaded as an Excel spreadsheet (8 1/2 x 14) at <http://www.osha.gov/recordkeeping/RKforms.html>.

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Year _____

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1215-0716

OSHA's Form 300A Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete. Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0 (G)	0 (H)	0 (I)	0 (J)

Number of Days

Total number of days of job transfer or restriction	Total number of days away from work
0 (K)	0 (L)

Injury and Illness Types

Total number of... (M)	(1) Injury	0	(4) Poisoning	0
	(2) Skin Disorder	0	(5) All other illnesses	0
	(3) Respiratory Condition	0		

Establishment information

Your establishment name _____
 Street _____
 City _____ State _____ Zip _____
 Industry description (e.g., Manufacture of motor truck trailers) _____
 Standard Industrial Classification (SIC), if known (e.g., SIC 3715) _____

Employment information

Annual average number of employees _____
 Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

 Company executive

 Title

 Phone

 Date

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact US Department of Labor, OSHA, Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

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U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

OSHA's Form 301 Injuries and Illnesses Incident Report

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Information about the employee

- 1) Full Name _____
- 2) Street _____
City _____ State _____ Zip _____
- 3) Date of birth _____
- 4) Date hired _____
- 5) Male Female

Information about the physician or other health care professional

- 6) Name of physician or other health care professional _____

- 7) If treatment was given away from the worksite, where was it given?
Facility _____
Street _____
City _____ State _____ Zip _____

Completed by _____
Title _____
Phone _____ Date _____

Information about the case

- 10) Case number from the Log _____ (Transfer the case number from the Log after you record the case.)
- 11) Date of injury or illness _____
- 12) Time employee began work _____ AM/PM
- 13) Time of event _____ AM/PM Check if time cannot be determined

14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."

15) **What happened?** Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."

16) **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt", "pain", or "sore." Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."

17) **What object or substance directly harmed the employee?** Examples: "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.

18) **If the employee died, when did death occur?** Date of death _____

- 8) Was employee treated in an emergency room?
 Yes No
- 9) Was employee hospitalized overnight as an in-patient?
 Yes No

Public reporting burden for this collection of information is estimated to average 22 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Persons are not required to respond to the collection of information unless it displays a current valid OMB control number. If you have any comments about this estimate or any other aspects of this data collection, including suggestions for reducing this burden, contact: US Department of Labor, OSHA, Office of Statistics, Room N-3644, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed forms to this office.

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APPENDIX C

ACCIDENT AND INJURY REPORTING FORMS

Supervisor's Accident/Loss Investigation Report	C-3
Employer's First Report of Accident	C-5
Health Hazard Exposure Form.....	C-7
Accident/Incident Investigation Report	C-9
Employer's First Report of Injury or Occupational Disease	C-11
Incident Exposure Record.....	C-13
Personal Injury/Illness Investigation Report.....	C-15
Post Incident Analysis.....	C-17
Fire Service Casualty Module (NFIRS-5)	C-23

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SAFETY PROGRAM OPERATIONS

Employer's First Report of Accident

Industrial Commission of Virginia
1000 DMV Drive Richmond VA 23220
See instructions on the reverse of this form

This form is to be filed with the IC and is for the use of the insurer	LC file number	Reason for filing
	Insurer code	Insurer location
	Insurer claim number	

Employer		
1. Name of employer City of Virginia Beach	2. Federal Tax Identification Number 540722061	3. Employer's Case No. (if applicable)
4. Mailing address Risk Management Division Municipal Center Virginia Beach, VA 23456-9081	5. Location (if different from mailing address)	
6. Parent corporation (if applicable)	7. Nature of business Municipality	
8. Insurer Self-insured	9. Policy number	10. Effective date
Time and Place of Accident		
11. City or county where accident occurred	12. Employer's premises? Did accident occur on <input type="checkbox"/> Yes <input type="checkbox"/> No	13. State property? <input type="checkbox"/> Yes <input type="checkbox"/> No
14. Date of injury	15. Hour of injury	16. Date of incapacity
17. Hour of incapacity		18. Was employee paid in full for day of injury? <input type="checkbox"/> Yes <input type="checkbox"/> No
19. Was employee paid in full for day incapacity began? <input type="checkbox"/> Yes <input type="checkbox"/> No		20. Date injury or illness reported
21. Person to whom reported	22. Name of other witness	23. If fatal, give date of death
Employee		
24. Name of employee	25. Phone number	26. Sex <input type="checkbox"/> Male <input type="checkbox"/> Female
	28. Date of birth	29. Marital status <input type="checkbox"/> Single <input type="checkbox"/> Divorced <input type="checkbox"/> Married <input type="checkbox"/> Widowed
	30. Social security number	33. Number of dependent children
31. Occupation at time of injury or illness	32. Department	
34. How long in current job?	35. How long with current employer?	36. Was employee paid on a piece work or hourly basis? <input type="checkbox"/> Piece work <input type="checkbox"/> Hourly
37. Hours worked per day	38. Days worked per week	39. Value of perquisites per week Food/meals Lodging Tips Other \$ \$ \$ \$
40. Wages per hour \$	41. Earnings per week (inc. overtime) \$	
Nature and Cause of Accident		
42. Machine, tool, or object causing injury or illness	43. Specify part of machine, etc.	44. Provided? <input type="checkbox"/> Yes <input type="checkbox"/> No
46. Describe fully how injury or illness occurred		45. Utilized? <input type="checkbox"/> Yes <input type="checkbox"/> No
47. Describe nature of injury or illness, including parts of body affected		
48. Physician (name and address)		49. Hospital (name and address)
50. Probable length of disability	51. Has employee returned to work? <input type="checkbox"/> Yes <input type="checkbox"/> No	52. At what wage? \$
54. EMPLOYER: prepared by (include name and title)		53. On what date?
55. Date		56. Phone number
57. INSURER: processed by		58. Date
59. Date		59. Phone number

This report is required by the Virginia Workers' Compensation Act

First Report of Accident
IC Form No. 3 (rev. 10/1/90)

FORM NO. DF 19 REV. 2/91

INSTRUCTIONS

Employer's First Report of Accident
I.C. Form No. 3

Employer

1. Fill out this form whenever one of your employees is injured. Provide all the information requested, except the information in the top right corner. Please type or print all information in black ink. Your signature is required at the bottom of the form.
2. Send the original form to your insurance carrier or designated representative for processing. If you are self-insured, send it to your organization's designated office for handling workers' compensation claims.
3. If you are an employer subject to OSHA record-keeping requirements, you may retain a copy of this completed form as a supplementary record of occupational injury or illness. Use block #3 (Employer's Case No.) to cross-reference your master log of accidents and illnesses.
4. If you need additional copies of this form, please request them from your insurance carrier or designated representative.

Insurance carriers, self-insured employers, and authorized representatives

1. For accidents meeting one of the seven criteria for establishing an Industrial Commission Case File,* submit the original and two copies of the form to the Industrial Commission at 1000 DMV Drive, Richmond VA 23220. The code for the reason for filing should be written at the top right of the form.
2. When processing these forms prior to transmittal to the Commission, please include the information requested at the top right of the form, verify that the carrier name and policy number given by the employer are accurate, and enter your name and phone number, and the date of processing at the bottom of the form.
3. Insurer code at the top right of the form refers to the five-digit code assigned by NCCI. If you are self-insured, it refers to a similar five-digit number assigned by the Industrial Commission.
4. Additional copies of this form are available without cost by writing to the Commission. Please note that color coding of the forms greatly increases the Commission's efficiency in processing claims, and that any alternate versions of the form you develop yourself require prior approval by the Commission. Write to "Forms" at the listed Industrial Commission address.

*The seven criteria are: (1) lost time exceeds seven days, (2) medical expenses exceed \$500, (3) compensability is denied, (4) issues are disputed, (5) accident resulted in death, (6) permanent disability or disfigurement may be involved, and (7) a specific request is made by the Industrial Commission.

SAFETY PROGRAM OPERATIONS

156-4 REV. 8/92

**CITY OF VIRGINIA BEACH
HEALTH HAZARD EXPOSURE FORM**

EMPLOYEE INFORMATION

Name _____ SSN _____
Address _____ Home Phone _____
Dept. _____ Position _____ Work Phone _____

EXPOSURE INFORMATION

Date _____ Case # _____ DR # _____
Location _____

Were you exposed to blood, body fluids, or other potentially infectious materials? No Yes If yes, complete Forms DF 19, DF 75, and DF 159.

Source Individual (Patient, Client, Prisoner, Unknown, etc.) _____
Name _____ Address _____

Disposition of Source Individual (Hospitalized, Incarcerated, etc.) _____

Was Screening of Source Individual Requested? No Yes To Whom Did You Make Request? _____

METHODS OF EXPOSURES

Inhalation Ingestion Absorption Injection Unknown

COMMUNICABLE DISEASE

HIV / AIDS Chickenpox Hepatitis B Herpes Measles Meningitis Mumps
 Syphilis / Gonorrhea Tuberculosis Other _____

HAZARDOUS MATERIALS

Identify _____

LEVEL OF TREATMENT

None At Scene Panel Physician Occupational Health Hospital Public Health Other

PERSONAL PROTECTIVE EQUIPMENT

None Gloves Mask Eye Protection Gown / Apron Respirator / SCBA Turnout Gear

DESCRIPTION OF INCIDENT

Was another employee exposed? No Yes If yes, please complete:

Name _____ Dept. _____ Position _____
Name _____ Dept. _____ Position _____

- FOR MEDICAL USE ONLY -

TEST RESULTS OF SOURCE INDIVIDUAL

Source Unknown Denied Consent
HIV Neg. Pos. Date _____
HBV Neg. Pos. Date _____
Meningitis Neg. Pos. Date _____
TB Neg. Pos. Date _____

COUNSELING

Employee Informed of Results Date _____
Person Performing Counseling _____
Init. _____
 Employee Offered Treatment Date _____
Person Performing Counseling _____
Init. _____
 Employee Informed of Ramifications Date _____
Person Performing Counseling _____
Init. _____
Physician's Name _____
Signature _____

EMPLOYEE TREATMENT

HIV Screening Dates Baseline _____ Neg. Pos.
2nd _____ Neg. Pos.
3rd _____ Neg. Pos.
4th _____ Neg. Pos.
 Hepatitis B Vaccine Dates 1st _____ HB_sAb Date _____
2nd _____ Result _____
3rd _____
Series Completed _____ Booster _____
 Immune Globulin (HBIG) Date _____
 Meningitis Medication _____
Date _____
Tuberculosis
 PPD Date _____ Neg. Pos.
Date _____ Neg. Pos.
 X-Ray Date _____ Neg. Pos.
 INH Date _____
 Other _____

Please Return Completed Form To: HR/Occupational Health, Municipal Center, Virginia Beach, VA 23456-9056

WHITE - OCCUPATIONAL HEALTH

CANARY - ATTENDING PHYSICIAN

PINK - DEPARTMENT

GOLDENROD - EEMPLI

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SAFETY PROGRAM OPERATIONS



ACCIDENT / INCIDENT INVESTIGATION REPORT

Dept.	Division	Vehicle #
Exact Location	On Employer's Premises? Yes <input type="checkbox"/> No <input type="checkbox"/>	Date of Occurrence
		Time AM <input type="checkbox"/> PM <input type="checkbox"/>
		Date Reported

Personal Injury or Illness		Property Damage	
Name		Property Damaged	
Occupation	Part of Body Affected	Estimated Costs \$	Actual Costs \$
Nature of Injury or Illness		Nature of Damage	
Object/Equipment/Substance/Inflicting Injury or Illness		Object/Equipment/Substance/Inflicting Damage	

D E S C R I P T I O N	Describe Clearly What Happened, Including Events Leading Up to Accident/Incident:		
	Did Injured Leave Work?	Date	Time AM <input type="checkbox"/> PM <input type="checkbox"/>
	Did Injured Go to the Doctor?	To Hospital?	
	Name of Physician or Hospital	Expected Date of Return to Work	

A N A L Y S I S	Causes. Describe Unsafe Acts, Conditions or Other Factors That <u>May</u> Have Contributed to the Accident/Incident:		
	For Material Handling Accidents Complete Additional Information on Reverse Side		
	Loss Severity Potential		Probable Recurrence Rate
	High(Major) <input type="checkbox"/> Medium(Serious) <input type="checkbox"/> Low(Minor) <input type="checkbox"/>	High(Frequent) <input type="checkbox"/> Medium(Occasional) <input type="checkbox"/> Low(Rare) <input type="checkbox"/>	

P R E V E N T I O N	What Action Has or Will Be Taken to Prevent Recurrence? (List)		

Supervisor's Signature	Date	Dept. Head's Signature	Date
------------------------	------	------------------------	------

Use Additional Sheets For Further Comments/Description

I. (91DC) A27.

SAFETY PROGRAM OPERATIONS



MATERIAL HANDLING ANALYSIS

1. What was being handled: _____

2. How much did it weigh? _____ 3. Distance of lift/lower? _____

4. Did the employee slip while lifting? Yes _____ No _____

5. Were there any abnormal working conditions at the location of the accident (wet floors, material on floors, etc.)? _____

6. Was the material handled in the standard way? _____

7. How often is this job done? _____

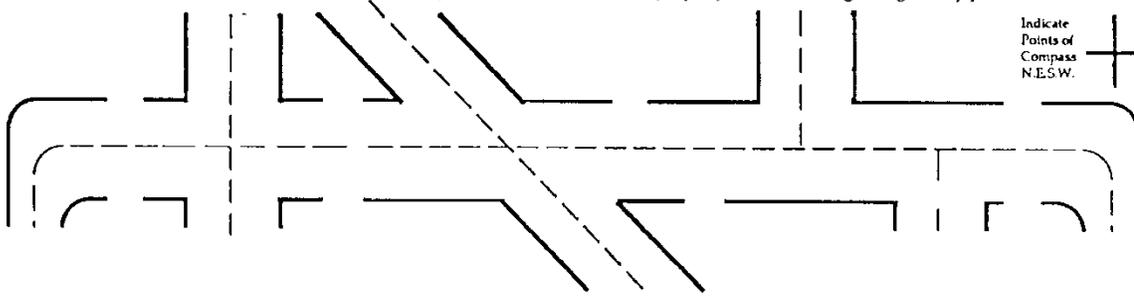
8. Has the employee had previous material handling accidents? Yes _____ No _____ Explain: _____

9. Was accident reported immediately? Yes _____ No _____ If not, why? _____

10. Who was employee working with at time of accident? _____

Automobile Seat Belts	Installed in Vehicle (Check One) Yes <input type="checkbox"/> No <input type="checkbox"/>	Used at Time of Accident (Check One) Yes <input type="checkbox"/> No <input type="checkbox"/>
	Helpful in Minimizing Injuries Including Passengers (Check One) Yes <input type="checkbox"/> No <input type="checkbox"/> Explain: _____	

Complete the following diagram showing direction & positions of automobiles or property involved, designating clearly point of contact.



Instructions: Give Street Names, Directions and Locations of Objects Involved

- (1) Number each vehicle and show direction of travel by arrow → ←
- (2) Use solid line to show path of each vehicle before accident → dotted line after accident . . . →
- (3) Show motorcycle or bicycle by → ○-○ (4) Show pedestrian by → ○ (5) Show railroad by |||||

Safety Committee Comments/ Actions	
---	--

SAFETY PROGRAM OPERATIONS

THE STATE OF NEW HAMPSHIRE

DEPARTMENT OF LABOR

CONCORD, NEW HAMPSHIRE 0330

EMPLOYER'S FIRST REPORT OF INJURY OR OCCUPATIONAL DISEASE

IMPORTANT Every employer shall file this report as soon as possible after knowledge of an occupational injury or disease to one of his employees, but no later than five days thereafter. Notice of disability of four or more days shall be filed no later than ten days after date of injury on Supplemental Report, Form No. 13 WCA. Failure to comply carries an automatic civil penalty of \$25.00. (RSA 281:46)

Name of Injured _____ <small>(First Name) (Middle Initial) (Last Name)</small>		S.S. No. _____	Labor Dept. Use Only
Address No. and St. _____ <small>City or Town</small> _____ State _____ Zip _____		Check (X) Male _____ Female _____ Employee's Telephone No. _____	
Age _____ Is there on file a Child Labor Employment Certificate? _____		Occupation when injured _____ Was this his or her regular occupation? _____ <small>(If not, state in what department or branch of work regularly employed)</small> _____	
Was injured hired in New Hampshire? _____ How long employed by you? _____ Piece or time worker? _____ Wages per hour? _____ No. hours worked per day? _____ Wages per day? _____ No. days work per week? _____ Average weekly earnings \$ _____		Establishment # _____	
If board, lodging, fuel or other advantages were furnished in addition to wages, give estimated value per day, week, or month _____		Employee Name _____	
Date of Injury _____ 19 _____ Day of week _____ Hour of day _____ A.M. _____ P.M. _____		Date disability began _____ 19 _____ A.M. _____ P.M. _____ Was injured paid in full for this day? _____	Date of Accident _____
When did you or foreman first know of injury? _____ Name of Foreman _____		Has Injured Filed Form 8a WCA? _____	
Name of Employer _____		Employer's Identification No. _____ <small>(9-digit number assigned by proper Federal Agency)</small>	Type of Business _____
Office address: No. and St. _____ City or Town _____ State _____		Principal business function in N.H. _____	Job Code _____
Insurance Company COMPENSATION FUNDS OF NH, 722 STATE ROUTE 3A, UNIT 1, BOW, NH 03304-4010		Location of plant or place where accident occurred _____	Injury Code _____
State if employer's premises _____		Machine, tool, or thing causing injury _____ Kind of power (hand, foot, electrical, steam, etc.) _____ Part of machine on which accident occurred? _____	Type Claim _____
Was safety appliance or regulation provided? _____ Was it in use at the time? _____		Was accident caused by injured's failure to use or observe safety appliance or regulation? _____	
Describe fully how accident occurred and state what employee was doing when injured _____			Sex _____
Names and addresses of witnesses _____			Age _____
Nature and location of injury _____			Ins. Co No _____
Probable length of disability? _____			
Has injured returned to work? _____ if so, what date and hour? _____ At what wage? \$ _____			Follow-up Date _____
At what occupation? _____ Name and address of physician _____ Name and address of hospital _____			Reason _____
Has injured died? _____ If so, give date of death _____ <small>(In event of fatal injury supplemental report must be filed)</small>			Fiscal Year _____
Date of this report _____		Employer's Tel. No. _____	
Employer's signature _____ <small>(Sign with pen and ink)</small>		Official Title _____	
When report sent by Insurance Agency state name _____			

Form 8-WC (4-74)

White - Labor Department Canary - Insurance Claims Office Pink - Employer

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INCIDENT EXPOSURE RECORD

NAME _____

DATE OF BIRTH _____ SOCIAL SECURITY NUMBER _____

INCIDENT NUMBER _____ INCIDENT DATE _____

OFFICER IN CHARGE _____

LOCATION OF INCIDENT _____

DESCRIPTION OF INCIDENT _____

TYPE OF EXPOSURE: INHALATION _____

DIRECT CONTACT _____

INGESTION _____

MATERIALS EXPOSED TO _____

TYPE OF DECONTAMINATION _____

LENGTH OF EXPOSURE (TIME) _____

SYMPTOMS (IF ANY) _____

TREATMENT AT SCENE _____

TREATMENT BY MEDICAL FACILITY _____

PROTECTIVE CLOTHING USED DURING INCIDENT (LIST) _____

ADDITIONAL INFORMATION

FIREFIGHTER/EMS SIGNATURE _____ DATE _____

CHIEF'S SIGNATURE _____ DATE _____

(OVER)



**Volunteer Firemen's
Insurance Services, Inc.[®]**
... A SUBSIDIARY OF THE GLATFELTER INSURANCE GROUP

PERSONAL INJURY/ILLNESS INVESTIGATION REPORT

Emergency Service Organization _____ Date _____

Address _____

Name of Injured _____ Date of Birth _____

Address of Injured _____

Phone() _____ Age _____ Sex _____ Height _____ Weight _____

Occupation _____ Job Title _____

Social Security Number _____ Years with Dept. _____

Date of Injury _____ Time of Injury _____

Date Reported _____ Time Reported _____

Accident Reported To _____

Nature of Injury

- | | | |
|---|--|---|
| <input type="checkbox"/> Fractures | <input type="checkbox"/> Multiple Injury | <input type="checkbox"/> Heat Exhaustion, Fatigue |
| <input type="checkbox"/> Inflammation | <input type="checkbox"/> Recurrence | <input type="checkbox"/> Abrasions, Contusions, Bruises |
| <input type="checkbox"/> Infectious Disease | <input type="checkbox"/> Strain, Sprain, Torn Ligament | <input type="checkbox"/> Heart Malfunction |
| <input type="checkbox"/> Frostbite, Cold Exposure | <input type="checkbox"/> Cuts, Lacerations, Punctures | <input type="checkbox"/> Eye Injury |
| <input type="checkbox"/> Pinched Nerve, Ruptured Disk | <input type="checkbox"/> Inhalation, Fumes | <input type="checkbox"/> Burns |
| <input type="checkbox"/> Electric Shock | <input type="checkbox"/> Inhalation, Smoke | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Chemical Injury | | |

Parts of Body Affected

- | | | |
|---|----------------------------------|--------------------------------------|
| <input type="checkbox"/> Multiple Parts | <input type="checkbox"/> Abdomen | <input type="checkbox"/> Knee(s) |
| <input type="checkbox"/> Head | <input type="checkbox"/> Back | <input type="checkbox"/> Ankle(s) |
| <input type="checkbox"/> Eye(s) | <input type="checkbox"/> Heart | <input type="checkbox"/> Foot/Feet |
| <input type="checkbox"/> Ear(s) | <input type="checkbox"/> Groin | <input type="checkbox"/> Ribs |
| <input type="checkbox"/> Neck | <input type="checkbox"/> Arm | <input type="checkbox"/> Hip |
| <input type="checkbox"/> Shoulder | <input type="checkbox"/> Hand | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Chest | <input type="checkbox"/> Finger | |
| <input type="checkbox"/> Lungs | <input type="checkbox"/> Leg(s) | |

Where Injury Occurred

- | | | |
|---|--|--|
| <input type="checkbox"/> Station Maintenance | <input type="checkbox"/> Fundraising | <input type="checkbox"/> Standing By Station for Call |
| <input type="checkbox"/> Apparatus Maintenance | <input type="checkbox"/> Convention | <input type="checkbox"/> Training |
| <input type="checkbox"/> Emergency Scene | <input type="checkbox"/> Emergency Vehicle to Emergency | <input type="checkbox"/> Auxiliary Services |
| <input type="checkbox"/> Private Auto to Emergency | <input type="checkbox"/> Emergency Vehicle Non-Emergency | <input type="checkbox"/> Responding/Returning to Emeg. (Non-Vehicle) |
| <input type="checkbox"/> Private Auto Non-Emergency | <input type="checkbox"/> Parades, Picnics, Contests | <input type="checkbox"/> Other _____ |

Cause of Injury

- | | | |
|---|--|---|
| <input type="checkbox"/> Fall | <input type="checkbox"/> Improper Lifting | <input type="checkbox"/> Inadequate Illumination |
| <input type="checkbox"/> Weather | <input type="checkbox"/> Horseplay | <input type="checkbox"/> Inadequate Ventilation |
| <input type="checkbox"/> Making Safety Devices Inoperative | <input type="checkbox"/> Structural Collapse | <input type="checkbox"/> Lack of Knowledge or Skill |
| <input type="checkbox"/> Using Defective Equipment | <input type="checkbox"/> Inadequate Guards or Protection | <input type="checkbox"/> Irrational Civilian |
| <input type="checkbox"/> Using Equipment Improperly | <input type="checkbox"/> Back Draft | <input type="checkbox"/> Communication |
| <input type="checkbox"/> Failure to Use Personal Protection Equipment | <input type="checkbox"/> Improper Placement | <input type="checkbox"/> Abuse or Misuse |
| <input type="checkbox"/> Struck by Object | <input type="checkbox"/> Civil Disturbance | <input type="checkbox"/> Other _____ |

Injury Occurred — Performing What Task?

- | | | |
|--|--|--|
| <input type="checkbox"/> Forcible Entry | <input type="checkbox"/> Overhauling | <input type="checkbox"/> Rescue Operation |
| <input type="checkbox"/> Using Ladders | <input type="checkbox"/> Salvage | <input type="checkbox"/> Administering Medical Aid |
| <input type="checkbox"/> Advancing/Directing Hose Line | <input type="checkbox"/> Servicing/Repairing Equipment | <input type="checkbox"/> Physical Fitness |
| <input type="checkbox"/> Ventilating | <input type="checkbox"/> Extrication | <input type="checkbox"/> Other _____ |

Witness(es) to Injury: _____

Injured Person's Signature _____ Date _____

INVESTIGATION REPORT

Thoroughly describe accident: (What, How, Where, Equipment, Activity, etc.) _____

Hospitalized or Treated, Where? (Include Address) _____

Name and Address of Physician: (Include Referral) _____

Did the injury require individual to perform limited duties, or to be assigned to other duties or positions? YES or NO If yes, what duties or position? _____

And, what period of time? _____

Investigated by _____ Title _____ Date _____

SAFETY OFFICER'S REPORT:

What Acts, Failures to Act And/Or Conditions Contributed Most Directly to This Accident? (Immediate Cause)

What Are The Basic or Fundamental Reasons for the Existence of These Acts And/Or Conditions? (Fundamental Cause)

What Action Has or Will Be Taken to Prevent Recurrence? Place "X" By Items Completed

Reviewed by Safety Officer _____ Title _____ Date _____

POST INCIDENT ANALYSIS

DEFINITION

Post Incident Analysis (PIA) is the reconstruction of an incident to assess the chain of events that took place the methods used to control the incident and how the actions of emergency personnel contributed to the eventual outcome.

PURPOSE

The main purpose of the PIA is to reinforce personnel actions and departmental procedures that are effective and to give management insight into how effectiveness of the department's operations can be improved.

BENEFITS

- Provides a comprehensive analytical record of an incident from which to evaluate departmental procedures.
- Assessment of response times and company response areas under actual conditions.
- Assessment of the effects of additional equipment/manpower requests on over-all city wide protection and the effectiveness of back-fill procedures.
- Assessment of tools and equipment.
- Assessment of safety practices and related procedures.
- Assessment of training needs for department personnel.
- Assessment of the department's working relationship with outside agencies and other city departments.

PROCESS

- A formal PIA will be conducted for all incidents requiring additional heavy fire apparatus (pumpers and ladders) beyond a level of three pumpers and one ladder. A PIA may be requested of the first arriving units in the event of a fatality at the incident scene. An informal PIA can be conducted for any other incident at the discretion of the Incident Commander.
- A formal PIA process will be initiated by the Incident Commander.
- All incident commanders, company officers and non-fire department sector officers participating at the incident will complete a PIA fact sheet. These sheets are to be completed as soon as possible after the incident and submitted to the officer initiating the PIA process.
- Once all PIA fact sheets have been received and reviewed, the PIA will be scheduled and the participants notified in writing.
- The Incident Commander will lead the PIA following the structure of the PIA summary sheet. One person must be designated as the recorder to complete the summary sheet. Discussion should include those areas on the summary sheet but may extend beyond at the discretion of the PIA leader or as the incident dictates.
- The fact sheets and the summary sheet will not be public documents. They will be internal worksheets for investigative information and department evaluation. The fact sheets are NOT to be attached to fire reports nor should any reference be made to the fact sheet on the fire report.

POST INCIDENT ANALYSIS

SUMMARY

DATE _____	TIME OF ALARM _____
ADDRESS _____	
TYPE OF INCIDENT _____	

SITUATION UPON ARRIVAL OF FIRST UNITS: (INCLUDE A BRIEF DESCRIPTION OF THE SITUATION ENCOUNTERED BY THE FIRST UNIT(S) ARRIVING ON THE SCENE. THE TYPE OF UNITS AND MANPOWER ON UNITS SHOULD BE LISTED.)

FINAL OUTCOME OF INCIDENT: (LIST EXTENT OF DAMAGE AND CASUALTIES. ALSO INCLUDE DAMAGE TO FIRE EQUIPMENT AND EMERGENCY PERSONNEL CASUALTIES.)

EQUIPMENT COMMITTED TO INCIDENT: (LIST MANPOWER AND UNITS COMMITTED TO THE INCIDENT. INCLUDE PARTICIPATING VOLUNTEERS AND PAID OFF DUTY PERSONNEL THAT RESPONDED IN PRIVATE AUTOMOBILES.)

EQUIPMENT AND MANPOWER NOT COMMITTED TO THE INCIDENT: (LIST THE STATIONS LEFT EMPTY AND THOSE STATIONS BACKFILLED BY WHAT APPARATUS.)

STRATEGY: (LIST THE INCIDENT COMMAND STRATEGIES CHOSEN. INCIDENT COMMANDERS SHOULD DESCRIBE THEIR BASIC PLAN TO ADDRESS THE PRIORITIES OF THE INCIDENT AT THE TIME THEY BECAME THE INCIDENT COMMANDER.)

FIRST IN UNIT(S):

A. GENERAL STRATEGY

B. RESULTS

FIRST INCIDENT COMMANDER (NAME):

A. GENERAL STRATEGY

B. RESULTS

SECOND INCIDENT COMMANDER (NAME):

A. GENERAL STRATEGY

B. RESULTS

THIRD INCIDENT COMMANDER (NAME):
A. GENERAL STRATEGY
B. RESULTS
COMMON OBSTACLES (LIST THOSE PROBLEMS ENCOUNTERED BY MORE THAN ONE CREW OR IC THAT MAY INDICATE A NEED TO REVIEW DEPARTMENT PROCEDURES OR TRAINING.)
RECOMMENDATIONS (LIST ANY RECOMMENDATIONS FOR CORRECTION OR REDUCTION OF THESE OBSTACLES.)
WHAT OPERATIONS WORKED WELL? WHY? (LOOK AT STRATEGIES AND RESULTS, NOT ONLY AT THE IC LEVEL BUT AT THE SECTOR LEVEL IF APPROPRIATE. THAT HELPS REINFORCE PROCEDURES/TACTICS THAT WERE SUCCESSFUL SO THEY MAY BE APPLIED TO SIMILAR SITUATIONS IN THE FUTURE.)

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FIRE SERVICE CASUALTY MODULE (NFIRS-5)

Fire Service Casualty Module is used to report injuries or fatalities to fire fighters that occur as a result of an incident.

A-IDENTIFICATION

FDID	Enter your Fire Department Identifier, as assigned by your state. Required for all incidents.
State	Enter your two character alphabetic abbreviation for the state where the fire department is located. See Appendix for a list. Required for all incidents.
Incident Date	Enter the date that the department received the incident alarm. Required for all incidents.
Station Number	Leave blank if you have only one firehouse or station in your department. Otherwise, assign station numbers to identify each firehouse. The FD should decide which station number to enter (i.e. first arriving unit, station's area, etc.) Local Option.
Incident Number	Enter a unique incident number for each incident. The number may be centrally assigned by dispatch or may be created by your department. <i>All resource data will be aggregated across stations for incidents that have the same Incident Number.</i> Required for all incidents.
Exposure	Enter 000 for the main incident and start numbering exposures sequentially, starting with 001. Required for all incidents.
Delete	Check this box to indicate that a fire fighter casualty report has been previously submitted and you now want to delete all data associated with that casualty record from the database. If you check this box, complete Section A, the casualty number assigned to this person (Section C) and leave the rest of the report blank. Required only when deleting all information associated with a fire service casualty from the database. Section A must always be completed for a delete transaction.
Change	Check this box to indicate a fire fighter casualty report has been previously submitted and you now want to update or change the information in the database for that fire fighter casualty. If you check this box, complete Section A, the casualty number assigned to the person (Section C) and the data elements that are to be updated or changed for this module. Required only when updating a fire fighter casualty report. Section A must always be completed for a change transaction.

B-INJURED PERSON

- Injured Person** Enter the full name of the injured person. Names should be clearly printed or typed.
- Identification Number** In the spaces provided, enter the casualty's identification number. It is often the individual's social security number.
- Gender** Check one box to indicate the gender of the injured person. **Required.**
- 1 Male
 - 2 Female
- Affiliation** Check one box to indicate the affiliation of the fire service casualty at the time of injury.
- 1 Career
 - 2 Volunteer

C-CASUALTY NUMBER

- Casualty Number** Enter the casualty number assigned to this casualty. The first fire service casualty for each incident is always 001, the second casualty is 002, etc. **Required.**

D-AGE OR DATE OF BIRTH

- Age** Enter the firefighter's age. **Age or Date of Birth is Required.**
- Date of Birth** Enter the date of birth including the month, day, and year. The year should be in 4-digit format.

E-DATE & TIME OF INJURY

- Date of Injury** Enter the month, day, and four-digit year when the injury occurred. **Required.**
- Time of Injury** Enter the time when the injury occurred using the 24-hour clock, i.e., 0000-2359. **Required.**

F-RESPONSES

- Responses** Enter the number of incidents responded to by the firefighter in the immediate 24 hour period prior to the time of injury. Do not count the incident at which the injury occurred.

G1-USUAL ASSIGNMENT

Usual Assignment Check one box to indicate the **usual** duty assignment of the injured firefighter.

- 1 Suppression
- 2 EMS
- 3 Prevention
- 4 Training
- 5 Maintenance
- 6 Communications
- 7 Administration
- 8 Fire Investigation
- 0 Other assignment

G2-PHYSICAL CONDITION JUST PRIOR TO INJURY

Physical Condition Just Prior To Injury Check one box to indicate the injured person's physical condition just prior to the injury. **Required.**

- 1 Rested
- 2 Fatigued
- 4 Ill or injured
- 0 Other physical condition just prior to injury
- U Undetermined physical condition just prior to injury

G3-SEVERITY

Severity Check one box to indicate the severity of the injury.

- 1 Report only, including exposure
- 2 First aid only
- 3 Treated by physician, not a lost-time injury
- 4 Lost time injury, moderate severity
- 5 Lost time injury, severe
- 6 Lost time injury, life threatening
- 7 Death

G4-TAKEN TO

Taken To Check the box that best describes where the fire service casualty was taken regardless of who transported the firefighter or whether the firefighter was transported.

- 1 Hospital
- 4 Doctor's office
- 5 Morgue/funeral home
- 6 Residence
- 7 Station or quarters
- 0 Other
- N Not transported

FIRE SERVICE CASUALTY MODULE

- | | | | |
|-----------|---------------------|-----------|---|
| 94 | Administrative work | 00 | Other activity at time of injury |
| 95 | Communications work | UU | Undetermined activity at time of injury |

H1-PRIMARY APPARENT SYMPTOM

Primary Apparent Symptom Enter the code and written description of the casualty's most serious apparent injury.

Primary Apparent Symptom Codes

- | | | | |
|-----------|---|-----------|---|
| 01 | Smoke inhalation | 57 | Frostbite |
| 02 | Hazardous fumes inhalation | 50 | Sickness, other |
| 03 | Breathing difficulty or shortness of breath | 61 | Miscarriage |
| 11 | Burns and smoke inhalation | 63 | Eye trauma, avulsion |
| 12 | Burns only: thermal | 64 | Drowning |
| 13 | Burn: scald | 65 | Foreign body obstruction |
| 14 | Burn: chemical | 66 | Electric shock |
| 15 | Burn: electric | 67 | Poison |
| 21 | Cut or laceration | 71 | Convulsion or seizure |
| 22 | Stab wound/puncture wound: penetrating | 72 | Internal trauma |
| 23 | Gunshot wound; projectile wound | 73 | Hemorrhaging, bleeding internally |
| 24 | Contusion/bruise: minor trauma | 81 | Disorientation |
| 25 | Abrasion | 82 | Dizziness/fainting/weakness |
| 31 | Dislocation | 83 | Exhaustion/fatigue, including heat exhaustion |
| 32 | Fracture | 84 | Heat stroke |
| 33 | Strain or sprain | 85 | Dehydration |
| 34 | Swelling | 91 | Allergic reaction, including anaphylactic shock |
| 35 | Crushing | 92 | Drug overdose |
| 36 | Amputation | 93 | Alcohol impairment |
| 41 | Cardiac symptoms | 94 | Emotional/psychological stress |
| 42 | Cardiac arrest | 95 | Mental disorder |
| 43 | Stroke | 96 | Shock |
| 44 | Respiratory arrest | 97 | Unconscious |
| 51 | Chills | 98 | Pain only |
| 52 | Fever | 00 | Other primary apparent symptom |
| 53 | Nausea | NN | No primary apparent symptom |
| 54 | Vomiting | UU | Undetermined primary apparent symptom |
| 55 | Numbness or tingling, paresthesia | | |
| 56 | Paralysis | | |

H2-PRIMARY AREA OF BODY INJURED

Primary Area of Body Injured Enter the code and a written description of the part of the body that was most seriously injured. It should be the part of the body affected by the "Primary Apparent Symptom."

Primary Area of Body Injured Codes

	Head		64	Wrist
11	Ear		65	Hand and fingers
12	Eye		60	Upper extremities, other
13	Nose			
14	Mouth included are lips, teeth and interior			Lower extremities
10	Head, other		71	Leg-upper
			72	Leg-lower
			73	Knee
	Neck & Shoulders		74	Ankle
21	Neck		75	Foot and toes
22	Throat		70	Lower extremities, other
23	Shoulder			
				Internal
	Thorax		81	Trachea and lungs
31	Back, except spine		82	Heart
32	Chest		83	Stomach
30	Thorax, other		84	Intestinal tract
			85	Genito-urinary
			80	Internal, other
	Abdominal area			
41	Abdomen			Multiple parts
42	Pelvis or groin		91	Multiple body parts – upper part of body
43	Hip, lower back or buttocks		92	Multiple body parts – lower part of body
			93	Multiple body parts – whole body
	Spine			
51	Spine			Other Body Parts
	Upper extremities		00	Other body part
61	Arm-upper, not including elbow or shoulder		NN	No body part
62	Arm-lower, not including elbow or wrist		UU	Part of body undetermined
63	Elbow			

I1-CAUSE OF FIREFIGHTER INJURY

Cause of Firefighter Injury Enter the code and written description for the immediate cause or condition responsible for the injury.

- 1 Fall
- 2 Jump
- 3 Slip/trip
- 4 Exposure to hazard
- 5 Struck or assaulted by person/animal/object
- 6 Contact with object (firefighter moved into/onto)
- 7 Overexertion/strain
- 0 Other cause of injury
- U Undetermined cause of injury

I2-FACTOR CONTRIBUTING TO INJURY

Factor Contributing to Injury Enter the code and written description of the most significant factor contributing to the injury.

Factor Contributing to Injury Codes

	Collapse or Falling Object	43	Hole burned through floor
11	Roof collapse	40	Holes, other
12	Wall collapse		
13	Floor collapse		
14	Ceiling collapse	51	Slippery or Uneven Surfaces Icy surface
15	Stair collapse	52	Wet surface, included are water/soap/foam, etc.
16	Falling objects	53	Loose material on surface
17	Cave-in (earth)	54	Uneven surface, included are holes in the ground
10	Collapse or falling object, other	50	Slippery or uneven surfaces, other
	Fire Development		
21	Fire progress, including smoky conditions	61	Vehicle or Apparatus Vehicle left road or overturned
22	Backdraft	62	Vehicle collided with another vehicle
23	Flashover	63	Vehicle collided with non-vehicular object
24	Explosion	64	Vehicle stopped too fast
20	Fire development, other	65	Seat belt not fastened
	Lost, Caught, Trapped, Confined	66	Firefighter standing on apparatus
31	Person physically caught or trapped	60	Vehicle or apparatus, other
32	Lost in building		
33	Operating in confined structural areas		
34	Operating under water or ice	91	Other Contributing Factors Civil unrest, including riots/civil disturbances
30	Lost, caught, trapped, or confined, other	92	Hostile acts
	Holes	00	Other contributing factors
41	Unguarded hole in structure	NN	No contributing factor
42	Hole burned through roof	UU	Undetermined contributing factor

I3-OBJECT INVOLVED IN INJURY

Object Involved in Injury Enter the code and written description of the object involved in the injury.

Object Involved in Injury Codes

11	Coupling	21	Ladder: aerial
12	Hose, not charged	22	Ladder: ground
13	Hose, charged	23	Tools/equipment
14	Water from master stream	24	Knife, scissors
15	Water from hose line	25	Syringe
16	Water, not from a hose	26	FD Vehicle/apparatus
17	Steam	27	FD Vehicle door, including apparatus compartments
18	Extinguishing agent	28	Station sliding pole

31	Curb
32	Door in building
33	Fire escape
34	Ledge
35	Stairs
36	Wall, including other vertical surfaces
37	Window
38	Roof
39	Floor or ceiling
30	Structural component, other
41	Asbestos
42	Dirt, stones, or debris
43	Glass
45	Nails
46	Splinters
47	Embers
48	Hot tar
49	Hot metal
51	Biological agents
52	Chemicals
53	Fumes, gases, or smoke
54	Poisonous plants
55	Insects
56	Radioactive materials
61	Electricity
62	Extreme weather
63	Utility flames, flares, torches
64	Heat or flame
91	Person: victim
92	Property and structure contents
93	Animal
94	Vehicle: not FD
95	Gun, including all other projectile weapons
90	Person, other
00	Other object involved
NN	No object involved
UU	Undetermined object involved

J1-WHERE INJURY OCCURRED

Where Injury Occurred Check one box that best describes where the injury occurred. Blank defaults to undetermined.

- 1 Enroute to FD location
- 2 At FD location
- 3 Enroute to incident scene
- 4 Enroute to medical facility
- 5 At scene in structure
- 6 At scene outside
- 7 At medical facility
- 8 Returning from incident
- 9 Returning from medical facility
- 0 Other location where injury occurred
- U Undetermined location where injury occurred

J2-STORY WHERE INJURY OCCURRED

Story Where Injury Occurred If the injury occurred inside or on a structure, check the box and enter the story where the injury occurred. If the story is below grade, check the "Below grade" box. If the injury occurred outside, check the box to indicate that.

- 1 Inside/on structure
- 2 Outside of structure

J3-SPECIFIC LOCATION

Specific Location Check the box that best describes the specific location at time of injury. If any code greater than 60 is checked, continue on to J4.

- | | | | |
|----|------------------------------------|----|--|
| 22 | Outside at grade | 36 | In water |
| 23 | On roof | 45 | In attic or other confined structural space |
| 24 | On aerial ladder or in basket | 49 | In structure, excluding attic, roof, or wall |
| 25 | On ground ladder | 53 | In tunnel |
| 26 | On vertical surface or ledge | 54 | In sewer |
| 27 | On fire escape or outside stairway | 61 | In motor vehicle |
| 28 | On steep grade | 63 | In rail vehicle |
| 31 | In open pit | 64 | In boat, ship or barge |
| 32 | In ditch or trench | 65 | In aircraft |
| 33 | In quarry or mine | 00 | Other specific location |
| 34 | In ravine | NN | No specific location |
| 35 | In well | UU | Undetermined specific location |

J4-VEHICLE TYPE

Vehicle Type Check the box that best describes the vehicle type. None indicates the specific location was coded with a number less than 60.

- 1** Suppression vehicle
- 2** EMS vehicle
- 3** Other fire department vehicle
- 4** Non-fire department vehicle, includes private auto
- N** None or vehicle type not applicable

K-PROTECTIVE EQUIPMENT

Complete Section K only if protective equipment failed and was a factor in the injury.

K1- PROTECTIVE EQUIPMENT FAILURE

Protective Equipment failure If the protective equipment failed and contributed to the injury, check the "Yes" box and complete the remainder of Section K. If the protective equipment did not fail or the failure did not contribute to the injury, check the "No" box and leave the remainder of Section K blank.

Equipment Failed?
Y Yes
N No

Equipment Sequence Number Enter 001 for the first item of equipment that failed. If more than one item of protective equipment failed, complete an additional Section K sheet for each additional item. Give each sheet a subsequent equipment sequence number and attach the additional sheet(s) to the original fire fighter casualty report.

K2-PROTECTIVE EQUIPMENT ITEM

Protective Equipment Item Check one box to indicate the type of protective equipment involved. If more than one item was a factor in the injury, use additional sheets.

Protective Equipment Item Codes

- | | | | |
|-----------|--------------------------------|-----------|---|
| | Head or Face Protection | 22 | Protective trousers |
| 11 | Helmet | 23 | Uniform shirt |
| 12 | Full face protector | 24 | Uniform T-shirt |
| 13 | Partial face protector | 25 | Uniform trousers |
| 14 | Goggles/eye protection | 26 | Uniform coat or jacket |
| 15 | Hood | 27 | Coveralls |
| 16 | Ear protector | 28 | Apron or gown |
| 17 | Neck protector | 20 | Coat, shirt or trousers, other |
| 10 | Head or face protection, other | | |
| | Coat, Shirt or Trousers | 31 | Boots or Shoes |
| 21 | Protective coat | | Knee length boots w/ steel baseplate & steel toes |

FIRE SERVICE CASUALTY MODULE

32	Knee length boots with steel toes only	50	Hand protection, other
33	3/4 length boots w/ steel baseplate & steel toes		Special Equipment
34	3/4 length boots with steel toes only	61	Proximity suit for entry
35	Boots without steel baseplate or steel toes	62	Proximity suit for non-entry
36	Safety shoes with steel baseplate and steel toes	63	Totally encapsulated, reusable chemical suit
37	Safety shoes with steel toes only	64	Totally encapsulated, disposable chemical suit
38	Non-safety shoes	65	Partially encapsulated, reusable chemical suit
30	Boots or shoes, other	66	Partially encapsulated, disposable chemical suit
	Respiratory Protection	67	Flash protection suit
41	Self-contained breathing apparatus (SCBA) demand	68	Flight or jump suit
42	Self-contained breathing apparatus (SCBA) positive	69	Brush suit
43	Self-contained breathing apparatus (SCBA) closed		Special Equipment Continued
44	Non-self-contained breathing apparatus	71	Exposure suit
45	Cartridge respirator	72	Self-Contained Underwater Breathing Apparatus(SCUBA)
46	Dust or particle mask	73	Life preserver
40	Respiratory protection, other	74	Life belt or ladder belt
	Hand Protection	75	Personal alert safety system (PASS)
51	Firefighter gloves with wristlets	76	Radio distress device
52	Firefighter gloves without wristlets	77	Personal lighting
53	Work gloves	78	Fire shelter or tent
54	HazMat gloves	79	Vehicle safety belt
55	Medical gloves	70	Special equipment, other
		00	Other protective equipment item

K3-PROTECTIVE EQUIPMENT PROBLEM

Protective Equipment Problem Check the box that best describes the protective equipment problem.

Protective Equipment Problem Codes

11	Burned	44	Harness detached or separated
12	Melted	45	Regulator failed to operate
21	Fractured, cracked or broke	46	Regulator damaged by contact
22	Punctured	47	Problem with admissions valve
23	Scratched	48	Alarm failed to operate
24	Knocked off	49	Alarm damaged by contact
25	Cut or ripped	51	Supply cylinder or valve failed to operate
31	Trapped steam or hazardous gas	52	Supply cylinder or valve damaged by contact
32	Insufficient insulation	53	Supply cylinder contained insufficient air
33	Object fell in or onto equipment item	94	Did not fit properly
41	Failed under impact	95	Not properly serviced or stored prior
42	Face piece or hose detached		
43	Exhalation valve inoperative or damaged		

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APPENDIX D

PUBLIC SAFETY OFFICERS' BENEFITS PROGRAM FACT SHEET

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U.S. Department of Justice
Office of Justice Programs
Bureau of Justice Assistance



BJA Fact Sheet

FS 000359 • REVISED APRIL 2011

BUREAU OF JUSTICE ASSISTANCE • OFFICE OF JUSTICE PROGRAMS

JAMES H. BURCH, II, ACTING DIRECTOR

Public Safety Officers' Benefits Program

By Hope D. Janke, PSOB Director

Enacted in 1976, the Public Safety Officers' Benefits (PSOB) Program:

- Assists in the recruitment and retention of qualified public safety officers.
- Establishes the value communities place on contributions from those who are willing to serve their communities in dangerous circumstances.
- Offers peace of mind to men and women who are seeking careers in public safety.

A unique partnership effort of the U.S. Department of Justice; local, state, and federal public safety agencies; and national organizations, the PSOB Program provides death and education benefits to survivors of fallen law enforcement officers, firefighters, and other first responders, as well as disability benefits to officers catastrophically injured in the line of duty.

The PSOB Office is responsible for reviewing nearly 700 death, disability, and education claims submitted annually. The PSOB Office also collaborates with national firefighter, law enforcement, and first responder groups to provide a wide range of PSOB training and technical assistance resources, through conferences, seminars, and printed materials such as the *PSOB Information Kit*, to offer vital information and support to survivors and agencies of America's fallen public safety officers.

PSOB Benefits

Death

PSOB provides a one-time benefit to eligible survivors of public safety officers whose deaths were the direct and proximate result of an injury sustained in the line of duty on or after September 29, 1976. For the current death benefit amount, visit the PSOB web site at www.psob.gov.

Disability

PSOB provides a one-time benefit to eligible public safety officers who were permanently and totally disabled as a result of a catastrophic injury sustained in the line of duty on or after November 29, 1990. Injuries must permanently prevent officers from performing any gainful work in the future. For the current disability benefit amount, visit www.psob.gov.

Education

PSOB provides support for higher education to eligible spouses and children of public safety officers who died in the line of duty or were catastrophically disabled in the line of duty. For current details regarding educational assistance, visit www.psob.gov.

MESSAGE FROM THE DIRECTOR

Across the country, dedicated public safety officers watch over our neighborhoods and work to make our communities safer. As Director, I respect these officers' devotion and their willingness to place themselves in danger to protect our nation's citizens. We owe officers—and their families—a tremendous debt of gratitude. And when tragedy strikes, our focus must be on helping the survivors and the public safety agencies.

To that end, the Bureau of Justice Assistance (BJA) and the Office of Justice Programs (OJP) are moving forward with enhancements to the Public Safety Officers' Benefits Office and Program to better serve our public safety officers, their families, and their agencies. In just the past several months, key steps have been taken to ensure that the PSOB Program has sufficient resources so that survivors will receive the highest quality service

continued on p. 2

KEY POINTS

- The Public Safety Officers' Benefits (PSOB) Program serves the broader public safety community—law enforcement, firefighter, and other first responder survivors and disabled public safety officers.
- PSOB provides no-cost support to public safety agencies including training and technical assistance in responding to line-of-duty deaths.

continued on p. 2

MESSAGE (cont.)

available and the PSOB Office staff can work efficiently and effectively to provide grieving families with the benefits they so greatly deserve and coworkers with caring and helpful assistance when filing claims on behalf of their fallen colleagues.

Without question, **"PSOB Cares,"** and BJA and OJP remain committed to providing survivors and law enforcement, firefighter, and other first responder agencies with the information and support needed throughout the claim process.

Hometown Heroes

On December 15, 2003, the Hometown Heroes Survivors Benefits Act expanded the circumstances under which public safety officer deaths resulting from heart attacks and strokes may be covered by the program.

- The Hometown Heroes Act establishes a statutory presumption that public safety officers who die from a heart attack or stroke following a nonroutine stressful or strenuous physical public safety activity or training, died in the line of duty for benefit purposes.
- The Hometown Heroes presumption may be overcome by "competent medical evidence to the contrary."
- The Hometown Heroes Act excludes actions of a "clerical, administrative, or nonmanual nature" from consideration.
- The regulations governing the Hometown Heroes Survivors Benefits Act, as well as the entire PSOB Program, were finalized September 11, 2006.

KEY POINTS (cont.)

- PSOB is implemented by the U.S. Department of Justice's Bureau of Justice Assistance, an agency dedicated to supporting state and local public safety agency needs and committed to serving these agencies and their families, while respecting and honoring their sacrifices.
- Tools and checklists are available to assist agencies and survivors with submitting claims and ensuring a timely claim review and decision.
- The Hometown Heroes Survivors Benefits Act expanded program coverage to include certain heart attack and stroke circumstances.

For more information, visit www.psob.gov.

CONTACT US

Public Safety Officers' Benefits Office
 Bureau of Justice Assistance
 Office of Justice Programs
 810 Seventh Street NW
 Fourth Floor
 Washington, DC 20531
 Phone: 202-307-0635
 Toll-free: 1-888-744-6513
 E-mail: AskPSOB@usdoj.gov
 PSOB web site: www.psob.gov



CHECKLIST FOR FILING A PSOB DEATH CLAIM

The following checklist is provided to streamline the PSOB filing process for you and the fallen officer's survivors. Please do not hesitate to call the PSOB Office toll free at 1-888-744-6513 for assistance with any part of the PSOB claim.

Step 1: Collect the following information regarding the officer's line-of-duty death from your agency records.

- PSOB Report of Public Safety Officer's Death form completed and signed by the head of the public safety agency or designee.
- Detailed Statement of Circumstances from the initiation of the incident to the pronouncement of the officer's death.
- Investigation, Incident, and Accident Reports, if any.
- Death Certificate.
- Autopsy, Toxicology Report, or a statement signed by the head of the public safety agency or designee explaining that none were performed.
- For claims involving heart attacks and strokes, please refer to the Hometown Heroes Checklist, available at www.psob.gov.

Step 2: Collect the following information regarding the officer's survivors/beneficiaries.

- PSOB Claim for Death Benefits form completed and signed by the survivor/claimant.
- Officer's current Marriage Certificate, if applicable.
- Divorce Decrees for the officer's and current spouse's previous marriages, including references to physical custody of any children, if applicable.
- Death Certificates for the officer's and current spouse's previous spouses, if any of the marriages ended in death, if applicable.
- Birth Certificates for all the officer's surviving children and step-children, regardless of age or dependency, identifying the children's parents, if applicable. For further details on this requirement, please go to www.psob.gov.

Please e-mail (preferred), fax, or mail the above information to the PSOB Office, keeping a complete copy for your records.

APPENDIX E

SUGGESTED GUIDANCE FOR SUPERVISORS AT DISASTER RESCUE SITES

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SUGGESTED GUIDANCE FOR SUPERVISORS AT DISASTER RESCUE SITES

THE CHALLENGE

Disaster sites pose a multitude of health and safety concerns. The hazards and exposures are a function of the unstable nature of the site, the potential of hazardous substances being present and the type of work being performed. An accurate assessment of all hazards may not be possible because they may not be immediately obvious or identifiable. Rescue personnel may be selecting protective measures based on limited information. In addition to the hazards of direct exposure, workers are also subject to dangers posed by the unstable physical environment, the stress of working in protective clothing, and the emotional trauma of the situation.

Essential Elements of a Work Plan

- Develop and periodically re-examine and update work plan as new information about site conditions is obtained.
- Review available information, including:
 - Any previous Site records
 - Waste inventory
 - Initial qualitative sampling and monitoring
 - Site photos
- Develop work objectives.
- Determine methods for accomplishing the objectives: e.g., inventory, search and rescue, recovery, disposal, record keeping.
- Determine personnel requirements.
- Determine the need for additional personnel.
- Determine equipment requirements.
- Determine appropriate work-rest cycles as the event devolves from rescue to remediation work phases.

Site Safety Checklist

- Assign key personnel and alternates responsible for site safety.
- Describe risks associated with each operation conducted.
- Confirm that personnel are adequately trained to perform jobs.
- Assign key person to handle volunteers.
- Describe the protective clothing and equipment to be worn by personnel during site operations.
- Describe site-specific medical surveillance requirements.
- Describe needed air monitoring, personnel monitoring, and environmental sampling.
- Describe actions to be taken to mitigate existing hazards (e.g., containment) to make work environment less hazardous.
- Define site control measures (e.g., secure the area) and include a site map.
- Establish decontamination procedures for personnel and equipment.

- Establish site access and exit control requirements.
- Establish site food, water, shelter, and sanitation requirements.
- Establish site electrical safety requirements.
- Perform Exit Interviews/Surveys regarding adverse health outcomes and exposures during the response.
- Identify those responders who should receive medical referral and possible enrollment into a long term medical surveillance program, based on concerning exposures, or signs/symptoms of physical or emotional ill health.

Field Team Leader Checklist

Select a Field team leader who will:

- Insure volunteer information is obtained: name, address, phone, and social security number of workers for follow-up.
- Enforce site control.
- Oversee in the on-site rapid training of volunteers on safety, Personal Protective Equipment (PPE), hazards, emergency procedures.
- Enforce the buddy system.
- Notify site safety officer or supervisor of unsafe conditions.

Potential Hazards and General Recommendations

HAZARD 1: Massive piles of construction and other types of debris, unstable work surfaces

Risks: Traumatic injuries, including serious fall injuries, from slips trips and falls or collapsing materials.

General Recommendations:

- Ensure that surfaces are stable as possible.
- Use alternative methods, such as bucket trucks, to access work surfaces that are unstable.
- Ensure scaffolding is erected on a stable surface; anchor scaffolding to a structure capable of withstanding the lateral forces generated.
- Ensure that workers have a full array of PPE, including safety shoes with slip resistant soles.
- Ensure that workers use fall protection equipment with lifelines tied off to suitable anchorage points, including bucket trucks, whenever possible.

HAZARD 2: Excessive Noise

Risks: Communication and temporary hearing loss.

General Recommendations:

- Use hearing protection devices whenever noisy equipment (e.g., saws, earth-moving equipment, Hurst tools) is used. This will prevent temporary hearing loss that can interfere when listening for cries, moans, and other sounds from victims buried in the rubble.

HAZARD 3: Breathing Dust containing asbestos (from pulverized insulation and fireproofing materials) and silica (from pulverized concrete), which are toxic

Risks:

- Short term: irritation of eye, nose, throat, and lung.
- Long term: Chronic effects may depend on the extent and the duration of exposure.

General Recommendations:

- Workers should be protected from breathing dust.
- Respiratory protection: An N-95 or greater respiratory protection is acceptable for most activities, including silica and portland cement dust.
- If there is reason to believe there is an asbestos exposure, at not more than 10 times the safe level, use a half mask elastomeric respirator with N, R, or P-100 series filters.
- If airborne contaminants are causing eye irritation, full face respirators with P-100 OV/AG combination cartridges should be used.
- Respirators must fit properly to protect workers.
- Surgical masks should not be used because they do not provide adequate protection.
- Dust concentrations in the air must be appropriately monitored.
- If dust concentrations are elevated, limit entry to only person with adequate respiratory protection.
- If symptoms of chest pain or chest tightness are present, or if shortness of breath, or rapid breathing persists following a rest break, then medical attention should be sought.
- Respiratory equipment maintenance program should be maintained for the proper cleaning, repair, and storage of reusable respirators.
- Workers should be aware of the risks of “take-home-toxic contaminants” and supervised to ensure end of shift safety compliance.

HAZARD 4: Heat Stress from wearing encapsulating/insulating bunker gear or doing heavy work in a hot, humid climate

Risks: Significant fluid loss that frequently progresses to clinical dehydration, raised core body temperature, impaired judgment, disorientation, fatigue, and heat stroke.

General Recommendations:

- Adjust work schedules, rotate personnel, add additional personnel to work teams.

- Replenish fluids (1 cup water/sports drink every 20 minutes) and food (small frequent carbohydrate meals).
- Monitor heart rate. If over 180 beat per minute minus age for more than a few minutes, stop work and rest immediately.
- Provide frequent medical evaluation for symptoms and signs of heat stress, such as altered vital signs, confusion, profuse sweating, and excessive fatigue.
- Provide shelter in shaded areas and the ability to unbutton and remove bunker gear.
- Make available a cooling station which contains water misting capability, fans, and ice packs.

HAZARD 5: Confined Spaces (limited openings for entry and exit, unfavorable natural ventilation)

Risks: Low Oxygen, toxic air contaminants, explosions, entrapment, death by strangulation, constriction, or crushing.

General Recommendations:

- Purge, flush, or ventilate the space.
- Monitor the space for hazardous conditions.
- Lock out/tag out procedures for power equipment in or around the space.
- Use appropriate PPE — such as a self-contained breathing apparatus (SCBA).
- Light the area as much as possible.
- Establish barriers to external traffic such as vehicles, pedestrians, or other hazards.
- Use ladders or similar equipment for safe entry and exit in the space.
- Use good communications equipment and alarm systems.
- Have rescue equipment nearby.

Specific Recommendations: Confined Space Attendant

- Provide at least 1 person (attendant) outside the confined space to be in communication with entrant for the duration of the operation.
- Maintain an accurate count of individuals entering the space.
- Evacuate the space if any hazards that could danger the entrants are detected.
- Monitor the behavior of entrants for any effects that suggest they should be evacuated.
- Perform no other duties that may interfere with their primary responsibilities.

Specific Recommendations: Confined Space Entrant

- Use a chest or full body harness with retrieval line attached at the center of entrant's back with the other end of line attached to mechanical device designed for immediate rescue.
- Notify attendant if they experience any warning signs or symptoms of exposure or detect a dangerous condition.
- Exit the permit space when instructed by the attendant or if warning signs indicate an evacuation.

HAZARD 6: Potential Chemical Exposures from Fire Scene

Exposure to the following chemicals must be anticipated:

- Metals (dust and fume)
- Hydrogen cyanide
- Inorganic acids (particularly sulfuric acid)
- Aldehydes (including formaldehyde)
- PAHs (polycyclic aromatic hydrocarbons)
 - Benzo(a)anthracene
 - Benzo(b)fluoranthene
 - Benzo(a)pyrene
- VOCs (volatile organic chemicals)
- Aliphatic hydrocarbons
- Acetone
- Acetic acid
- Ethyl acetate
- Isopropanol
- Styrene
- Benzene
- Toluene
- Xylene
- Furfural
- Phenol
- Naphthalene
- PCBs (polychlorinated biphenyls) may be present in older buildings with electrical equipment manufactured prior to 1977

Risks: Eye, nose, throat, upper respiratory tract, and skin irritation; flu like symptoms; central nervous system depression, fatigue, loss of coordination, memory difficulties, sleeplessness, mental confusion. Chronic effects depend on the extent and the duration of exposure.

General Recommendations:

- **Fire Fighting:** Use self-contained breathing apparatus (SCBA) with full face piece in pressure demand or other positive pressure mode.
- **Entry into unknown concentration:** Use SCBA gear.
- **Rescue operations with fumes present:** Use gas mask with front mounted organic vapor canister (OVC) or any chemical cartridge respirator with an organic vapor cartridge.
- **Dusty environments:** Use combination HEPA/OVC.

Warning! A surgical or a dust mask will not protect you from chemical vapors.

HAZARD 7: Traumatic Stress after horrific events see Traumatic Incident Stress: Information For Emergency Response Workers (<http://www.cdc.gov/niosh/mining/works/coversheet643.html>)

HAZARD 8: Electrical, overhead power lines, downed electrical wires, cables

Risk: Electrocutation.

General Recommendations:

- Use appropriately grounded low-voltage equipment.

HAZARD 9: Carbon Monoxide Risk from gasoline- or propane-powered generators or heavy machinery

Risk: Headache, dizziness, drowsiness, or nausea; progressing to vomiting, loss of consciousness, and collapse, coma or death under prolonged or high exposures.

General Recommendations:

- Locate temporary generators downwind and away from sheltering sites and mass gathering locations.
- Use CO warning sensors when using or working around combustion sources.
- Shut off engine immediately if symptoms of exposure appear.

Warning! Do not use gasoline generators or portable fuel driven tools in confined spaces or poorly ventilated areas.

Warning! Do not work in areas near exhaust (CO poisoning occurs even outdoors if engines generate high concentrations of CO and worker is in the area of the exhaust gases). With symptoms of exposure, shut off the engine.

HAZARD 10: Eye Injuries from dust, flying debris, blood

Risk: Blood borne pathogen infection, eye injury.

General Recommendations: Protective Eyewear:

- Use goggles or face shield and mask for those handling human remains, recovering deceased. Make sure to cover the nose and mouth to protect the skin of the face and the mucous membranes.
- Use safety glasses with side shields as a minimum by all workers. An eye wear retainer strap is suggested.

- Consider safety goggles for protection from fine dust particles or for use over regular prescription eye glasses.
- Any worker using a welding torch for cutting needs special eye wear for protection from welding light, which can cause severe burns to the eyes and surrounding tissue.
- Only use protective eyewear that has an ANSI Z87 mark on the lenses or frames.

HAZARD 11: Flying debris; particles; handling a variety of sharp, jagged materials

Risk: Traumatic injuries, ranging from minor injuries requiring first-aid to serious, even disabling or fatal traumatic injury.

General Recommendations:

- Use safety glasses with side shields as a minimum. An eye wear retainer strap is suggested.
- Consider safety goggles for protection from fine dust particles or for use over regular prescription eyeglasses.
- Any worker using a welding torch for cutting needs special eye wear for protection from welding light, which can cause severe burns to the eyes and surrounding tissue.
- Only use protective eyewear that has an ANSI Z87 mark on the lenses or frames.
- Educate workers regarding safe work procedures before beginning work.
- Provide workers with a full array of personal protective equipment, including hard hats, safety shoes, eye glasses, and work gloves.
- Ensure that workers do not walk under or through areas where cranes and other heavy equipment are being used to lift objects.

HAZARD 12: Work with numerous types of heavy equipment, including cranes, bucket trucks, skid-steer loaders, etc.

Risks: Traumatic injury, including serious and fatal injuries, due to failure or improper use of equipment, or workers being struck by moving equipment.

General Recommendations:

- Train workers to operate equipment correctly and safely.
- Ensure operators are aware of the activities around them to protect workers on foot from being struck by moving equipment.
- Ensure operators do not exceed the load capacity of cranes and other lifting equipment.
- Ensure that workers do not walk under or through areas where cranes and other heavy equipment are being used to lift objects.
- Ensure that workers do not climb onto or ride loads being lifted or moved.
- Ensure operators do not exceed site speed limits and obey traffic lane safety when travel on and exiting the site.

HAZARD 13: Rescuing Victims, Recovering Deceased, Handling Human Remains, Contact with surfaces contaminated with blood and body fluids

Risk: Blood, bloody fluids, body fluids, and tissues are potential sources of blood-borne infections from pathogens including Hepatitis B, Hepatitis C, and HIV.

Route of exposure: Through the skin via a cut or puncture wound; through mucous membranes (eye, nose, mouth); through non-intact skin (dermatitis/rashes, injuries, abrasions).

General Recommendations:

Standard precautions (Universal precautions) should be strictly observed regardless of time since death. Workers who will have direct contact with the victims, bodies, or surfaces contaminated with blood or body fluids should use universal precautions including:

- Use heavy-duty work gloves (such as leather) to protect against injury from sharp objects.
- Use appropriate barrier protection when handling potentially infectious materials. These barriers include latex gloves (preferably powder-free latex gloves with reduced latex protein content) and nitrile gloves. These gloves can be worn under the heavy-duty gloves. Workers should be aware that individuals can develop allergic reactions to latex gloves which can result in respiratory problems (asthma), hives, and skin rashes. Those with known latex allergies should use nitrile gloves.
- Use eye protection (goggles or face shield) and mask covering the nose and mouth to protect the skin of the face and the mucous membranes.
- Use protective clothing to protect exposed skin surfaces.
- Immediately after removing gloves or other protective equipment, wash hands with soap and water.

Specific Recommendations: If an injury or an exposure to blood, body fluids, or tissue were to occur, the following should be carried out:

- Report injuries or blood/body fluid exposures to the appropriate supervisor immediately.
- File an occupational exposure report.
- Wash wounds and skin sites that have been in contact with blood or body fluids with soap and water; mucous membranes should be flushed with water; eyes should be rinsed with an irrigant marketed for that purpose or with clean water.
- The application of caustic agents (e.g., bleach) or the injection of antiseptics or disinfectants into the wound is not recommended.
- The worker should be seen by a health care professional as soon as possible for evaluation and counseling.

- The health care professional should follow guidelines as listed in the following reference: Centers for Disease Control and Prevention. Updated US Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis. MMWR 2001;50(No. RR-11) — online at <http://www.cdc.gov/ncidod/hip/guide/phssep.htm>. In addition, the University of California, Los Angeles and CDC have developed an interactive website (<http://www.needlestick.mednet.ucla.edu>) to help guide clinicians in making decisions about post-exposure care.
- Clinicians also are encouraged to consult experts via the free 24/7 National Clinicians' Needlestick Hotline for advice about assessing and managing treatment of exposures to blood and other body fluids at 888-488-4911 (toll free) or 415-469-4417 (back-up).

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APPENDIX F

EPWORTH SLEEPINESS SCALE

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Please make copies of this page for all who will be watching this DVD. Before viewing the DVD, take a couple of minutes to complete these self assessment questions and the Epworth Scale (in the box below). Your results on the Scale will be discussed in the DVD, and the answers to these questions will be presented at the DVD's conclusion.

1. What are the names of the different stages of normal sleep?

- A. A, B, C, D, E, REM
- B. Non-REM 1, 2, 3 and 4; REM
- C. Alpha, beta, gamma, REM
- D. Light REM, deep REM, dreaming REM

2. What causes a person to feel sleepy in the afternoon and after midnight, but alert at other times of the day?

- A. Biorhythms
- B. Ultradian rhythms
- C. Circadian rhythms
- D. Eating lunch

3.A. If you lose one hour of sleep per night for 7 nights, it is equivalent to staying up all night for 24 hours. True or False

3.B. It only takes one good night's sleep to restore your entire sleep debt after a prolonged period of decreased sleep. True or False

4. If a person wakes up feeling groggy, they may be experiencing sleep inertia. True or False

5. How does alcohol affect sleep quality?

- A. Alcohol enhances sleep quality
- B. Alcohol worsens sleep quality

6. Which is NOT true about drinking coffee?

- A. Instantly increases alertness
- B. Has little effect on some and powerful effect on others
- C. Provides about 100 mg of caffeine
- D. Increases urine production (diuretic effect)

7. You are feeling tired after a long 24 hour shift, and you have a 45 minute commute home. What is the best option?

- A. Relax and drink a lot of coffee
- B. Sit in a bright room and listen to loud music
- C. Take a nap
- D. Exercise

8. Chronic sleep deprivation is associated with adverse health effects. Which one below is NOT associated with sleep deprivation?

- A. Musculoskeletal Injuries
- B. Cancer
- C. Peptic ulcer disease
- D. Heart disease

9. Fatigue is affected by which of the following:

- A. Hours slept
- B. Circadian rhythm
- C. Sleep disorders
- D. All of the above

10. How can you identify someone at risk for sleep apnea (circle all that apply)

- A. Excessive daytime sleepiness
- B. Loud, frequent snoring
- C. Being overweight and a neck size greater than 17 inches (male)
- D. Drives a 1963 pink cadillac
- E. A, B and C

	Epworth Sleepiness Scale: How likely you are to fall asleep during these situations?			
	would never doze off	slight chance of dozing off	moderate chance of dozing off	high chance of dozing off
1. Sitting and reading	0	1	2	3
2. Watching TV	0	1	2	3
3. Sitting and talking with someone	0	1	2	3
4. Passenger in a car for an hour	0	1	2	3
5. Lying down to rest in the afternoon	0	1	2	3
6. Sitting quietly after lunch	0	1	2	3
7. In a car stopped for a few minutes in traffic	0	1	2	3
8. Sitting inactive in a public place, like a meeting or classroom	0	1	2	3

Total number of points _____ (The total [0 to 24] is the Epworth score, and a value of 10 or higher indicates excessive sleepiness.)

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