

# HAZARDOUS MATERIALS ON SCENE COMMANDER

COMMAND 2B



Emergency  
Training  
Services

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RETIRED CURRICULUM

## TABLE OF CONTENTS:

Introduction

Hazard Recognition

Hazard Assessment

Incident Command System

Notification Requirements and Inter-Agency Involvement

Site Control, Site Entry and Containment Operations Clean-up and Restoration

Liability and Risk Management

Documentation and Incident Investigation

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# *Introduction*

## ***SPECIAL INSTRUCTIONAL CONSIDERATIONS***

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### **Teaching Learning Environment**

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This Command 2B course relies heavily on the concepts of Cooperative Learning (CL) and Group Problem Solving (GPS). New information is introduced and the instructor leads the students through an example hazardous materials incident scenario. The students break into teams and work through a problem described in a second scenario, followed by the instructor leading students in a critique.

The instructor needs to confine their lecture to the introduction part of each section where new information is presented. Remember that the Command 2B course is designed as a workshop.

To ensure that CL and GPS takes place, we suggest:

- √ Students need to become acquainted. Name tags with student's full names, printed in large letters should be provided. Make it a point to explain the importance you place on the name tags, i.e. CL and GPS requirements.
- √ Your class size should be no less than 12 and no more than 25. Size will facilitate group involvement and instructor management responsibilities.
- √ Student should be seated in small groups of 4 to 6 at a round or rectangular tables. No lecture setups please. Tables need to be separated far enough apart to create the impression of openness. Less stress for the students, more room for the instructor to move about the room and less stress is for learning.
- √ If you have students that are not familiar with the Incident Command System, such as students that may represent public works or a health agency, seat each one of those students next to a student familiar with ICS. Although the ICS is not a large part of this course, students without out ICS may find some sections difficult without assistance.
- √ We cannot over emphasize that for cooperative learning and group problem solving to take place, each student must participate during the scenarios. Make sure your students are filling out their manuals. Circulate through your groups during the scenarios.

**TOPIC:** INTRODUCTION

**LEVEL OF INSTRUCTION:** I      **SUGGESTED TEACHING TIME:** 1 Hours

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** Command 2B Student Manual, Instructor expectations and course review;

**BEHAVIOR:** Student will describe course goals and objectives, instructor expectations and become acquainted with other materials.

**STANDARD:** N/A

**MATERIALS NEEDED:**

- √ Student Manual and Instructor's Guides
- √ CFSTES Roster
- √ Chalkboard or whiteboard and PowerPoint

**REFERENCES:**

- √ Command 2B Student Manual.
- √ CCR Title 8
- √ 29 CFR 1910.120, 49 CFR
- √ NFPA 472 and 473

**PREPARATION:**

This course has been designed expressly to address the requirements imposed by the federal statute for On-Scene Incident Commanders. The requirements imposed on this particular functional level definitely have major implications for emergency response agencies. Noncompliance could produce serious ramifications for an organization in terms of liability and negligence of duty. The classification of On-Scene Incident Commander incorporates all personnel who may be expected to assume control of an incident. This would certainly include all Chief Officers, Fire Captains and Acting officers. Moreover, this classification also includes any person having in their official job description any stipulation that they may be required, on occasion, to take command of an emergency incident.

This course has been designed to be presented in a combination lecture/application format with heavy emphasis on the participation of the student in guided study-group exercise. The group exercises are intended to reinforce the main points of the text, and also to provide students with an opportunity to demonstrate competency in using incident command techniques in simulated incident scenarios.

**PRESENTATION**

**APPLICATION**

1. INTRODUCTIONS

Tell the students about your public safety background with emphasis on hazardous materials background, incident training and experiences.

Have your students introduce themselves, including their public safety backgrounds, present assignments and hazardous material incident experiences.

2. Complete administrative details:

- √ School registration forms
- √ CFSTES Roster
- √ Rest breaks, rest rooms, etc.

Roll call, complete registration forms, etc.

3. Review Command 2B GOALS

This course is designed to provide the hazardous materials incident commanders with a comprehensive resource management approach to:

- √ Mitigate an emergency incident.
- √ Initiate remedial action.
- √ Ensure restoration of normal services.

4. Describe Command 2B course objectives (PowerPoint slides) Command 2B Student Manual pages i, ii, iii

Students to take notes and or highlight goals found on pages i, ii and iii in the Command 2B student manual.

5. Review major topics (PowerPoint slides)

- √ Hazard Assessment
- √ Incident Command System
- √ Notification Requirements and Inter-Agency Involvement
- √ Site Control, Site Entry and Containment Operations
- √ Clean-up and Restoration
- √ Liability and Risk Management
- √ Documentation and Incident Investigation

Students to take notes and or highlight objectives found on page iii in the Command 2B student manual.

**PRESENTATION**

**APPLICATION**

6. It is important that your students truly understand that this course relies heavily on group exercises. Emphasize to your students that:

Command 2B relies on student participation just like at a real hazmat incident. During this course you will be using group exercises to simulate a hazmat incident.

Tell your students that the group exercises are intended to reinforce the main points of the text and to provide students with an opportunity to demonstrate their competency in using incident command techniques.

7. Enlighten your students on how they will be evaluated. The following seems to work well:

- √ PARTICIPATION in guided group exercises containing simulated incident scenarios.
- √ PARTICIPATION in simulated Civil Court action designed to reinforce the main points of Command 2B.
- √ COMPLETION of the CFSTES Command 2B certification examination with a score of 80%.

Have students turn to the Table Contents page located at the front of the Command 2B Student Manual.

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**HAZ/MAT ON SCENE INCIDENT COMMANDER  
INSTRUCTOR'S GUIDE**

**SUMMARY:**

This course has been designed to address the requirements imposed by the federal statute for On-Scene Incident Commanders and the Chief Officer Certification track.

The requirements imposed on this particular functional level definitely have major implications for public safety agencies and the responsibilities of counties, cities and districts.

**RETIRED CURRICULUM**

# ***SPECIAL INSTRUCTIONAL CONSIDERATIONS***

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## HAZARD RECOGNITION (A review of First Responder Operational FRO)

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### GENERAL:

- √ This section has been designed to provide a First Responder Operational level review for those students that have been away from hazardous materials training for a while.
- √ It is important that you brief all of your students in FRO so that they will all start with the same basic level of hazardous materials training knowledge.
- √ If you are presently an FRO instructor, you may wish to spend less time on review material that may not be pertinent to your local area or region, and expand on topics that are more pertinent to your area.
- √ Some Command 2B instructors have actually given a short FRO pretest to determine their student's knowledge base. It may turn out that you will not need to spend much time in this section, giving you more time for Section B. In any case you should not spend more than four (4) hours on this review.

**TOPIC:** MATERIAL SAFETY DATA SHEET (MSDS)

**LEVEL OF INSTRUCTION:** II Suggested Teaching Time 30 minutes

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** Based on a sample MSDS Form;

**BEHAVIOR:** Test student's ability to state the objective for each section and interpret hazard/s presented by the product described on the MSDS Form;

**STANDARD:** With 90% accuracy.

**MATERIALS NEEDED:**

- √ MSDS PowerPoint slides
- √ Sample MSDS Forms
- √ Command 2B Student Manual

**REFERENCES:**

- √ FRO Course materials

**PREPARATION:**

The Materials Safety Data Sheet, better known as "MSDS", provides specific information about products that users and responders need to know. There may be no other sources of information about a specific product. Additionally, MSDSs' are information sources for site and pre-planning.

## PRESENTATION

## APPLICATION

1. Generally MSDS layouts, divide “Sections” into similar or like bits of information. Use your PowerPoint presentation to display a sample MSDS Form.
2. MSDS Section 1 provides the following information: (PowerPoint)
  - √ Manufacturer’s name
  - √ Address and telephone number
  - √ Chemical name
  - √ Trade name
  - √ Chemical family
  - Formula
3. MSDS Section 2 provides the following information:
  - √ CAS number (Chemical Abstract Service Number) identifies the chemical
  - √ Composition lists the components of the material
  - √ TLV is the (Threshold Limit Value)
  - √ PEL are listed for the (Permissible Exposure Limits) for the materials involved.
4. MSDS Section 3 contains the Physical Data. This Section describes the physical characteristics of the materials Boiling point, Specific Gravity, Vapor Pressure, etc.
5. MSDS Section 4 contains the Fire and Explosion Hazard Data. This section lists the fire hazard of the material’s Flash Point, Flammable Limits, Extinguishing agent, etc.
6. MSDS Section 5 lists the Health Hazard/s of the product. This section provides a general description of important health information relating to exposure to the material, both chronic and acute exposure should be cited:
  - √ TLV
  - √ Effects of over exposure
  - √ Emergency First Aid measures

Because you are using this Hazard Recognition lesson as a review, you should remind your students this lesson is a review of their past FRO training. They should already be aware that a products MSDS contains specific information about the product that first responders need to know. So treat this lesson a review. Your students follow your lecture by:

- √ Following your lecture in the Command 2B Student Manual on pages A-11 and 12
- √ Taking notes as necessary
- √ Following your Power point presentation

**HAZARD RECOGNITION**

**PRESENTATION**

**APPLICATION**

7. MSDS Section 6 refers to Reactivity Data. This section contains a general description of the

Reactivity of the materials:

- √ Stability
- √ Conditions to avoid
- √ Incompatibility
- √ Hazardous polymerization
- √ Hazardous decomposition products

8. MSDS Section 7 discusses Spills and Leak Procedures. It describes methods for handling spills and leaks:

- √ Spill and Leak Procedure
- √ Waste Disposal
- √ Environmental Hazards

9. MSDS Section 8 is the Special Protection Information section. This section describes the protective actions and clothing need for users of material, not necessarily emergency response personnel. Items such as:

- √ Respiratory protection
- √ Ventilation
- √ Eye protection
- √ Other Protective Equipment

10. MSDS Section 9 This section is for Special Precautions. The section describes additional

or special precautions to be used during handling of the material/product.

11. MSDS Section 10 is the Transportation Requirements. Some MSDSs' include this

**RETIRED CURRICULUM**

**SUMMARY:**

Ask your students what, "What is the purpose of an MSDS Form?" Using your power point slide, briefly restate the purpose of each section.

**EVALUATION:**

Hazard Recognition written quiz:

**ASSIGNMENT:**

Review pages A-11 and A-12 in the Command 2B Student Manual.  
Be prepared for the Hazard Recognition quiz.

**RETIRED CURRICULUM**

**TOPIC:** DOT Shipping Papers

**LEVEL OF INSTRUCTION:** I Suggested Teaching Time 30 minutes

**CONDITION:** Given a multiple choice quiz,

**BEHAVIOR:** Student will identify the location and name of each shipping paper for the four (4) modes of transportation as well as naming key information contained on the shipping papers.

**STANDARD:** With 90% accuracy

**MATERIALS NEEDED:**

- √ Command 2B Student Manual
- √ PowerPoint Presentation, Computer and projector
- √ Examples of DOT Shipping Papers

**REFERENCE:**

- √ DOT Shipping Papers
- √ Department of Transportation Placarding System Regulations

**PREPARATION:**

The best source of information regarding the type of hazardous materials being transported is the **SHIPPING PAPERS**. It is important for "Emergency Responders" to know the names and location of the shipping papers for each of the four (4) modes of transportation.

## PRESENTATION

## APPLICATION

1. List the names and locations of the shipping papers for each of the four (4) modes of transportation (PowerPoint).

- √ Highway
- √ Railroad
- √ Marine
- √ Aircraft

2. Pass out an example of each mode of shipping paper.

3. List the information required on each shipping paper (PowerPoint):

- √ Type of packaging
- √ Number of packages
- √ Proper shipping Name
- √ Hazard Class Number
- √ United Nations ID Number
- √ Weight or volume
- √ Shippers name and address
- √ Consignee's name and address

Students turn to page A-13 in the Command 2B Student Manual - take notes in the space provided in the SM - review the shipping papers.

**SUMMARY:**

Shipping papers provide a lot of valuable information, such as the Shippers name and address and the Consignee's name and address that will be helpful to you as the incident unfolds.

**EVALUATION:**

- √ Hazard Recognition written quiz:

**ASSIGNMENT:**

- √ Review page A-13 in the Command 2B Student Manual.
- √ Prepare for the Hazard Recognition quiz.

**TOPIC:** The EPA Pesticide Labeling System

**LEVEL OF INSTRUCTION:** III Suggested Teaching Time 30 minutes

**BEHAVIORAL OBJECTIVE:**

**CONDITION:** Based on the EPA Pesticide Labeling System;

**BEHAVIOR:** Students will Define the term "Pesticide", Classify pesticides into categories, Locate the mandatory information that must be listed on pesticide labels, Interpret pesticide label "Signal Words" and Analyze specific information contained on pesticide labels;

**STANDARD:** With 85% accuracy.

**MATERIALS NEEDED:**

PowerPoint slides  
Computer and projection equipment  
Sample EPA Pesticide Labels or PowerPoint slides depicting Labels and "Signal Words"  
Command 2B Student Manual pages A-14 through A-17

**REFERENCE SOURCES:**

Command 2B Student Manual  
FEMA Manual, "The Pesticide Challenge", CFR 40.156.10

**PREPARATION:**

The labeling requirements for poisons and pesticides are regulated by the Environmental Protection Agency (EPA), and are much more restrictive than those imposed by the DOT placarding and labeling system. When compared to the identification systems of the DOT and the NFPA, pesticide labels present much more usable information to emergency personnel. Subsequently, if emergency responders know how to locate and interpret the information contained on those labels, they will be able to determine precautionary measures and practical objectives necessary to mitigate the hazard presented by these substances.

## PRESENTATION

## APPLICATION

1. Define the term "Pesticide" (PowerPoint)

A chemical agent used to destroy or control plants, animals and diseases that are considered to be pests.

2. List the four (4) basic classes of pesticides: (PowerPoint)

- √ INSECTICIDES: Used to exterminate insects
- √ FUNGICIDES: Used to exterminate diseases
- √ HERBICIDES: Used to exterminate weeds.
- √ RODENTICIDES: Used to exterminate small animals

3. Identify the mandatory information that must be listed on pesticide labels:

- √ Product Name
- √ Signal Words
- √ Ingredient Statement (active and inert)
- √ EPA Registration Number
- √ Statement of physical or Chemical Hazards

4. Identify information that may also be included on a pesticide label:

- √ Statement of Practical Treatment
- √ EPA Establishment Number
- √ Information on Storage, Disposal and Hazards of the product

5. Define and discuss the toxicology terms used in pesticide labeling:

- √ Lethal Dose 50% ( $LD_{50}$ )
- √ Lethal Concentration 50% ( $LD_{50}$ )

Student takes notes as necessary on pages A-14 through A-17 in the Command 2B Student Manual.

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## HAZARD RECOGNITION

### **SUMMARY:**

Restate the importance of being able to locate and interpret the various pieces of information required by the EPA on the their Pesticide Labeling System.

### **EVALUATION:**

√ Hazard Recognition written quiz:

### **ASSIGNMENT:**

- √ Review pages A-13 through A-17 in the Command 2B Student Manual.
- √ Prepare for the Hazard Recognition quiz.

RETIRED CURRICULUM

**TOPIC:** The NFPA 704 Warning System

**LEVEL OF INSTRUCTION:** II Suggested Teaching Time 30 minutes

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** Based on the NFPA 704 Warning System;

**BEHAVIOR:** Students will state the purpose of the 704 System, who its intended users are, where the system is used, list the various components of the system and identify color and numerical classification;

**STANDARD:** With 85% accuracy.

**MATERIALS NEEDED:**

- √ Command 2B Student Manual page A-18
- √ PowerPoint presentation, computer and projection equipment
- √ Sample NFPA 704 placard

**REFERENCES:**

- √ NFPA 704 Guide
- √ DOT CFR 49

**PREPARATION:**

It is well known that most chemicals have more than one hazard. Due to its limitations, the DOT Placarding System depicts only one hazard to the first responder. The DOT system only addresses the most hazardous aspect of a substance, such as its toxicity. Therefore the emergency responder is warned about the other possible hazards, such as the products corrosiveness, flammability or reactivity.

The NFPA 704 System not only takes into account the health related hazards, but also addresses the flammability, reactivity and any special specific hazardous aspects presented by the substance. For this reason, it is not only vital that emergency responders be able to interpret the information presented by the 704 System at an actual incident, it can also be extremely useful in pre-emergency planning and contingency plan development.

As the instructor, you might want to list comparisons of the 704 and the DOT systems with a PowerPoint or samples of each placard.

## PRESENTATION

## APPLICATION

1. Describe why the **NFPA 704 System** was developed and who list who were its intended users: (PowerPoint)
  - √ Fire Agencies
  - √ Police Agencies
  - √ EMS Agencies, Organizations, Firms
  - √ Safety Engineers
  - √ Industrial Response Teams (CERT)
  - √ CalTrans and public works personnel
2. Discuss where the system is found in use.
  - √ Fixed Plant Facilities
  - √ Tank Farms
  - √ Storage Vessels
  - √ Industrial Buildings
  - √ Storage Areas
3. Tell your students where the 704 System is **not** used.
  - √ **Transportation**
  - √ **Packaging**
4. Describe the 704 Warning System Placard. (PowerPoint)
  - √ Diamond Configuration
  - √ Divided into four Quadrants
  - √ Quadrant Coloring System
  - √ Numbering Identification
  - √ Special symbols and letters
5. Describe how the each color is associated with the hazard.
  - √ **HEALTH** - **BLUE**
  - √ **FLAMMABILITY** - **RED**
  - √ **REACTIVITY** - **YELLOW**
  - √ **SPECIAL HAZARD** - **WHITE**
6. When considering the numerical warning sequence, remind students that "0" means no hazard and that "4" is the highest hazard.

Student take notes as necessary on page A-18 in the Command 2B Student Manual.

PREPARED CURRICULUM

## PRESENTATION

## APPLICATION

7. Discuss the information as represented by the numerical system in the **HEALTH** Quadrant:

- 0 - Ordinary Combustible Materials
- 1 - Slightly Hazardous , use an SCBA
- 2 - Moderately Hazardous, use an SCBA
- 3 - Extremely Dangerous:  
**WEAR FULL PROTECTIVE CLOTHING**
- 4 - Requires SPECIAL Protective Clothing

8. Discuss the information as presented by the numerical system in the **FLAMMABILITY** Quadrant:

- 0 - Will not Burn
- 1 - Must be Preheated to Burn
- 2 - Ignites when Heated
- 3 - Ignites at Normal Temperatures
- 4 - Extremely Flammable Gases and Very Volatile Liquids

9. Discuss the information as presented by the numerical system in the **REACTIVITY** Quadrant:

- 0 - Normally Stable Material
- 1 - Unstable if heated, use caution
- 2 - Possible Violent Chemical Change, use hose streams from a distance
- 3 - Strong Shock or Heat may detonate material, use monitors from behind explosion resistant barriers
- 4 - Material may detonate at normal temperatures; vacate area if materials are exposed to fire.

10. Review the information by the symbols or letters in SPECIAL HAZARD Quadrant.

- W - Water Reactive Symbol
- OXY - Symbol for Oxidizing Substance
- Radiation Impeller - Symbol for Radio-active materials
- POL - Symbol used for substances that may undergo hazardous Polymerization
- EXP - Symbol for materials that are shock sensitive

**PRESENTATION**

**APPLICATION**

11. Review the concept of using the SPECIAL HAZARD Quadrant for notification of any special hazard to emergency responders, such as, "A" for artists living in studios within an industrial complex or "C" for materials that must be contained.

**SUMMARY:**

Restate the color codes and numeral classification used for the NFPA 704 Placarding System. Reiterate how useful this system is in presenting more than one of the hazardous properties of a substance. Use your PowerPoint slides.

**EVALUATION:**

√ Hazard Recognition written quiz:

**ASSIGNMENT:**

- √ Review page A-19 in the Command 2B Student Manual.
- √ Prepare for the Hazard Recognition quiz.

RETIRED CURRICULUM

**TOPIC:** DOT Placard & Labeling System

**LEVEL OF INSTRUCTION:** II Suggested Teaching Time 30 minutes

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** After completing this lesson on the DOT Placarding and Labeling System;

**BEHAVIOR:** Students will be able to describe the system, including the system administrators, its intended use, information contained in the system, and how to interpret hazardous materials transported over our highways.

**STANDARD:** With 90% accuracy.

**MATERIALS NEEDED:**

- √ PowerPoint slides of DOT Placards.
- √ Chalkboard or whiteboard.
- √ Sample set of DOT Placards and Labels.
- √ Command 2B Student Manual.

**REFERENCE:**

- √ Code of Federal Regulations (CFR), Title 49; DOT Chart 10, NAERG 2009.

**PREPARATION:**

The DOT Warning Placard and Labeling System may be the only indication to emergency responders that hazardous materials are present in a transportation incident. Therefore, it is imperative that responders are able to recognize and correctly interpret the information presented by the system.

## HAZARD RECOGNITION

### PRESENTATION

1. List the five (5) Regulatory Agencies through which the DOT administers the transportation of Hazardous Materials:
  - √ Federal Highway Administration
  - √ Federal Railroad Administration
  - √ U.S. Coast Guard
  - √ Federal Aviation Administration
  - √ Office of Pipeline Safety
2. Explain the differences between placards and labels. (PowerPoint)
  - √ Location and use
3. Identify and discuss the four (4) pieces of information contained on placards and labels: (PowerPoint)
  - √ Pictograph
  - √ Hazard Class Name
  - √ Hazard Class Number
  - √ Color
4. Using the four (4) pieces of information contained on placards and labels, describe each of the following classes:
  - √ Explosives
  - √ Inhalation Hazard
  - √ Non-Flammable Gas
  - √ Flammable Gas
  - √ Flammable Liquids
  - √ Flammable Solids
  - √ Flammable Solids (dangerous when Wet)
  - √ Oxidizers
  - √ Poison Liquids
  - √ Radioactives
  - √ Corrosives
  - √ Miscellaneous
5. Motor vehicles, freight containers and rail cars are subject to the **Hazardous Materials Quantity Rule** if the material they are carrying is listed on Table I. They must be placarded.

### APPLICATION

Review Table I list: (PowerPoint)

Advise your student that they can take notes in the margins of their Command 2B Student Manuals and that the information you will be covering is found on pages A-19 through A-28.

Using the chart on page A-20 in the Command 2B Student Manual, involve your students by asking them to respond with the correct number, name, color or pictograph depending on the class, number, name, color or pictograph you call out.

PRESENTATION

APPLICATION

Table I Materials:

- √ Explosives 1.1
- √ Explosives 1.2
- √ Explosives 1.3
- √ Inhalation Hazard
- √ Poison (Inhalation Hazard Packing - Group I)
- √ Dangerous when wet
- √ Radioactive III

6. Review **Table II Materials Exemption Rule**. (PowerPoint)

- √ Explosive 1.4
- √ Explosive 1.5
- √ Explosive 1.6
- √ Flammable Gas
- √ Non-Flammable Gas
- √ Flammable Liquid
- √ Combustible Liquid
- √ Flammable Solid
- √ Spontaneously Combustible
- √ Oxidizer
- √ Organic Peroxide
- √ Poison (Non-Inhalation Hazard Only)
- √ Keep away from food
- √ Corrosive
- √ Miscellaneous Hazardous Materials

7. Associate the **Combination Load Rule** with Table II and demonstrate use of the **Dangerous Placard** giving examples: (White Board)

- √ 600 lbs. oxidizers + 500 lbs. corrosives
- √ 900 lbs. explosive C + 400 lbs. flammable Solids
- √ 700 lbs. flammable solids + 400 lbs. oxiders
- √ 5000 lbs. poison B + 800 lbs. corrosives
- √ 4000 lbs. oxidizers + 8000 lbs. corrosives

8. Describe the **United Nations** four (4) digit **Identification Number** and the criteria for its use on:

- √ Cargo Tanks - Tank Cars - Portable Tanks

(Group discussion) Have your students discuss the hazards presented by the rule and select appropriate placard for the loads that you may present. Page A-22 in the Command 2B Student Manual.

9. Demonstrative how to use the U.N. ID# when using the North American Emergency Response Guidebook (NAERG) 2009 edt.

Command 2B, page A-23 or better; use a copy of the 2009 NAERG.

10. Cite the **Placarding Rule for Railroad Transportation** and discuss the **EXEMPTIONS** to the Rule.

- √ Trailer on flat car (TOFC)
- √ Container on flat car (COFC)

11. Hazardous materials with more than one dangerous property are labeled and placarded according to the **most dangerous** of those properties. Review the following **PRIORITY LIST**: (PowerPoint)

- √ Radioactive
- √ Inhalation Hazard
- √ Flammable Gas
- √ Non-Flammable Gas
- √ Flammable Liquid
- √ Oxidizer
- √ Flammable Solid
- √ Corrosive Solid
- √ Irritating Materials
- √ Combustible Materials

12. Using the examples found on page A-25 of the Command 2B Student Manual (you may wish to add more of your own choosing), demonstrate how to use the Multi-hazard priority system to determine which placard to choose.

- √ CHLORINE
- √ NITRIC ACID
- √ ANHYDROUSDIMETHYLAMINE

13. Explain to your students the importance of always considering the possibility of **Multiple Hazard Categories** in each hazard Class.

Have your students follow along in their copy of the North American Emergency Response Guide (NAERG).

Have your student's select appropriate placard for each example that you give. Either overhead questions or group discussion.

**PRESENTATION**

**APPLICATION**

- 14. Using the Placard Interpretation Chart from the Command 2B Student Manual, demonstrate how to interpret placards. (PowerPoint)
- 15. Using pages A-26 and A-27 have your students complete the DOT Placards and Labels Self-Study Guide.

Have your students turn to page A-26 in the Command 2B Student Manual as you demonstrate how to interpret placards.

Students to complete the DOT placards and Labels Self-Study Guide on page A-27

**SUMMARY:**

Using the PowerPoint slide, recap components of the DOT Placarding and Labeling System, Table I and Table II Materials, Dangerous Placard and Placard Interpretation.

**EVALUATION:**

- √ Have your students complete the Essential Information test on page A-28. (Complete test as a group exercise or individually)
- √ Hazard Recognition written quiz:

**ASSIGNMENT:**

- √ Review DOT CHART 10
- √ Review Command 2B Student Manual pages A-19 through A-28.

RETIRED CURRICULUM

**TOPIC:** Recognizing containers carried by highway transportation vehicles

**LEVEL OF INSTRUCTION:** II Suggested Teaching Time 30 hours

**CONDITION:** Given examples of container profiles carried by the transportation vehicles;

**BEHAVIOR:** Students will Identify containers from various profiles, cite typical products carried by each of the container types and list the safety considerations for each container type;

**STANDARD:** With 80% accuracy

**MATERIALS NEEDED:**

- √ Command 2B Student Manual
- √ PowerPoint Slide on container profiles and photographs

**REFERENCES:**

- √ DOT five basic specifications for Cargo tanks plus cargo van or trailer

**PREPARATION:**

It is extremely important for "Emergency Responders" to be able to recognize the presence of hazardous materials in a highway incident before actually becoming committed to a course of action. The presence of placards and labels are obvious warning indicators. However, the shape or profile of the container can also provide a good indication of the type of product that may be involved in an incident.

The ability to recognize what type of hazards the various silhouettes may present, gives responding units the opportunity to take appropriate precautionary action/s and thereby avoid becoming part of the problem.

**PRESENTATION**

**APPLICATION**

1. Describe how the DOT defines "cargo tank" and list the five (5) basic DOT specifications for cargo tanks. (PowerPoint)

- √ MC 306 series
- √ MC 307 series
- √ MC 312 series
- √ MC 330/331 series
- √ MC 338 series

2.. Describe the DOT specifications for the MC 306 series:

- √ Non-pressure (3 psig)
- √ Popular Name (Skin Tank)
- √ Products carried
- √ Construction (aluminum)
- √ Support leg inadequacy
- √ Overturned tank safety considerations

3. Describe the DOT specifications for the MC 307 series:

- √ Low pressure (25 psig)
- √ Popular Name (General Chemical Trailer)
- √ Products Carried
- √ Profile Shape (horseshoe)

4. Describe the DOT specifications for the MC 312 series:

- √ Medium pressures (35-50 psig)
- √ Popular name (Corrosive Tank)
- √ Typical products carried
- √ Construction aspects
- √ Small diameter tank
- √ Support rings around tank
- √ Tank linings
- √ Overturn protection

5. Describe the DOT specifications for the MC 330/331 series

- √ High pressure (100-500 psig)
- √ Typical products carried
- √ Cylindrical shape
- √ BLEVE potential

Have your students turn to page A-29 in the Command 2B Student Manual - take notes in the space provided in the manual and follow you with your PowerPoint presentation.

REVIEWED CURRICULUM

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6. Describe the DOT specifications for the MC 338 series:

- √ Non-pressure container
- √ Popular name (Cryogenic Trailer)
- √ Typical products carried
- Characteristics of tanker shape

7. Describe a “Dry Bulk Carrier”, the container shape and typical products carried. (PowerPoint)

**SUMMARY:**

Being able to recognize the container type from its shape, or profile can give a good indication as to the type of products being carried.

- √ Recap your presentation using the recap PowerPoint slide.

**EVALUATION:**

- √ Hazard Recognition written quiz:

**ASSIGNMENT:**

Review pages A-29 through A-33 in the Command 2B Student Manual  
Prepare for the Hazard Recognition quiz

RETIRED CURRICULUM

**PRESENTATION**

**APPLICATION**

**TOPIC:** Rail Car Container Recognition

**LEVEL OF INSTRUCTION:** II      Suggested Teaching Time 30 minutes

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** Given diagrams and photographs of railroad shipping containers;

**BEHAVIOR:** Students will be able to identify the type of tank car by interpreting the tank car's markings, lettering and specification plates;

**STANDARD:** With 90% accuracy.

**MATERIALS NEEDED:**

- √ Command 2B Student Manual
- √ Power Point Presentation on Rail Container Recognition

**REFERENCES:**

- √ Command 2B Student Manual Section "A" Hazard Recognition, "Hazardous Materials First Responder Level"
- √ 49 CFR

**PREPARTATION:**

Railroad transportation shippers use some very unique methods to identify the type of products carried in the various "tank cars". It is important for Emergency Responders to have an understanding of these methods of identification, as incidents involving railroad cars present the potential for major disasters.

1. Discuss railroad tank car profile recognition examples found on page A-34 in the Command 2B Student Manual.(PowerPoint)
2. Describe "specification" markings - show example on page A-35 in the Command 2B Student Manual. (Power point)
3. Outline "tank car" nomenclature and show example on page A-35 in the Command 2B Student Manual. (Power point):
  - √ "A" End
  - √ "B" End (brake)
  - √ Tank Heads/Shell
  - √ Truck Assembly
  - √ Couplers
  - √ Safety Valve
  - √ Fittings Housing
  - √ Car Number
4. Discuss stenciling of proper shipping names and show list of required products found on page A-36 in the Command 2B Student Manual. (PowerPoint)
5. Beginning on page A-37 in the Command 2B Student Manual, discuss profile recognition of the various "tank cars": (Power Point)
6. Describe and discuss "Intermodal" Tank Containers: (Power Point)
  - √ Non-pressure
  - √ Tube-model
  - √ Specifications
  - √ Tank Thicknesses
  - √ Design pressures
  - √ Reporting marks

Advise your student that they can take notes in the margins of their Command 2B Student Manuals and that the information you will be covering is found on pages A-34 through A-42.

While showing your power point presentation on Rail Car Container Recognition, you might want to create some discussion by asking your students if they have had any personal experiences with the different types of containers.

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## HAZARD RECOGNITION

### **SUMMARY:** **PRESENTATION**

Review your presentation by using the Container Recognition in Railroad Emergencies PowerPoint slide. Reemphasize how Railroad emergencies have the potential for major disasters, and restate the unique identification methods.

### **APPLICATION**

### **EVALUATION:**

√ Hazard Recognition written quiz:

### **ASSIGNMENT:**

- √ Review Command 2B Student Manual pages A-34 through A-42
- √ Prepare for Hazard Recognition quiz

RETIRED CURRICULUM

**TOPIC:** Decision making at potential “BLEVE” incident

**LEVEL OF INSTRUCTION:** II      Suggested Teaching Time 30 minutes

**BEHAVIORAL OBJECTIVES:**

**GIVEN:** A written quiz students will be able to;

**CONDITION:** Define the Acronym “BLEVE” and describe how to use the OFFENSIVE/DEFENSIVE Decision Matrix;

**STANDARD:** With 90% accuracy.

**MATERIALS NEEDED:**

- √ Command 2B Student Manual pages 43 & 44.
- √ PowerPoint presentation slides.

**PREPARATION:**

The potential for a major disaster presented by a “BLEVE” incident may be characterized by a massive fireball, ground flash, shock-wave and fragments hurled into the air from the explosion. The decision process for an Emergency Responder may seem overwhelming when confronted with this type of emergency.

Therefore, it is **imperative** that emergency personnel fully understand the causes and effects of a “BLEVE” and are ready with a system for making life saving decisions when confronted with an incident involving a “BLEVE.”

PRESENTATION

APPLICATION

1. Define the Acronym "BLEVE."  
(PowerPoint slide)  
  
Boiling  
Liquid  
Expanding  
Vapor  
Explosion
2. Describe the function and demonstrate how to use the OFFENSIVE/DEFENSIVE Decision Matrix. (PowerPoint)
  - √ Products involved
  - √ Time elapsed from initial flame impingement
  - √ Exposure
  - √ Water supply
  - √ Can water be applied to the point of impingement
  - √ How quickly can master streams be applied
  - √ Continue cooling using unattended master streams
3. Discuss the possible Fragmentation Aspects of a "BEVE." (PowerPoint)
4. Discuss Evacuation and Withdrawal Distances.

Students take notes in the margins of pages 42 and 43 of the Command 2B Student Manual.

Ask your students if they have any experience with an incident involving a "BLEVE".

You may wish to set-up a "BLEVE" problem and have your students use the Decision Matrix to analyze the incident and set-up a defense.

RETIRED CURRICULUM

**SUMMARY:**

Emphasize the importance of using a systems approach to decision making on potential “BLEVE” incidents. Restate the effects of a “BLEVE” incident and the potential for disaster.

**EVALUATION:**

- √ Hazard Recognition written quiz:

**ASSIGNMENT:**

- √ Study the OFFENSIVE/DEFENSIVE Decision Matrix on pages 43 and 44 of the Command 2B Student Manual.
- √ Be prepared for the Hazard Recognition Quiz.

RETIRED CURRICULUM

**TOPIC:** Toxic Exposure

**LEVEL OF INSTRUCTION:** II      Suggested Teaching Time 30 minutes

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** A written quiz students will be able to,

**BEHAVIOR:** Define Local and Systemic toxic exposure and discuss the four (4) basic methods of poisoning;

Compare Acute versus Chronic toxicity and describe the effects of Immediate, Delayed and Long Term Exposure;

Enumerate the information to be record on Personal Exposure Records;

**STANDARD:** With 85% accuracy.

**MATERIALS NEEDED:**

- √ Computer, Projector, Screen and PowerPoint Slides.
- √ Command 2B Student Manual.

**REFERENCES:**

- √ Prehospital Care of the Sick and Injured, Hafen & Karren, Pearson Education, 9th edition.
- √ Command 2B Student Manual, Hazard Recognition.

**PREPARATION:**

First Responders (Fire, Law Enforcement, EMS) are usually fully appreciative of the dangers presented by explosive, or extremely flammable substances, as well as, health effects created by corrosive materials.

1. Define and differentiate between **LOCAL** and **TOXIC** Exposure:
  - √ LOCAL Exposure results in action at the contact site.
  - √ SYSTEMIC Exposure is exposure through the skin, mucous membranes or longs to the "Site of Action" through the blood stream.
2. List the four (4) basic ways poisons enter the body: (PowerPoint)
  - √ INHALATION
  - √ INGESTION
  - √ DERMAL CONTACT
  - √ INJECTION
3. Describe how poisons enter the body by **INHALATION** and discuss how emergency responders can be poisoned by inhaling substances: (PowerPoint)
  - √ Responding from downwind
  - √ Shifts in wind direction
  - √ Failure to use SCBA
  - √ Failure to decontaminate personnel
4. Describe how poisons can enter the body by through **INGESTION** and discuss how emergency responders can be poisoned by ingesting substances: (PowerPoint)
  - √ Eating while contaminated
  - √ Drinking while contaminated
  - √ Smoking while contaminated
  - √ Failure to decontaminate personnel, clothing and equipment
6. Describe how poisoning can take place through **DERMAL CONTACT**: (PowerPoint)
  - √ direct skin contact - the most common way of becoming poisoned
  - √ Through the eyes - fastest way of becoming poisoned

Advise your students that they can take notes in the margins of their Command 2B Student Manual and that the information you will be covering is found on pages A-45 through A-48.

HAZARD RECOGNITION

PRESENTATION

APPLICATION

7. Describe how emergency responders can protect themselves against poisoning through **DERMAL CONTACT (Absorption)**:

- √ Appropriate protective clothing
- √ Eye protection
- √ Decontamination procedures

8. Describe poisoning through **INJECTION** and how this method of poisoning is generally limited to medicine or drug abuse.

9. Define and discuss the difference between **ACUTE** and **CHRONIC** toxicity.

10. Describe and discuss the effects of **IMMEDIATE EXPOSURE** to hazardous substances: (PowerPoint slides)

- √ Dizziness, Vomiting, Death
- √ Chemical/Thermal Burns
- √ Respiratory Complications
- √ Central Nervous System Reactions:
  - Twitching or tremors
  - Constriction of pupils
  - Profuse sweating
  - Headache
  - Chest & Abdominal pain
  - Disorientation
  - Convulsions
  - Coma

11. Describe and discuss the effects of **DELAYED EXPOSURE** to hazardous substances: (PowerPoint slides)

- √ Delayed Central Nervous System reactions
- √ Pulmonary Edema
- √ Death or permanent disability

This is a good time to ask your students if they have experienced the effects of exposure or been on an incident where they have witnessed victims of **IMMEDIATE EXPOSURE** to a toxic chemical, substance or material.

12. Describe and discuss the effects of **LONG TERM EXPOSURE** to hazardous substances:

Long term exposure is cumulative that can cause:

- √ Decreased liver function
- √ Cancer
- √ Respiratory System breakdown
- √ Heart related problems

13. Cite what type of information that should be recorded on **Personal Exposure Records**:

- √ Date of exposure
- √ Time of exposure
- √ Incident number
- √ Blood gas levels (Carboxy-Hemoglobin Test)
- √ Material (substances) involved
- √ Level of exposure
- √ Medical treatment received

Ask your students why it is so important that the date and exact time of exposure is so important ?

14. Discuss Blood Gas Analysis for toxic fire gases, e.g. Carbon Monoxide, Methane and Cyanide.

#### SUMMARY:

Page A-48 in the Command 2B Student Manual the Safety Key Point is very important for first responders to always keep in mind when dealing with a hazardous materials incident. It states: **"NEVER EAT, SMOKE OR DRINK AT OR AROUND HAZARDOUS MATERIALS INCIDENTS UNTIL YOU DECONTAMINATE AND WASH HANDS, FACE AND HAIR THOROUGHLY"**

#### EVALUATION:

- √ Hazard Recognition written quiz:

#### ASSIGNMENT:

- √ Review pages A-45 through A-48 in the Command 2B Student Manual.
- √ Prepare for the Hazard Recognition quiz.

RETIRED CURRICULUM

# *SPECIAL INSTRUCTIONAL CONSIDERATIONS*

## HAZARD ASSESSMENT

### **GENERAL:**

- √ Students may wish to engage in tactical considerations rather than strategic decisions in this Hazard Assessment section. It is **CRITICAL** that you make it very clear to your students from the outset that need to limit their hazard assessment to determination of primary and secondary objectives.

### **HAZARD ASSESSMENT SCENARIO:**

- √ **CAUTION**, as above, student will try and base their assessment on tactical decisions rather than sound assessment practices.
- √ Students need to stick to hazard assessment of the limited problem presented in this scenario. Remind your students that they will not achieve closure of the incident during hazard assessment.
- √ **STUDENTS ARE TRAINING TO BECOME RESOURCE MANAGERS, NOT HAZARDOUS MATERIALS TECHNICIANS.** Therefore, you must keep your students focused on strategic command decisions, e.g. determine immediate primary objectives, not where to place equipment.
- √ Keep your students on track. Do not allow them to progress past the immediate concerns of primary and secondary objectives.
- √ You may wish to interject a transition scenario of your own choosing, a smaller incident than the Train Wreck Scenario #2. Possibly using a short video of an incident, augmented with an overhead or power point projected view, build your own hazard assessment scenario. Perhaps one that is based on a recent real incident.

Limit students to determining primary and secondary objectives. The scenario should be limited to about 10 minutes. The rationale for an intermediate scenario is that some students may become overwhelmed by Scenario #2 simply because of its size.

- √ If you want to make copies of the hazard assessment checklist for scenarios that you have added, you should do so.

**HAZ/MAT ON SCENE INCIDENT COMMANDER  
INSTRUCTOR'S GUIDE**

**TOPIC:** HAZARD ASSESSMENT

**LEVEL OF INSTRUCTION:** III                      **SUGGESTED TEACHING TIME:** 3 Hours

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** A multi-choice written exam, and a group exercise involving an incident scenario.

- BEHAVIOR:**
1. Describe the risk associated with hazardous materials located or transported through the community and their potential threat to people, property, or the environment.
  2. Recognize the hazards that can be encountered while responding to an incident involving hazardous materials, and describe the precautions to be observed when approaching an incident scene.
  3. Demonstrate competency in making an initial risk assessment to evaluate the hazards presented by an incident scene, determining the level of emergency, and delivering initial condition reports.
  4. Demonstrate ability to ascertain the immediate concerns posed to life safety, the environment, and property by a hazardous materials incident.
  5. Demonstrate competency in establishing the primary and secondary objectives that will be required to mitigate a hazardous materials emergency.

**STANDARD:** Pass written exam with at least 80% accuracy

**MATERIALS NEEDED:**

- √ Student Manual and Instructor's Guides, DOT ERG, Chris Manuals, Bureau of Explosives & AAR Response Book, CAMEO Response Data Sheets.

**REFERENCES:**

- √ OSHA's Final Rule - 29 CFR Part 1910.120, NFPA Standard 472 Chapters 2-2, 2-3, & B-1, American National Standards Institute, Government Code 8574.13 (b) (2)

**PREPARATION:**

In order to develop a comprehensive management system, for the purposes of mitigating and resolving a hazardous materials incident, the incident commander must be able to make an assessment of the whole emergency situation through the use of a thorough hazard analysis.

## PRESENTATION

## APPLICATION

1. Describe the student behavioral objectives for this section.
2. Discuss the scope of hazardous materials problem through analysis of the following case studies:
  - √ Morgan City, Louisiana
  - √ Vancouver B.C.
  - √ Texas City, Texas
  - √ Bhopal, India
3. List the components of the hazard analysis process, and discuss the need for a systematic approach.
  - √ Appropriate Response
  - √ Incident Size-up
  - √ Problem Identification
  - √ Report on Conditions
  - √ Identifying Immediate Concerns
  - √ Development of initial Strategy & Tactics
4. Discuss the considerations for a safe response to a hazardous materials incident.
  - √ Primary routes
  - √ Secondary routes
  - √ Upwind and upgrade
  - √ Pre-planning
  - √ Signs to presence of Haz/Mat
5. List and describe the dangers presented by each of the eight (8) basic hazard classes.

EXPLOSIVES - GASES - FLAMMABLE  
 LIQUIDS - FLAMMABLE SOLID  
 OXIDIZERS - POISON LIQUIDS  
 RADIOACTIVES - CORROSIVES

Students to take notes

Students to discuss the outcome of each case study.

Students to take notes

Engage students in a discussion about safety considerations and have them offer alternative solutions

Ask students to give examples of the dangers presented by each of the (8) hazard classes

PRESENTATION

APPLICATION

6. Discuss the establishment of an **Initial Command Post**.
  - √ First-in Officer
  - √ Safe location
  - √ Upwind and upgrade
  - √ Positioned pointed away from incident
7. List and discuss the elements of **size-up**, and give examples for each.
  - √ Facts
  - √ Probabilities & Possibilities
  - √ Situation
8. Discuss **problem identification and decision making**.
  - √ Identifying the real problem
  - √ Utilizing a "systems approach"
  - √ The six steps of Decision Making.
9. List and discuss the limitations of the traditional methods of identification.
  - √ DOT placards and labels
  - √ NFPA 704 warning system
  - √ Shipping papers
  - √ Haz/Mat inventory statements
10. Discuss the need for more detailed and specific information, and list the various available sources.
  - √ Chemical reference books
  - √ Emergency telephone services.
  - √ Computerized chemical data bases
  - √ Direct on-scene advice
11. Review the example of the chemical reference source **CAMEO**.

Students to take notes and give examples of considerations for safe placement of an initial Command Post

Students to take notes and give alternative examples

Students to take notes, discuss the concept of true problem identification and recite the six steps of the decision making process.

Students to take notes and answer overhead questions as to the limitations for each of the methods

Students to take notes and offer alternative sources of information

Students to review the example given in the student manual

## PRESENTATION

## APPLICATION

12. Define the term **“Immediate Concerns”** as it applies to fire ground strategy, and give examples.

- √ Protecting life safety
- √ Protecting exposures
- √ Protecting environment
- √ Preventing ignition
- √ Preventing spread of materials

13. Explain how **“Primary Objectives”** should be developed to execute the strategic plan, and give examples.

- √ Isolate the incident and deny entry
- √ Evacuate the immediate vicinity
- √ Stop flow of product
- √ Eliminate sources of ignition
- √ Extinguish fire
- √ Accept control burn
- √ Cool exposed property

14. Explain how **secondary objectives** should be developed to support primary objectives, and give examples.

- √ Notification of appropriate agencies
- √ Overhauling of fires
- √ Removal of spilled materials
- √ Disposal of hazardous wastes
- √ Prosecution of responsible parties

15. Explain how the **level of emergency** is determined, and discuss each of the levels as they apply to notification procedures.

- √ Level I
- √ Level II
- √ Level III

Students to take notes and to give examples of other Immediate Concerns

Students to take notes and give other examples of Primary Objectives

Students to take notes and give other examples of Secondary Objectives

Students to take notes

**PRESENTATION**

**APPLICATION**

16. Discuss the need for Incident Commanders to give an **on-scene Condition Report**. Outline the components of a condition report and give examples.
- √ Object
  - √ Condition
  - √ Action
  - √ Assignment

17. Through use of pre-completed check sheets, and a given scenario of an emergency incident, demonstrate how an initial hazard analysis should be conducted.
- √ Scenario #1
  - √ Incident scene plot map
  - √ Completed check sheets

18. Conduct Group exercise Session #1 **Conducting a Hazard Assessment** (see Instructor's Activity Sheet).

Students to take notes and review the examples of condition reports in the student manual

Students to review the given scenario and check sheets in the student manual and to follow the Instructor's demonstration

Students to read the directions to Group Exercise #1, and to complete the exercise in groups of five. At the completion of the exercise, one student from each group will give a five (5) minute presentation of the group's findings.

RETIRED CURRICULUM

**SUMMARY:**

All too often a major problem is defined in terms of its symptoms instead of the real problem being diagnosed. Therefore it is most important for Incident Commander to consider the overall “big picture” presented by an emergency, and to be able to utilize a system for analyzing the hazards.

**EVALUATION:**

- √ Complete guided group exercise
- √ Give a presentation of the findings
- √ Complete Cal Fire Certification Final Exam

**ASSIGNMENT:**

- √ Review the Command 2B Student Manual
- √ Review findings of group exercise

## INSTRUCTOR'S ACTIVITY SHEET

### Group Exercise Session #1

The following guided group exercises are intended to reinforce the main points presented in the text and to provide the student with the opportunity to apply hazard analysis techniques to a given situation.

This exercise features two imaginary hazardous materials incidents occurring in the non-existent City of Santa Luisa. The first incident scenario has been completed in full to demonstrate what is to be expected from the student. The second scenario centers on an emergency incident that will be used throughout the course for each of the guided group exercises.

Only take the incident as far as conducting the basic hazard assessment and making the initial condition report. The more in-depth mitigation operations needed for these scenarios will be covered in a later section.

This exercise is to be completed in a study group format using map of Santa Luisa and the resources provided by the instructor. At the conclusion of the session a five (5) minute presentation containing an overview of the group's findings will be delivered by a representative from each of the groups.

- Follow the directions on the following pages.
- Divide the students into groups of five (5)
- Have the students complete the exercise (approximately one (1) hour).
- Have one (1) student from each group give a five (5) minute presentation of the whole group's findings.

# ***SPECIAL INSTRUCTIONAL CONSIDERATIONS***

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## INCIDENT COMMAND SYSTEM

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- √ Instructors with command experience may tend to spend too much time in this section. Remember that the majority of your students should be familiar with the Incident Command System (ICS).
- √ If you have students without ICS training, you should seat them at tables with students familiar with the ICS.
- √ Most of your time should be spent in the hazardous materials branch of the operations section.
- √ Review hazmat group safety officer's duties and responsibilities. Some students may experience some confusion regarding line of authority. For example, the hazmat group safety officer reports to the overall incident safety officer.
- √ The operations section, as shown on page B-52 in the Command 2b Student Manual has two branches, Hazmat and Suppression. You will need to spend some time explaining how both branches may have similar job functions with similar position titles. All job functions within the hazmat branch are dictated by the hazardous properties of the material or materials involved.

**TOPIC: INCIDENT COMMAND SYSTEM**

**LEVEL OF INSTRUCTION:** III                      **SUGGESTED TEACHING TIME:** 2 Hours

**BEHAVIORAL OBJECTIVES:**

**GIVEN:** A multi-choice exam, and a group exercise involving an incident scenario.

- PERFORMANCE:**
1. Describe the historical background of the Incident Command System and describe the need for ICS at incidents involving hazardous materials.
  2. Describe the role of the Incident Commander, citing the commander's major duties and responsibilities.
  3. Identify the five major functional areas of the Incident Command Structure.
  4. Distinguish and differentiate between Branches, Divisions, Groups and Teams.
  5. Describe the functions of the Haz/Mat Group Supervisor, Site Control Team, Entry Team, Decontamination Team and Haz/Mat Safety Officer.

**STANDARD:** Pass written exam with at least 80% accuracy

**MATERIALS NEEDED:**

- √ Incident Command System PowerPoint slides
- √ Student Manual and Instructor's Guides

**REFERENCES:**

- √ OSHA's Final Rule – 29 CFR 1910.120
- √ FIRESCOPE Haz Mat Specialist Group
- √ Field Operations Guide (ICS 420-1)

**PREPARATION:**

As hazardous materials releases have no respect for jurisdictional boundaries, or even for areas of situational responsibility, the mitigation of these incidents may necessitate the interaction of numerous local, state, and federal agencies. To effectively utilize the resources needed to mitigate a hazardous materials emergency, and also to accommodate the needs of the various agencies and jurisdictions that may be involved with an incident, a comprehensive resource

RETIRED CURRICULUM

PRESENTATION

APPLICATION

1. Describe the student behavioral objectives for this section.
2. Describe and discuss the need for a comprehensive management resource system at a hazardous materials incident.
  - √ Scope of the problem
  - √ Jurisdiction boundaries
  - √ Agency-interaction
3. Give an overview describing the historic perspective of ICS & NIMS.
  - √ The history, development and formation of FIRESCOPE
  - √ The history, development and establishment of NIMS and SEMS
4. Describe NIMS and describe each of the five (5) major subsystems contained in (ICS).
  - √ On-scene management structure (ICS)
  - √ Standardized training
  - √ Qualifications process
  - √ Materials development
  - √ Utilization of technologies
5. Review the six (6) basic management concepts employed by the Incident Command System, as described in ICS 120-1 (Operational System Description).
  - √ Organization
  - √ Chain of Command
  - √ Unity of Command
  - √ Span of Control
  - √ Division of Labor
  - √ Supervision and Leadership

Remind your students to take notes in the space provided in the left or right margins of their student manuals or on the note pages provided at the end of the chapter. Solicit alternative reasons as to why an Incident Command System is needed at a hazardous materials incident.

STUDENTS TAKE NOTES

As a review, ask your students questions concerning each of the six basic concepts described in ICS 200.

PRESENTATION

APPLICATION

- 6. Review and describe the ICS operating requirements.
  - √ Single and multi-jurisdictions / agencies
  - √ Adaptable to any emergency
  - √ Applicable to uses throughout the U.S.
  - √ Adaptable to new technologies
  - √ Expandable in a logical manner
  - √ Common elements in organization
  - √ terminology and procedures
  - √ Non-disruptive implementation
  - √ Low operational maintenance costs
- 7. Review and describe the eight (8) basic system design components used in ICS.
  - 1. Common terminology
  - 2. Modular organization
  - 3. Integrated communications
  - 4. Unified Command structure
  - 5. Consolidated action plans
  - 6. Manageable span of control
  - 7. Predesigned incident facilities
  - 8. Comprehensive resource management
- 8. Review and describe how ICS is organized into five (5) major sectional areas.
  - 1. COMMAND SECTION
  - 2. OPERATIONS SECTION
  - 3. PLANNING SECTION
  - 4. LOGISTICS SECTION
  - 5. FINANCE SECTION
- 9. Describe the functions of the three (3) Command Staff positions.
  - 1. INFORMATION OFFICER
  - 2. SAFETY OFFICER
  - 3. LIAISON OFFICER

For discussion purposes, ask your students overhead questions concerning the operating requirements of ICS as presented in the ICS 200 course.

You should have a set of pre-selected questions from ICS 200 on hand. Depending on your student's regency with ICS 200, the review may not require too much time.

**PRESENTATION**

**APPLICATION**

10. Describe how ICS can be applicable to any emergency situation and review the ICS organizational flow chart for a major wildland fire.

- √ Command Staff
- √ General Staff
- √ Sections
- √ Branches
- √ Divisions
- √ Groups
- √ Teams
- √ Units

Students to offer alternative reasons as to why an Incident Command System is needed at a hazardous materials incident

Students to take notes

11. Describe the Functional Branch structure and illustrate how the Operations Section could be branched for a complex emergency.

- √ Haz Mat Branch
- √ Medical Branch
- √ Suppression Branch

Student to take notes

12. Describe how a Branch can be divided into Divisions or Groups depending on the need for a geographic or a functional assignment. Illustrate this concept using a flow-chart depicting a typical Medical Branch structure at a Mass Casualty Incident.

- √ Extrication Group
- √ Treatment Group
- √ Transport Group
- √ Morgue Group

Student to take notes and answer overhead-questions regarding each of the six basic concepts as presented in the ICS 220 course

**PRESENTATION**

**APPLICATION**

13. Describe and illustrate how groups can be further sub-divided into Teams and Units using a flow-chart depicting a typical Hazardous materials branch structure.

- √ Suppression Group
- √ Medical Group
- √ Evacuation Group
- √ Haz Mat Group
- √ Site Access Control Team
- √ Decontamination Team
- √ Entry Team

14. Describe and discuss each of Haz/Mat Group duties and responsibilities as defined by the FIRESCOPE Hazardous Materials Specialist Group "Haz/Mat Position Descriptions & Functions."

- √ Hazardous Materials Group Supervisor
- √ Site Access Control Team
- √ Safe Refuge Area Unit
- √ Entry Team
- √ Technical support Team
- √ Decontamination Team
- √ Technical Reference Support
- √ Evacuation Unit

15. Describe and discuss the items that should be performed prior to entering the Exclusion area (Hot Zone).

- √ Safety Action Plan Briefing
- √ Decontamination Procedures
- √ Decontamination station set-up
- √ Protective clothing needs determined
- √ Back-up Team established
- √ Tools & equipment check
- √ Communications equipment check

Students to take notes and answer overhead questions as to the operating requirements of ICS as presented in the ICS 220 course

Students to take notes and answer overhead questions regarding the system design components as presented in the ICS 220 course

Students to take notes and review the organizational flow-chart in the student manual

Students to take notes and relate how the functions of the Command Staff are applicable to hazardous materials incidents

PRESENTATION

APPLICATION

16. Review the considerations for safe operations.
- √ Operate upwind and upgrade
  - √ Entry and egress through control points
  - √ Predesigned routes
  - √ Final equipment checks
17. Discuss the application and relevance of using an Incident Command Worksheet (use the example worksheet located in the Command 2B student manual). Describe the key areas an IC needs to assess.
- Many years ago, Lloyd Layman said "Size up is the responsibility of the officer in charge of the first alarm units and becomes the responsibility of any officer who may later take charge of operations at a fire or other emergency".
- The key areas an Incident Commander needs to assess are:
- √ Name and location of the incident
  - √ Command center location
  - √ Nature of the emergency
  - √ Weather information
  - √ Substance data
  - √ Hazard data
  - √ Resources assigned or staged
  - √ Command Structure
  - √ Safety Check List
18. Conduct Group Exercise Session #2
- ESTABLISHING THE INCIDENT COMMAND STRUCTURE**
- Use the Instructor's Activity Sheet for Group Exercise Session #2.

Your students should be at the fire officer level and should already have knowledge and, at least, some experience in scene assessment. You should have your students engaged in a discussion - give and take - with you about the key areas an Incident Commander needs to assess.

Organize your students in groups of five (5). Have your students read the directions and complete Group Exercise Session #2.

When the exercise is complete, one student from each group needs to give a five (5) minute presentation of the group's findings.

**SUMMARY:**

Restate the importance of using a comprehensive resource management system to effectively utilize the resources and various agencies that will be interacting in a hazardous materials emergency.

**EVALUATION:**

- √ Complete the guided group exercise #2 and give a presentation of the findings
- √ Complete the Cal Fire Certification Final Exam

**ASSIGNMENT:**

- √ Review the student manual
- √ Review the findings of the group exercise

RETIRED CURRICULUM

## INSTRUCTOR'S ACTIVITY SHEET

### Group Exercise Session #2

The following guided group exercises are intended to reinforce the main points presented in the text, and to provide the student with the opportunity to demonstrate competency in establishing an incident command structure.

The first exercise has been completed in full to demonstrate what is to be expected from the student. The second exercise is to be completed in a study group format.

At the conclusion of this session a five (5) minute presentation containing an overview of each group's findings will be delivered by a representative from each of the groups.

- Follow directions on the following pages.
- Divide the students into groups of five
- Have the students complete the exercise which should take about one (1) hour
- At the completion of the exercise select or request that each group select a representative to give a five (5) minute presentation of the group's assessment.

RETIRED CURRICULUM

RETIRED CURRICULUM

## ***SPECIAL INSTRUCTIONAL CONSIDERATIONS***

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### **NOTIFICATION REQUIREMENTS & INTERAGENCY INVOLVEMENT**

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#### **GENERAL:**

Many non-public safety agencies will most likely be involved in a hazardous materials incident, so it is important that you point this out to your students as well as the need for a unified command structure.

#### **SCENARIO:**

When your students are completing the agency notification check sheet, have them refer back to the Hazard Assessment check sheet for information.

**HAZ/MAT ON SCENE INCIDENT COMMANDER  
INSTRUCTOR'S GUIDE**

**TOPIC:** Notification Requirements & Inter-agency Involvement

III SUGGESTED TEACHING TIME: 3 Hours

**LEVEL OF INSTRUCTION:**

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** A multi-choice written exam, and a group exercise involving an incident scenario.

- BEHAVIOR:**
1. Describe the procedure for notification of the appropriate agencies having functional or jurisdictional responsibility at an emergency involving hazardous materials
  2. Demonstrate competency in implementing local, state and federal emergency response plans.
  3. Describe the roles of the various local, state and federal agencies at a hazardous materials emergency and describe the importance of coordination between the various agencies at the incident scene.
  4. Describe the roles of to be enacted by non-governmental agencies at a hazardous materials incident and outline the considerations for accommodating the media at an emergency incident.
  5. Describe how the Unified Command Structure is used to formulate the strategic goals necessary for remedial actions at a hazardous materials emergency and describe how final authority is determined.

**STANDARD:** Pass written exam with at least 80% accuracy  
1. Describe the student behavioral objectives for this section.

**MATERIALS NEEDED:**

- √ Notification PowerPoint slides
- √ Command 2B Student Manual

**REFERENCES:**

- √ OSHA's Final Rule 29 CFR 1910.120, SARA Title III Section 304, AC Health & Safety Code Chapter 6.95, Government Code 8574.7, California AB 2185/2187

**PREPARATION:**

When a hazardous materials emergency occurs it is the responsibility of the Incident Commander to ensure that all mandatory notifications are made to local, state and federal agencies. This task may seem intimidating at first, considering all the numerous agencies that can be involved at an incident. However, once the proper procedure is known, the process can be a very straight-forward and accomplished relatively quickly.

**PRESENTATION**

**APPLICATION**

- Describe the mandatory reporting requirements contained in California Government Code Section 8574.7.

With the aid of the flow-chart found on page B-73 in the Command 2B Student Manual, illustrate the general flow of responsibility of the various local, state and federal agencies.

- √ Level II & III emergencies
- √ State Emergency Notification Center
- √ National Response Center
- √ Incident Command
- √ Local agencies
- √ State agencies
- √ Federal agencies

- Describe how the cross-notification process operates for a hazardous materials release using the flow chart adapted from the California Haz Mat Incident Contingency Plan.

- Describe and discuss the duties and responsibilities of the various local agencies that can be used as a resource to the Incident Commander on hazardous materials emergencies.

- √ County Office of Emergency services
- √ Local Law Enforcement
- √ Public Works Departments
- √ Health Departments
- √ County Agricultural Commissioner
- √ Sanitation & Flood Control Districts
- √ Air Pollution Control Districts

- Describe and discuss the duties and responsibilities of the various states

Students to take notes

Review pages B-70 and flow-chart located on page B-71

Review the flow-chart located on page B-73

Students to take notes and discuss the logistical aspects of operating with the various local agencies

Students take notes and add to the discussion by describing their local agencies involvement or lack thereof.

**PRESENTATION**

**APPLICATION**

agencies that can be used as a resource to the Incident Commander on hazardous materials emergencies.

- √ State Scene Management System
- √ State Agency Coordinator
- √ State Operating Team
- √ California Highway Patrol
- √ CALTRANS
- √ Office of Emergency services
- √ Department of Fish & Game
- √ Department of Health services
- √ Water Resources Control Board

6. Describe and discuss the duties and responsibilities of the various federal agencies that can be used as a resource to the Incident Commander on hazardous materials emergencies.

- √ Federal On-Scene Coordinator
- √ National response Center
- √ Environmental Protection Agency
- √ United States Coast Guard
- √ NOAA

7. Describe and discuss the duties and responsibilities of the various non-government agencies that can be used as a resource to the Incident Commander on hazardous materials emergencies.

- √ Poison Control Centers
- √ CHEMTREC
- √ Civil Air Patrol
- √ R.A.C.E.S.
- √ Salvation Army

8. Discuss the involvement of the media at hazardous materials incidents, and

Students to take notes and discuss the logistical aspects of operating with the various State agencies

Students to take notes and discuss the logistical aspects of operating with the various Federal agencies

Students to take notes and discuss the logistical aspects of operating with the various non-government agencies

**PRESENTATION**

**APPLICATION**

describe the need for the establishment of a Public Information Officer.

- √ California's Proposition 65
- √ Penal Code 409.5
- √ Duties and responsibilities of a Public Information Officer

9. Describe the aspects of establishing a Unified Command Structure, and using a flow-chart, illustrate the concept of Matrix Management.

- √ Response of various agencies
- √ Need of a unified management system
- √ Final authority
- √ The organization of Matrix Management

10. Review the list of Emergency Telephone Numbers for Haz Mat incidents.

- √ Mandatory Notifications
- √ Chemical Hazard Information

11. Conduct Group Exercise Session #3 *Agency Notification & Involvement Check Sheet* (see Instructor's Activity Sheet)

Students to take notes and discuss the duties and responsibilities of a PIO

Students to take notes, discuss the need for a Unified Command Structure and review the flow-chart in the student manual

Students to review the list of emergency telephone numbers in the student manual

Students to take notes and discuss the aspects of establishing a Unified Command Structure in order to accommodate the needs of the various agencies involved with a Level III response

Students to read the directions to Group Exercise #3 and to complete the exercise in groups of five. At the conclusion of the exercise, one student from each group will give a five (5) minute presentation of the group's finding.

RETIRED CURRICULUM

**SUMMARY:**

Restate that the mandatory reporting requirements imposed by state and federal laws can be a relatively simple process once the Incident Commander understands the procedure.

**EVALUATION:**

- √ Complete the Guided Group exercise
- √ Review findings of group exercise
- √ Give a presentation of the findings
- √ Complete the Cal Fire Certification Final Exam

**ASSIGNMENT:**

- √ Review Command 2B Student Manual
- √ Review findings of group exercise

RETIRED CURRICULUM

## INSTRUCTORS ACTIVITY SHEET

### Group Exercise Session #3

The following group exercises are intended to reinforce the main points presented in the text, and to provide the student with the opportunity to demonstrate competency in notification procedures and the implementation of local, state, and federal emergency response plans.

The first exercise in the session has been completed in full to demonstrate what is to be expected from the student. The second exercise is to be completed in a study group format.

At the conclusion of this session, a five (5) minute presentation containing an overview of each group's findings will be delivered by a representative from each of the groups.

- Follow directions beginning on page B-93 in the student manual.
- Divide the students into groups of five (5).
- Groups to complete the exercise (approximately 45 minutes).
- Have one member from each group give a five (5) minute presentation of the whole group's findings.

RETIRED CURRICULUM

# ***SPECIAL INSTRUCTIONAL CONSIDERATIONS***

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## **SITE CONTROL**

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### **GENERAL:**

- √ Please review page B-104, "Background," in the Command 2B Student Manual regarding competency and responsibilities of the Incident Commander. Set your students at ease about their level of knowledge and once again remind them that they are **resource managers** and that they will be seeking trained personnel to fill specific functions.
- √ Course designers felt that one of the most important topics in this section is the **limitations imposed by specialized protective clothing (SPC)**. Make sure you review the side bar on page B-120 of the Command 2B Student Manual when discussing specialized protective clothing. Many of your students may have no personal experience wearing protective clothing.
- √ You may wish to exhibit SPCs from your local hazardous materials users, e.g. paint shops using isocyanate based paint, pesticide applicators; or you may decide to contact hazardous materials protective clothing vendors for demonstration clothing or literature that you can hand out to your students.
- √ Refer to Appendix C (Local Area Plan, LAP) in the Command 2B Student Manual when considering planning. If students are from your local area, use your LAP, if not use a generic plan. You should advise your students to seek further training in pre-incident planning.

**HAZ/MAT ON SCENE INCIDENT COMMANDER  
INSTRUCTOR'S GUIDE**

**TOPIC:** SITE CONTROL, SITE ENTRY & CONTAINMENT  
OPERATIONS

**LEVEL OF INSTRUCTION:**

III SUGGESTED TEACHING TIME: 4 Hours

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** A multi-choice written exam and a group exercise involving an incident scenario.

- BEHAVIOR:**
1. Demonstrate competency in establishing site control measures, and in determining work zones for the safety of response personnel.
  2. Describe the various considerations for sheltering people from a hazardous materials release, and demonstrate competency in determining an evacuation contingency plan.
  3. Describe the personal precautions to be taken, and the procedures to be followed for making a safe entry into an exclusionary zone.
  4. Describe the hazards and risks associated with personnel operating in specialized protective clothing and equipment.
  5. Recite the EPA requirements for the four (4) levels of personal protection, and describe the criteria used to determine the appropriate level of protection.
  6. Describe the various methods used to contain releases of hazardous materials.

**STANDARD:** With 80% accuracy

**MATERIALS NEEDED:**

- √ Command 2B Student, Instructor Guides and Power Point or transparencies

**REFERENCES:**

- √ OSHA's Final Rule - 29 CFR 1910.120, NFPA Standard 472, Penal Code Section 409.5

**PREPARATION:**

OSHA's Final Rule regarding hazardous materials response training doesn't require potential Incident Commander's to have the same degree of competency and specialized knowledge as a hazardous materials technician. However, the Federal Statute does specify that any **personnel who may be expected to Command a hazardous materials incident must know the risks associated with employees working in specialized protective clothing**, and also to have an understanding of the standard operating procedures required to control, mitigate, and terminate an incident.

**PRESENTATION**

**APPLICATION**

1. Describe the student behavioral objectives for this section, and discuss how they relate to the level of competency expected from Hazardous Materials On-Scene Incident Commander's by OSHA's Final Rule - 29 CFR 1910.120.

Students to take notes and comment on OSHA's ruling.

2. Identify for the students exactly what topics will be covered in this section of the course (PowerPoint).

Students review the list of objectives in the Command 2B Student Manual on pages B-103, 104 and 105.

- √ Site-control measures.
- √ Considerations for rescue.
- √ Mandatory evacuation.
- √ Advisory evacuation.
- √ Sheltering people in place.
- √ Calculating evacuation parameters.
- √ Evacuation planning.
- √ Standard operation procedures for site-entry.
- √ Risks associated with protective clothing.
- √ Types of protective clothing.
- √ EPA Levels of protection.
- √ Types of containment.

3. Describe the need for establishing site-control measures at a hazardous materials emergency, and discuss the considerations for establishing isolation parameters.

Students to take notes and to discuss methods of establishing physical parameters beginning on page 106

- √ Deny entry to the public and other emergency responders.
- √ Methods of establishing initial isolation.
- √ Establishing parameters with reference sources.

4. Discuss the concept of using work safety zones, and describe each of the various zones.

- √ Exclusionary Zone (Hot Zone).
- √ Contamination Reduction Zone (Warm Zone).
- √ Support Zone (Cold Zone)

**PRESENTATION**

**APPLICATION**

5. Discuss rescue efforts, and the possibility of having to **delay rescue attempts**.
  - √ Traditional priority of emergency responders.
  - √ Need to delay due to lack of appropriate protective equipment.
  - √ Need to delay in order to initiate evacuation and save the lives of many others.
  
6. Discuss the considerations and aspects related to **Mandatory Evacuation**.
  - √ The requirements for mandatory evacuation.
  - √ Legal authority to evacuate (Penal Code 409.5).
  - √ How to effect a mandatory evacuation.
  - √ How to handle a refusal to evacuate.
  
7. Discuss the considerations and aspects related to **Advisory Evacuation**.
  - √ Protection of civil liberties.
  - √ Provides a margin of Safety.
  - √ Provides awareness
  - √ Provides opportunity for civilians to leave area.
  
8. Discuss the concept of **protecting people in place**.
  - √ Vapor clouds.
  - √ Sheltering in place.
  - √ Close-up buildings.
  - √ Shut-off external air-intakes.
  - √ Need for protective equipment.
  
9. Describe how to calculate **evacuation parameters**.
  - √ Using latest edition of the NAERG
  - √ Using other reference sources.
  - √ Using computerized "CAMEO" System.
  - √ Use of evacuation templates & maps.

Students to discuss consideration for making rescue attempts, and to offer examples of the situations in which rescue attempts would have to be delayed.

Students to take notes, and discuss the legal problems associated with mandatory evacuations. Review pages B-110 and B-111 in the Command 2B of the Student Manual.

Students to take notes, and discuss the legal aspects and concept of making advisory evacuation. Review pages B-113 through B-116 in the Command 2B Student Manual.

Students to take notes, and offer examples of the things people could do to protect themselves in their own homes. Review list on page B117 of the Command 2B Student Manual.

Students to take notes, and use the DOT NAERG to calculate the evacuation distance for the chemical Ethylene Oxide.

**PRESENTATION**

**APPLICATION**

10. Discuss aspects of using computerized dispersion modeling program, and the atmospheric conditions that should be addressed while **determining evacuation distances**.

- √ Wind speed & direction.
- √ Ambient temperature.
- √ Moisture conditions.
- √ Time of day.
- √ Topography of area.

11. Discuss the need for contingency planning of evacuations, and outline the basic **elements of an evacuation plan**.

- √ Procedures to ensure coordination.
- √ Methods for developing parameters.
- √ Pre-determined transportation routes.
- √ Pre-determined relocation shelters.
- √ Procedures for evacuating special facilities.
- √ Procedures for communications.
- √ Methods of securing area.
- √ Procedures for returning evacuees to their homes.

12. Describe the statistical data identified by the EPA study of the **disasters requiring evacuations between 1960 and 1973**.

- √ Time factors regarding population density.
- √ Factors regarding transportation and shelters.
- √ Time factors regarding number of highway lanes.
- √ Psychological factors.

13. List and outline the various **evacuation problems** that were also identified by the EPA study.

- √ Traffic congestion.
- √ Bottlenecks at gas stations.
- √ Rushes for food.
- √ Security problems.
- √ Evacuation refusals.
- √ Breakdown of vehicles.

Students to take notes and to discuss how each of the various atmospheric conditions would be a factor in determining the appropriate evacuation distance.

Student to take notes. Review chart found on page B-115 of the Command 2B Student Manual.

Students to take notes, and discuss how these factors influence evacuation planning. Review pages from the bottom of page B-115 through page B-116 of the Command 2B Student Manual.

Students to take notes, and offer examples from their own experiences of the type of problems that they have encountered while conducting evacuations.

PRESENTATION

APPLICATION

- √ Communications breakdown.
  - √ Over response of volunteers.
  - √ Accounting for evacuees.
  - √ Special facilities.
14. Describe and discuss the standard operating procedures used to ensure safe entry into the **exclusionary zone**.
- √ State the need for site-entry at certain incidents.
  - √ List the personal precautions to be taken by personnel.
  - √ State requirements for a site safety plan.
  - √ State safety key points.
15. Discuss the hazards and risks associated with personnel wearing **specialized protective clothing**.
- √ Physiological stressors.
  - √ Psychological stressors.
  - √ Conditioning of personnel.
16. List the three (3) basic types of protective clothing.
- √ Structural firefighting clothing.
  - √ Specialized high temperature.
  - √ Chemical resistant clothing.
17. Discuss the type of protection afforded by structural firefighting clothing.
- √ Components.
  - √ Uses.
  - √ Limitations.
18. List and describe each of the three (3) types of specialized high temperature clothing.
- √ Approach suits.
  - √ Proximity suits.
  - √ Fire entry suits.

Students to take notes, and discuss the need for standard operating procedures at a hazardous materials incident.

REQUIREMENTS FOR PROTECTIVE CLOTHING BEGINS ON PAGE B-120 OF THE COMMAND 2B STUDENT MANUAL.

Promote class discussion by asking students to give examples of the various risks and problems associated with wearing protective clothing.

Students to take notes.

Students to take notes, and discuss the limitations of structural firefighting clothing.

Students to take notes.

**PRESENTATION**

**APPLICATION**

19. Describe and discuss the various types of chemical protective clothing.

- √ Semi-encapsulated clothing.
- √ Fully encapsulated clothing.
  - Type I
  - Type II
  - Type III

20. Describe the four (4) Levels of protection as categorized by the EPA, and list the safety components required for each level.

- √ Level A
- √ Level B
- √ Level C
- √ Level D

21. Discuss the criteria that should be used to determine the appropriate level of protection to be worn by personnel at an emergency incident.

- √ Level A
- √ Level B
- √ Level C
- √ Level D

22. Define emergency containment, and discuss each of the seven (7) basic methods of containment.

- √ Dikes
- √ Dams
- √ Absorption
- √ Covering
- √ Containerizing
- √ Plugging & patching
- √ Isolation & diversion

23. Conduct Group Exercise Session #4 Site Control, Site Entry & Confinement Operations. Instructor's Activity Sheet.

Promote class discussion of the advantages and disadvantages of Type I, II & III suits

Student to take notes.

Students to take notes, and using examples, discuss situations that would require use of each of the four levels of protection.

Students to take notes.

Participate in Group Exercise #4

**SUMMARY:**

Commonly accepted practices, as well as state and federal laws require that Incident Commanders know the risks associated with employees working in specialized protective clothing,

The IC must also to have an understanding of the standard operating procedures required to control, mitigate, and terminate an incident.

**EVALUATION:**

- √ Complete guided group exercise #4 on the following pages and on pages B-129 through B-135 of the Command2B Student Manual.
- √ Complete Cal Fire Final Examination at the end of the course.

**ASSIGNMENT:**

Review pages B-103 through B-132 in the Command 2B Student Manual  
Site-control, Site-entry and Mitigation Operations

- √ Review the student manual.
- √ Review findings of the group exercise.

RETIRED CURRICULUM

## INSTRUCTOR'S ACTIVITY SHEET

## GROUP EXERCISE # 4

The following group exercise is intended to reinforce the main points presented in the text, and to provide the student with the opportunity to demonstrate competency in developing a contingency plan for site-control, site-entry, and mitigation operations.

This exercise is to be completed in a study group format using five persons per group (target off 4 groups per class of 20 people).

At the conclusion of the session a five (5) minute presentation containing an overview of each group's findings will be delivered by a representative from each of the groups.

- Follow directions on following pages.
- Divide the students into groups of five (5).
- Have students complete the exercise (approximately one (1) hour).
- Have one (1) student from each group give a five (5) minute presentation of the whole group's findings.

## SITE CONTROL, SITE ENTRY, & MITIGATION OPERATIONS

### EMERGENCY INCIDENT CONTINGENCY PLAN

#### Student Directions:

Using the Scenario #2 information presented at the end of the hazard Assessment chapter and the map of Santa Luisa, develop a contingency plan for the site-control measures, the site-entry procedures, and the mitigation operations that will be required to resolve the simulated incident occurring in Santa Luisa. Make sure that the contingency plan includes the following considerations:

- Determine the actual isolation and zoning parameters, and outline how isolation is to be accomplished (include a sketch showing work zones to be established).
- Determine actual evacuation parameters, and outline how evacuation is to be accomplished.
- Identify and list the major operational problems anticipated to occur with the actual evacuation.
- Develop a Site-Safety Plan under which the mitigation operations: can be conducted safely. Include the following:
  1. Evaluate the risks associated with the operations to be conducted.
  2. Identify staffing requirements for the various work teams, and key safety personnel.
  3. Designate the boundaries of the various work zones.
  4. Determine the necessary emergency procedures (escape routes etc.).
  5. Determine decontamination needs.
  6. Determine the required level of protective clothing for each of the work zones.
  7. If possible, determine the actual type of protective clothing to be used in the exclusionary zone.
  8. Determine medical monitoring and treatment needs.
- Describe in detail the actual mitigation operations that you have determined to be necessary in order to resolve this simulated incident (use drawing and sketches to illustrate the methods identified).

## ***SPECIAL INSTRUCTIONAL CONSIDERATIONS***

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### **CLEAN-UP & RESTORATION**

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#### **GENERAL:**

√ It is most important to emphasize pre-planning when selecting a clean-up contractor. As an option for selecting a clean-up contractor an outline, that includes a contractor's qualification background appraisal sheet on pages B-151, 152 and 153 has been included in the Command 2B Student Manual.

√ Many states have a State Board of Equalization that is open week days which may furnish a pre-assigned taxation number, if required.

**TOPIC: CLEAN-UP AND RESTORATION**

**LEVEL OF INSTRUCTION:** III

**SUGGESTED TEACHING TIME:** 4 Hours

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** A multi-choice examination and a group exercise involving an incident scenario.

- BEHAVIOR:**
1. Describe the techniques and equipment used in the clean-up phase of a Level II or III hazardous materials incident.
  2. Cite procedures necessary to access funding for clean-up.
  3. Select a clean-up contractor that is appropriate for a specific incident.
  4. Complete a Uniform Hazardous Waste Manifest (optional)
  5. Describe disposal requirements and the concept of Residual Repositories.
  6. Describe the process that terminates a Level II or III hazardous materials incident.

**STANDARD:** Pass written exam with an 80% accuracy

**MATERIALS NEEDED:**

- √ Clean-up and Restoration PowerPoint Slides
- √ Command 2B Student Manual

**REFERENCE SOURCES:**

- √ Subtitle C, Resources Conservation and Recovery Act
- √ California Vehicle Code
- √ NFPA Standard 472
- √ OSHA's Final Rule - 29 CFR Part 1910.120

**PREPARATION:**

Most hazardous materials incidents will require operations directed toward clean-up and restoring the incident scene to a condition of normalcy. Although these operations may not be actually performed by the agency Commanding the incident, it is still the responsibility of the Incident Commander to ensure that these tasks are performed properly. Therefore it is important for potential Incident Commanders to have a full understanding of the various procedures and legal requirements that are involved in the clean-up process.

**PRESENTATION**

**APPLICATION**

1. Present an overview of the importance of clean-up at a hazardous materials incident.
2. Discuss the aspects of **financing clean-up** efforts.
  - √ Primary responsibility
  - √ Responsible parties
  - √ State Superfund
  - √ Federal Superfund
3. Describe the criteria that must be met in order to obtain funding from the **State Superfund**.
  - √ Extremely hazardous waste
  - √ Imminent substantial danger
  - √ Insufficient funds
  - √ Lack of a responsible party
4. Describe the procedure for accessing the State Superfund.
  - √ State OES 24-hour Hotline
  - √ Dept. of Health Services
  - √ Reporting requirements
5. Describe and discuss the alternative sources of obtaining funding for clean-up activities.
  - √ Federal Superfund (EPA)
  - √ State Transportation Agency
  - √ Department of Justice
  - √ State Fish & Game
  - √ State RWQCB
  - √ U.S. Coast Guard
6. Discuss the Department Of Health Services mode of operation for clean-ups costing less than \$5,000 as well as the need for Incident Command to know how to **select a contractor**.

Remind students to take notes in the space provide in the margins and also at the end of the chapter.

Discuss the importance of locating a responsible party

Have student's present alternative sources of obtaining funding clean-up activities.

PRESENTATION

APPLICATION

8. Describe and discuss the various aspects of selecting an appropriate clean-up contractor.

- √ Background check
- √ Training of personnel
- √ Communications
- √ Supportive equipment
- √ Vacuum Trucks
- √ Specialized equipment
- √ Removing waste

9. Describe the requirements of Title 22, California Administrative Code for disposal of hazardous materials.

10. Describe and discuss the instructions for completing a **Uniform Hazardous Waste Manifest**.

- √ Generator's EPA ID number
- √ Local area CAS numbers
- √ State Board of Equalization Taxes

11. Discuss Disposal Facilities and the recent disposal requirements imposed by **AB 2948, the Tanner Bill**.

- √ Tanner Bill (AB 2948)
- √ Residual Repositories

12. Give an overview of the list of local Haz/ Mat clean-up contractors, Pesticide Spill Clean-up Teams and Class I Residual Repositories as presented in the student manual.

13. Discuss the aspects of restoring of **normal services**.

- √ County Health Department
- √ Building Inspector
- √ Dept. of Fish & Game
- √ Cal-Trans

Students to comment on the aspect of Incident Commands selecting a contractor of choice

Students to take notes and review outline in student manual

Students to take notes

Students to take notes and review instructions for completing a Uniform Hazardous Waste Manifest in the student manual

Students to take notes and review the changes imposed by the Tanner bill in the student manual

Students to take notes

**PRESENTATION**

**APPLICATION**

14. Discuss the aspects of **terminating an incident**.

- √ Debriefing the incident
- √ Post-incident analysis
- √ Critiquing the incident

Students to take notes

15. If pertinent, conduct the Optional Group Exercise found on pages B-160 and 161 in the Student Manual, for those students having the responsibility to complete Uniform Hazardous Waste Manifest.

Students to take notes and discuss aspects of debriefing at the conclusion of an incident

**SUMMARY:**

Restate that although clean-up operations may not be actually performed by the agency Commanding the incident, it is still the responsibility of the Incident Commander to ensure that these tasks are performed properly. Therefore, it is important for potential Incident Commanders to have a full understanding of the various procedures and legal requirements that are involved in the clean-up process.

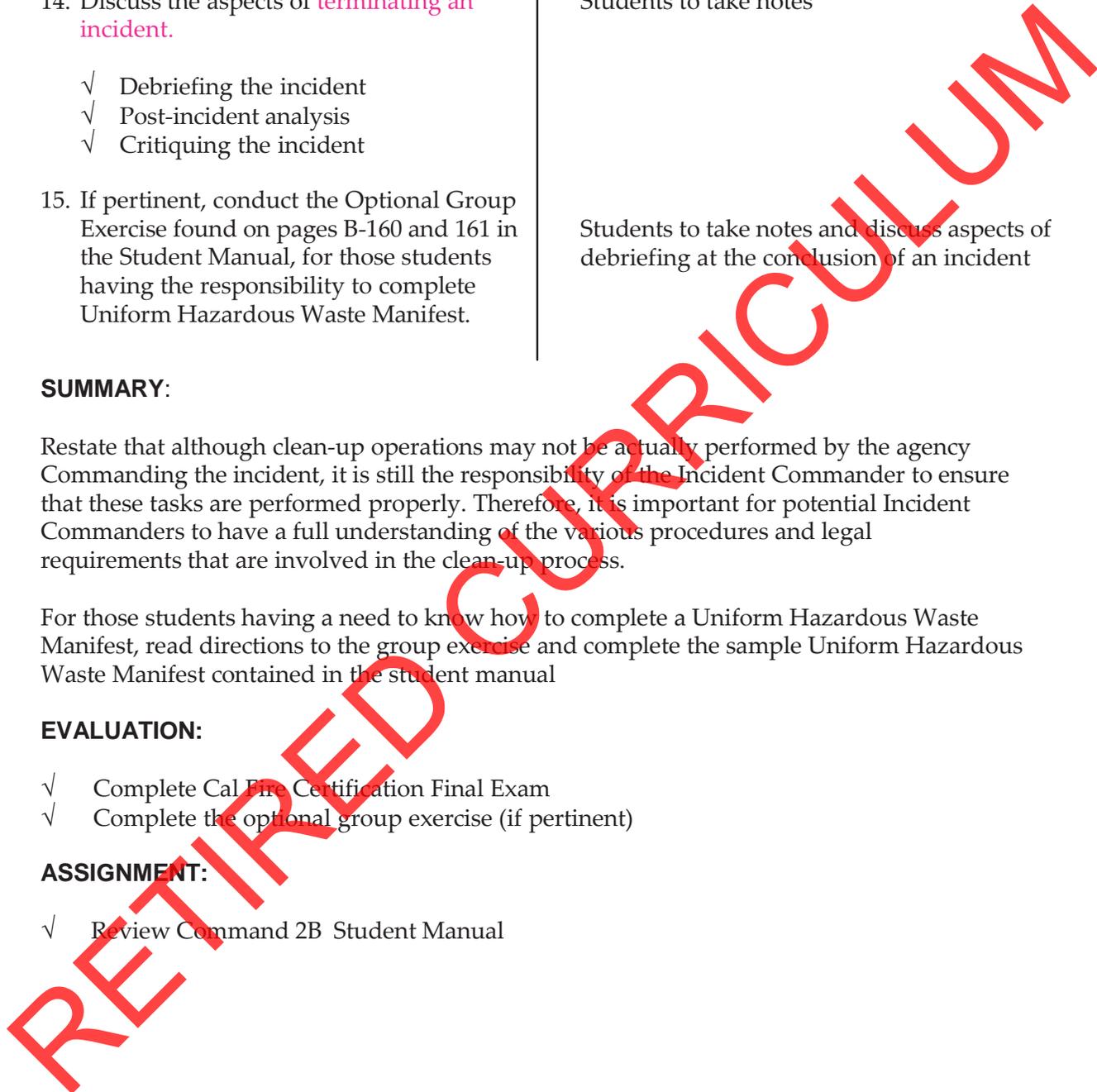
For those students having a need to know how to complete a Uniform Hazardous Waste Manifest, read directions to the group exercise and complete the sample Uniform Hazardous Waste Manifest contained in the student manual

**EVALUATION:**

- √ Complete Cal Fire Certification Final Exam
- √ Complete the optional group exercise (if pertinent)

**ASSIGNMENT:**

- √ Review Command 2B Student Manual



RETIRED CURRICULUM

## *Special Instructional Considerations*

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### LIABILITY & RISK MANAGEMENT

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#### GENERAL:

- √ Most instructors lack legal training and or experience, and can become somewhat intimidated by this section. Even so, with preparation you should be able to complete this section without assistance.
- √ To overcome possible anxiety, make sure you review the material, paying special attention to terminology. This section is heavy in legal terminology. **A number of PowerPoint slides have been provided to assist you through this section of the course.**
- √ If you do not want to take on this section, you should invite a guest lecturer with an appropriate legal background. A real good professional to teach this section is an attorney from your local district attorney's office.

If you do intend to use an outside guest instructor, make sure that you brief him/her with a copy of the lesson plan as well as a copy of this section from the Command 2B Student Manual. Make sure your guest instructor is well aware of your objective for this section.

All said, a guest legal instructor can be a lot of fun and challenging for your students.

**TOPIC:** LIABILITY AND RISK MANAGEMENT

**LEVEL OF INSTRUCTION:** III

**SUGGESTED TEACHING TIME:** 3 Hours

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** A multi-choice written exam and a group exercise involving an incident simulation

- BEHAVIOR:**
1. Describe the major state and federal legislation that affects emergency responder's liability
  2. Compare and contrast civil and criminal liability
  3. Define the term negligence, describe the various forms and state the types of penalties that can be imposed for negligence
  4. Differentiate between Vicarious, Landowner, and Joint and Several liability
  5. Describe the immunities and defenses available to public agencies
  6. Demonstrate competency when conducting Risk Assessment and Risk Management Techniques

**STANDARD:** Pass written exam with at least 80% accuracy

**MATERIALS NEEDED**

- √ Liability & Risk Management PowerPoint slides
- √ Command 2B Student Manual

**REFERENCES:**

- √ Superfund Amendments & Reauthorization Act - 29 CFR 1910.120 OSHA's Final Rule
- √ California Health & Safety Code 6.95, 1158 & Section 25400
- √ California Vehicle Code 2453 & 2454

**PREPARATION:**

Legal liability in hazardous materials incidents involves a complex system of laws, torts and statutes that are as varied and numerous as the mix of chemicals encountered in the world of hazardous materials. Due to the legal complexities involved, and the sensitivity of hazardous materials issues, there is a very real potential for an emergency response agency to be held liable and accountable for the actions taken by the agency's personnel at a hazardous materials incident. Therefore, it is extremely important for all potential Incident Commanders to at least be able to understand the major state and federal legislation affecting emergency responder's liability at emergency incidents.

PRESENTATION

APPLICATION

1. Describe the student behavioral objectives for this section as well as how important it is for Incident Commanders to understand their legal vulnerabilities in protecting themselves and their agencies in terms of liability and accountability (PowerPoint).
2. Describe the immunity laws as they relate the emergency services and discuss the concept of "special relationships."
3. Compare, and contrast, **Criminal Liability and Civil Liability**, and discuss the various penalties for negligence.
  - √ Criminal Liability defined
  - √ Civil Liability defined
  - √ State Level Courts
  - √ Federal Level Courts
  - √ Compensatory Damages defined
  - √ General Damages defined
  - √ Punitive Damages defined
4. Describe the complex nature of liability and cite the three (3) major forms.
  - √ Common Law Nuisance
  - √ Common Law Negligence
  - √ Strict (statutory) Liability
5. Define and describe the term "**Common Law Nuisance**."
  - √ Private nuisance
  - √ Public nuisance
6. Define the term "**Tort of Negligence**" and describe each of the three (3) elements that must be satisfied before a tort of negligence can arise.
  - √ Duty of Care Relationship
  - √ Standard of Care
  - √ Loss or Damage

Students should have their Command 2B Student Manuals' open to page B-172..

Students should take notes in the blank column provided on each page.

Engage your students in a discussion on the need to prepare defenses against law suits.

Engage your student in a discussion on what they believe is the difference between private and public nuisance.

**PRESENTATION**

**APPLICATION**

7. Define the term "Negligence" and describe each of the most common areas where negligent conduct might occur.

- √ Negligent supervision
- √ Negligent hiring or retention
- √ Negligent training
- √ Negligent misstatements
- √ Negligent assignment/appointment
- √ Negligent performance of duty

8. Explain what the expression "reasonable and prudent judgment" means in terms of emergency response, and discuss the concept of linking this phrase to nationally accepted standards.

- √ NFPA 472
- √ 29 CFR 1910
- √ Responsibility to provide training

9. Define the term "Vicarious Liability" and describe how this affects Incident Commanders.

10. Define the term "Respondent Superior" and discuss how this affects employers.

11. Compare and contrast "Gross Negligence" and "Simple Negligence", and describe how this affects Incident Commanders.

12. Describe and discuss the concept of "Joint and Several Liability".

- √ Deep pockets concept
- √ Effect on public entities

13. Define and describe "Landowner liability."

"Negligence" may have a different meaning to people. Negligence also has different levels or degrees of negligence.

On a continuum from 1 to 10 ask your students where they line up when considering the various terms and definitions in the Command 2B Student Manual beginning on page B-175.

Ask your students what "reasonable and prudent judgment" means to them.

Ask your students how vicarious liability may have affected their individual agency.

Overhead question: What is the difference between simple and gross negligence

Students to take notes and discuss how joint and several liabilities can affect their own individual agency

Ask your students to comment on "Landowner liability as written on page B-179 in the Command 2B Student Manual.

**PRESENTATION**

**APPLICATION**

14. Compare and contrast “Policy Decisions” and “Operational Decisions” and discuss the concept of elevating decisions to the policy level.

Students to take notes and discuss the concept of elevating decisions to the policy level

15. Define and discuss the term “Strict Liability.”

16. Present a brief summary of the most pertinent pieces of recent Haz/Mat Legislation.

Students to take notes and review the summary presented in the student manual

- √ CERCLA
- √ SARA Title III
- √ 29 CFR 1910.120
- √ Cal. Health & Safety Code
- √ Cal. Tort Claims Act (Cal. Gov. Code)
- √ Carpenter/Presley/Tanner Act
- √ Cal. Vehicle Code 2453 & 2454

17. Define the term “Risk Management” and discuss how this relates to emergency management.

Students to take notes and discuss the aspects of exposure to law suits

- √ Risk Assessment
- √ Liability Prevention
- √ Risk
- √ Exposure

18. Outline the given example of a practical method of obtaining information to identify loss exposures.

Students to take notes and review the procedure as presented in the student manual

19. Discuss the concept of developing good defenses against civil suits.

Students to take notes and discuss the concept of developing defenses

- √ Training
- √ Documentation
- √ Pre-planning
- √ Standard operating policies & procedures
- √ Testing & maintenance of equipment

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**HAZ/MAT ON SCENE INCIDENT COMMANDER  
INSTRUCTOR'S GUIDE**

**SUMMARY:**

Restate the importance of Incident Commanders being able to at least understand the major state and federal legislation affecting emergency responders' liability at an emergency incident.

**EVALUATION:**

√ Complete Cal Fire Certification Final Examination.

**ASSIGNMENT:**

Students should review Liability and Risk Management beginning on page B-171 in their Command 2B Student Manual. They should especially review "Risk Management" page B-185 and "developing good defenses against civil suits" page B-187

RETIRED CURRICULUM

# ***SPECIAL INSTRUCTIONAL CONSIDERATIONS***

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## **DOCUMENTATION & INVESTIGATION**

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### **GENERAL:**

**CRITICAL** - you as the instructor understand how absolutely critical documentation is to risk management. The information in this lesson, Documentation & Investigation of a hazardous materials incident, is the most important lesson in this course. It is, therefore, **CRITICAL** that you convey the importance of scene documentation and investigation to your students.

**INCIDENT INVESTIGATION** - point out that the scene manager is responsible for a complete investigation. That does not mean, however, that the scene manager does not personally perform the investigation.

### **SCENARIO:**

- ✓ You can modify your group exercise #5 as you wish. Make it as simple or as realistic as your resources and time will allow. For example: you may wish to simply ask your students to make sure they have developed a pre-list of possible responses; or you may wish to do some role playing by setting up a moot court, with you as the prosecuting attorney (be careful your moot court does not deteriorate into uncontrolled pandemonium); or you may have the contacts to invite practicing attorneys and a sitting judge for your moot court. The more realistic the better and you will have lots of fun in the process.
- ✓ The important thing is that your students should be able to justify their actions taken during the scenario session.
- ✓ After this section is completed, your students should feel at easy managing a hazardous materials incident, or at least comfortable with areas for which they may be responsible when on scene.

**HAZ/MAT ON SCENE INCIDENT COMMANDER  
INSTRUCTOR'S GUIDE**

**TOPIC:** DOCUMENTATION & INCIDENT INVESTIGATION

**LEVEL OF INSTRUCTION:** III Suggested Teaching Time:: 3 Hours

**BEHAVIORAL OBJECTIVES:**

**CONDITION:** A multi-choice written exam, and a group exercise involving an incident scenario.

- BEHAVIOR:**
1. Recognize the need for documentation of hazardous materials incidents, and identify who is responsible for documentation control.
  2. List the various types of documentation that can be used to protect agencies and response personnel against costly suit settlements.
  3. Determine what documentation will be necessary to ensure cost recovery and restitution, and to properly conduct an incident investigation.
  4. Recite the Standard Operating Procedure for conducting an incident investigation from the Incident Commander's point of view, and how to maintain the chain-of-custody for evidence collected.
  5. Describe the requirement for medical monitoring, and list the various components of an Exposure Record.

**STANDARD:** Pass written exam with at least 80% accuracy.

**MATERIALS NEEDED:**

- √ Documentation & Investigation PowerPoint slide
- √ Command 2B Student Manual

**REFERENCES:**

- √ California Haz Mat Contingency Plan
- √ Federal Rules of Evidence Section 80329
- √ OSHA's Final Rule 29 CFR 1910.120
- √ California Health & Safety Code

**PREPARATION:**

The purpose of documentation at a hazardous materials incident is to protect the agency—and its personnel—from claims of negligence for improper operational actions. Documentation also serves in claiming restitution from state or federal clean-up funds, and also for purposes of criminal prosecution. Proper documentation becomes absolutely necessary for the investigation phase of an incident, and is also required for general record keeping.

PRESENTATION

APPLICATION

1. Describe the student behavioral objectives for this section. (Power Point)

2. Describe and discuss the purposes of documentation. (Power Point)

- √ Protect the agency
- √ Protect personnel
- √ Claiming restitution
- √ Criminal Prosecution
- √ Investigation
- √ Record keeping

3. Discuss the **role documentation plays** in cost recovery and restitution.

4. Describe how **property damage** should be documented.

5. Discuss how communication dispatch tapes can be used for documentation.

6. Describe and discuss how incident fatalities should be documented.

- √ Patient Care Reports
- √ Rationale for delayed rescues

7. Discuss the aspects of Chemical Sampling & **Evidence Collection.**

- √ Collection
- √ Field Tests
- √ Further analysis
- √ Number of samples
- √ Chain-of-evidence

Have students review page B-191 in their Command 2B Student Manual.

Instructor should create a group discussion about the importance of documentation by asking the question: Why is the documentation of a hazardous materials incident so important?

Have students turn to page B-192 in their Command 2B Student Manual. Take notes as necessary.

Students to take notes (Command 2B Student Manual beginning on page 194) and discuss the hazards associated with chemical sampling

PRESENTATION

APPLICATION

8. Describe and discuss Documentation Control and list the type of items that should be included in the documentation process.

- √ Photographs
- √ Video tapes/DVD
- √ Written records
- √ Inventory Control Logbook

9. Describe and discuss how the Chain-of-Custody must be maintained.

- √ Logbook
- √ Federal Rules of Evidence
- √ Standardized procedures

10. Describe the mandatory requirements of OSHA's Final Rule (29 CFR 1910.120) for Medical Monitoring. (Power Point)

- √ First Responders
- √ Post incident monitoring
- √ Haz Mat Team members
- √ Pre-incident monitoring

11. List the items that should be included in Personal Exposure Records.

- √ Name & security number
- √ Date, time, location
- √ Incident number
- √ Physician's report
- √ Information given to physician
- √ Type, concentration
- √ Duration of exposure
- √ Name of chemical(s) involved

Students view power point presentation and follow along in their Command 2B Student Manual beginning on page B-196. Take notes as required.

Students to take notes Command 2B Student Manual (page B-197) and discuss the aspects of medical monitoring as it applies to the various levels of service.

Students take notes in their Command 2B Student Manual, page 198, Medical Monitoring/29 CFR 1910.120 and view power point.

**PRESENTATION**

**APPLICATION**

12. Describe the requirements of the California Health & Safety Code for mandatory reporting through NIFRS  
Show an sample of the NIFRS

- √ Mandatory requirements
- √ Exceptions to the requirements
- √ NIFRS Report Form/Electronic

13. Discuss the legal requirements for incident investigations contained in the California Haz Mat Incident Contingency Plan & Oil Spill Contingency Plan.

- √ Cal. Haz Mat Incident Contingency Plan
- √ Cal. Oil Spill Contingency Plan
- √ Criminal Investigations
- √ Ensuring safety of investigator

14. Outline the Standard Operating Procedure suggested for Incident Commanders to follow while conducting an investigation.

- √ Contact the DA's Office
- √ Provision of expertise
- √ Maintain security of incident scene
- √ Preservation of evidence
- √ Continue to document
- √ Assess to specialized investigators

Students to take notes and review the sample NIFRS Report Form

Students to take notes and review the procedure as outlined in the Command 2B Student Manual beginning on page B-203, Incident Investigation.

REMOVED CURRICULUM

**SUMMARY:**

Restate that the main purpose of documentation at a hazardous materials incident is to protect the agency—and its personnel—from claims of negligence for improper operational actions. Documentation also serves in claiming restitution from state or federal clean-up funds, and also for purposes of criminal prosecution. Proper documentation becomes absolutely necessary for the investigation phase of an incident, and is also required for general record keeping.

**EVALUATION:**

- √ Complete Exercise #5 the Final Table Top Exercise
- √ Complete Cal Fire Certification Final Examination

**ASSIGNMENT:**

- √ Review the student manual
- √ Review findings of group exercise

RETIRED CURRICULUM