Basic Course Workbook Series

Student Materials

Learning Domain 26
Critical Incidents
Version 3.0

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Student Materials
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Critical Incidents
Version 3.0

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Published May 2000
Revised January 2006
Correction October 2013
Revised October 2020

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THE ACADEMY TRAINING MISSION

The primary mission of basic training is to prepare students mentally, morally, and physically to advance into a field training program, assume the responsibilities, and execute the duties of a peace officer in society.

FOREWORD

The California Commission on Peace Officer Standards and Training sincerely appreciates the efforts of the many curriculum consultants, academy instructors, directors and coordinators who contributed to the development of this workbook. We must also thank the California law enforcement agency executives who allowed their personnel to participate in the development of these training materials.

This student workbook is part of the POST Basic Course Training System. The workbook component of this system provides a self-study document for every learning domain in the Basic Course. Each workbook is intended to be a supplement to, not a substitute for, classroom instruction. The objective of the system is to improve academy student learning and information retention and ultimately contribute to you becoming a peace officer committed to safety, and to the communities you will serve.

The content of each workbook is organized into sequenced learning modules to meet requirements as prescribed both by California law and the POST Training and Testing Specifications for the Basic Course.

It is our hope that the collective wisdom and experience of all who contributed to this workbook will help you, the student, to successfully complete the Basic Course and to enjoy a safe and rewarding career as a peace officer.

MANUEL ALVAREZ, Jr.
Executive Director

LD 26: Critical Incidents

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Preface

Introduction

Student workbooks

The student workbooks are part of the POST Basic Course Instructional System. This system is designed to provide students with a self-study document to be used in preparation for classroom training.

Regular Basic Course training requirement

Completion of the Regular Basic Course is required, prior to exercising peace officer powers, as recognized in the California Penal Code and where the POST-required standard is the POST Regular Basic Course.

Student workbook elements

The following elements are included in each workbook:

- chapter contents, including a synopsis of key points,
- supplementary material, and
- a glossary of terms used in this workbook.

How to Use the Student Workbook

Introduction

This workbook introduces the training requirements for this Learning Domain. You may use the workbook in several ways: for initial learning, for test preparation, and for remedial training.

Workbook format

To use the workbook most effectively, follow the steps listed below.

Step	Action
1	Begin by reading the: **Preface** and **How to Use the Workbook**, which provide an overview of how the workbook fits into the POST training program and how it should be used.
2	Refer to the Chapter Synopsis section at the end of each chapter to review the key points that support the chapter objectives.
3	Begin reading the text.
4	Complete the workbook learning activities at the end of each chapter. These activities reinforce the material taught in the chapter.
5	Refer to the Glossary section for a definition of important terms. The terms appear throughout the text and are bolded and underlined (e.g. **term**).

Chapter 1

Emergency Management

Overview

Learning need

As the first responders and state-designated Disaster Service Workers, peace officers must become familiar with the principles of emergency management.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID:
• recall the mission of emergency management	26.01.05
• identify entities involved in emergency management	26.01.06
• explain the role of a Disaster Service Worker	26.01.07

In this chapter

This chapter focuses on providing a basic understanding of emergency management as it relates to California peace officers. Refer to the chart below for specific topics.

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Mission of Emergency Management	1-2
Entities Involved in Emergency Management	1-2
Role of a Disaster Service Worker	1-2
Chapter Synopsis	1-3
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Emergency Management

Mission of emergency management

Emergency management protects communities by coordinating and integrating all activities necessary to build, sustain, and improve the capability to promote, facilitate, and support the principles of mitigation, preparedness, response, and recovery from threatened or actual natural disasters, acts of terrorism, or other man-made emergencies.

Entities in emergency management

Some entities that comprise the emergency management system include:

- Federal Emergency Management Administration (FEMA) Department of Homeland Security (DHS)
- State (California Office of Emergency Management)
- County (Offices of Emergency Management)
- Local (Fire services, law enforcement services, city emergency management)
- Non-Governmental Organizations (NGO); American Red Cross; Salvation Army

Disaster Service Worker

Persons employed by any city, county, state agency, or public district are Disaster Service Workers as provided in California Government Code 3100-3109.

Peace officers, as public employees described above, are Disaster Service Workers and will likely be called upon to assist in the event of a natural or man-made emergency, which results in conditions of disaster.

Role of Disaster Service Worker

Disaster Service Workers are tasked with assisting in disaster response events. These workers are not activated until an official declaration and do not include the day-to-day tasks of first responders.

NOTE: Those who are designated as Disaster Service Workers should take the necessary steps to prepare their homes and families for extended absences in the event of a declared emergency.

Chapter Synopsis

Learning Need	As the first responders and state-designated Disaster Service Workers, peace officers must become familiar with the principles of emergency management.
Mission of Emergency Management [26.01.05]	Emergency management protects communities by coordinating and integrating all activities to support the principles of mitigation, preparedness, response, and recovery from threatened or actual natural disasters, acts of terrorism, or other man-made emergencies.
Entities in emergency management [26.01.06]	Comprised of a variety of Federal, State, county, and local government agencies in addition to NGOs.
Role of Disaster Service Worker [26.01.07]	Public employees called upon to assist and carry out responsibilities in times of disaster or emergency.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Learning activity

1. Discuss the role of a Disaster Service Worker. Give examples.

2. What is the mission of Emergency Management as related to emergencies and disasters?

3. Divide into small cohort groups to develop a plan for management and response to a preplanned community event to take place in your jurisdiction as it relates to the principles of emergency management.

Chapter 2

Roles & Responsibilities at Critical Incidents

Overview

Learning need

To protect the public, peace officers must be able to identify critical incidents and respond rapidly, safely, and efficiently based on the situation

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID:
• recall the definition of critical incidents	26.02.09
• identify the mission of law enforcement when responding to a critical incident.	26.02.10
• identify the responsibilities of the first responding officer on the scene of a critical incident, to include: - locating the threat or hazard - isolating the threat of hazard (i.e. set perimeter) - evacuating or sheltering persons in imminent peril - assuming/declaring incident command	26.02.11
• Identify the information that should be communicated to dispatch from the scene of an incident, including: - Location of the incident - Type of premises and / or vehicles involved - size and perimeter of the involved area - Weather conditions - Name of hazardous material involved, if known - Information about placards, ID numbers, warning signs, etc. - Safe entry and exit routes to and from the scene - EMS, if appropriate - Location of command post	26.02.12

Continued on next page

In this chapter

This chapter focuses on providing a basic understanding of what constitutes a critical incident and roles and responsibilities of the first officer on the scene. Refer to the chart below for specific topics.

Topic	See Page
Critical Incidents	2-3
Responding to Critical Incidents	2-5
Role of First Responding Officer	2-6
Information to be Communicated to Dispatch	2-10
Chapter Synopsis	2-11
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Critical Incidents

Introduction

Due to its size, climate, and geographical makeup, California is prone to a vast array of critical incidents. Whether the incident involves a natural disaster, or a man-made emergency, a timely and effective response is crucial.

Definition

A **critical incident** is generally defined as:

- abrupt, powerful events that fall outside the range of ordinary human experiences.
- an unscheduled event
- involving potential injury and/or property damage
- requiring a law enforcement response.

A critical incident could include large-scale criminal events (e.g. incidents of suspected terrorism, active shooter, or hostage taking, etc.)

Leadership

A critical incident happens infrequently and generally requires a large-scale response. It usually involves property damage, injury or death and has a devastating impact on the community. Two key leadership components of any critical incident are incident command, and teamwork. Incident command is a role that requires experience and training. Who takes command will depend on a variety of factors including the type of occurrence, jurisdiction, personnel available, and city/county protocol. Regardless of who is in command, peace officers and other public servants have to work together as a team to achieve success

Continued on next page

Examples of critical incidents

A critical incident does not necessarily involve only catastrophic acts of nature.

Critical Incidents can arise from:	Examples:
acts of nature	• earthquakes, • flood, • tidal waves, • brush fires, or • landslides.
technological incidents	• electrical power emergency, • traffic signal malfunctions, • fires, • gas leaks, or • explosions.
large scale incidents	• aircraft crashes, • train wrecks, or • hazardous materials leaks.
incidents brought on by humans	• terrorism, • civil disturbances, or • criminal acts (e.g. bombs, school shootings, etc.).

Responding to Critical Incidents

Law enforcement mission

Response to a critical incident may require many agencies (e.g. law enforcement, fire department, public utilities, private industry, etc.), each with their own mission.

The law enforcement mission during a critical incident, disaster, or calamity, generally involves any or all of the following:

- Establishing and maintaining law and order (i.e. enforcement of the law)
  - Preventing looting
  - Assuming care and custody of prisoners
- Identifying necessary resources
  - Mobilizing and deploying required response personnel
  - Coordinating with cooperating agencies to include fire and EMS on events such as active shooter incidents
- Enforcing emergency rules and regulations
  - Protecting vital installations
  - Controlling individuals within the affected and adjacent area
- Providing emergency care for the sick and injured
  - Assisting in rescue operations

Ethics

The role of a peace officer is to respond to the event, prevent harm and return the community to peace and tranquility. A critical incident can be chaotic with many tasks to be completed. Rescue, containment, communication, hostage negotiation, and medical care are just a few of these tasks. A dilemma can occur when personal or family concerns conflict with agency and community needs. A peace officer takes an oath to uphold laws and serve our communities. This is our priority in difficult circumstances.

Role of First Responding Officer

Introduction

Officers may respond to a critical incident by being tactically deployed to the scene, by actually witnessing an event or recognizing a hazard while on patrol.

Policing in the community

It is a great affirmation of the human spirit to see people helping each other. Peace officers do it as their job, mere humans who display great human qualities of courage, caring, and sense of service. During a disaster, ordinary people in our communities instinctively display these same great qualities, caring for others and helping those in danger or in need.

Initial assessment

The first unit to arrive at the scene must take the leadership responsibility to gather as much information regarding the current status of the situation as possible.

The **first responding officer** should make a quick and *safe* assessment of the situation in order to:

- verify the nature of the emergency,
- confirm the exact location of the incident,
- determine the extent of the area affected and isolate if necessary,
- Evacuate or shelter persons in peril
- determine what resources will be needed to control the identified hazard(s), and
- assume the role of incident commander.

Continued on next page

Incident command

The first responding officer must assume *preliminary incident command* and take the necessary steps toward establishing control of the situation. It becomes that officer's responsibility as incident commander to:

- establish a command post,
- identify the need for **unified command** with allied agencies,
- initiate appropriate notifications,
- identify a perimeter around the designated area,
- isolate the hazard,
- control ingress/egress to the area,
- continually gather and communicate further information,
- implement a plan of action, and
- reassess and evaluate the effectiveness of the operation and make modifications as necessary.

NOTE: The first responding officer continues as the incident commander throughout the operation until otherwise relieved of those duties by a supervisor, or other specialized authority.

Preliminary command post

The incident commander should identify a suitable location for a preliminary command post. The size and location can vary depending on the nature of the incident. A command post should:

- be located outside the perimeter of the involved area,
- have adequate parking space and access,
- be near necessary facilities (e.g. water, restrooms), and be large enough to accommodate all necessary functions (e.g. communications, etc.).

NOTE: The location of the command post may change as additional information becomes available or as additional problems are discovered.

Continued on next page

Additional resources

Determine what resources (i.e. personnel and equipment), will be needed to resolve the situation, provide for officer safety as well as the safety of others, ensure protection of property, and resolve or control the situation.

Resources may include, but are not limited to:

- additional law enforcement units,
- the California Highway Patrol,
- fire department,
- utility companies,
- the Department of Public Works,
- transportation agencies (e.g. Cal Trans, city/county road departments, etc.),
- emergency medical services,
- the medical examiner/coroner,
- private industry,
- volunteer organizations.

Based on the specific situation, the incident commander should determine the safest route for the responding units and resources, as well as determining suitable locations for each once they arrive on the scene.

Outer perimeter

In order to protect an incident location and/or isolate a hazardous material, a set boundary or **outer perimeter** should be established to completely surround the area involved. The primary objective for establishing such a perimeter is to seal off the area to prevent injuries to bystanders or other unauthorized persons.

The perimeter around the area should be as large as can be reasonably controlled by available resources. If the size is in question and if resources allow, a larger initial perimeter could be established. A large perimeter can later be reduced in size if necessary.

Depending on the incident, detours may be necessary to reroute all nonessential traffic from the designated area around the perimeter.

Appropriate identification and protection devices for isolating an area include:

- barricades,
- barrier tape,

Continued on next page

Outer perimeter (continued)

- traffic cones,
- highway fusee/flares, or
- vehicles.

NOTE: Highway fusee/flares will create an ignition source that may be inappropriate in certain circumstances (e.g. near combustible materials, in areas with dry brush or ground cover, etc.).

Hazard(s) isolation

Officers must be conscious of the fact that there may be multiple hazards within the area protected by the perimeter (e.g. "hot" downed electric power lines, debris, slippery surfaces, etc.). It may be necessary to further isolate such hazards within an incident perimeter to protect emergency workers.

This can be done by establishing inner perimeters in the immediate area around the hazards. The size of the inner perimeter will vary depending on the nature of the hazard itself.

NOTE: The existence and location of any additional risks must be clearly communicated to all personnel involved.

Ingress/egress

Access to the affected area within a perimeter should be available only to responding emergency vehicles and resources. In order to control ingress and egress, clear entrance and exit routes should be established. Response routes should be:

- easy to locate,
- free from unnecessary traffic, and
- allow for the best and safest direction of approach with respect to the incident hazard (e.g. upwind).

Major incidents will usually attract a large crowd of bystanders and possibly representatives of the media. The incident commander must take this into consideration and establish appropriate provisions for adequate crowd control.

NOTE: Law enforcement is authorized to close an area to the public whenever there is a menace to public health or safety. With certain exceptions officers *cannot* prevent duly authorized representatives of any news service, newspaper, radio or television media from entering the closed area.

Information to be Communicated to Dispatch

Ongoing assessment and communication

Continually gathering information and maintaining communication with all those involved in resolving an incident is an ongoing responsibility of the incident commander. Information updates should be broadcast, as circumstances require.

An attempt should be made to locate any person(s) with information related to the incident (e.g. foreman, owner of the building, truck driver, witnesses, etc.). Also, the potential of additional hazards or problems must be identified and communicated (e.g. fire, secondary explosions, release of hazardous materials, etc.).

Action plan

The incident commander is responsible for seeing that an appropriate plan of action is implemented to deal with the immediate situation. Required actions will vary according to the specifics of each incident.

The tactics used to manage an incident must be reassessed and evaluated throughout the operation. Additional resources may become necessary or specific tactics may need to be modified.

Communicate with dispatch

Communication with the dispatch center during critical incidents is important. The dispatch center has the ability to track details of the call, including what has been done, what is being done, and what may still need to be addressed during the critical incident. Information that should be relayed to the dispatch center includes:

- Location of the incident
- Type of premises and/or vehicles involved
- Size and perimeter of the involved area
- Weather conditions
- Name of hazardous material involved, if known
- Information about placards, ID numbers, warning signs, etc.
- Safe entry and exit routes to and from the scene
- EMS, if appropriate
- Location of command post

Chapter Synopsis

Learning need

To protect the public, peace officers must be able to identify critical incidents and, based on the situation, respond rapidly, safely, and efficiently.

Definition of critical incident [26.02.9]

- A critical incident is generally defined as:
  abrupt, powerful events that fall outside the range of ordinary human experiences.
- an unscheduled event
- involving potential injury or property damage
- requiring a law enforcement response

Responsibility of law enforcement responding to critical incidents [26.02.10]

Law enforcements responsibilities, when responding to a critical incident, may include, but is not limited to, establishing law and order, identifying necessary resources, enforcing emergency rules and regulations, and/or providing emergency care for the sick and injured.

Responsibilities of the first responder [26.02.11]

A peace officer's responsibilities as the first officer on the scene of a critical incident is to locate the threat or hazard, isolate the threat or hazard, evacuate or shelter those in imminent peril, and assume/declare incident command.

Communication with dispatch [26.02.12]

Keeping the dispatch center informed of what is occurring at the critical incident is important. The dispatch center is able to track completed tasks, tasks in progress, and tasks that still need to be completed. The content of the information being relayed should include the specific location of the incident, safe entry and exit routes for responding emergency personnel, the nature of the critical incident, size and perimeter of the involved area, resources needed, and, the location of the command post and staging area.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity questions

1. You are the first responding officer on the scene of a private plane crash into a busy strip mall. Outline the initial actions you would take to assess the situation. What questions would you need to answer most quickly? What are your primary responsibilities?

2. Define a critical incident in your own words. List three non-catastrophic critical incidents and explain what makes each incident fit into this category.

Continued on next page

Activity questions (continued)

3. A peace officer on patrol is the first responder to a report of standing water on a heavily traveled stretch of highway through a major urban area. The water is approximately 2½ feet deep across all lanes and stretches for a length of approximately 20 yards of highway. What responsibilities does the officer have at this critical incident? What initial notifications do you think the officer should make? What information would you communicate to dispatch?

4. You are a responding officer to a rapidly evolving active shooter event. You arrive on scene to find law enforcement resources. Fire and EMS responding.

- Describe some of your initial considerations
- Discuss command and control
- Describe how law enforcement fire and EMS will work together to mitigate the incident

Student Notes:

Chapter 3

Command Systems

Overview

Learning need

Peace officers must have a basic understanding of the command systems used both by the State of California and the Federal government.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID:
• Identify law enforcement First Responder roles and responsibilities associated with responding to a critical incident	26.03.10
• Identify the features of the Incident Command System (ICS)	26.03.11
• Identify the five functional components of ICS	26.03.12
• Identify the components of the State of California Standardized Emergency Management System (SEMS)	26.03.13
• Identify the components of the National Incident Management System (NIMS)	26.03.14

In this chapter

This chapter focuses on the basic principles of the Incident Command System, the Standardized Emergency Management System and the National Incident Management System.

Topic	See Page
Law Enforcement First Responder Roles and Responsibilities	3-3
Features of ICS	3-4
Components of the State of California Standardized Emergency Management System (SEMS)	3-7
Components of the National Incident Management System (NIMS)	3-9
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Law Enforcement First Responder Roles & Responsibilities

Introduction

At the onset of a major incident whether man-made, natural, or terrorist-related the focal point for successful resolution of the event is the law enforcement First Responder. In almost all cases the first responder on the scene will be a patrol officer from some law enforcement agency.

Law Enforcement First Responder role

Peace officers must understand their role when responding to a major incident and understand the importance of the Incident Command System (ICS) when responding to a critical incident in California.

Law Enforcement First Responder responsibilities

As a general rule, law enforcement First Responders must understand they will start to handle the situation with almost no resources, but they are on the way. The law enforcement First Responder needs to be concerned with officer safety, attending to casualties, setting up some kind of perimeter, and establishing a command post.

As resources arrive, law enforcement First Responders will be the person who briefs incoming personnel, deploys them and takes command of the situation. The law enforcement First Responder's actions and decisions will set the tone for the overall conduct of the operation.

More than anything law enforcement First Responders must understand they will be on their own with only on-duty personnel available to help and assist them. In the case of local emergencies, assistance in the form of law enforcement, fire and medical will begin to arrive within minutes, but for major events that require state and federal assistance it will take more time to respond.

It is critical that law enforcement First Responders take command of the situation using emergency management systems. It is essential that law enforcement First Responders understand the basic tenants of the Incident Command System (ICS), the State of California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS).

Key point

Other agencies (mutual aid, regional resources, state, and federal agencies) are responding to support you, not to take over your incident.

Features of ICS

Introduction

An advantage of the Incident Command System (ICS) for California law enforcement is the use of common terminology and features which allow for greater command and control. The features of the system allow command officers the ability to exercise flexibility over the command system. The flexibility of the system results in a higher degree of operational efficiency.

Features of ICS

Every ICS has several primary features. The chart below provides those primary features.

Features	Descriptions
Common Terminology	• Position titles and organizational units are standardized • Common names are established for resources and facilities • Clear text is used for all radio traffic
Modular Organization	• The system adjusts to the needs of the incident • Functional units are staffed as needed • When any unit is not staffed, responsibility for that function remains with the next higher level • Develops from the top down • Flexible to meet the complexity/size of the incident
Integrated Communications	• Communications plan established for each incident • Frequency designations • Calls signs • Standard Operating Procedures (SOP)
Incident Action Plan (IAP)	• The Incident Action Plan is developed for each Operational Period which is usually 12 hours • An Operational Period is a designated segment of time which varies with the incident • An Incident Action Plan sets forth: - Goals (strategic guidance) - Objectives (operational direction) - Specific Assignments - Operational Resources • The Incident Action Plan provides uniform guidance to all response elements

Continued on next page

Features of ICS, Continued

Features of ICS (continued)

Features	Descriptions
Unity of Command	• Reporting relationships are clearly understood • No matter what position you are assigned to, you have one "boss."
Span of Control	• The number of individuals or resources that one supervisor can manage effectively • Range: 3 to 7 • Optimum is 1 supervisor to 5 individuals or resources
Designated Incident Facilities	• **Incident Command Post** - one incident command post per incident, - houses the Incident Commander and command staff - planning and communications - agency representatives • Staging Area • Personnel and equipment temporarily assigned for deployment • **Base** - Logistic and Administration are coordinated and located • **Camp** - Resources that support the bases • **Helispots** - Temporary locations for helicopter takeoff and landing • **Helibase** - Location where air operations are conducted
Comprehensive Resource Management	• Consolidated control of resources • Reduces communication load • Reduces self-assignment • Maximizes use of limited resources

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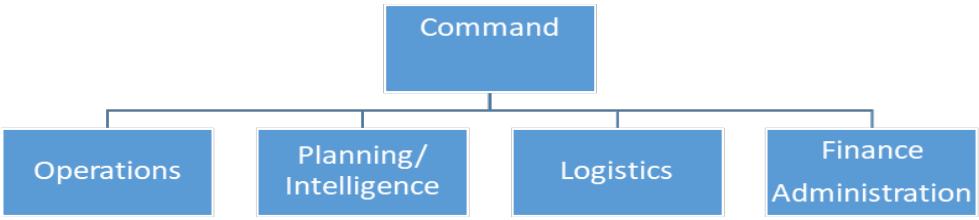
Five ICS Functional Components



1. Command
- Overall policy and guidance for the incident
- Incident Commander (IC)
- Deputy Incident Commander
- Unified Command

2. Operations
- Commonly organized by functional branches
- Implements the action/operational plan to deal with the incident
- Allocates resources to the incident
- Communicates with field units and other command centers

3. Planning/Intelligence
- Collect, evaluate, and disseminate information
- Prepare an action/operational plan
- Maintain documentation of the response effort
- Prepare demobilization plans
- May incorporate technical specialists
- Responsible for situational reporting

4. Logistics
- Provide resources to the overall operation
- Support the responders

5. Finance/Administration
- Administrative concerns
- Compensation and claims
- Begin documentation to support disaster claims
- Generally, the last section to be staffed out

Components of the State of California Standardized Emergency Management System (SEMS)

Introduction

The California **Standardized Emergency Management System (SEMS)** was developed after the Alameda County, San Francisco, Oakland, Loma Prieta earthquake in 1989 and the Oakland Hills fire of 1991. Authority for the mandatory use of SEMS is found in *California Government Code Section 8607(a).*

Standardized Emergency Management System (SEMS)

SEMS is designed to ensure that all public agencies have a common system to utilize while responding to all types of emergencies. The components of SEMS are:

- Incident Command System
- Operational Area Concepts
- Mutual Aid Agreements/Plans
- Multi-Agency Coordination

Incident Command System (ICS)

Incident Command System (ICS) is the common command structure all public agencies use to manage any type of emergency in the State of California. State law established ICS. Any public agency that seeks reimbursement for declared emergencies must have used ICS as a command system during the course of the emergency.

SEMS incorporates ICS as the official command system for the State of California and ICS is used by both local and state agencies during emergency management.

SEMS request levels

The State of California is divided into Operational Areas for the purposes of emergency management. Each Operational Area cooperates with the local Emergency Operation Center (EOC) for resource requests and information sharing. The Operational Area coordinates all local requests and funnels information to the State of California's Regional Emergency Operations Center. The Regional Emergency Operation Center funnels information and requests to the State of California's Office of Emergency Services (OES).

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Components of the State of California Standardized Emergency Management System (SEMS), Continued

Mutual aid

A number of public agencies operate under Mutual Aid agreements, they include: Law Enforcement, Fire Services, Coroners Offices, Urban Search and Rescue, Emergency Managers, Emergency Medical Services, Public Health, and others. SEMS incorporates mutual aid as a part of its official response strategy. They use the "Step-up" system for requesting mutual aid:

- Field Request
- Local Government level request
- Operational Area level request
- Regional level request
- State level request
- Gubernatorial request for federal aid

When requesting mutual aid the following conditions must exist:

- An emergency must exist or be imminent
- The "Requesting Agency" must have reasonably committed the majority of available, on-duty personnel to the incident. This is generally considered to be one-half of the agencies work force on 12-hour shifts
- There must be a mission to be performed

Multi-agency coordination

The Multi-Agency Coordination System (MACS) provides the architecture to support coordination for incident prioritization, critical resource allocation, communications systems integration, and information coordination. The components of multi-agency coordination systems include facilities, equipment, Emergency Operations Center (EOC), specific multi-agency coordination entities, personnel, procedures, and communications.

Components of the National Incident Management System (NIMS)

Introduction

The National Incident Management System (NIMS) was created after the terrorist attacks on September 11, 2001, by Presidential Directive 5 and Presidential Directive 8. NIMS is the command system used for all nationally declared emergencies in the United States.

National Incident Management System (NIMS)

The **National Incident Management System (NIMS)** authority is derived from Homeland Security Presidential Directives 5 and 8 (HSPD-5 & 8).

NIMS provides a flexible framework that facilitates government and private entities at all levels working together through standardized organizational structures. NIMS consist of six components:

- Command and Management
- Preparedness
- Resource Management
- Communications and Information Management
- Supporting Technologies
- Ongoing Management and Maintenance

Command and management

In an incident management organization, the Command Staff consists of the Incident Commander and the special staff positions of Public Information Officer, Safety Officer, Liaison Officer, and other positions as required, who report directly to the Incident Commander. They may have an assistant or assistants, as needed. NIMS uses the Incident Command System for the official command structure.

Preparedness

Preparedness is the range of deliberate critical tasks and activities necessary to build and sustain operational capability. Preparedness is a continuous process involving efforts at all levels of government, between government and private sector and nongovernmental organizations.

Continued on next page

Resource management

There are five key principles for resource management:

- **Advance Planning** – preparedness organizations working together before an incident to develop plans for managing and using resources
- **Resource Identification and Ordering** – using standard processes and methods to identify, order, mobilize, dispatch, and track resources
- **Categorizing Resources** - by size, capacity, capability, skill and other characteristics. Facilitates the use of national standards for "typing" resources and "certifying" personnel
- **Use of Agreements** – developing pre-incident agreements for providing or requesting resources
- **Effective Management** – using validated practices to perform key resource management tasks

Communication and information management

NIMS communications and information systems enable the essential functions needed to provide a common operating picture and interoperability for:

- Incident management communications
- Information management
- Interoperability standards

The NIMS concepts and principles upon which communications and information management are based on:

- A common operating picture that is accessible across jurisdictions and agencies necessary to ensure consistency at all levels, among those who respond to or manage incident response, and
- Common communications and data standards fundamental to effective communications, both within and outside of the incident response structure and are enhanced by an adherence to standards.

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Components of the National Incident Management System (NIMS), Continued

Supporting technologies

NIMS will leverage science and technology to improve capabilities at a lower cost. To accomplish this, NIMS will base its supporting technology standards on five key principles:

- **Interoperability and Computability:** Systems must be able to work together
- **Technology Support:** All organizations using NIMS will be able to enhance all aspects of incident management and emergency response
- **Technology Standards:** National standards will facilitate interoperability and compatibility of major systems
- **Broad Based Requirements:** NIMS provides a mechanism for aggregating and prioritizing new technologies, procedures, protocols, and standards
- **Strategic Planning, Research and Development:** The National Integration Center (NIC) will coordinate with the Department of Homeland Security to create a National Research and Development Center

Ongoing management and maintenance

The Department of Homeland Security established the National Integration Center (NIC) to provide strategic direction and oversight for the NIMS program.

NIMS must be supported by ongoing training at every level, management, supervisory and field law enforcement First Responders. The system must be constantly updated. Threat assessments and revised standing plans to reflect new and emerging threats should be accomplished at least once a year and more often when needed.

NIMS must be practiced and rehearsed by using scenario training, tabletop exercises and where possible full field exercises. Testing, training and exercises should be frequent and no less than once a year.

Chapter Synopsis

Learning Need	Peace officers must have a basic understanding of the command systems used both by the State of California and the Federal government.
First Responder roles & responsibilities [26.03.10]	Personnel assigned to an emergency event have to understand their roles and responsibilities. This is particularly true with those events that involve multi-jurisdictional agencies.
Features of ICS [26.03.11]	ICS has primary features that consist of common terminology, modular organizations, integrated communications, unity of command and consolidated action plans. ICS allows for a manageable span of control and the ability to comprehensively manage resources.
Five functional components [26.03.12]	ICS has five modular functions: Command, Operations, Planning and intelligence, Logistics and Finance. All or some of these modular components can be used depending on the size and nature of the event to be managed.
Components of the California Standardized Emergency Management System (SEMS) [26.03.13]	This is the command system used by the State of California to manage any emergency. ICS is a component part of SEMS.
Components of the National Incident Management System (NIMS) [26.03.14]	This is the system used to manage incidents of national significant. Presidential Directives 5 and 8 created it.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers have been provided. However, by referring to the appropriate text you should be able to prepare a response.

Activity questions

1. You have been dispatched to the scene of a major traffic accident. Five cars are involved, one is on fire and at least one person is dead and three more are seriously injured. Create an Incident Command System using the five functional components and write a brief description of what each component is responsible to perform.

Continued on next page

Activity questions (continued)

2. List the components associated with the Standardized Emergency Management System.

3. List the component parts associated with the National Incident Management System.

Chapter 4

Introduction to Hazardous Materials

Overview

Learning need

Peace officers need to know the risks presented by hazardous materials and their role in responding to hazardous materials incidents.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID
• identify a hazardous materials incident.	26.04.1
• identify the specific challenges that are presented by incidents involving hazardous materials.	26.04.2
• recognize the roles and responsibilities of a First Responder at the awareness level.	26.04.3
• identify the primary pathways in which a hazardous material can enter the human body, including: - inhalation - absorption - ingestion - injection	26.04.4
• identify precautions peace officers can take to protect themselves from hazardous material.	26.04.5

Continued on next page

In this chapter

This chapter focuses on basic information regarding hazardous materials and the roles and responsibilities of peace officers when faced with a hazardous materials incident.

Topic	See Page
Introduction to Hazardous Materials	4-3
First Responders	4-6
Health & Safety Issues Involving Hazardous Materials	4-8
Chapter Synopsis	4-12
Workbook Learning Activities	4-13

Introduction to Hazardous Materials

Introduction

Hazardous materials (HazMat) are a byproduct of our modern, technological society. These chemicals produce enormous benefits for society's standard of living, but can also cause potentially dangerous, even lethal effects, if not properly handled.

Definition

There is no single definition for the term "hazardous material." The table below contains definitions used by three U.S. government agencies.

Agency	Definition
Environmental Protection Agency (EPA)	• Substance, which due to its concentration, quantity or chemical or physical properties, may cause or significantly contribute to: - an increase in mortality, an increase in serious, irreversible or incapacitating reversible illness, or - a substantial present or potential hazard to human health or the environment when improperly managed.
Department of Transportation (DOT)	• Any substance or material in any form or quantity, which poses an unreasonable risk to safety, health and property.
Occupational Safety and Health Administration (OSHA)	• Any substance to which exposure results or may result in adverse effects on the health or safety of employees, or • Any chemical which is a physical hazard or a health hazard.

NOTE: For the purpose of this workbook, the terms hazardous materials, hazardous substances and dangerous goods are used interchangeably.

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Scope

Hazardous materials are found everywhere in our environment. Millions of chemicals are now in existence and thousands are classified as potentially dangerous.

Some form of a hazardous material is being generated, manufactured, used, stored, and disposed of, in most communities in this country.

Since hazardous materials are everywhere, accidental spills and releases of these substances cannot be avoided. Peace officers need to understand their role and responsibilities in responding to these events.

Hazardous materials incidents

A **hazardous materials incident** is any emergency involving the release or potential release of a hazardous material. Incidents involving hazardous materials can present risks to life, the environment, and property. Some hazardous materials incidents may be catastrophic and endanger entire communities, while others may not appear significant but have the potential for long-lasting effects.

Hazardous materials incidents differ in the following areas:

- Not always reported as a hazardous materials incident
- Need to be handled slowly and methodically
- Need for specialized personal protective equipment and training
- Need to recognize many different communication systems
- Exposure symptoms may not materialize for years

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Specific challenges

Hazardous materials incidents may present the following specific challenges:

- Difficulty in identifying the materials
- Potential long-and short-term health effects on humans and animals
- Environmental impact
- Public safety implications
- Multiple hazards (toxic, flammable, reactive, radioactive or corrosive hazards, physical hazards, etc.)
- Complexity of the situation (rescue problems, fire, flood, explosion, closures of major thoroughfares, closures of business, large perimeters, major evacuations, etc.)

Response coordination

A hazardous materials incident may require coordination of many different government agencies.

Hazardous materials incidents may include, but are not limited to, personnel from:

- fire service,
- additional law enforcement resources,
- emergency medical service,
- public/environmental health,
- public works (e.g. city, county, state or other resources),
- private sector representatives,
- other governmental representatives (e.g. Cal Trans, Fish and Game, military, etc.), and
- Office of Emergency Services.

First Responders

Introduction

Peace officers are often the first to respond to an incident that could involve hazardous materials.

Leadership

In a HazMat emergency, distance is the key factor. Preserving and protecting is the primary function of law enforcement. Peace officers can expose themselves unnecessarily to harmful materials by rushing into a HazMat scene without proper precautions.

Responder levels

In general, the typical peace officer will respond to hazardous materials incidents at the **awareness level.** The following table further differentiates between the two levels of **First Responders.**

	First Responders trained at an awareness level	**First Responders trained at an operational level**
Differences	• have been trained to initiate an emergency response sequence by notifying the proper authorities of the release, • isolate and deny entry, and • take no further action beyond notifying the authorities of the release.	• have been trained to respond to hazardous materials incidents to protect people, the environment, and property from hazardous substances, • isolate and deny entry, • may respond defensively without trying to actually stop the release at the source, and • may work at a distance from the point of release to contain the released material, keep it from spreading and prevent exposures.

Continued on next page

Responder levels (continued)

	First Responders trained at an awareness level	First Responders trained at an operational level
Example	A peace officer responded to a traffic collision involving a gasoline tanker truck and a passenger car. No one was injured and everyone involved had exited their vehicles and were standing several yards from the vehicles. The officer, acting as a First Responder, immediately notified dispatch to initiate an emergency response sequence, then isolated and denied entry.	Continuing the previous example: The officers could create a dirt berm to isolate or re-direct the flow of the substance.

Agency policies

It is each officer's responsibility to know and comply with their agency policies and guidelines for responding to hazardous materials incidents in its jurisdictions.

Other responders

There are a number of other personnel who have set responsibilities when responding to a hazardous materials incident. The following table describes some of these individuals.

Other responders may include:	Role:
technicians	• respond to releases or potential releases of hazardous substances in order to stop the release. • assume a more aggressive role than a first responder.
specialists	• respond with and provide support to hazardous materials technicians.
an incident commander	• assumes control of the incident scene. • has overall management of the incident.

Health & Safety Issues Involving Hazardous Materials

Introduction

Peace officers, with rare exception, do not have the appropriate protective clothing, special equipment, or level of training to respond to a hazardous materials incident beyond the awareness level. Usually, general issued field equipment does not offer any protection from hazardous material. (e.g. helmet, or riot gear)

Community policing

Communities worry about illnesses such as cancer that may result from exposure to hazardous materials. Clean air, water, and a clean food supply are not only the concern of environmentalists. Peace officers can identify and intervene against violations of hazardous materials laws such as illegal disposal, dumping, burning, storing, or use of restricted materials.

Exposure and toxicity

The effect of a hazardous material on humans depends on the level of exposure to a material and that material's **toxicity**. To protect themselves and others, officers need to be aware of the primary routes of entry into the body.

Exposure means being in the general area where you may come into contact with a hazardous material.

Contamination means actually coming into contact with the material. The amount of contamination depends on *how much* material is involved and *how long* it remains there.

NOTE: The primary way officers can protect themselves and others from a toxic exposure is to remain a safe distance upwind, uphill, and upstream from the material in question.

Individual reactions

Exposure to hazardous materials can affect the health and safety of both victims and response personnel. Every individual may react differently when exposed to toxic substances. Some of the factors that can affect each person's susceptibility to a hazardous material include, but are not limited to:

- gender,
- age,
- physical condition,
- medical history, and
- prior exposures to hazardous materials.

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Exposure

The table below illustrates the four routes by which a hazardous material can enter the human body.

Route	Explanation	Protective Actions
Inhalation (primary route of exposure)	Vapors and extremely fine particles can be inhaled and rapidly absorbed into the body through the lungs.	• When possible, approach a potentially dangerous scene from upwind. • Stay alert to changes in wind direction.
Absorption	Absorption of a hazardous material through the skin or eyes may be possible if the material is splashed, spilled, or drifts onto an exposed area of the body (e.g. face, neck, back of hands).	• If possible, remain upwind from a potentially dangerous scene. • Do not attempt to touch or move any unidentified materials. • Keep hands and clothing away from eyes. • Wash exposed areas frequently.
Ingestion	A hazardous material can be accidentally swallowed when persons eat, drink, smoke, touch their mouths with their hands, or lick their lips.	• Avoid eating, drinking, or smoking at a potentially dangerous scene. • Be cautious about touching anything that is suspicious. • Wash hands and face frequently.
Injection	Hazardous materials may enter the body if the skin is punctured at the scene.	• Be cautious of sharp objects.

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Effects of exposure

There are two primary effects a hazardous material can have on a person who is exposed to that material;

Type	Description	Example
Acute Effect	• One-time, limited or short-term exposure.	• Ranges from no immediate effects to death within minutes
Chronic Effect	• Continuous, recurring or long-term exposures.	• May not be detectable for years; could cause death • Developmental disorders (e.g. miscarriages, birth defects) • Long-term disorders (e.g. cancer, respiratory or kidney disorders)

Multiple hazards

Officers must also be aware that a hazardous material may have more than one hazard. For example, gasoline is flammable, poisonous and carcinogenic.

Documenting personal exposures

Federal and state regulations require that First Responders report exposures to their employer. The same regulations require the employer to maintain these records for 30 years after separation from employment. It is also recommended that First Responders maintain personal exposure records in order to have a complete history of all exposures to hazardous materials.

Every person who is exposed or who may have been exposed at a hazardous materials incident shall document his or her exposure. Such documentation should include at a minimum:

- exposed person's name,
- date, time and location of exposure,
- incident number,
- name of the hazardous materials,
- type, concentration and duration of the exposure,
- decontamination method and medical treatment provided, and
- what specific task or activity was being performed.

NOTE: Follow agency policy regarding documentation of exposure to hazardous material.

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Medical evaluations

Federal and state regulations require that First Responders be medically evaluated when they:

- are injured as a result of exposure,
- experience symptoms, which may be related to exposure.

NOTE: Peace officers acting as First Responders need to understand and follow their agency or jurisdiction regulations regarding medical evaluations after exposure to hazardous materials.

Chapter Synopsis

Learning need	Peace officers need to know the risks presented by hazardous materials and their role in responding to hazardous materials incidents.
Hazardous materials incidents [26.04.1]	A hazardous materials incident is any emergency involving the release of potential release of a hazardous material.
Specific challenges [26.04.2]	Hazardous material incidents may present peace officers with specific challenges.
First responder [26.04.3]	In general, the typical peace officer will respond to hazardous materials incidents as the awareness level.
Health and safety precautions [26.04.5]	The effect of a hazardous material on humans depends on the amount of *exposure* to a material and that material's *toxicity*. In order to protect themselves and others, officers need to be aware of the primary routes of entry through which the body can be exposed to a hazardous material.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to appropriate text, you should be able to prepare a response.

Activity questions

1. Define the signs and symptoms of acute exposure. Contrast that to chronic exposure.

2. What are the main ways a chemical can enter the body?

Continued on next page

Activity questions (continued)

3. Peace officers are the first to respond to the scene of an extensive fire at a dry-cleaning plant. After securing the scene and checking for victims, hazardous material trained fire personnel inform them that they have been exposed to perchloroethylene, a toxic dry-cleaning chemical recognized as a carcinogen. About ten minutes have elapsed. Based on this information, document the exposure for one of the officers' personal exposure record. What additional information is needed?

Chapter 5

Recognition & Identification of Hazardous Materials

Overview

Learning need

Peace officers must become familiar with the indicators and warning systems that identify specific dangers of hazardous materials in order to respond safely and effectively to hazardous materials incidents.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID:
• recognize the indicators of a hazardous materials incident including but not limited to: - National Fire Protection Association 704 (NFPA) - placards/labels - physical indicators - witnesses or involved parties - container(s) - victim/injuries	26.05.1
• list standardized sources of information of materials present at a hazardous incident to include but not limited to: - Emergency Response Guidebook (ERG), - Material Safety Data Sheets (MSDS), - Shipping papers - Other documents	26.05.2

Continued on next page

In this chapter

This chapter focuses on the recognition and identification of hazardous materials at the scene of a hazardous materials incident.

Topic	See Page
Recognizing Hazardous Materials	5-3
National Fire Protection Association 704 Warning System	5-4
Emergency Response Guidebook	5-6
Sources of Information	5-8
Other Systems	5-13
Chapter Synopsis	5-14
Workbook Learning Activities	5-15

Recognizing Hazardous Materials

Introduction

For their own safety and the safety of the public, it is critical that peace officers, acting as First Responders, be alert for indicators of the presence of hazardous materials as they approach a scene of an incident.

Calls

There are a number of calls that officers may receive that could involve hazardous materials incidents.

Examples include, but are not limited to:

- traffic collisions,
- medical aid,
- fires, or
- building searches,
- clandestine laboratories
- **weapons of mass destruction**

Individuals who report incidents such as these may not be aware of the presence of hazardous materials or may not understand that the presence of these substances is important. First responders need to know that the individuals reporting the incident may not be aware of the presence of hazardous material.

Hazardous materials indicators

There may be a number of indicators that can warn responding officers of the presence of hazardous materials. If any of these indicators are present, First Responders should suspect the presence of a hazardous material. These indicators may include, but are not limited to:

- fire, smoke, vapor clouds,
- visible leaks or damaged containers,
- loud roar or increased pitch of an operating relief valve,
- hissing, pinging or knocking sounds from closed containers,
- people showing signs of dizziness, nausea or breathing problems,
- people running from an area,
- unconscious people,
- location
- and human senses

National Fire Protection Association 704 Warning System

Introduction

The National Fire Protection Association (NFPA) has established a warning system for the identification of hazardous materials at fixed facilities. The purpose of the system is to safeguard the lives of those individuals who may be concerned with fires or emergencies occurring in areas such as an industrial plant, storage facilities, and other fixed locations.

NFPA704 warning signs

NFPA 704 warning system-warning signs appear as four diamond shapes grouped to form one large diamond-shaped sign. Diamond-shaped quadrants within the sign represent specific hazard categories.

NOTE: A sample NFPA 704 warning sign is included in the Supplemental Materials portion of this workbook.

Hazard categories

The following table identifies the categories of hazardous materials and how they are identified on a NFPA warning sign.

Category	Color Code	Location on NFPA 704 Warning Sign	Type of Warning
Health	Blue	Left diamond	• The inherent property of a material to cause injury, illness or death when taken into the body by inhalation, ingestion, injection, etc.
Flammability	Red	Top diamond	• A material's susceptibility to burning
Reactivity	Yellow	Right diamond	• Potential to accelerate chemical reactions • Self-reaction, polymerization • Violent explosive reaction with other materials
Special Hazard	White	Bottom diamond	• An indication of an unusual hazard such as reactivity with water, radioactivity, etc.

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Degree of hazard

The red, blue, and yellow diamond within the large diamond shape of a NFPA 704 warning sign also contains a number ranging from zero to four indicating the degree of hazard for the category in that field. The following table generally identifies the five degrees of hazards used.

Numerical Value	Degree of hazard
0	No unusual hazard
1	Minor hazard
2	Moderate hazard
3	Major hazard
4	Extreme hazard

Special hazards

The special hazard diamond of the NFPA 704 warning sign (bottom white diamond) may also contain a special hazard symbol. Special hazard symbols are noted in the following table.

Symbol	Means the hazardous material
₩	is water reactive
OX or OXY	has oxidizing properties
	is radioactive
EXP	is explosive or shock sensitive
POL	is subject to polymerization

NOTE: NFPA 704 is not mandated in all jurisdictions.

Emergency Response Guidebook

Introduction

The **Emergency Response Guidebook (ERG)** is a basic safety tool for First Responders to use in identifying hazardous materials.

Information included

The ERG is a guide to aid First Responders in quickly identifying the specific or generic hazards of the materials involved in an incident. It also gives information on how First Responders can protect themselves and others during the initial response phase of the incident. It is not intended to provide information on the physical or chemical properties of the hazardous materials.

NOTE: Material Safety Data Sheets (MSDS), also referred to as Safety Data Sheets (SDS), and emergency response information, if available, should be obtained and used to provide more accurate information (e.g. the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals). The guidebook is organized into five parts and is color-coded for easy usage.

Section	Information
White pages	• Information on how to use the guide • Placard table • Hazard classification system • Rail car and road trailer identification chart • Criminal/terrorist use of chemical/biological agents • Glossary
Yellow-bordered pages	• Indexed by the four-digit identification number • Refer the responder to the appropriate guide page
Blue-bordered pages	• Indexed by name • Refer the responder to the appropriate guide page
Orange-bordered pages-numerical	• Provide information on potential hazards and appropriate emergency actions
Green-bordered pages	• Contain the Table of Initial Isolation and Protective Action Distances • Dangerous when wet materials and poison inhalation hazards • Entries are indexed by the four-digit identification number • NOTE: First Responders must also reference the appropriate guide page (orange-bordered pages) before referring to the green-bordered pages.

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Using ERG

Step	Action	Description
1	Identify the material	• Identification can be accomplished using any one of the following and the ERG: - 4-digit ID # on a placard, document, or package - Name of the material on a document or package
2	Determine the material's guide #	• Look up the hazardous material's guide # in either the: - ID # index (yellow-bordered pages) - Material name index (blue-bordered pages) • If the index entry is highlighted, look for the ID # and name of the material in the Table of Initial Isolation & Protective Action Distances (green-bordered pages; not for use if material is on fire)
3	Determine potential hazard(s) and appropriate emergency actions.	• Turn to the guide number (orange-bordered pages) and read carefully.
4	If no material name or ID number is available use alternative means to identify the material.	• If a numbered guide cannot be obtained following the above steps, and a placard can be seen, locate the placard in the table of placards (white pages), then go to the guide (orange-bordered pages) shown next to the sample placard that matches the placard at the scene. • For rail car and road trailer turn to identification chart in white pages and follow guide. • If a reference to a guide cannot be found and hazardous materials are believed to be involved: - turn to Guide 111, and - use it until additional information becomes available.

Sources of Information

Introduction

There are a number of additional indicators that First Responders should look for upon arrival at an incident that could warn of the presence of hazardous materials.

Sources	Examples
Container	• Size, shape, type of container commonly used (e.g. 55-gallon drums, tank trucks, etc.)
Special markings	• Presence of signs, placards, signal words, identification numbers, symbols, colors, etc. that appear on or near the materials and communicate specific information
Documentation materials	• Documents describing the material
Information from witnesses	• Information from bystanders, responsible parties, etc.

Containers

The shape of a hazardous materials container may be a clue to its contents. Some common hazardous materials containers include, but are not limited to:

- rail cars,
- cargo tanker trucks,
- storage tanks,
- drums, bottles, boxes, bags, cylinders, and
- pipelines.

NOTE: Stresses on containers such as thermal (heat damage), mechanical (damage to container), or chemical (incompatibility) may cause a hazardous materials incident.

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Special markings

There are three standard communication systems that have been established to help identify hazardous materials and communicate the risk.

- Department of Transportation (DOT) communication standards,
- National Fire Protection Association (NFPA) warning system, and
- Occupational Safety Health Administration (OSHA)

Some common types of warnings for hazardous materials are:

- signs,
- signal words,
- placards,
- labels, and
- other markings.

Documentation

Hazardous materials in the workplace and in transport have several documents to identify the material, communicate the hazards and give guidance when the material is involved in an incident. Examples of these documents are:

- Shipping papers, invoices and bills of lading
- Material Safety Data Sheets/Safety Data Sheets
- Emergency information such as the **Emergency Response Guidebook (ERG)**
- Other documents such as product information sheets, brochures, catalogs and employee right-to-know information

Information from involved parties or witnesses

Involved parties or witnesses can provide valuable information to responders including initial observations of the event, location of drivers or employees, and other pertinent details.

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Use of DOT standard

The **(DOT) communication standard** system has become a standard for use on placards, labels, markings and documents associated with the *shipping* of hazardous materials. The rules on the use and placement of these placards, labels, markings, and documents will vary with the type of materials being shipped, the quantity, the mode of travel and the container type used.

Hazard classes

The DOT communication standard uses hazard class and division numbers, colors, and descriptive symbols to identify a primary hazard of a material. Any of this information may help the first responder identify the type hazard.

Shipping papers

Federal regulation requires that any transported hazardous material must have shipping papers that describe the material and its hazards. Shipping papers are a preferred information source for identifying hazardous materials. The papers should give the emergency contact number which may be used for additional emergency information on the materials shipped.

Shipping papers should contain the:

- proper shipping name of the material,
- hazard class and division number,
- identification number (ID number)
- packing group,
- total quantity and unit of measure, and
- other information required by DOT regulations.

NOTE: The hazard class number is a number assigned based on the specific type of hazard posed by the material (e.g. hazard class 1 –explosives, hazard class 3 – flammable liquids, etc.). The division is a sub-category of a hazard class (e.g. 2.3 – poison gas).

NOTE: The identification number is a four-digit number assigned to a material or group of materials with the same hazardous characteristics, identification numbers can also appear on placards, vehicles, rail cars, packages, and Material Safety Data Sheets/Safety Data Sheets.

NOTE: Common names associated with shipping papers include but are not limited to: Bills of Lading, Air Bills, Waybills (shipping documents) or Dangerous Cargo Manifest.

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Material safety data sheets/ Safety Data Sheets

Federal regulations require employers that use or produce hazardous materials to prepare written documentation for the workplace describing the hazards the substance may present. This information is contained in the Material Safety Data Sheets/Safety Data Sheets and may accompany shipping papers as required emergency response information.

For First Responders the most valuable information the Material Safety Data Sheets/Safety Data Sheets provide is the:

- chemical name,
- company identification,
- hazard identification,
- response information,
- chemical/physical properties,
- first aid measures, and
- exposure controls/personal protection.

NOTE: First Responders should be aware that the information contained in shipping papers and Material Safety Data Sheets/Safety Data Sheets may not always be accurate or complete.

Placards

Placards are required to be displayed on containers used to transport hazardous materials. Placards must be displayed on all four sides of a:

- freight container,
- transport vehicle, or
- rail car.

Conveying information on placards

Placards use a number of components to convey information regarding a hazardous material. An 11-inch diamond is used to identify the hazard by the use of:

- color(s),
- symbol or pictograph in the upper corner,
- hazard class name, material name or identification number in the middle of the placard, and/or
- hazard class and division number in the bottom corner of the placard.

NOTE: All placards must have, at a minimum, an identification color.

Continued on next page

"Dangerous" placards

Some vehicles may use a "dangerous" placard if the transport vehicle contains multiple classes of hazardous materials,

- with a combined weight of 1001 pounds or more,
- that may require different placards.

Labels

Labels are affixed directly to smaller containers, i.e. 55-gallon drums, cartons or cylinders which hold hazardous materials and are used to indicate the hazard classification. A four-inch diamond is identical to the 11-inch placard and is used to identify the hazard by the use of:

- label color(s),
- symbol or pictograph in the upper corner of the label,
- hazard class name, and/or
- hazard class and division number in the bottom corner of the label.

Markings

Markings are used in several locations including packages or containers of hazardous materials.

Generally, markings consist of the material name and the identification number of the hazardous material.

NOTE: Markings are located close to the hazard label on a package.

Multiple hazards

Some individual materials may have more than one hazard classification. In that instance, substances are classified according to the class posing the greatest hazard.

Materials with multiple hazards may have multiple placards and labels to warn of each hazard. A placard or label indicating a subsidiary hazard will not have a class or division number at the bottom. Shipping documents may not indicate these additional hazards.

First Responders should always consider the possibility of multiple hazards of a material regardless of how it is placarded or labeled.

Other Systems

OSHA

Several agencies and groups have signs and indicators to warn of the presence of hazardous materials. This section will give a basic description of the major warning indicators.

OSHA is the federal agency that regulates the workplace. Among many programs OSHA has is the warning for industrial workers and the public who may be exposed to hazards. The signs required by OSHA use a warning word and a sign color scheme to communicate the warning. The three signs are described in the following chart.

Warning Word	Sign	Hazard Description
DANGER	Red	Situation which has high probability of death or serious injury
WARNING	Orange	Situation which has some probability of death or serious injury
CAUTION	Yellow	Situation which may cause minor or moderate injury

Chapter Synopsis

Learning need	Peace officers must become familiar with the indicators and warning systems that identify specific dangers of hazardous materials in order to respond safely and effectively to hazardous materials incidents.
Indicators [26.05.1]	There may be a number of outward indicators that could warn responding officers of the involvement of hazardous materials. If any of these conditions are present, First Responders should suspect the presence of hazardous materials until proven otherwise.
Sources of information [26.05.2]	Hazardous materials in the workplace and in transport have several documents to identify the material, communicate the hazards and give guidance when the material is involved in an incident.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity questions

1. Peace officers are dispatched to the scene of a fire at a pharmaceuticals company. En route to the scene, what hazards should the officers already be anticipating?

2. Continuing the scenario of question 1: As First Responders, the officers find that the particular building involved in the fire has posted magenta and yellow signs featuring a trefoil symbol. A company representative tells the officers that the facility manufactures dyes used in certain types of X-ray procedures. At this point, what hazard(s) should officers prepare for?

Continued on next page

Activity questions (continued)

3. What risks should officers recognize when approaching an overturned tanker truck with a placard that features a red flame and the number 3? What if the placard was white over black with a test tube symbol and the number 8? Does a Class 8 hazard necessarily pose a lower risk to safety, health, or the environmental than a Class 1 hazard? Explain.

4. Officers responding to a call about a trespasser at an abandoned industrial site discover several rusty drums that appear to be leaking. Upon noticing that one of the drums bears the partially worn away word "Caution," one officer says, "Oh, I was worried for a minute, but this stuff can't be too bad." At this point the officer proceeds to touch the leaking substance to try to identify it. Explain the rationale for the officer's statement and outline the critical flaws in the officer's thinking and actions.

Continued on next page

Activity questions (continued)

5. How might a peace officer identify a hazardous substance with the ERG if no four-digit number exists on the placard?

6. Where should peace officers expect to find NFPA hazard markings? You see a building with a 704-sign storing a highly toxic pesticide; what number would you expect to see in the blue quadrant? What placard would you expect to see on a tanker truck transporting the same material?

Continued on next page

Activity questions (continued)

7. Draw and explain the 704-warning sign system.

Chapter 6

Safety, Isolation and Notification at Hazardous Materials Incidents

Overview

Learning need

Peace officers must have a clear understanding of the need for safety, isolation, and notification when acting as First Responders at the scene of a hazardous materials incident.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID
• recognize the guidelines for safely assessing and approaching a hazardous materials incident.	26.06.1
• identify the components of the R.A.I.N. concept - recognize - avoid - isolate - notify	26.06.2
• identify factors to consider when establishing a perimeter around a hazardous materials incident.	26.06.3
• identify the types of control zones at a hazardous materials incident, including: - exclusion zone (hot) - contamination reduction zone (warm) - support zone (cold)	26.06.4
• identify the procedure to be followed before leaving the scene (e.g. decontamination, exposure reporting)	26.06.5

Continued on next page

In this chapter

This chapter focuses on the actions that First Responders must take when they arrive at the scene of a hazardous materials incident.

Topic	See Page
Safety & Assessment	6-3
Components of the R.A.I.N. Concept	6-6
Isolation	6-7
Notification	6-10
Chapter Synopsis	6-12
Workbook Learning Activities	6-13

Safety & Assessment

Introduction

It is essential that First Responders understand that their primary mission is to respond to hazardous materials incidents in a safe and competent manner, within the limits of their training, capabilities, and resources.

Communication with dispatch

When called to a known or suspected hazardous materials incident, the First Responder should consider requesting the following types of information from dispatch.

- Size and location of the incident
- Occupancy type (if the incident is in or near a building or buildings)
- Descriptions of vehicles involved
- Weather conditions, such as wind direction
- Victims
- Information or warning signs on containers (such as placards, labels, identification numbers, manufacturers and chemical names)
- Where to meet the reporting party
- Safe approach route

SIN

The efficiency and effectiveness of any hazardous material response depends on the First Responder's ability to recognize and adhere to established response priorities and protocols.

The priorities of an officer when arriving at the scene of a hazardous incident are:
S: SAFETY
I: ISOLATION
N: NOTIFICATION

Safety

The First Responder's primary consideration at a hazardous materials incident is always safety. Safety for the First Responder shall include a safe approach and distance from the incident. When approaching a scene of a known or suspected hazardous materials incident, First Responders should, whenever possible, approach upwind, upgrade (uphill), and/or upstream.

First Responders should consider positioning themselves upwind versus uphill and select the safest approach, or do not approach and remain at a safe distance.

Continued on next page

Safe minimum distances

When responding to a hazardous materials incident, the First Responders should remain a safe distance from the scene to avoid contamination.

If the presence of hazardous materials is suspected or has already been identified, the First Responder can refer to the ERG to determine the minimum distance that must be maintained for personal safety.

Assessing the incident

First Responders need to conduct a preliminary assessment of the incident during this initial period. In doing so, First Responders should never compromise their safety.

The basic guidelines for a safe assessment include:

- observe the hazard from a safe distance at all times.
- giving the exact location and other available information when reporting the incident.
- advise responding units of the safe route of approach.

On-scene safety guidelines

There are a number of safety guidelines that First Responders at the scene of an incident should always follow.

- Do not rush to assist. Under most circumstances, First Responders at the awareness level are not adequately trained or equipped to conduct victim rescues.
- Be cautious and treat materials as hazardous until identified and verified as nonhazardous.
- Approach incidents from uphill, upwind and upstream, if possible.
- Maintain a safe distance at all times.
- Never eat, drink or smoke in the incident area.
- Do not inhale, touch or ingest released materials. (Do not assume vapors are harmless due to lack of smell or taste.)
- Eliminate all ignition sources, including flares, near the incident.
- Continually reassess personal safety.
- Keep communication continually updated.

Continued on next page

Agency policies

Peace officers must be aware of and comply with all agency policies and procedures regarding required safety measures when responding to a hazardous materials incident.

Examples

The following examples illustrate accepted safety practices and guidelines of safety for First Responders at the scene of a hazardous materials incident.

Example: Peace officers responded to a call of a vehicle roll-over collision. At the scene an overturned tanker truck was leaking a green liquid that emitted a dark vaporous gas and smelled like gasoline. For safety reasons, the officers parked their patrol car and viewed the scene approximately one-half mile from the truck. They positioned their car facing away from the scene, denied entry and called in the appropriate response agencies to handle the incident.

Examples (continued)

Non-example: Peace officers responded to a call of a substance on the roadway. At the scene were several open unmarked bags of a white powdery substance. The officers drove to the incident and turned over a bag to check for any markings. The officers should not have gotten that close and should never have touched or moved the bags.

Components of the R.A.I.N. Concept

Introduction

The acronym R.A.I.N. is used to outline protective measures to be taken by law enforcement First Responders while responding to a hazardous materials/ Weapons of Mass Destruction (WMD) incident.

Components of R.A.I.N.

R.A.I.N. is an acronym for Recognize, Avoid, Isolate, and Notify.

- **Recognize** the hazard/threat
- **Avoid** the hazard/becoming contaminated/injured
- **Isolate** the hazard area
- **Notify** the appropriate support

This acronym will be applied throughout this curriculum to refer to the protective measures which may be taken by a law enforcement First Responder dependent upon the type hazardous materials/ WMD threat that is thought to exist.

For example, recognition that an explosion has occurred which is based upon direct visual cues is much different than being able to recognize a biological agent that has been deployed based upon the specific signs and symptoms manifested by victims.

"Recognize" (What do I hear, see or smell?) refers to the officer's ability to sense or extrapolate that a WMD agent has been deployed. It presupposes rapid interpretation and quick mental processing of the event.

"Avoid" (What do I stay away from?) relates to taking appropriate actions to avoid exposure, contamination, illness, or injury. This also incorporates the concepts of "time, distance, and shielding" (e.g. minimizing time in contact with the hazard, putting distance between oneself and the hazard, and utilizing effective protective barriers between oneself and the threat.).

Isolate" (Whom do I protect?) refers to the reduction of potential exposure or contamination by removing individuals from the immediate area of the threat as well as preventing others from entering an area of danger.

"Notify" (Whom do I call?) refers to passing on essential information to command authorities and other appropriate entities.

Isolation

Introduction

Isolation involves establishing a perimeter at a hazardous materials incident to ensure the safety of all responders and the public.

Perimeter

The *first operational priority* at an incident is to isolate the incident scene and deny entry to any unauthorized people by establishing a command post and an inner perimeter.

A **perimeter** at a hazardous materials incident is an area which is secured far beyond the hazardous material release and which no one else can enter without proper authority. When in doubt go as large as practical.

The size of the perimeter is dependent on several factors including but not limited to:

- size and type of incident
- environmental factors
- personnel resources, etc.

The perimeter should be large enough to prevent exposure to any responding personnel or the public. It is important that First Responders set perimeters that they can control.

Methods for establishing perimeters

Various methods for establishing perimeters include the use of:

- police personnel
- barricades,
- banner tape,
- traffic cones,
- natural and artificial barriers (rivers, buildings, etc.), or
- vehicles.

Due to the potential of fires or explosions, the use of road flares is generally discouraged.

Incident command system

First Responders at the awareness level should be familiar with the use of Incident Command System (ICS) in a hazardous materials incident.

Continued on next page

Incident commander

An Incident Commander assumes control of the incident scene and has overall management of the incident. The initial First Responder shall assume temporary command and establish an incident command post.

The initial Incident Commander shall manage the incident until relieved. When relieved, the First Responder shall communicate the pertinent information about the incident to the new Incident Commander.

Safety officer

Federal and state law requires that a Safety Officer be designated at a hazardous materials incident. A Safety Officer's responsibilities include:

- emergency authority to stop or prevent unsafe acts,
- identifying and evaluating hazards,
- identifying potentially unsafe situations,
- ensuring operations are conducted safely, and
- modifying of response activities in relation to any perceived hazard.

Individual First Responders will be required to follow the specific direction of the Safety Officer regarding appropriate safety procedures.

Contamination

The First Responder shall isolate any contaminated people and equipment within the established perimeter. If possible, contaminated people should be directed to a safe area away from the immediate threat, yet still within the perimeter. The First Responder should advise responding personnel of the existence and location of the contaminated people and equipment.

Examples

The following examples illustrate First Responders following standard procedures for isolating the scene of a hazardous materials incident.

Example: Officers were called to a traffic collision on a major freeway. The collision involved a hazardous materials spill from a tanker truck. The driver of the patrol vehicle parked across the lanes of the freeway to stop vehicles from entering the incident and becoming exposed to the spill.

Example: After responding to a call of a release of a gaseous substance at a pesticides firm, officers positioned their vehicle in front of the gate, at a safe distance, in order to prevent anyone from entering the area. They also radioed for additional resources to help set up and maintain a perimeter to secure the area.

Continued on next page

Control zone

A **control zone** is an area, inside the perimeter, established at a hazardous materials incident to ensure safety, control the hazard area, and support response operations. Control zones are set by hazardous materials technicians/specialists.

Types of control zones

There are three types of control zones that are established at a hazardous materials incident. They form three distinct areas surrounding the incident. The following table identifies each zone.

Zone	Location	Description
Exclusion zone (*"hot" zone*) (red zone)	• Innermost area • Isolation area	• Extreme danger • Completely surrounds the hazardous materials incident • Entry is restricted to trained personnel in protective clothing only
Contamination reduction zone (*"warm" zone or* yellow zone)	• Between the exclusion and support zones • Transition area	• Where personnel and equipment are decontaminated
Support zone (*"cold" zone or* green zone)	• Outermost area • Safe zone	• Equipment and personnel should not become contaminated in this area • Considered safe for support personnel and resources (e.g. staging areas, media, command post, etc.)

Perimeters and control zones may need to be modified depending on changing conditions (wind shift, etc.) at the scene of the incident.

Notification

Introduction

This action is to notify the appropriate personnel so that a safe and effective response to the incident can continue.

Notifications

Notifications must include:

- Local dispatch
- Administering Agency (e.g. fire dept., county health dept.)
- Office of Emergency Services

First Responders responding to the reported release or threatened release of a hazardous material or to any fire or explosion involving a release shall immediately advise the superintendent of any school located within a ½ mile of the incident.

Information to dispatch

When reporting a hazardous materials incident, officers should communicate the following information to dispatch.

- Location of the incident
- Type of premises and/or vehicles involved
- Size and perimeter of the involved area
- Weather conditions onsite
- Name of hazardous material involved, if known
- Any information about placards, ID numbers, warning signs, etc.
- Safe entry and exit routes to and from the scene
- Activate Emergency Medical Services (EMS), if appropriate
- Location of command post

Additional personnel

First Responders will need to request additional personnel depending on the nature and degree of the hazard. These additional resources may include, but are not limited to:

- emergency medical services (EMS),
- supervisory personnel,
- fire service,
- additional law enforcement personnel, (e.g. CHP)
- health department.

Continued on next page

Procedures before leaving the scene

Before leaving a hazardous materials incident, First Responders should:

- check with authorized personnel (specialists, technicians, etc.) regarding the need for personal/equipment decontamination.
- complete a personal exposure report.

NOTE: State and federal regulations require reporting of personal exposures to hazardous materials. Individual agencies may also have policies that address specific reporting procedures.

Chapter Synopsis

Learning need	Responding to critical incidents, peace officers may be called upon to act quickly in situations involving fires or explosives. Officers must become familiar with the risks presented by these calls in order to respond safely and effectively.
Safely assessing & approaching [26.06.1]	When approaching a scene of a known or suspected hazardous materials incident, First Responders should, whenever possible, approach the scene, upwind, upgrade (uphill), upstream, and at a safe distance (use of binoculars is recommended).
Components of R.A.I.N. [26.06.2]	Peace officers must have a clear understanding of the need for safety, isolation and notification when acting as First Responders at the scene of a hazardous materials incident. Recognize, Avoid, Isolate, Notify
Establishing a perimeter [26.06.3]	Various methods for establishing perimeters include the use of barricades, barrier tape, traffic cones, natural and artificial barriers (rivers, buildings, etc.), or vehicle (at a safe distance).
Control zones [26.06.4]	There are three types of control zones that are established at a hazardous materials incident. They form three distinct areas surrounding the incident.
Procedures before leaving the scene [26.06.5]	Peace officers should check with authorized personnel regarding personal/equipment decontamination and reporting.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity questions

1. Draw a diagram illustrating the relative position of each of the following: perimeter, exclusion zone, contamination reduction zone, and support zone. How might a sudden shift in wind direction from East to West affect the positioning of these areas, given a relatively flat landscape?

Continued on next page

Activity questions (continued)

2. A suspicious explosion in a pharmaceutical research facility leaves five laboratory workers injured, one critically. The five employees are also contaminated with an infectious substance. Peace officers are the first responders to the scene, receiving this information from dispatch via a 911 call from the facility. Ambulances arrive only minutes later. Until a knowledgeable Incident Commander arrives, what actions should officers take with regard to the injured workers?

3. Peace officers are the first responders at the scene of a highway accident involving a tanker truck that has run off the road down a shallow embankment. One block away is a school. The truck driver used his radio to report the accident and to inform officers that the truck was carrying fuel oil which is slowly leaking into a creek at the bottom of the embankment. Based on the information, what safety precautions should the officers take? Presume you are one of the first responding officers. List the information you should relay to your dispatcher. Fill in details as required. What, if any, other reporting requirements do you have as a First Responder?

Continued on next page

Activity questions (continued)

4. Two officers patrolling the highway outside a large residential area witness a driver of a small car cut in front of a truck transporting drums. The truck swerves to avoid the car, overturns and bursts into flames. As the officers approach to assist, they see the driver escape from the truck safely. The driver tells the officers the drums contain the chemical toluene, used in paint manufacturing. The officers have no specialized training, but one recognizes toluene as being extremely toxic. What actions should the officers take as first responders? What should they not do under any circumstances? How do you think the officers' role should have changed, if at all, if the driver was unconscious in the truck cab?

5. Several officers from a nearby town respond to the scene of a train collision with a bus. An unknown chemical is leaking from at least two tanker cars. As an officer on the scene, what contamination hazards should you be aware of, and what precautions should you take as you try to assist injured victims? What risks should you as an officer deem unacceptable to take, even in this emergency situation?

Student Notes:

Chapter 7

Weapons of Mass Destruction (WMD), Response Strategies and Personal Protective Equipment (PPE)

Overview

Learning need

Peace officers must be familiar with, understand, identify and effectively respond to an event involving Weapons of Mass Destruction (WMD).

Learning objectives

The chart below identifies the student learning objective for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID:
• Identify Weapons of Mass Destruction (WMD)	26.07.1
• Identify routes of exposure of WMD	26.07.2
• Recognize the response categories to B.N.I.C.E. indicators 1. biological 2. nuclear/radiological 3. incendiary 4. chemical 5. explosives	26.07.3
• Identify the importance of WMD job aids for First Responders. 1. Louisiana State University (LSU) WMD Response Guide 2. Emergency Response Guide (ERG)	26.07.4
• Identify the basic on scene actions at a WMD incident	26.07.5
• Identify incident response priorities 1. Life versus property 2. Crime scene protection 3. Preservation of evidence	26.07.6
• Identify types and levels of Personal Protection Equipment (PPE) and contamination issues and consideration	26.07.7

Continued on next page

In this chapter

This chapter focuses on providing a basic understanding on weapons of mass destruction and the threat they pose to American society. Refer to the chart below for specific topics.

Topic	See Page
Weapons of Mass Destruction (WMD)	7-3
Routes & Assessment of WMD exposure	7-6
Response Categories to B.N.I.C.E.	7-7
Importance of WMD Job Aids for First Responders	7-19
Basic On-Scene Actions at WMD Incidents	7-21
Incident Response Priorities	7-22
Types of Personal Protective Equipment (PPE) & Decontamination Considerations	7-23
Chapter Synopsis	7-25
Workbook Learning Activities	7-27

Weapons of Mass Destruction (WMD)

Introduction

Weapons of Mass Destruction come in a variety of types and categories. They all have one overriding theme, that being the destructive power and threat to human life.

Weapons of mass destruction (WMD) defined

Title 18 United States Code states: Any destructive device as defined in Section 921 of Title 18. Any weapon that is designed or intended to cause death or serious bodily injury through the release, dissemination, or impact of toxic or poisonous chemical, or their precursors, or radiation at any level dangerous to human life. Any weapon involving a disease organism.

Section 921, Title 18 Destructive Devices states:

Any explosive, incendiary or poison gas:

- Bomb
- Grenade
- Rocket having propellant charge greater than 4 oz.
- Missile having explosive/incendiary charge of greater than ¾ oz.
- Mines
- Devices similar to any of the devices described in the preceding clauses

NOTE: These are federal code sections dealing with weapons of mass destruction (WMD). Most states have their own penal code or health and safety code sections covering the same substances and devices. California *Penal Code Sections 11415-11419* provides statutory references for WMD.

Continued on next page

Common WMD acronyms

There are a variety of acronyms used to describe Weapons of Mass Destruction. Each of these is used to identify the general categories of WMD materials with some being more inclusive than others.

NBC (Nuclear, Biological, Chemical) the acronym most commonly used by the military

COBRA (Chemical, Ordnance, Biological, Radiological) which is preferred by the Center for Domestic Preparedness (CDP) which is a branch of the Office of Domestic Preparedness (ODP)

CBRN (Chemical, Biological, Radiological, and Nuclear)

CBRNE (Chemical, Biological, Radiological, Nuclear, and Explosive)

BNICE (Biological, Nuclear, Incendiary, Chemical, and Explosive)

B-NICE

The B-NICE model is widely preferred for several reasons:

- For the average responder, radiological and nuclear emergencies are functionally synonymous.
- Incendiary devices are being used by terrorists with regularity.

NOTE: This acronym is commonly used by the Fire Service.

Timeline of WMD effects

Depending upon the material, the discovery of WMD effects may vary from instantaneous recognition (e.g. an explosion) to several days or weeks (e.g. individuals becoming ill as the result of the release of a biological agent). Typical time spreads:

- Conventional explosion or nuclear detonation (milli-seconds)
- Incendiary device (minutes)
- Chemical release (minutes to hours)
- Radiological release (minutes to hours)
- Biological release (days to weeks)

Continued on next page

Additional hazards

There is always the possibility of additional hazards when Weapons of Mass Destruction have been deployed. Peace officers should also be aware of:

- Secondary Devices - devices employed to disrupt emergency operations and/or cause death/serious injury to law enforcement first responders.

- Secondary Contamination - The transfer of contaminates from one person to another (e.g. victims approaching and touching law enforcement first responders when requesting assistance).

- Suspects - WMD are weapons employed by terrorists to cause mass panic, serious injury and death to further their political, religious or philosophical ideology. In some incidents, suspects may remain at the scene, or return to the scene, intending to die in furtherance of their cause. Such suspects may use firearms in addition to WMDs or improvised explosive devices. Peace officers must remember that terrorists are criminal suspects who pose a serious threat to an officer's safety. They are to be considered armed and extremely dangerous and treated as any other homicide suspect.

Indicators

There are numerous indicators that may precede the deployment of a Weapon of Mass Destruction. The indicators are only limited by the imagination and the nature of the terrorist activity intended.

Indicators of a Weapon of Mass Destruction may include but are not limited to:

- Terrorist threat/warning
- Unusual occurrences preceding a hazardous material release (e.g. theft of gasoline tanker truck)
- Presence of a hazardous material in an unusual location (e.g. white powdery substance in a basketball gymnasium)
- Abandoned vehicles, luggage, packages, etc.
- Suspicious activity at a known terrorist target
- Information received from the community

Routes & Assessment of WMD Exposure

Introduction

The respiratory system is the most critical route to protect. Many protective measures are common-sense based (e.g. avoiding ingestion) unless the actions of the terrorist deliberately target a route of exposure (e.g. the injection of a ricin-laced pellet as an assassination device).

WMD routes of exposure

The common routes of exposure for WMD materials include:

- Inhalation
- Ingestion
- Absorption
- Injection

Assessment

Signs and symptoms of WMD exposures are used when assessing what might be seen by the law enforcement First Responder.

Signs:

- Could include, but are not limited to people having seizures, uncontrolled vomiting, etc.

Symptoms are typically communicated by the affected individual and are not always apparent to the law enforcement First Responder.

Symptoms:

- Could include, but are not limited to abdominal pain, blurred vision, etc.

Incubation or Incubation Period:

- This is the time it takes for an exposed individual to manifest the signs and symptoms or the onset of the disease.
- Incubation periods vary widely among biological agents and are impacted by the general health of the affected person.
- Persons taking immuno-suppressing substances (e.g. transplant patients) or those who have a weaker immune system will typically be the first individuals to be affected by a disease organism.

Rate of Action:

- This refers to the time between exposure and lethality. Some chemical warfare agents such as the VX nerve agent can kill within minutes of exposure.

Response Categories to B.N.I.C.E Indicators

Biological WMD Agents

Biological WMD agents are disease-causing organisms or the toxins produced by living organisms. The Department of Homeland Security and Department of Defense maintain confidential lists of specific biological agents as being those most likely to be "material threats" when employed by terrorists. These lists are updated periodically and are generally not available to the public.

However, some of the more common biological agents which have been used in acts of terrorism, or are known to be listed as Material Threats include:

- Anthrax (bacterial disease)
- Botulinum Toxins
- Hemorrhagic Fevers
- Ricin
- Plague
- Smallpox (virus)
- Tularemia or "rabbit fever"

Nuclear/ Radiological WMD Agents

For the average law enforcement first responder it is sufficient to merely recognize that the disintegration of atoms creates several types of ionizing radiation. Radiation is the invisible energy, which is emitted by certain types of unstable or "radioactive" atoms. The detonation of a nuclear device causes blast damage in addition to the release of ionizing radiation.

Nuclear detonation

The detonation of a nuclear fusion device causes a blast radius (size dependent) from 10 to 30 miles from ground zero.

The detonation causes extensive damage to the infrastructure and causes hundreds of thousands of casualties.

The nature of ionizing radiation

For the average law enforcement First Responder it is sufficient to merely recognize that the disintegration of atoms creates several types of ionizing radiation. Radiation is the invisible energy, which is emitted by certain types of unstable or "radioactive" atoms.

Radiation is invisible to the eye; however, its presence can be identified using readily available detection devices (e.g. "Geiger" counters, dosimeters, etc.).

NOTE: A **Geiger Counter** is a radiation detection and measuring device.

Continued on next page

The nature of ionizing radiation (continued)

Radioactive emissions may be emitted as waves or particulates. Some types of radiation can penetrate clothing, packaging materials, vehicles, and buildings. The lethality of exposure to radiation will depend upon the intensity of the source material, the amount of time the individual is in proximity to the source material, and how close the individual has come to the source material.

The further radiation travels, the weaker (and less hazardous) it becomes. In fact, the reduction in effect is logarithmic so as the distance from the source is doubled, the effect is reduced by a factor of four.

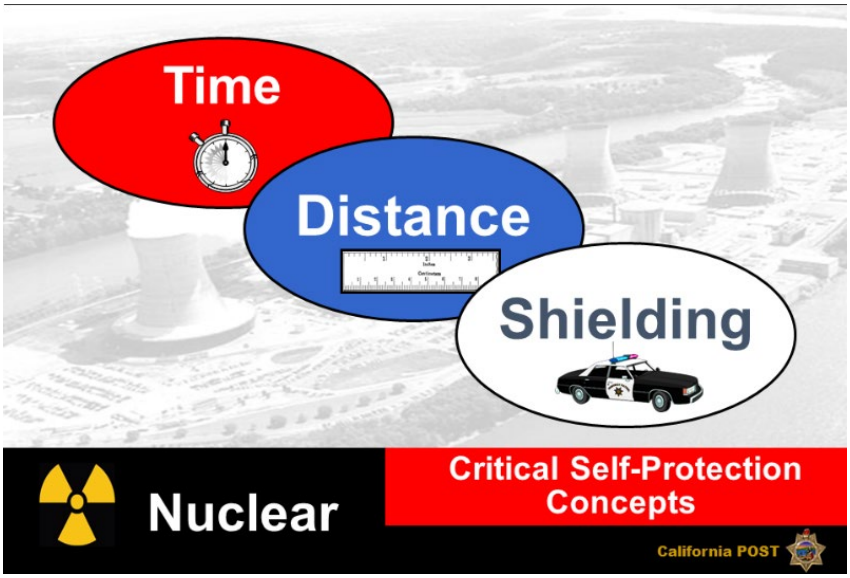
Greatest threat to officers

It is generally felt that the greatest potential radiological threat to a law enforcement First Responder will come from the release of a radioactive material, particularly a powder or dust, caused by the detonation of a conventional explosive device which is attached to a container of radiological material. This Radiological Dispersion Device (RDD) or "dirty bomb" may spread contaminants over a wide area.

Importantly, the resulting powder or dust can easily be inhaled by unprotected law enforcement First Responder.

Critical self-protection concepts

Self-protection concepts include applying Time, Distance, and Shielding.



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Response Categories to B.N.I.C.E Indicators, Continued

Characteristics of incendiary devices	Incendiary devices are extraordinarily easy to manufacture out of inexpensive and readily available materials.
Facts regarding terrorist use of incendiary devices	Comprehensive instructions for creating incendiary devices are available on the Internet and in many publications. Incidents involving the use of incendiary devices were preceded by articulated threats less than 5% of the time.
Triggering methods	Incendiary devices are typically triggered by one of three methods: • Chemical activation • Electronic activation • Mechanical activation
Delivery methods	The most common delivery methods of incendiary devices are: • Stationary placement • Hand-thrown (e.g. the traditional "Molotov Cocktail") • Self-propelled
Components	The three fundamental components of virtually every incendiary device include: • The ignition source (e.g. matches) • The combustible filler (e.g. gasoline) • The housing or container for the combustible filler material (e.g. plastic gallon jug)

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Construction materials

Common incendiary device construction materials include, but are not limited to:

- Common highway road flares/fusee which offer 10 – 30-minute burn times and which generally are resistant to both wind and water
- Gasoline and motor oils (which may be combined with substances such as powdered or liquid soaps to change the viscosity and create a "poor man's" version of Napalm)
- Light bulbs (are easily breakable, readily available, and inexpensive filler containers)
- Matches and fireworks (ignition sources)
- Various electrical parts including switches, timers, and batteries
- Propane, and other cylinders contain combustible material under pressure
- Plastic pipes, bottles, cans, and other containers limited only by the imagination of the device maker

Types of Chemical Agent WMDs

Chemical agents are substances that can injure, incapacitate or kill through a variety of means. The two types of chemical agent WMDs are:

- Chemical weapons
- Toxic Industrial Chemicals (when deployed as a weapon)

Realities regarding chemical agents

Some important points for law enforcement First Responders concerning chemical WMD agents:

- The presence of chemical warfare agents and many toxic industrial chemicals can be detectable by trained individuals using a variety of available analysis devices, which are designed to be used in the field.
- Fundamental self-protective measures (e.g. avoidance, distance, etc.) are effective for minimizing potential exposure to chemical agents. Various levels of Personal Protective Equipment (PPE) can prevent exposure or contamination, but this is dependent upon the degree to which the PPE employed has been designed for the type of hazard anticipated. Also, the effectiveness of any PPE presupposes that the wearer is properly trained in the use of the PPE, that the PPE is used correctly, and that the PPE has not been compromised (e.g. cracks in masks, tears in suits, etc.).
- A variety of first aid measures and medications are available to treat individuals exposed to chemical agents.
- Many chemical substances can be neutralized or removed from a contaminated person.

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Categories of chemical weapons

Governmental or commercially produced chemical weapons can be broken into two fundamental categories: **Incapacitating agents** and **toxic agents**. Incapacitating agents include a variety of chemical irritants familiar to law enforcement personnel.

Categories of chemical weapons	
Incapacitating Agents	**Toxic Agents**
Irritants: - CS - CR - CN - OC Most of these substances are lachrymators (tear producers), however, exposure can create other physical and psychological symptoms. These substances are not usually considered to be lethal.	- Nerve - Blister - Choking - Blood

Chemical Release

Law enforcement personnel need to become conversant with potential indicators and the effects of a chemical agent release.

Indicator and effects of chemical agent attack

Indicators and effects may include, but are not limited to:

1. Dead plants
2. Dead or dying animals
3. Numerous sick or dead victims
4. Presence of a visible vapor cloud
5. Reports of strange odors

Factors which impact a chemical attack

There are a variety of factors, which impact the effectiveness of a chemical attack. Individual factors may include, but are not limited to:

1. Humidity
2. Temperature
3. Precipitation
4. Wind Speed
5. Buildings and terrain
6. Chemical persistency

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Factors which impact a chemical attack (continued)

Factors such as humidity and temperature can impact the extent to which a chemical moves or disperses in the environment. Wind speed is an obvious factor in the dispersal of airborne chemicals. The faster the wind speed the more readily an airborne substance will tend to disperse.

Chemical persistency refers to the time a chemical substance remains in the environment. Water, for example, will evaporate more quickly than motor oil. As a result, motor oil is the more persistent of the two substances.

Building and terrain can channel and direct the plume path of chemical agents.

Understanding chemical "persistency"

An industrial chemical like chlorine is considered to have low persistency because it will rapidly disperse in air.

Persistency also has a great deal to do with factors such as vapor density. Depending on the substance, chemicals of varying vapor densities may have a greater or lesser tendency to rise or fall in air. The key point for law enforcement First Responders is that toxic chemicals, which are heavier than air, may hug the ground and collect in confined spaces.

Understanding nerve agents

Nerve agents are among the most toxic chemical substances ever developed. They are hazardous in their liquid and vapor states and can cause death within minutes of exposure. The means of exposure may include absorption, inhalation, ingestion, and injection.

The result is continual nerve impulses causing convulsions, uncontrolled muscle spasms, and other glandular reactions. Exposure to these agents typically occurs via airborne vapors or direct skin contact with the liquid.

NOTE: Sometimes nerve agent exposure may be reported to public safety agencies as a person (or persons) manifesting heart attack symptoms. The presence of multiple victims exhibiting these types of symptoms may be an important clue to law enforcement First Responders.

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Understanding blister agents

Blister agents are designed to cause red skin (erythema), blisters, eye damage, respiratory damages, and gastrointestinal damage. Their effect on exposed tissues is similar to a corrosive chemical such as lye or sodium hydroxide. Blister agents are also called "Vesicants."

Most of the blister agents will cause a delayed reaction. This is problematic for law enforcement First Responders who may be unaware of exposure until skins and symptoms present themselves. **It is crucial that law enforcement First Responders undergo decontamination whenever there is a possibility of exposure to blister agents!** Exposure is rarely fatal unless the respiratory system is involved. Respiratory protection is vital!

Lewisite, which was developed after the other mustard products, was specifically designed to cause an **immediate and painful** reaction upon contact. The mustard agents can have distinct odors (e.g. a garlic or onion smell for the mustards or the odor of geraniums for Lewisite). If a law enforcement First Responder detects these smells exposure has probably already occurred. Reports of these types of smells by victims may provide a critical clue that a blister agent release has occurred.

Understanding blood agents

Blood agents (cyanides) are chemical substances, which inhibit the exchange of oxygen to the cells through the bloodstream. The disruption of the normal oxygen exchange process causes rapid and labored respiratory arrest, and finally death. The effect of blood agent exposure is the same as asphyxiation, but more sudden. Exposure to high concentrations can cause seizures, respiratory and cardiac arrest. Routes of exposure include skin absorption, inhalation, ingestion, and injection.

Blood agents or cyanide compounds are common industrial chemicals and are often encountered by emergency responders during regular hazardous materials incidents. Some victims may report the odor of bitter or burnt almonds or peach pits.

Understanding choking agents

Choking (Pulmonary) agents include common industrial chemicals such as chlorine and phosgene. Exposure to these chemicals may cause eye and airway irritation, dyspnea (shortness of breath), chest tightness, and delayed pulmonary edema (the lungs filling with fluid). These agents can also cause death if exposure levels are sufficient.

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Understanding choking agents (continued)

When chlorine is inhaled into the lungs it reacts with the moisture and changes into hydrochloric acid. As a consequence, the lungs rapidly fill with more fluids resulting in less lung capacity to exchange oxygen. A person may literally experience a dry-land drowning.

Importantly, individuals who survive exposure to a choking agent will often sustain permanent lung damage and some loss of lung capacity due to scarring. Inhalation is the primary route of exposure for choking agents.

Toxic industrial chemical/ material (TIC)/ (TIM)

A Toxic Industrial Chemical/Material (TIC/TIM) is any substance which (in given quantity) produces a toxin effect in exposed personnel by inhalation, injection, ingestion, or absorption.

Quantity or "concentration" directly impacts the adverse effects of exposure. The more concentrated the chemical, the more intense the effects.

Although the super-toxic chemical warfare agents (nerve agents) are frequently discussed as terrorist weapons, toxic industrial chemicals/materials are more readily available to terrorists and can still cause significant casualties. Locations where toxic industrial chemicals/materials are commonly found, but are not limited to:

- Chemical manufacturing plants
- Food processing facilities (e.g. large quantities of anhydrous non-household ammonia)
- Transportation centers
- Storage tanks and facilities
- Airports
- Barge terminals
- Pumping stations
- Mining operations
- Pesticide manufacturers and distributors
- Educational, medical, and research laboratories

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Possible TIC/ TIM effects

When Toxic Industrial Chemicals (TIC) or Toxic Industrial Materials (TIM) are used as WMDs, the acute effects and chronic effects of exposure can include, but are not limited to:

Acute Effects	Chronic Effects
• Headaches • Nausea • Respiratory failure • Dry-land drowning • Oxygen displacement • Temporary or permanent blindness	• Tumors (malignant or benign) • Blood poisoning • Long term respiratory inhibition • Leukemia • Sterility • Permanent blindness

Types & characteristics of explosive devices

Explosives (bombs) as WMD agents are used in the majority of terrorist attacks worldwide. They are clearly the "weapons of choice" for terrorists. Armed attacks are a distant second. Hijacking, assassinations, and other terrorist tactics collectively account for the remainder of terrorist attacks worldwide. The majority of all terrorist incidents within the United States have involved explosives.

Terrorist use of explosives

To terrorists, the advantages of using explosives as a weapon require few skills to produce an enormous psychological impact on populations and cause mass causalities. Explosives are inexpensive and easy to obtain.

To terrorists, the disadvantages of using explosives as a weapon are, they may be unreliable, volatile and can cause injury and death to the terrorists making the bomb.

Explosive types

There are two kinds of explosives, they are:

7. Low explosives, better known as propellants, are designed to deflagrate (burn) and produce gas output. They are initiated by burning or shock.

8. High explosives, designed to detonate, do so at velocities higher than the speed of sound.

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Explosives terminology

Terminology	Description
Blast Pressure	• Positive blast pressure (overpressure) moves rapidly away from the explosion center. This is known as the primary phase in which thousands of pounds per square inch of pressure are exerted. • The massive change in air pressure can do great harm to the human body. • Negative blast pressure occurs after the positive blast pressure phase. It is a vacuum that returns air to the center of the explosion. This phase is less violent but it lasts longer.
Fragmentation	• An explosive device may propel fragments and nearby debris at missile-like speed. • This can cause lacerations, abrasions, contusions, and penetration of any part of the body.
Thermal Effects	• Heat produced by the detonation of either high or low explosives varies according to the ingredients of the device. • High explosives generate greater temperatures. • Low explosives have a longer duration time.

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Types of Explosives

Types	Characteristics
C-4	• White to light brown plastic • Plastic demolition • Highly stable
T.N.T. (Trinitrotoluene)	• Light yellow to brown or light gray • Three common forms: - cast - pressed - flake • Used in demolition charges and grenades • Standard military explosives
Dynamite	• Stick/cylindrical form • Wrapped in white or colored wax paper • Sizes vary • Highly stable
T.A.T.P. (Triacetone triperoxide)	• White crystalline powder • Normally refrigerated • Highly sensitive and powerful • Highly explosive • Very unstable • Susceptible to heat, shock and friction
Nitroglycerin	• Heavy/colorless oily explosive liquid • Obtained by nitrating glycerol • A contact explosive • Highly unstable
P.E.T.N. (Pentaerythritol Tetranitrate)	• Odorless white crystalline solid • Powerful high explosive • More unstable than T.N.T.

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Types of Improvised Explosive Devices (IED)

Devices	Characteristics
Vehicle Borne Improvised Explosive Device (VBIED)	• Power devices • Usually triggered with a timer or remote
Pipe Bombs (IED)	• Most common explosive device • They are opposite of vehicle bombs when it comes to size and destructive potential A timing fuse usually controls detonation
Suicide Bombers	• Human borne bombs are utilized extensively throughout the world. Though they have not yet reached the United States, plots have been interdicted • Human-borne bombs are the ultimate "smart bomb" because the bomber can pick the exact location and time for the greatest impact

NOTE: An IED can be manufactured to look like any normal, innocuous object (e.g. guitar, printer, backpack).

Importance of WMD Job Aids for Law Enforcement First Responders

Introductions

Peace officers have a variety of guides available to aid them in responding, identifying and managing WMD incidents. The two most common are the Louisiana State University (LSU) Response Guidebook and the Emergency Response Guide (ERG).

Louisiana State University (LSU) WMD response guidebook

The Louisiana State University (LSU) WMD response guidebook, is designed to assist law enforcement First Responders in making initial assessments of all types of WMD incidents.

The LSU WMD response guidebook utilizes a progressive matrix to guide the responder through forced-choice questions to determine what type of WMD event may have occurred. It also utilizes victim symptomology to further identify what specific types of WMD weapons have been deployed.

The LSU WMD response guidebook enumerates the types of indicators that would be associated with a specific type of WMD attack, along with the routes of possible exposure connected with such a weapon. It further relates what type of immediate on-scene actions should be taken by law enforcement First Responders (e.g. isolation distances and personal protective clothing).

Emergency Response Guidebook (ERG)

The Emergency Response Guide (ERG) was designed primarily to identify hazards and emergency response considerations associated with the transportation of hazardous materials. Useful information concerning fire and explosion hazards, health risks, protective clothing recommendations, and first aid measures are identified as considerations such as evacuation and protective action distances.

Although originally developed to address toxic industrial chemicals and other hazardous materials, the document has been updated in recent years to include potential terrorist weapons, such as nerve agents. The front part of the ERG contains illustrations of transportation placards which may be displayed upon a vehicle or upon a container used by a terrorist. The ERG is divided into a number of color-coded sections which are designed to make the document easy to use.

- The yellow pages of the ERG, for example, numerically list the four-digit **Identification Number** which may be displayed upon a transportation placard. Looking this number up provides the name of the material and directs the user to the appropriate **Guide Number**.

Continued on next page

Emergency Response Guide (ERG)
(continued)

- The Guide Number directs the user to the orange section of the ERG which is also listed numerically. The Guide Number page provides useful information such as:

  - Potential hazards
  - "Public safety information" such as protective clothing recommendations, evacuation distances, first aid measures, and emergency actions for fires, spills, and leaks.

- The blue pages of the ERG contain an alphabetical listing of materials by name. If the identification number is unknown, but the name of the material is somehow available, this is an alternative method of locating the appropriate Guide Number.

- If a material listed in either the yellow or blue sections of the ERG is highlighted, and there is no fire, the law enforcement First Responder can go directly to the green section of the ERG for information concerning isolation and protective action distances.

Basic On-Scene Actions at WMD Incidents

Introduction

Peace officers have the responsibility of managing a WMD incident. Certain actions must be taken at the scene. Those actions include, at a minimum, isolation, identification, notification, protection/mitigation, documentation and transition.

Law enforcement actions at a WMD incident scene

Law Enforcement actions/responsibilities at a WMD incident scene may include:

Actions/Responsibilities	Examples
Isolation	• protecting the incident scene integrity, controlling ingress and egress
Identification	• reporting on hazards, conditions, persons, situations of interest, and relevancy
Notification	• requesting appropriate support services, ensuring that key persons and agencies are alerted
Protection/Mitigation	• taking action to protect persons and property, protecting the environment, preventing further damage or injury
Documentation	• creating records and reports, obtaining photographs, diagrams, videos to memorialize scene conditions and physical evidence
Transition	• appropriately handling incident responsibility over to other individuals and agencies, providing information, conducting individual and group briefings

NOTE: All of the aforementioned actions will typically be occurring during the response phase of a WMD incident.

Incident Response Priorities

Introduction

The three main public safety priorities at a WMD incident in order of their priority are lives vs. property, crime scene protection and preservation of evidence.

Three main incident response priorities

The three main public safety priorities are:

- Life vs. property
  - life takes precedents over preservation of property or evidence
  - incident stabilization (e.g. preventing and or containment)
- Crime scene protection
- Preservation of evidence

Other considerations

Other important law enforcement priorities at a WMD incident scene include, but are not limited to:

- Coordinating initial evacuation of persons from the incident scene
- Establishing appropriate perimeter security to control the ingress and egress of the incident scene, keeping in mind the zone
- Engaging in crowd management activities to control the large numbers of onlookers, volunteers, and unsolicited law enforcement First Responders who tend to flock to the scene of a major public safety emergency
- Identifying all potentially involved individuals present at the incident scene
- Always consider the possibility of secondary devices and secondary attacks

Preserving the integrity of a crime scene at a WMD incident includes activities such as:

- Identifying the location of fragile evidence to the other law enforcement First Responders
- Acting to preserve/protect perishable evidence
- Directing people away from potential evidence
- Engaging in whatever means are available to safely document the evidence (e.g. notes, pictures, etc.)

Types of Personal Protective Equipment (PPE) & Decontamination Considerations

Introduction

Peace officers must understand the different levels and types of Personal Protective Equipment (PPE) and all of the considerations associated with decontamination.

Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) for responding to a WMD incident falls into four basic categories:

Levels	Types of Personal Protective Equipment (PPE)
Level D	- Clothing which provides nuisance protection only and no protection from the effects of a WMD agent Examples: A standard law enforcement uniform, tactical clothing, or a dust mask.
Level C	- Personal Protective Equipment includes an Air Purifying Respirator (APR) (e.g. a "gas mask") equipped with a canister-type filter coupled with a chemical suit ensemble incorporating boots, gloves, and a hood - Only short-term and limited splash protection is provided by the suit and the APR is only effective in areas with a sufficient oxygen concentration and where the filter is appropriate to the respiratory hazard which is present Example: The military's Mission Oriented Protective Posture (MOPP) ensemble which is designed to permit troops to function in a nerve agent environment.
Level B	- Personnel Protective Equipment ensemble incorporates the addition of supplied air through a **Self-Contained Breathing Apparatus (SCBA)** - Provides the highest level of respiratory protection, but the suit (often of much higher quality and greater durability than a Level C suit) provides limited protection from known hazardous vapors at known concentrations that can be absorbed through the skin - Is most often characterized by the SCBA being worn outside the suit

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Types of Personal Protective Equipment (PPE) & Decontamination Considerations, Continued

Personal Protective Equipment (PPE) (continued)

Levels	Types of Personal Protective Equipment (PPE)
Level A	- The ensemble typically consists of a SCBA worn inside a fully encapsulated and vapor-tight chemical protective suit - Often nicknamed a "moon suit," a Level A ensemble is cumbersome and the time an individual can spend in the suit is extremely limited - Provides the highest level of protection

Decontamination considerations

Decontamination is the process of removing gross contaminants from a person, object, or area by either destroying, making harmless, neutralizing, or removing the hazard.

Hazardous materials teams may use a variety of methods to decontaminate individuals. The most common decontamination tool is copious amounts of water used as a "wash-down" shower.

Decontamination is the process of making a person, object, or area, "safe" by either destroying, making harmless, neutralizing, or removing the hazard. The use of substances such as bleach to decontaminate individuals is becoming less common because of the potential damage bleach can create and the problems associated with regulating the concentration.

Whenever possible, individuals setting up the decontamination process will try to capture run-off water to prevent potential environmental damage. The run-off may be collected for later disposal by a hazardous waste management contractor.

Any person requiring decontamination must have a medical evaluation and clearance. (This requirement also includes law enforcement First Responders.)

NOTE: All items leaving the "hot" or contaminated area must be decontaminated. This includes corpses (human and animal), equipment, and packaged items of evidentiary value.

NOTE: Some items cannot be decontaminated so must be contained in place until they can be destroyed (e.g. leather, unfinished wood, paper and some types of cloth).

Chapter Synopsis

Learning need	Peace officers must be familiar with, understand, identify and effectively respond to an event involving Weapons of Mass Destruction (WMD).
Definition for weapons of mass destruction (WMD) [26.07.01]	Weapons of mass destruction are defined by Title 18 *United States Code.*
Routes of exposure [26.07.02]	The common routes of exposure for a WMD are: inhalation, ingestion, absorption, and injection.
Biological WMD agents [26.07.03]	Biological WMD agents are disease-causing organisms or the toxins produced by living organisms.
Nuclear / radiological WMD agents [26.07.03]	There are advantages and disadvantages for terrorists to use nuclear or radiological material in a WMD incident.
Incendiary devices [26.07.03]	Incendiary devices were present in a number of the domestic incidents occurring in the United States. Incendiaries are reliable and tend to ignite most of the time. Incidents involving the use of incendiary devices were infrequent articulated threats.
Types of Chemical WMD and toxic industrial chemicals/ materials [26.07.03]	Training individuals to use a variety of available analysis devices designed to be used in the field can detect the presence of chemical warfare agents and many toxic industrial chemicals.

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Indicators of Chemical/ WMD Release [26.07.03]	Law enforcement personnel need to become conversant with potential indicators and the effects of a chemical agent release.
Explosives and improvised explosive devices (IED) [26.07.03]	The Improvised Explosive Device (IED) has become the weapon of choice for terrorists worldwide. They are commonly referred to as an (IED). IED's are generally homemade devices, they are cheap, easy to make and require very few resources.
Importance of WMD job aids [26.07.04]	Peace officers have a variety of guides available to aid them in responding, identifying and managing WMD incidents. The two most common are the Louisiana State University Response Guide (LSU) and the Emergency Response Guide (ERG).
Basic on-scene actions [26.07.05]	General law enforcement actions/responsibilities at WMD incident scene may include: Isolation, Identification, Notification, Protection/Mitigation, Documentation, and Transition.
Incident response priorities [26.07.06]	The three main public safety priorities at a WMD incident in order of their priority are lives vs. property, crime scene protection and preservation of evidence.
Personal Protection Equipment (PPE) and decontamination considerations [26.07.07]	Personal Protective Equipment (PPE) for responding to a WMD incident falls into four basic categories: Level D, Level C, Level B, and Level A. Decontamination is the process of removing gross contaminants from a person, object or area by either destroying, making harmless, neutralizing, or removing the hazard.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers have been provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity questions

1. You are dispatched to an incident where victims are exhibiting eye and skin pain and reddening of the skin. Upon arrival you are told that there is a smell of garlic in the area. There has been no explosion. What is the most likely WMD agent?

2. You are assigned to patrol in a marked unit. You receive a call from radio dispatch telling you to proceed to the local light rail station at the corner of 6th and J Street. Dispatch also informs you that several people have called in to report that people in the station are gagging, passing out and running from the train platform. Several people have fallen off the platform and are injured as a result of the fall. Describe what actions you are going to take while responding to the train station?

Continued on next page

Activity questions (continued)

3. What issues should you consider on your way to the call?

4. When you arrive what is the first plan of action?

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Activity questions (continued)

5. What other resources do you think you might need to handle the initial response to this call?

6. What Personal Protective Equipment (PPE) might you need to handle this event?

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Activity questions (continued)

7. Officers have been called to a local rail station. The fire service arrives just as the officers do and there are about six law enforcement First Responders at the scene. Information from dispatch is that several people at the station have passed out and there is a "funny" smell in the air. Identify and list the routes of exposure the law enforcement First Responders need to be concerned with.

Chapter 8

Fire & Explosives

Overview

Learning need

Responding to critical incidents, peace officers may be called upon to act quickly in situations involving fires or explosives. Officers must become familiar with the risks presented by these calls in order to respond safely and effectively.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID:
• recognize the appropriate methods for extinguishing each class of fire.	26.08.1
• identify risk versus benefits/gains of entering a burning structure or active fire area.	26.08.2
• recognize appropriate actions for responding to incidents involving bombs/explosive threats.	26.08.3
• recognize safety precautions officers should follow at the scene where a suspected bomb/explosive device has been located.	26.08.4
• recognize appropriate actions for securing a scene where an explosive device has been located.	26.08.5
• identify the inherent dangers in a post-blast explosion scene.	26.08.6
• recognize appropriate officer actions for securing a post-blast explosion scene.	26.08.7

Continued on next page

Learning objectives (continued)

After completing study of this chapter, the student will be able to:	Objective ID:
• Recognize appropriate officer actions specific to the types of critical incidents, including: 1. Electrical power emergencies 2. Hazardous road conditions 3. Traffic device malfunctions 4. Gas leaks 5. Floods 6. Animal control problems 7. Earthquakes 8. Aircraft or transportation anomalies	26.08.8

In this chapter

This chapter focuses on basic guidelines for responding to calls involving fires or explosions. Refer to the chart below for specific topics.

Topic	See Page
Fires	8- 3
Fire Emergencies	8-6
Incidents Involving Explosive Devices	8-11
Post-Blast Explosion Scenes	8-14
Officer Actions at Types of Critical Incidents	8-20
Chapter Synopsis	8-31
Workbook Learning Activities	8-33

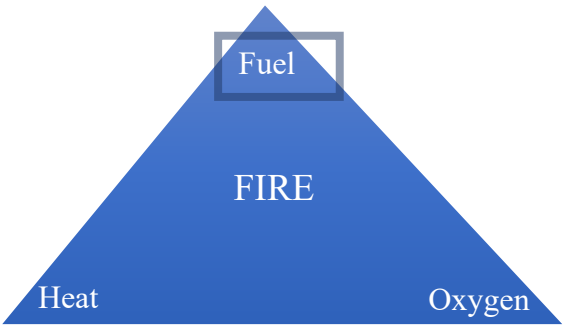
Fires

Introduction

Peace officers, in the course of their duties, may be required to take action when confronted by an uncontrolled fire. A swift and appropriate response can minimize loss of life and property.

Fire triangle

There are three elements that must be present *at the same time* in order to have a fire. If any one of these elements were removed, the fire would extinguish.



Fire classifications

To properly and effectively extinguish a fire, responding officers must first determine the class of fire. The following table identifies the four classes of fires.

Class	Fuel Type	Examples	
A	Common combustibles	• Wood • Paper • Cloth	• Fibers • Some plastics
B	Flammable liquids; petroleum-based materials	• Gasoline • Oil/grease • Solvents • Flammable gasses	• Cooking oils • Vinyl and some plastics
C	Energized electrical equipment	• Generators • Appliances	• Wiring • Energized (“hot”) electrical panels
D	Combustible metals	• Aluminum • Magnesium • Titanium	• Phosphorus • Potassium

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Fire classifications (continued)

NOTE: An easy method to remember the ABC classifications is to remember the words "**A**sh," "**B**arrel," and "**C**urrent."

NOTE: The National Fire Protection Association (NFPA) Standard 10, 1998 edition, has added another class of fire: Class K, which relates to fires in vegetable or animal oils used in commercial deep fat fryer units.

Fire extinguishers

Fire extinguishers are designed to extinguish certain classes of fires. There are a number of common types of mechanical fire extinguishers officers may encounter.

- Pressurized water (i.e. "Class A extinguisher")
- Carbon dioxide (CO_2) (i.e. "Class BC extinguisher")
- Dry chemical (i.e. "Class BC extinguisher")
- All purpose (i.e. "Class ABC extinguisher")

Methods of extinguishing fires

Once an officer has determined the class of fire involved, appropriate measures can be taken to safely extinguish the fire (i.e. remove source of heat, fuel, or oxygen). The following table identifies a number of appropriate methods for extinguishing each class of fire.

Class		Extinguishing Methods
A	Common combustibles	• Cool with water • Smother with nonflammable material • Removal of fuel (e.g. clear the brush) • Pressurized water extinguisher • All-purpose extinguisher
B	Flammable liquids; petroleum-based materials	• Smothering (removing source of oxygen) • Carbon dioxide (CO_2) extinguisher • Dry chemical extinguisher • All-purpose extinguisher

Continued on next page

Methods of extinguishing fires (continued)

Class		Extinguishing Methods
C	Energized electrical equipment	• Carbon dioxide (CO_2) extinguisher • Dry chemical extinguisher • All-purpose extinguisher NOTE: Power source should be disconnected prior to extinguishing. Once disconnected, the method for extinguishing the fire will be dependent on the actual material that is burning.
D	Combustible metals	• Heat-absorbing extinguishing medium which is not reactive with the burning metal • Specialized extinguishing agents

NOTE: Class D fires involve combustible metals. These types of fires are difficult to control even for trained firefighters because they involve hazardous materials that may require specialized equipment. One example is a vehicle fire where burning aluminum and magnesium may be involved.

Fire Emergencies

Introduction

Peace officers do not have the same expertise, equipment, or training as do firefighters. Because of this, actions an officer may undertake at the scene of a fire emergency will generally be limited.

Officer safety

Officer safety must always be paramount in determining what actions can reasonably be taken. An officer's ability to enter a burning structure or attempt to aid persons who are trapped may be hindered by the lack of:

- protective clothing,
- breathing apparatus,
- specialized equipment, and
- technical training.

Rapid changes

Fire conditions can change rapidly and must constantly be observed for indications of danger. Officers should report any significant information to dispatch for relay to responding fire personnel. The following table identifies observations that should be considered when evaluating a fire emergency.

Observation	Related information
Type of fire	• Structure • Vegetation • Vehicle
Smoke color	• Light gray – – vegetation • Mid-gray – – wood, cloth, paper • Yellow – – chemical • Heavy dark smoke – – petroleum The lighter the color, the lighter the burning material.
Smoke & flame	• Puffing smoke, air being drawn inward, with little or no visible flame. • Hot rolling smoke and flame coming from openings around the building.
Flame color	• Orange flame less hot than a white flame. • The whiter the flame, the hotter the fire. Note: Some chemicals burn without a visible flame.

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Fire events

A **backdraft** is a dramatic event caused through rapid reintroduction of oxygen to combustion into an oxygen-depleted environment in a fire.

A **flashover** is the temperature in a compartment that results in the spontaneous ignition of all combustible contents in the space.

Rescue attempts

In the course of their duties, officers may be confronted with a fire condition where people are trapped. Entering a burning structure without proper equipment and proper training could not only jeopardize officer safety but also add to the problem or complicate the situation for others. Officers should make every attempt to alert potential occupants without entering the building themselves.

NOTE: A peace officer's responsibilities at a fire scene, including entry into a burning structure or attempting to rescue trapped people, may be *limited by agency policies*.

Risk assessment

Prior to any attempt by a peace officer to enter a burning structure or perform a rescue officers must consider the **risks versus the benefit/gain**.

In addition to agency policy, there are a number of other risk factors that should be assessed before entering a burning structure. The following table identifies a number of these factors.

Factor	Considerations
The structure itself	• General structural integrity of the building • Location of safest ingress/egress points along with possible escape routes • Opening of doors and windows can drastically change interior conditions leading to rapid fire development or extension • Type of occupancy/content of the building
The trapped individual(s)	• Number, age, capabilities, etc. of the trapped individual(s) • Location of the trapped individual(s) within the structure • Likelihood of the officers being able to reach trapped individuals without jeopardizing their safety

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Risk assessment (continued)

Nature of the fire	• Location of the fire within the structure • Evidence of placards, signs, or other evidence indicating toxic, combustible, or explosive materials • Hazardous conditions associated with the fire
Other factors	• Estimated time of arrival of fire personnel

Actions within a burning structure

If an officer has determined that the situation demands entry (and if entry is permitted by their agency policy), the entering officer must take all necessary precautions.

When moving within a burning structure officers should:

- work in pairs, if possible.
- have an escape plan.
- remain calm and work as quickly as possible.
- listen for sounds of crying, coughing, or moaning.
- stay low (i.e. crawl) and feel the way to minimize exposure to smoke, toxic gasses, and fumes.
- feel closed doors prior to opening.
- NEVER OPEN any door that feels hot.

NOTE: Remember, entering a burning structure is very dangerous for an officer without proper equipment and training. Officers should always consider **risk versus benefit/gain!**

Trapped officer

One of the serious hazards of entering a burning structure is the chance of becoming trapped.

If an officer becomes trapped:	**that officer should attempt to:**
• in a room on the first floor	• close the door(s) of the room, and • escape through a window.
• on the second floor or above	• close any doors between himself and the fire, • call for help, and • await assistance from fire personnel if possible.

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Vehicle fires

When encountering a burning vehicle, officers should be aware that there may be a number of byproducts of the fire that can be extremely toxic. These may include but are not limited to:

- hazardous gasses from burning metals and plastics that can be inhaled.
- exploding fuels, airbags, pressurized shock absorbers, or bumpers.

Fire extinguishers may not be effective on a burning vehicle (e.g. fire too intense, too large). In these situations, officers should establish a perimeter and make the proper notifications.

Wildland fires

Any non-structure fire that occurs in vegetation or natural fuels including unplanned, unwanted fires of an unauthorized human cause. Depending on type of vegetation present a wildfire can be classified more specifically as vegetation fires, brush fires, or forest fires to name a few.

NOTE: When officers are called to assist at wildland fire incidents, or those wildfires that are threatening homes and lives, they must maintain situational awareness recognizing fuel, weather, and topography can rapidly change fire conditions. It is contingent on each officer to conduct a risk assessment when making decisions for action in such dynamic environments.

Scene security

Officers should always consider that a fire scene may also be a crime scene. When it is suspected that a fire is of suspicious origin, efforts should be made to:

- record conditions upon the officer's arrival,
- protect the integrity of the evidence, and
- make appropriate and timely notifications to investigative personnel.

NOTE: For additional information regarding maintaining the security of a crime scene, refer to LD 30: *Crime Scenes, Evidence and Forensics.*

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Examples

Example: At 0100 hours a patrol officer responded to a report of a fire in a two-story residence. On arrival, the officer saw smoke coming from the second story and found the front door closed and locked. The officer circled the building to determine if smoke could be seen in the back. The officer notified communications of his observations and attempted to awaken any occupants by shouting and pounding on the front door. When there was no response, the officer used the patrol vehicle's public address system to issue a warning. When the first fire personnel arrived, the officer relayed his findings. The officer restricted his actions to those he could reasonably undertake and reported significant information to communications

Example: Two patrol officers returning to headquarters at the end of a late shift observed a three-story apartment building on fire. After notifying communications, one of the officers ran to the front of the building and banged on the door. The second officer used the patrol vehicle's public address system to broadcast a warning. The first fire truck arrived as the residents began to evacuate the building. The officers set up a perimeter around the area and restricted traffic flow.

Incidents Involving Explosive Devices

Introduction

Peace officers are frequently required to respond to bombings and explosive-related incidents. Officers should ***NEVER*** handle, touch, smell, or attempt to dismantle ***ANY*** suspected, or improvised explosive device. Any attempt to do so places the officer, others, and property, in serious danger.

Definition

An explosive is any substance, or combination of substances, that may:

- explode from heat, shock, friction or contamination
- react violently or explosively upon contact with air, water or foam
- be ignited by heat, sparks or flames

Types of explosives

Explosives can be divided into two primary types: **low explosives** or **high explosives**. Both are distinguished by the speed at which they burn.

Explosive-related calls

There are numerous types of explosive-related calls to which peace officers may be required to respond. These may include but are not limited to:

- bomb threats,
- hoax devices (i.e. fake bombs),
- letter bombs or suspicious packages received by mail,
- reports of unclaimed or suspicious packages (e.g. "ticking" packages, suitcases, briefcases, or other objects),
- fireworks or pyrotechnics,
- commercially manufactured chemical explosives,
- labs (e.g. clandestine, explosive, pyrotechnic),
- remote control devices,
- booby traps (e.g. trip wires, light switches, photoelectric cells, process switches), or
- recovered military **ordnance**.

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Bomb/ explosive threats

Although some bomb/explosive threats are hoaxes, *all* should be treated as real. The following table identifies the three most common methods for delivering bomb/explosive threats.

Type of Threat	Additional Information
Telephonic	• The most popular method to transmit a bomb/explosive threat. • Trained personnel who receive the call should attempt to solicit as much information as possible from the caller in order to: - increase the likelihood of finding the device, and - identify the caller. • If the call is taken by someone else, officers should attempt to obtain as much information from that person as possible.
Written	• May be in the form of letters or other mail. • May be associated with some form of extortion or revenge. • Officers should: - collect all materials associated with the threat (e.g. envelope, container, paper the threat is written/printed on, etc.), and - handle each carefully and as little as possible in order to preserve trace evidence.
Personal	• Threats made face-to-face

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Handling a bomb/ explosive threat

The following table identifies general guidelines for responding to a call involving a bomb/explosive threat.

Action	General Guidelines
Make contact with person who received the threat.	• Eliminate all radio, cellular, and computer transmissions until situation is resolved. • It should be noted that decisions on how the threat is to be handled rests with the victim of the threat. • Obtain as much pertinent information as possible. • Specific information may include, but is not limited to: - when the bomb will explode, - where the bomb is at the time of the call, - what the bomb looks like, - what type of bomb it is (e.g. pipe bomb), - why the bomb was placed, - the sex, ethnic/national origin, or any other characteristics of the caller, and/or - any background noises heard during the call.
Assist in evacuation, if requested.	• The decision to evacuate the premises is generally made by the person in charge of the location and not by responding law enforcement personnel. • Officers may assist in the evacuation if requested.
Assist in searching, if requested.	• Searching responsibilities should be left to the occupant, management, or school officials. • Officers may assist with the search if requested to do so. NOTE: If a bomb/explosive device or suspected device is found, the situation escalates into a public safety emergency where law enforcement assumes the responsibility of how the incident is resolved.
Document all actions.	• Details of the incident along with actions taken should be thoroughly documented pending any further criminal investigation.

NOTE: *Penal Code Section 148.1(c)* identifies the act of making a false bomb threat as a criminal act punishable by imprisonment in a state prison or county jail.

NOTE: Most agencies will have an emergency operation plan for bomb/ explosive threat procedures.

Post-Blast Explosion Scenes

Examples

Example: A peace officer responded to a telephonic bomb threat at an office building in a downtown area. The officer acknowledged the call, indicated he would be on-scene in one minute and would be "off the air." The officer contacted the business owner who received the threat and asked what the owner would like to be done. The owner stated that he wanted the officer to assist in looking for a device. The officer searched the building but did not locate a device. Afterwards, the officer wrote a report on the incident.

Example: The owner of a restaurant called police saying that someone had phoned a bomb threat to his business. The responding officer questioned the owner who said that the caller sounded like a former employee who had recently been fired. The caller said the bomb would go off at noon. When asked how he wanted to handle the threat, the owner indicated that he would close the restaurant and would like police assistance in searching for the bomb. After searching the premises and failing to locate an explosive device, the officer wrote a report documenting the details of the incident.

Example: Local police were notified by a federal government agency that a bomb threat had been phoned to the agency. Responding officers questioned the employee who received the phone call and then asked the senior official if he wanted the police to assist in searching the premises. The official replied that such threats were not unusual and that no search was necessary. The officers left and wrote a report including all details of the incident.

Locating a suspected bomb/ explosive device

Preservation of human life is of paramount concern to all those involved in securing the area and safe disposal of any bomb/explosive hazard(s) located at a scene. Human life should never be jeopardized to secure or preserve evidence or property. The following table identifies a number of general guidelines for securing the scene where a suspected bomb/explosive device has been located.

Action	General Guidelines
Ensure safety	• *DO NOT*: - touch or handle any suspicious device, - touch any switches or wires associated with the device, or - permit any radio, cellular, or computer transmissions.

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Locating a suspected bomb/ explosive device (continued)

Action	General Guidelines
Secure the area	• Establish and maintain a perimeter. • Evacuate all personnel within the designated area to a safe location. (Distance will depend on each situation.) • Control ingress/egress of the perimeter.
Assume command	• Notify explosive ordnance disposal personnel (EODP) using *landline telephone communications only*. • Request that paramedics, emergency fire personnel, and any other resources be available. • Direct assisting units to the scene by the safest response route. • Establish a preliminary command post outside of the perimeter. • Maintain command until relieved by EODP.
Gather additional information	• Attempt to identify and/or locate witnesses and the reporting party before they leave the scene.
Document the incident	• Take necessary steps to document the details of the incident, including officer actions.

NOTE: Agency policies and procedures may vary. Officers are responsible for knowing their agency's policies and procedures for taking action when a bomb/explosive device has been located.

Facsimile bombs

Officers may also encounter hoax devices or items that may appear to be destructive devices but do not contain explosive devices. The purpose of such devices is to create fear in the intended victim(s).

NOTE: Responding officers should treat these devices with the same caution that they would a real explosive device.

U.S. military ordnance

Ordnance is a weapon or ammunition used for military purposes. Military ordnances are often modified into improvised destructive devices.

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U.S. military ordnance (continued)

A U.S. military ordnance that is color coded with blue is considered to be for training use. Even though they are used for training, the color does ***not*** indicate that they are "safe" or "harmless."

Training ordnance may still contain live charges of low explosives.

NOTE: All military explosives are toxic and no military ordnance should be handled. If an ordinance is discovered and moved by an untrained officer or bystander, the area should be cleared for at least 30 minutes before returning to the location.

Examples

Example: A citizen called 911, reporting an unusual object taped to a tree in the city park. An officer arrived and saw that the object had wires attached to what appeared to be a group of batteries taped together. The officer immediately notified EODP, evacuated the area and, with backup units assisting, secured a perimeter around the park. The officer maintained the security of the scene until EODP rendered the device safe.

Example: An officer was dispatched to a call of a suspected explosive device in a private home. A parent had reported seeing a plastic pipe in his son's bedroom. Further information from dispatch indicated that the parent described the device as having some sort of fuse. The officer arrived at the house and was directed to the bedroom. The officer looked into the room to verify the location and description of the device. The officer immediately backed out of the room and evacuated the house. She reported her findings, and requested additional personnel and the bomb squad. A large perimeter was set up and homes adjacent to the house were evacuated. The bomb squad arrived to handle the incident.

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Post-blast scene

In a post-blast situation officers may think that there are no further hazards. Nothing should be taken for granted. Secondary explosive devices and numerous other hazards could always be present.

Types of explosions

An explosion is a sudden and rapid escape of gasses released when an unstable solid or liquid is converted to a stable gas.

There are three types of explosions.

- Mechanical (e.g. bursting boiler)
- Chemical (e.g. dynamite)
- Nuclear (e.g. fusion)

Inherent dangers

Officers should never become complacent at a scene where an explosive device has already exploded. There are a number of continuing or newly created dangers that could place officers and other personnel at risk.

Potential dangers that are inherent in a post-blast scene include:

- secondary devices/explosives,
- booby traps,
- structural weakness,
- broken gas mains,
- downed power lines, and/or
- released hazardous materials.

Involved personnel

Depending on the nature and size of the blast, large numbers of specialized personnel may become involved. Authorized persons may include, but not be limited to:

- fire fighters
- paramedics
- hazmat personnel
- owner/manager/school officials
- occupants
- representatives of TV, radio, and print media

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Post-blast scene security

The site of an explosion should be treated as a crime scene until determined otherwise. The success or failure of the investigation depends on proper management of the scene beginning with the initial responding officer. The following table identifies a number of general guidelines for officers who respond to a scene of an explosion.

Action	General Guidelines
Ensure safety	• ***NEVER*** touch or handle any suspicious devices. • ***DO NOT*** permit any radio, cellular, or computer transmissions. • ***ALWAYS*** remain mindful of secondary explosions and other potential dangers.
Assume command	• Notify explosive ordnance disposal personnel (EODP) using *landline telephone communications only*. • Request paramedics, emergency fire personnel, hazmat personnel, and/or any other resources as needed. • Request other supporting resources for traffic/crowd control if needed (e.g. barricades, barrier tape, etc.). • Establish a preliminary command post. • Direct assisting units to the scene by the safest route. • Exchange information with other responding agencies. • Maintain command until relieved.
Secure the area	• Determine the perimeter by measuring the distance from the blast center to the farthest fragment found, plus ½ that distance. • Maintain a safe position for personnel and equipment. • Only bomb squad personnel or those requested by the bomb squad should be permitted within the perimeter. • All bystanders should be kept a safe distance from the explosion scene.

NOTE: California Penal Code gives law enforcement officers the authority to close an explosion site when it is determined to be a menace to the public health and safety. Representatives of the media must be allowed to enter unless the area is declared a crime scene.

NOTE: Specific agency policies and procedures may vary. Officers are responsible for knowing their agency's policies and procedures for taking command and maintaining security at the scene of an explosion.

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Examples

Example: A deputy responded to a call in which a homeowner in a rural area reported a vandalized mailbox. On arrival, the deputy saw that the mailbox appeared to have been damaged by an explosion. The officer observed fragments of a plastic bottle and an unknown liquid on the mailbox which had discolored the paint and metal. Without touching the mailbox, the deputy contained the scene and isolated the hazard.

Example: A patrol officer responded to a call at a bank where an explosive device had detonated. At the scene, the officer requested additional personnel, including backup units, fire department and EMS. She established a perimeter, evacuated the surrounding area, and called the EODP. The officer also set up a command post and staging area. Concerned about the possibility of a secondary explosive device, she continued to isolate the area after the assisting units arrived.

Officer Actions at Types of Critical Incidents

Introduction

Often, one critical incident will spawn additional emergencies, requiring communication and cooperation between agencies. Officers must always try to preserve life if feasible.

Common actions

No matter what the incident may involve, there are a number of common principles that should guide the actions of the initial responding officer. The following table provides a review of these actions.

Action	General Guidelines
Conduct an initial assessment	• Attempt to locate survivors. • Verify the nature of the incident. • Determine the extent of the area affected.
Ensure safety	• Maintain a safe position in relation to the hazard. • Follow all safety guidelines specific to the hazard (e.g. fire, explosive device, gas leak, hazardous material spill, etc.).
Secure the area	• Establish and maintain a perimeter. • If necessary, establish an inner perimeter to further isolate the hazard(s). • Control ingress/egress into the controlled area to only authorized personnel. • If necessary, call for additional units to assist in traffic/crowd control.
Assume command	• Identify resources required to manage the scene. • Ensure that proper notifications are made (e.g. fire department, emergency medical personnel, utility company, public works, etc.). • Direct assisting units to the scene by the safest route. • Establish a preliminary command post. • Maintain command until relieved or the incident is resolved.

NOTE: Actions for handling critical incidents can vary according to agency policies and guidelines. It is the responsibility of all officers to be aware of and comply with their agency's policies and guidelines.

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Actions related to specific incidents

Along with the responsibilities and actions common in managing critical incidents, the initial responding officer should be aware of actions required based on specific circumstances. The following table identifies a number of additional general guidelines for incident specific actions.

Types	Examples	Actions Specific to the Incident
Electrical Power Emergencies	• Downed power lines • Broken utility poles • Damaged transformers	• **All** downed wires should be considered energized ("hot") regardless of their appearance. • Be aware of possible hazards such as: - electrocution hazards (e.g. arcing wires), and/or - possible exposure to hazardous materials from damaged transformers (e.g. presence of PCB). • Do not touch anything. • Do not change the environment in any way (e.g. don't move downed wires or vehicles that have wires on them). • Ensure notification of the utility company. • Ensure notification of: - emergency medical services, - public works, - utility companies, and - hazardous material response personnel.
Hazardous Road Conditions	• Bridge Out • Heavy Snow • Rockslide • Standing water	• Isolate the public from the hazard. • Gather Situational Knowledge • Make Appropriate Notifications (DOT, Caltrans. Public Works) • **Request Appropriate Resources**

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Actions related to specific incidents (continued)

Types	Examples	Actions Specific to the Incident
Traffic Device Malfunction	• Down or malfunctioning signals • Missing or damaged signs	• Evaluate the magnitude of the hazard and the need for intervention. • Use appropriate warning devices such as: - patrol vehicle emergency lights, - flare patterns, - cones, - portable stop signs, etc. • Ensure notification of: - traffic signal maintenance agency (e.g. city/county electrical division), - public works. • Request additional resources if necessary, such as: - barricades, or - directional lighting devices.

NOTE: *Vehicle Code Section 21800(d)(1)* specifies that when traffic signals are inoperative, the intersection in question reverts to a four way/all way stop.

Actions related to specific incidents (continued)

Types	Examples	Actions Specific to the Incident
Gas Leaks	• Ruptured gas line caused by construction excavation • Leaking gas line within a structure • Malfunctioning gas appliance	• Incident may involve: - natural gas leaks from utility lines, - liquefied petroleum gas (LPG) from pressurized cylinders, or - compressed natural gas (CNG) from pressurized cylinders (e.g. tube trailer trucks). • Ensure notification of: - utility companies, - public works, - fire department.

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Actions related to specific incidents (continued)

Types	Examples	Actions Specific to the Incident
Gas Leaks	• Ruptured gas line caused by construction excavation • Leaking gas line within a structure • Malfunctioning gas appliance	• Direct responding units to approach from upwind if possible. • Eliminate/restrict possible ignition sources such as: - cigarette smoking, - starting vehicles (catalytic converters), - use of flares, etc., - light switches, flashlights. • ***NEVER***: - enter a gas filled environment - touch or move anything until it is safe to do so.
Floods	• Low lying areas • Heavy rainfall • Flash floods	• Make an initial assessment of the area involved (e.g. check bridges, look for fires, etc.). • Stay away from floodwater. Hazards may include, but are not limited to: - health hazards related to polluted water, - swift currents and the possibility of being swept away, - unidentifiable hazards within the water (e.g. manholes, debris, etc.). • Continuously update communication of ongoing and changing conditions. • Ensure notification of: - public works, - fire department, - public utilities, - railroad companies. • Establish detours as needed.

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Actions related to specific incidents (continued)

Types	Examples	Actions Specific to the Incident
Floods	• Low lying areas • Heavy rainfall • Flash floods	• Use appropriate warning devices (e.g. barricades, barrier tape, cones, etc.). • Assist with evacuation if necessary.
Animal Control Problems	• Complaints regarding injured or dangerous animals • Sightings of wild animals in urban areas • Incidents involving exotic or illegal animals	• Attempt to locate the animal. • Attempt to determine if the animal is dangerous. • Protect public safety by: - attempting to keep the animal from injuring people, and - confining the animal, if possible. • Notify animal control authorities. • Avoid headshots to suspected rabid animals (head should be preserved for rabies test).

NOTE: Officers should not destroy the animal unless compelled to do so by a threat to public safety. Officers should follow their applicable agency policies regarding the destruction of animals.

NOTE: Most snakes fear people. Even so, caution should be employed when approaching a snake as many bites occur when a second snake in the same area is overlooked. The only native poisonous snake in California is the rattlesnake, which can *usually* be identified by rattles on the tail.

NOTE: The California Department of Fish and Wildlife may be able to provide assistance in the case of wild or exotic animals.

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Earthquakes

By their very nature earthquakes are widespread and may result in high damage to areas where emergency services are needed. During an earthquake, a chain reaction of events can occur setting off several types of incidents at one time (e.g. hazardous road conditions, electrical power emergencies, fire emergencies, gas leaks, explosions, etc.). Officers should consider that:

- The extent of the damage may inhibit the response of additional assistance (e.g. fire department, emergency medical services, etc.) and isolate the officer.
- Normal emergency communication systems may be inoperative.
- Aftershocks may represent continuing hazards.
- Officers may be required to engage in nontraditional activities such as:
  - heavy rescue operations,
  - damage assessment, and/or
  - organizing/supervising civilian volunteers.
- Damaged dams/levees may necessitate evacuation.

Responding to an earthquake

In addition to the normal considerations associated with other critical incidents, officers should be aware of the following when responding to earthquake related incidents.

Action	Guidelines Specific to the Incident
Conduct an initial assessment	• Attempt to locate survivors. • Assess their area of responsibility for damage and conditions requiring emergency action.
Ensure safety	• Use extreme caution when inspecting hazards, such as: - damaged structures, - broken water mains, - potential gas leaks, - collapsed bridges/roadways, - fires, etc.
Secure the area	• Isolate hazards. • Establish detours, as needed. • Utilize barricades, barrier tape, cones, etc. • Limit ingress and egress to authorized people.

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Action	Guidelines Specific to the Incident
Maintain communication	• Ensure appropriate notifications to communications. • Utilize alternative communication systems if necessary. - Cellular telephone networks - Citizen band (CB) and HAM radios - Relays to airborne communications (e.g. law enforcement helicopters)

Aircraft or Transportation Anomalies

The following table identifies a number of general guidelines and considerations for an initial responding officer who must manage an aircraft crash scene.

Action	Guidelines Specific to the Incident
Maintain a safe position	• Attempt to locate any possible survivors. • If it becomes necessary to approach the aircraft or vehicle, attempt to: - approach from the side and upwind, - stay clear of fuel tanks or underwing fuel tanks. • Do not drive or walk along the actual crash path. Doing so could destroy valuable evidence or contaminate a potential crime scene. • Remain aware of potential hazards.
Conduct an initial assessment	• Attempt to obtain identifying information regarding the aircraft or vehicle such as: - nature of transportation aircraft or vehicle (civilian, commercial, or military), - ID number (tail number, vehicle number), - color, - specific type of aircraft or vehicle (fixed wing, helicopter, commercial bus, private bus, etc.), - capacity (i.e. number of people aboard), and - type of cargo.

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Action	Guidelines Specific to the Incident
Secure the area	• Establish and secure a perimeter. • Limit ingress and egress to the area to only necessary people. • Keep all bystanders or noninvolved people a safe distance from the crash scene. • Request additional resources as needed to prevent looting.
Assume command	• Make appropriate notifications including: - emergency medical services, - fire department, - appropriate investigating agency, - hazardous material response personnel, and/or - medical examiner/coroner. • Request supporting resources and equipment such as: - protective clothing, - barricades or barrier tape, - monitoring equipment (e.g. radiological Geiger counter, etc.), - lighting equipment, and/or - traffic/crowd control, if needed. • Establish a preliminary command post. • Direct assisting units to the scene by the safest routes. - Maintain command until relieved or the emergency is resolved.

Investigative authority

When managing the scene of a transportation crash, officers must be aware of the agency that has investigative authority.

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Nature of Aircraft	Investigative Authority	Primary Responsibility
Civilian and Commercial aircraft or commercial bus line	National Transportation Safety Board (NTSB)	• Determining the actual causal factors for the accident
	Federal Aviation Administration (FAA)	• Determining whether or not there have been any violations of FAA laws and regulations
Military aircraft	The branch of the armed forces to which the aircraft belongs	• Complete authority over security, scene management, and determining the causal factors for the accident

Commercial aircraft

An increasing number of commercial airline crashes have occurred worldwide as a result of terrorist-placed explosive devices. Because of this, when a commercial aircraft is involved, the initial responding officer should take extra precautions to:

- consider the possibility of the presence of explosives and secondary devices,
- secure and protect the area as a potential crime scene, and
- manage the news media and bystanders to prevent scene contamination and destruction of potential evidence.

Military aircraft

The military has complete authority over the management of any crash scene involving a military aircraft and has the legal authority to order law enforcement and nonmilitary personnel to leave the crash site. Law enforcement responsibilities may be limited to logistical support and perimeter control.

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Perimeter control

Because of inherent safety issues associated with possible military ordnance on the aircraft as well as national security interests (i.e. presence of classified equipment/materials), law enforcement officers have broad legal authority to restrict access to the scene of a military aircraft crash. (*Title 18 USC*)

Law enforcement officers can:

- prevent the news media from entering a military aircraft crash scene.
- restrict overflights of aircraft including news media helicopters, private aircraft, etc. (*Federal Aviation Regulations, Section 91.137*)

NOTE: Photography of a crash site, which involves potentially classified material, is illegal under prevailing federal law. (*Title 18 USC 793c*)

Examples

Example: After a major earthquake, a peace officer began to inspect his patrol area to assess damage. The officer observed several collapsed homes with people standing outside. After talking to the residents, the officer determined that no one was trapped inside the houses and no one was seriously injured. The officer notified communications of downed power lines, advised residents to stay away from all power lines and placed traffic cones around the affected area. Continuing his assessment, the officer saw a damaged service station and noted the smell of gasoline. The officer notified communications, put out traffic cones and yellow tape around the station, but did not go into the area to locate the shut off switch. The officer continued to check the rest of his patrol area to assess damage and aid as needed.

Example: A homeowner called police to report that a truck had struck a utility pole in front of his house. The responding officer found a large truck had struck a low hanging wire causing it to break and fall into the street. The officer determined that the wire provided electrical service to the house. The officer positioned his patrol car on one side of the downed wire and activated warning lights to block traffic. He requested a second unit to be positioned on the other side of the wire and to block traffic. After notifying the utility company, the officer restricted access of cars and pedestrians from the area until the utility company arrived and repaired the power line.

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Examples (continued)

Example: Two patrol officers were dispatched to a report of a rabid fox. The officers located the obviously distressed animal in a shed. Because there was a very long response time estimate for animal control, the officers decided that it was necessary to kill the fox to prevent its escape or any aggressive movement toward several bystanders. One of the officers moved the bystanders to a safe distance and his partner shot the animal, being careful not to destroy the brain, as it would be needed to conduct a rabies test. The officers did not touch or approach the animal after it was shot but waited until animal control arrived to take it away.

Example: At 0300 hours during a heavy rain, a patrol officer observed a "boil" on the side of one of the levees on his beat. The levee protected a housing development of about 200 homes. The officer first notified dispatch of the water leakage and requested a response by public works. As the officer continued to observe the levee, he determined that the threat of flooding was significant and requested assistance to begin evacuation of the residents.

Example: A patrol officer responded to a report of a bridge collapse. Once on the scene the officer notified communications and requested emergency resources to respond. The officer located the patrol vehicle in a safe position and established perimeter control, preventing all traffic from entering the area. The officer coordinated the re-routing of traffic and made sure ingress/egress routes were available for the emergency response personnel.

Chapter Synopsis

Learning need	Responding to critical incidents, peace officers may be called upon to act quickly in situations involving fires or explosives. Officers must become familiar with the risks presented by these calls in order to respond safely and effectively.
Extinguishing methods [26.08.01]	Once an officer has determined the class of fire involved, appropriate measures can be taken to safely extinguish the fire (i.e. remove source of heat, fuel, or oxygen).
Risk versus benefit of entering a burning structure [26.08.02]	Prior to any attempt to enter a burning structure or perform a rescue action, peace officers must consider specific agency policy and assess other risk factors.
Responding to bomb/ explosive threats [26.08.03]	Although some bomb/explosive threats are hoaxes, *all* should be treated as real. Three most common methods for delivering bomb/explosive threats are telephonic, written and personal.
Safety precautions [26.08.04]	Preservation of human life is of paramount concern to all involved in securing the area and safe disposal of any bomb/explosive hazard(s) located at a scene. Human life should never be jeopardized to secure or preserve evidence or property.
Securing the scene [26.08.05]	Establish and maintain a perimeter. Evacuate all personnel within the designated area to a safe location. (Distance will depend on the specific situation.) Control ingress/egress of the perimeter.
Dangers of a post-blast explosion [26.08.06]	There are dangers inherent in a post-blast scene, such as, secondary devices/explosives, booby traps, structural weakness, broken gas mains, downed power lines, and/or released hazardous materials.

Continued on next page

Securing a post-blast explosion scene [26.08.07]	Appropriate officer actions for securing a post-blast explosion scene are to ensure safety, assume command, and secure the area.
Actions specific to types of critical incidents [26.08.08]	Appropriate officer actions specific to types of critical incidents.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity questions

1. A peace officer on late night patrol in a residential neighborhood notices gray smoke coming from an upstairs window in a small two-story home. Upon closer observation, the officer sees what appear to be flames throughout two of the second story windows. Though there are two cars in the driveway, the officer can see no people on the lawn or attempting to exit the home. What actions should the officer take immediately? If the ETA for the fire department were five minutes, how would you proceed? Explain the factors that would influence your decision. How would your actions differ, if at all, if evidence of the fire was seen through the first-floor windows?

Continued on next page

Activity questions (continued)

2. Why do you think that some agency policies do not permit officers to enter burning structures? How do the responsibilities of a peace officer that responds first to the scene of a fire differ from those of firefighters?

3. As patrol officer you are called to assist with evacuations during a wildfire emergency. Describe some of your considerations.

4. Why should officers not attempt to extinguish Class B or Class C fires with water or pressurized water extinguishers?

Continued on next page

Activity questions (continued)

5. An officer is attempting to rescue a child from a third-story town house bedroom. Smoke is heavy and the officer can see flames in the second-floor living room and in the open third floor guest room next to the room that may hold the child. The door to the child's room is closed, and when the officer touches the knob, it feels hot. The officer can hear the child calling and coughing. ETA of the fire department is still four minutes. What should the officer do and why?

6. Officers receive a report of several explosions coming from a high school football field. When they arrive, they discover three boys attempting to ignite something midfield. As the officers approach, the teens appear to light something and run to the sidelines, but nothing happens. When the teens see the officers, they attempt to flee, leaving what appear to be several lengths of PVC pipe at the sideline, in addition to whatever is at midfield. How should officers proceed? Explain your response.

Continued on next page

Activity questions (continued)

7. Given your own physical fitness and abilities as a peace officer, what would you do if you became trapped on the second floor of a burning home after the one stairway to the first floor became blocked by fire? Presume you are trapped alone. How would your response differ, if at all, if you were trapped with an 80-year-old woman?

8. Officers are called to a local high school by the principal after she discovered a bomb threat on the school answering machine when she arrived in the morning. Much of the student body had already arrived. The threat said that there were several bombs planted in classrooms around the building and that they would be detonated at 0900 hours. Though the principal does not want to jeopardize the safety of her students, she believes that the threat is likely to be a hoax designed to disrupt the midterm tests that begin that morning. What are the officers' responsibilities in this situation? What are the responsibilities of the principal? How should officers proceed? If the principal asks for recommendations, how should they respond?

Continued on next page

Activity questions (continued)

9. Officers are at the headquarters of a controversial political organization, gathering evidence about vandalism that was discovered as employees arrived in the morning. The morning mail arrives while officers are present and the office chief calls them over to check a "suspicious package." The shoebox-sized package is wrapped in brown paper and has no return address. It is addressed to the office chief. The word "deceased" appears after his name. What actions should officers take? What are their primary responsibilities?

10. A series of explosions brings officers to a warehouse district, where they discover several people fleeing from a one-story concrete building. After stopping one of the individuals, officers discover that the people in the building were apparently making illegal fireworks when something triggered the explosion. One man reports that his injured friend is still in the building. How should officers proceed? What types of risks should officers anticipate being present in or around the building?

Student Notes:

Supplementary Material

In this section

Refer to the following table for specific reference documents included in this section.

Topic	See Page
Laws and Regulations Applicable to Explosives/Destructive Devices	S-2
Officer Involved Shootings	S-14
Hazardous Classifications	S-15
Sample Placards	S-18
NFPA Diamond	S-19
Pesticide Warning Label	S-20

Laws and Regulations Applicable to Explosives/ Destructive Devices

Explosives

Health and Safety Code Section 12000 defines an explosive as any substance or combination of substances where the primary purpose is detonation or rapid combustion capable of an instantaneous release of gas and heat. Such substances include but are not limited to:

- dynamite,
- nitroglycerin,
- picric acid,
- lead azide,
- fulminate of mercury,
- black powder,
- smokeless powder,
- propellent explosives,
- detonating primers,
- blasting caps,
- boosters,
- nitro carbonitrate substances or blasting agents.

Substances determined to be explosives by the U.S. Department of Transportation, includes:

- railroad torpedoes,
- military pyrotechnics,
- class A, B, and C explosives, and
- any material designated as an explosive by the State Fire Marshal (SFM), such as:
  - explosive devices containing more than .77 grains of pyrotechnic material (*CAC Title 19, Section 980*), or
  - exploding targets.

Continued on next page

Explosives (continued)

NOTE: Ammunition or small arms primers, destructive devices as defined by *Penal Code Section 12301*, and fireworks (*Health and Safety Code 12511*) are not included under *Health and Safety Code Section 12000*.

Forbidden explosives

Explosives forbidden in transport are those explosives or devices that have not been analyzed by the Department of Transportation (DOT) or authorized for use (e.g., M-80, M-100, M-500, etc.). Codes relating to such forbidden explosives are noted in the following table.

Description	Code Reference
License for manufacture or distribution	*Title 18 US Code Section 842(a)(1)*
Requirement that all such materials be submitted by DOT for examination	*49 Code of Federal Regulations, Section 117.86*
If substances are not submitted for examination, they are considered forbidden explosives	*49 Code of Federal Regulations, Section 173.51*

Continued on next page

Lawful possession and use of explosives

The following table identifies a number of statutory codes relating to the lawful possession and use of explosives and explosive devices.

Description	*Health and Safety Code Section*
• Exempts law enforcement from regulations.	*12005*
• Must be 21 to possess or use explosives.	*12082*
• Illegal abandonment of explosives.	*12087*
• Placards are required on vehicles transporting explosives.	*12089*
• A permit is required to: - possess or use, - manufacture, - sell, - store, or - transport explosives, or - to operate a shipping terminal involving explosives.	*12101*
• Individual may possess a maximum of 20 pounds of smokeless powder and/or a maximum of 5 pounds black sporting powder without a permit for reloading small arms only.	*12102.1*

Continued on next page

Lawful possession and use of explosives (continued)

Description	*Health and Safety Code Section*
• Sellers are required to maintain records of sales of explosives (including black sporting powder and smokeless powder) including the purchaser's: - name, - address, - date of birth, and - some form of ID.	*12121*
• All explosives must be stored in approved explosive storage magazines (per *Title 19, CCR*).	*12150* and *12151*
• Definition of lawful possession.	*12303*
• Violations of all regulations notes are considered felonies.	*12305*

Transport of explosives

Laws governing the transportation and inspection of explosives are noted under *Vehicle Code Sections 31600* through *31620*.

Designated safe travel routes and approved stopping points for vehicles transporting explosives are noted under *Vehicle Code Section 31602*.

Continued on next page

Definition of destructive devices

Penal Code Section 16460 presents a number of definitions for destructive devices.

Definition	***Penal Code Section***
• Projectiles containing incendiary or chemical materials (e.g. tracer ammo [except shotgun ammo] or exploding bullets)	*16460(a)(1)*
• Any bomb, grenade, explosive missile or similar device, or a launching device thereof (e.g. bombs commonly known as M-80, M-100, cherry bomb, law rocket tube, RPG, and bazooka)	*16460(a)(2)*
• Any weapon larger than .60 cal. or ammo therefore (except shotguns and antique cannons)	*16460(a)(3)*
• Any rocket, rocket propelled projectile or similar device larger than six tenths of an inch, or launching device thereof (e.g. all emergency signaling devices approved by the State Fire Marshal and bearing the SFM seal)	*16460(a)(4)*
• Any breakable container containing a flammable liquid, such as gasoline with a flashpoint of 150 degrees F or less and that has a wick or similar device capable of being lighted (e.g. Molotov cocktail)	*16460(a)(5)*
• Any sealed device containing dry ice (CO_2) or other chemically reactive substances assembled for the purpose of causing an explosion by a chemical reaction	*16460(a)(6)*
• Explosives as designated in *Health and Safety Code Section 12000*	*16460*

NOTE: A bullet itself is not a destructive device as defined in *Penal Code Section 16460*.

Continued on next page

Additional penal code references

The following penal code sections also relate to destructive devices.

Description	***Penal Code Section***
• Giving a false report of a bomb/explosive device	*148.1*
• Reporting a hoax device or facsimile bomb	*148.1(d)*
• Exemption of law enforcement officers acting in the official capacity from possession laws	*18800*
• Possession of a destructive device (felony/misdemeanor)	*18710(a)*
• Carrying or placement of an explosive or destructive device on a vessel, aircraft, car, or other vehicle (felony)	*18725(a), 18725(b)*
• Reckless or malicious possession of a destructive device or explosive in certain places (felony) NOTE: Should be used in lieu of *Penal Code Section 453(a)* when handling an incident involving a firebomb (Molotov cocktail) incident.	*18715*
• Exploding or attempting to explode or ignite any destructive device with the intent to injure, intimidate, or terrify people or to wrongfully destroy property (felony)	*18740*
• Selling or transporting a destructive device other than fixed ammunition (felony)	*18730*
• Selling or transport of a fixed ammunition (misdemeanor/felony)	*18735(a)*
• Exploding or attempting to explode a destructive device or explosive with intent to commit murder (felony)	*18745*
• Unlawful explosion or ignition of destructive device or explosive causing bodily injury (felony)	*18750*

Continued on next page

Additional penal code references (continued)

Description	*Penal Code Section*
• Unlawful explosion or ignition of destructive device or explosive causing death, mayhem, or great bodily injury (felony)	*18755(a), 18755(b)*
• Probation or suspension of sentences under *Penal Code Section 12301* through *12310* and *12312* are not authorized.	*18780*
• Possession of materials with intent to make a destructive device or explosive (e.g. pipe, wire, diagram and books on how to build devices) (felony)	*18720*
• Exemption for the possession of ammunition after the propellent has been removed and primer has been permanently deactivated (war/military souvenirs)	*30335*
• Assembling, maintaining, placing, or causing to be placed a booby trap device	*20110(a), 20110(b)*
• Definition of a booby trap device (any concealed or camouflaged device designed to cause great bodily injury when triggered by an action of any unsuspecting person)	*16310*
• SFM approved emergency or distress signaling devices (with the SFM seal) may be: - stored on a boat or in aircraft, - transported to and from a hunting activity (hunter must have a valid hunting license in possession)	*26060*
• Unlawful manufacture, import, sale, supply, or possession of certain weapons and explosives NOTE: For additional information regarding unlawful carrying or possession of dangerous weapons or explosives, refer to LD 40: *Weapons Violations*.	*16590*

Continued on next page

Fireworks regulations

A firework is defined as a device, used as a pyrotechnic device or for entertainment, containing chemical elements and compounds capable of burning independently of oxygen in the atmosphere, and producing audible, visual, mechanical, or thermal effects.

Unlawful possession of fireworks (e.g. M-80s, M-100s, cherry bombs, etc.) is covered under *Health and Safety Code Section 12511*.

NOTE: Throughout the state there are also numerous county and city ordinances pertaining to the possession and use of fireworks.

Additional code references

Additional information regarding:	can be located in the California:
• crimes and punishments related to explosives and destructive devices	Penal Code
• offenses dealing with health and safety issues related to explosives and fireworks	Health and Safety Code
• transportation of explosives	Vehicle Code
• safety in the workplace	Labor Code

Other references include:

- Uniform Fire Code
- State Resources Code
- Welfare and Institutions Code
- California Code of Regulations (CCR)
- California Occupational Safety and Health Administration (OSHA) Regulations
- city/county ordinances
- U.S. Federal Code

Continued on next page

Low explosives are explosives that burn at less than 3,000 feet per second

Examples of low explosives are provided in the following table:

Low Explosive	Additional Information
Black powder	• Readily available • Commonly used in pipe bombs
Flash powder	• Commonly used in fireworks • Often extracted from fireworks to make improvised devices
Smokeless powder	• Readily available • Less sensitive than black powder; used for reloading small arms • More stable than flash powder • Not corrosive • Also used in pipe bombs
Safety fuses	• Hobby fuses used with toy cannons, model rocket launchers, etc. • Has a black powder center and burns when ignited • Used to ignite a blasting cap
Other explosive or incendiary mixtures	• Match heads • Burning/smoking chemicals

Continued on next page

High explosives are explosives that bury at or more than 3,000 feet per second

High explosives are readily available to the general public. Examples of high explosives are provided in the following table:

High Explosive	Additional Information	
Detonating devices	Blasting caps	• Explosive devices used to set off other high explosives • *Nonelectric* blasting caps ignite with a burning fuse • *Electric* blasting caps ignite with an electrical charge • *NONEL shock tubes*, another type of blasting cap, ignite with a shock wave
	Detonating cord	• Cord used to connect the blasting cap to other explosives (e.g. E-Cord, det cord, primer cord) • Color of the cord's filler is either off-white, pink, green, or white
	Booster charges	• Used to set off blasting agents
Dynamite	• Made from nitroglycerin and ammonia nitrate with fillers such as wood pulp • Primary commercially manufactured explosive	
Blasting agents	• Ammonium nitrate and fuel oil (ANFO) • Water gels, slurries, free running explosives made mostly from ammonium nitrate • Two-part (i.e. binary) explosives which, when mixed together, produce a high explosive	

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High explosives are explosives that burn at or more than 3,000 feet per second (continued)

High Explosive	Additional Information	
Military explosives	TNT	• Trinitrotoluene
	Tetraethyl	• Used as an alternative to TNT
	Composition explosives	• Plastic explosives • C-3, C-4 • A variety of shapes, sizes and colors
	Sheet PETN	• Flexible military explosive • Flex-X or Data sheet

Improvised explosive devices

Any type of package or container can be used to enclose explosives or an explosive device. The most common type of improvised explosive devices or homemade bomb encountered are pipe *bombs*. These devices are commonly made from metal or polyvinylchloride (PVC) pipe. Other improvised explosive devices include but are not limited to:

- CO_2 cartridges,
- firebombs (i.e. Molotov Cocktails),
- dry ice bombs,
- acid/chemical bombs,
- time bombs,
- car bombs,
- remote control devices (usually with some type of antenna),
- letter/package bombs, or
- booby traps (commonly found in clandestine labs, marijuana fields, etc.).

Continued on next page

Examples of military ordnance

The following table identifies a number of military ordnance that peace officers may encounter.

Type of Ordnance	Additional Information	
Grenades	Fragmentation grenades	• Large kill radius
	Smoke grenades	• Actually burns • Can ignite fires
	Incendiary grenades	• Made of thermite • Burns at 4000-degree F
	Riot control grenades	• Contain chemical agents • Also have explosive and incendiary properties
	Special purpose grenades	• 40 mm grenades • Contains a fusing mechanism that is very dangerous
Mines	• Made of metal, plastic, wood, glass, and/or paper • Claymore mines contain steel bb's that can be shot over 600 ft. • Anti-tank and anti-personnel mines can be used as booby traps	
Rockets/ missiles	• Light anti-tank weapons (LAWs) and AT-4s are used as anti-tank weapons • The tubes themselves, loaded or not, are illegal to possess	
Small arms ammunition	• 30 mm or smaller • Can be fired electrically • Some types are forms of high explosives • Tracer ammunition is illegal	
Submunitions	• Small ordnance from inside larger ordnance • Commonly dropped from aircraft; can be fired from cannons • Armed submunitions are normally very sensitive to vibration, temperature, and noise NOTE: There is no way to determine if the item is fully armed.	

Officer Involved Shootings

Officer involved shootings

Peace officers who are called to respond to an incident where another officer has used deadly force (i.e. officer involved shootings) may be required to take certain actions. Such actions must be followed in order to ensure officer safety as well as the safety of others and preserve the scene for a complete investigation of the incident. The following table identifies a number of actions and guidelines that the initial responding officer may be required to take.

Action	General Guidelines
Ensure safety	• Be sure that all shooting has ceased and that the scene is safe and secure. • Identify the threat (e.g. any suspects still on scene).
Assume initial command	• Secure or isolate the suspect(s). • Render first aid if necessary. • Request emergency medical services if required. • Obtain suspect information/description of outstanding suspect(s) from initial responding officer. • Communicate all relevant information to field supervisor or commander. NOTE: Whether or not the peace officer involved in the shooting is removed from the incident scene and/or interviewed by other officers at the scene will be *dependent on agency policy and procedures.*
Set in motion all required procedures	• Follow specific policies and procedures as established by your agency. • Establish and maintain a perimeter to secure the area. • Secure suspect weapon and evidence.

Continued on next page

Hazardous Classifications

DOT hazard classes The following table identifies the Department of Transportation hazard classifications.

Class	Division	Hazard Name	Color	Symbol	Example
1	1.1 1.2 1.3 1.4 1.5 1.6	• **Explosives** - Explosives (mass explosion) - Explosives (projection hazard) - Explosives (fire hazard) - Explosives (no significant blast) - Very insensitive explosive (blasting agent) - Extremely insensitive explosive	Orange	Bursting ball	**Flaming gases** - Trinitrotoluene (TNT) - Shaped charges - Nitrocellulose w/ >25% alcohol - Common fireworks - Ammonium Nitrate-Fuel Oil Mix (ANFO) - None (rarely used)
2	2.1 2.2 2.3	• **Gases** - Flammable gases - Non-flammable, nontoxic gases - Oxygen - Poison/ toxic gases	Red Green Yellow White	Flame Cylinder Burning ball Skull & cross bones	**Non-flaming gases** **Non-toxic gases** - Propane - Argon, Nitrogen - Oxygen, liquid or cryogenic - Chlorine gas
3	- -	• **Flammable & Combustible Liquids** - Flammable - Combustible	Red	Flame	**Poison/toxic gases** - Gasoline - Diesel fuel

Continued on next page

DOT hazard classes (continued)

Class	Division	Hazard Name	Color	Symbol	Example
4	4.1 4.2 4.3	• **Flammable Solid/ Spontaneously Combustible/ Dangerous When Wet** - Flammable solids - Spontaneously combustible materials - Dangerous when wet materials	Red & white stripes White over red Blue	Flame	**Corrosive gases (Canada)** - Fusee/road flare - Plastic-nitrocellulose based - Sodium metal
5	5.1 5.2	• **Oxidizer/ Organic Peroxide** - Oxidizers - Organic peroxides	Yellow	Burning ball	- Hydrogen peroxide - Benzoyl peroxide
6	6.1 6.2	• **Poison (Toxic) Material/ Infectious Substance** - Poisons - Infectious substances	White	Skull & cross bones biohazard symbol	Arsenic, cyanide Botulism
7	-	• **Radioactive materials**	Yellow over white	Trefoil	Plutonium, radio pharmaceutical
8	-	• **Corrosive materials**	White over black	Test tube over metal bar and hand	Nitric acid, sodium hydroxide

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Hazardous Classifications, Continued

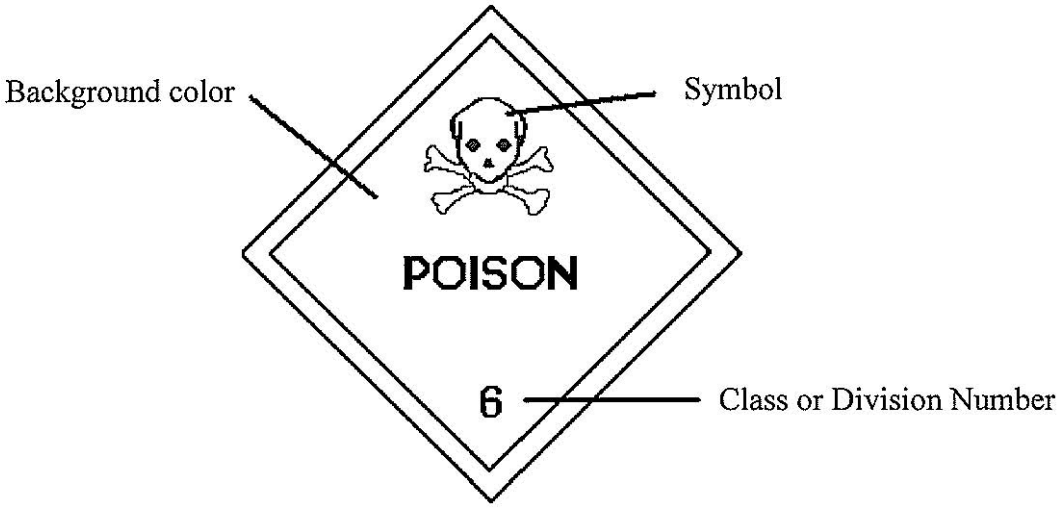
DOT hazard classes (continued)

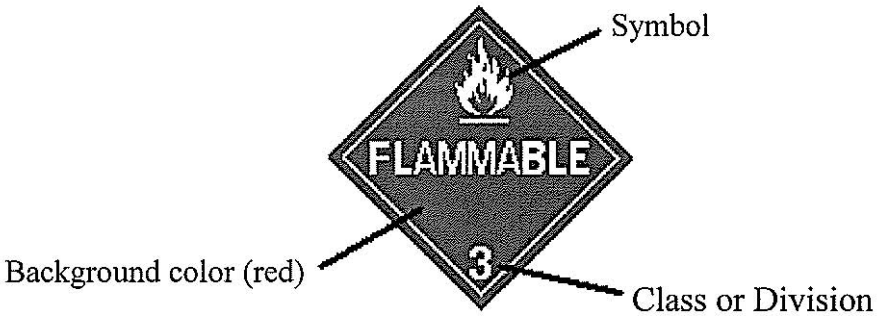
Class	Division	Hazard Name	Color	Symbol	Example
9	-	• **Miscellaneous hazardous materials**	Black and white stripes over white	None	Asbestos, elevated temperature material
ORM-D	-	• **Other Regulated Materials** - **Consumer commodities**	None	ORM-D	-

Sample Placards

Hazardous placards

Below are samples of placards indicating the presence of a hazardous substance.





NFPA Diamond

Health, flammable & reactive

Below is an illustration of the NFPA diamond. Numbers indicate the degree of hazard.

HEALTH HAZARD	FIRE HAZARD	REACTIVITY HAZARD	SPECIFIC HAZARD	
4 – Deadly	Flash points	4 – May Detonate	Oxidizer	OXY
3 – Extremely Hazardous	4 – Below 73°F	3 – May Detonate with Heat or Shock	Acid	ACID
2 – Hazardous	3 – Below 100°F		Alkali	ALK
1 – Slightly Hazardous	2 – Below 200°F	2 – Violent Chemical Change	Corrosive	COR
0 – Normal Material	1 – Above 200°F	1 – Not Stable if Heated	Use NO WATER	~~W~~
	0 – Will Not Burn	0 – Stable	Radiation Hazard	

Pesticide Warning Label

Pesticide warning label

Below is an illustration of a pesticide label and its warning mark

CHEMCO **NO PEST INSECTICIDE**

REG. U.S. PAT. & TM OFF.

Restricted use pesticide. For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

ACTIVE INGREDIENT:	BY WEIGHT
deltathion (1,2 phospho-(S)-4 chloromethane)	50%
INERT INGREDIENTS:	50%
TOTAL	100%

EPA Reg. No. 999-000 EPA Est. No. 000

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Wear long-sleeved clothing, full length trousers, eye protection, and protective gloves when handling. Wash hands and face before eating or using tobacco. Bathe at the end of work day, washing entire body and hair with soap and water. Change clothing daily. Wash contaminated clothing thoroughly before reusing.

STATEMENT OF PRACTICAL TREATMENT

If Swallowed: Do not induce vomiting. Contains aromatic petroleum solvent. Call a physician or poison control center immediately. **If In Eyes:** Flush with plenty of water for at least 15 minutes. Get medical attention. **If On Skin:** Wash with plenty of soap and water. Get medical attention if irritation persists. **If Inhaled:** Remove to fresh air immediately. Get medical attention.

NOTE TO PHYSICIANS: "No Pest" is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to birds and extremely toxic to fish. Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of waste. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Avoid use when bees are actively foraging.

"No Pest" is a pesticide which can move (seep or travel) through soil and can contaminate groundwater which may be used as drinking water. "No Pest" has been found in groundwater as a result of agricultural use. Users are advised not to apply "No Pest" where the water table (groundwater) is close to the surface and where the soils are very permeable (i.e., well drained soils such as foamy sands). Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

REENTRY STATEMENTS

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Do not enter treated areas without protective clothing until sprays have dried.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information: "WARNING! Area treated with "No Pest" Insecticide on (date of application). Do not enter without appropriate protective clothing until sprays have dried. If accidental exposure occurs, follow the instructions below." (Written warnings must include the STATEMENT OF PRACTICAL TREATMENT given at the beginning of this label.)

STORAGE AND DISPOSAL

PROHIBITIONS: Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

STORAGE: Store in original container only. Keep container closed when not in use. Store "No Pest" in a well ventilated clean dry area out of reach of children and animals. Do not store in areas where temperature averages 115°F (46°C) or greater. Do not store in or around the home or home garden. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with sand, earth or synthetic absorbent. Remove to chemical waste area.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Metal Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. **Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by open burning. If burned, stay out of smoke. **Glass Containers:** Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.

KEEP OUT OF REACH OF CHILDREN

DANGER POISON

PELIGRO

Acronyms

B-NICE	Biological, Nuclear, Incendiary, Chemical, Explosive
CBRN	Chemical, Biological, Radiological, Nuclear
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
COBRA	Chemical Ordnance, Biological, Radiological
CP	Command Post
DHS	Department of Homeland Security
EMS	Emergency Medical Services
EOC	Emergency Operations Center
ERG	Emergency Response Guide
GHS	Globally Harmonized System of Classification and Labeling
HSPD	Homeland Security Presidential Directive
IAP	Incident Action Plan
IC	Incident Command(er)
ICP	Incident Command Post

Continued on next page

Acronyms

ICS	Incident Command System
IED	Improvised Explosive Device
LSU	Louisiana State University
MACS	Multi-Agency Coordination System
MOPP	Mission Oriented Protective Posture (Military PPE)
NBC	Nuclear, Biological, Chemical
NIC	NIMS Integration Center
NIMS	National Incident Management System
OES	Office of Emergency Services
PPE	Personal Protective Equipment
R.A.I.N.	Self protection Acronym meaning: **R**ecognize, **A**void, **I**solate, **N**otify
RDD	Radiological Dispersion Device ("Dirty Bomb")
REOC	Regional Emergency Operations Center
SCBA	Self-Contained Breathing Apparatus

Continued on next page

Acronyms

SEMS	Standardized Emergency Management System
TIC	Toxic Industrial Chemical(s)
TIM	Toxic Industrial Materials
TPU	Time Power Unit
USC	United States Code
VBIED	Vehicle Borne Improvised Explosive Device
WMD	Weapons of Mass Destruction

Student Notes:

Glossary

Introduction	**The following glossary terms apply only to Learning Domain 26: Critical Incidents.**
acute effect	An effect that occurs shortly after exposure to a hazardous material; usually within 24 hours
backdraft	A violent explosion of an oxygen-starved fire that occurs when a door is opened and oxygen is allowed into the area
base	The location from which primary logistics and administrative functions are coordinated and administered
camp	Locations, often temporary, within the general incident areas that are equipped and staffed to provide sleeping, food, water, sanitation, and other services to response personnel that are too far away to use base facilities
chronic effect	An effect that does not appear until at least 24 hours or more after exposure to a hazardous material
contamination	Coming into contact with the material. The amount of contamination depends on how much material is involved and how long it remains there.
control zone	An area, inside the perimeter, established at a hazardous materials incident to ensure safety, control the hazard area, and support response operations
disaster service worker	Public employees of county, city, state and public districts who may be called upon in the event of a disaster or emergency; includes peace officers.
DOT communication standard	A standard means of communicating information regarding hazardous materials that are being shipped; utilizes classification numbers, colors, and descriptive symbols on placards, labels, marking, and other documentation materials

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Glossary

emergency response guide (ERG)	Emergency response information should be included with shipping papers. The information contains assistance in potential health, fires and chemical hazards and guidance in handling the incident
environmental protection agency (EPA)	Environmental Protection Agency; has adopted words to indicate the potential hazard of pesticides
explosives	Any substance, or combination of substances that may explode from heat, shock, friction or contamination; may react violently or explosively on contact with air, water or foam; may be ignited by heat, sparks, or flames
explosion	A sudden and rapid escape of gases that are released when an unstable solid or liquid is converted to a stable gas
exposure	Being in the general area of a substance which may cause contamination
first responder	Personnel who are the first to arrive at the scene of a hazardous materials incident
flashover	Spontaneous ignition of the contents of a room or structure due to build up of heat to ignition temperature of exposed contents
Geiger counter	Radiation detection and measuring device
guide number	A component of the ERG that provides useful public safety information on potential hazards associated with an identified substance
hazardous materials incident	Any emergency involving the release or potential release of a hazardous material.

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Glossary

helibase	The location from which helicopter-centered air operations are conducted
helispots	Temporary locations at the incident, where helicopters can safely land and take off. Multiple helispots may be used for an incident and attached to an air wing
high explosives	Explosive that burns at or more than 3,000 feet per second
incapacitating agents	Most of these substances are lachrymators (fear producers), however, exposure can create other physical and psychological symptoms
Incident Command Post (ICP)	The location where the Incident Commander operates during response operations
Incident Command System (ICS)	A statewide emergency management system that organizes the various response personnel into one functioning unit; integrates all the departments and agencies into one command system.
first responding officer	The first law enforcement officer to arrive at the scene of a critical incident who takes leadership responsibility
low explosives	Explosive that burns at less than 3,000 feet per second
NFPA 704 warning system	System for identifying potential hazardous materials stored at fixed facilities; utilizes warning signs that appear as four diamond shapes grouped to form one large diamond-shaped sign
National Incident Management System (NIMS)	A flexible framework that facilitates government and private entities at all levels working together through standardized organizational structures. Created after September 11, 2001 to manage events on a national level. Authority for NIMS is found in Presidential Directives 5 and 8

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Glossary

occupational safety and health administration (OSHA)	Occupational Safety and Health Administration is the federal agency that regulates the workplace. Among many programs OSHA has is the warning of industrial workers and the public who may be exposed to hazards.
ordnance	Weapon or ammunition that is used for military purposes; often modified into improvised destructive devices
outer perimeter	A set boundary that completely surrounds the location of an unusual occurrence in order to protect the incident location and/or isolate a hazardous material
perimeter	An area which is secured far beyond the site of the incident and which no one else can enter without proper authority
toxicity	The capacity of a hazardous material to cause injury or illness
Weapons of Mass Destruction	Any destructive device designed or intended to cause death or serious bodily injury through the release, dissemination, or impact of toxic or poisonous chemical, or their precursors, or radiation at any level dangerous to human life