

STUDENT STUDY GUIDE
GENERAL COMPETENCIES OF THE INCIDENT COMMANDER

INCIDENT COMMANDER

INTRODUCTION

Time: 5
min

ATTENTION: You have completed the Awareness and Operations Level training. Do you qualify as an Incident Commander - ALMOST.

REVIEW: The previous blocks of instruction have laid the ground work for commanding an incident.

OVERVIEW: This block of instruction will provide the minimum requirements needed to legally make you a hazardous materials incident commander.

MOTIVATION: If you think sitting through this block and absorbing the information will qualify you as an incident commander, a quick look at the laws and penalties will tell you otherwise.

TRANSITION: Being prepared to command will help keep you out of legal trouble. Keep this in mind as we begin.

BODY

Time: 20 min

USE:

Incident Management Lesson Plan

Glossary of Terms

Hazardous Materials, Managing the Incident, Current Edition

NFPA 471/472 Handbook, Current Edition

PRESENTATION:

000000001. General Competencies of the Incident Commander

a. Without reference identify general principles about the Incident Commander with at least 80% accuracy. **(5-5.1)**

- (1) Definition - person RESPONSIBLE for directing and coordinating all aspects of a hazardous materials incident.
- (2) Duties and responsibilities (Goals) performed directly or delegated by the Incident Commander

(a) Analysis Activities

- 1 Classify and identify unknown materials
- 2 Verify known materials
- 3 Monitor changes in climatic conditions
- 4 Identify contaminated people and equipment
- 5 Establish environmental monitoring
- 6 Interpret the data collected from environmental monitoring

(b)0 Planning Activities

- 1 Develop a plan of action for the incident
- 2 Develop a plan of action for activities in the control zones
- 3 Develop an incident safety plan
- 4 Seek technical advice
- 5 Evaluate and recommend public protective actions
- 6 Coordinate handling, storage, and transfer of contaminants
- 7 Determine personal protective equipment compatibility

8 Organize and supervise assigned personnel to control site access

9 Provide required emergency medical services

(c)0 Implementation Activities

1 Conduct safety briefings

2 Implement the plan of action for the incident

3 Implement the incident safety plan

4 Oversee placement of control zones

5 Supervise entry operations

6 Direct rescue operations

7 Maintain communication and coordination during the incident

8 Provide medical monitoring of entry personnel before and after entry

9 Protect personnel from physical, environmental, and safety hazards/exposures

10 Provide information for public and private agencies

11 Enforce recognized safe operational practices

12 Ensure that injured or exposed individuals are decontaminated prior to departure from the hazard site

13 Separate and keep track of potentially contaminated persons

14 Track persons passing through the contamination reduction corridor

15 Ensure that decontamination activities are conducted

16 Coordinate transfer of decontaminated patients

(d)0 Evaluation Activities

- 1 Evaluate progress of the actions taken and modify as necessary
- 2 Recognize deviations from the incident safety plan and any dangerous situations
- 3 Alter, suspend, or terminate any activity that may be judged unsafe
- 4 Keep required records for litigation and documentation
- 5 Ensure that medical-related exposure records are maintained

APPLICATION: N/A

EVALUATION: Intersperse oral questions throughout the lesson and administer specific written exam

CONCLUSION

Time: 5 min

SUMMARY: Highlight the important philosophies and concepts of this lesson.

REMOTIVATION: Being familiar with these goals will make learning your responsibilities as an Incident commander much easier.

ASSIGNMENT: N/A

CLOSURE: We've covered general information on the roles, responsibilities, and goals of the incident commander. In the next lesson we will get more specific.

STUDENT STUDY GUIDE

INCIDENT MANAGEMENT SYSTEM

INCIDENT COMMANDER
min

INTRODUCTION

Time: 5

ATTENTION: Effective command operations are necessary at every type of emergency. However, hazardous materials incidents place a special burden on the command system since they often involve communications between separate agencies.

REVIEW: In our last lesson we discussed general principles about incident commander competencies.

OVERVIEW: In this lesson we will be discussing the essential elements of an incident management system.

MOTIVATION: The worst possible scenario is for the Incident Commander to let a bad situation get worse. Knowledge is the key to preventing a major disaster from developing out of this situation.

TRANSITION: Now lets begin our lesson.

BODY

Time: 12 hours

ICS Lesson Plan
Glossary of Terms
NFPA 1561, Current Edition
NFPA 471, 472 Handbook, Current Edition
Hazardous Materials for First Responders
Hazardous Materials, Managing the Incident, Current Edition

PRESENTATION:

100000002. Incident Management System

- a. Without reference define and describe the essential elements of an incident management system with at least 80% accuracy

(1) Administration

(a) NFPA 1561, Standard on Fire Department Incident Management System, contains the minimum requirements for an incident management system to be used by Emergency Response Forces to manage **ALL** emergency incidents **(1561, 1-1.1)**

(b) These requirements are applicable to organizations providing:

1 Rescue

2 Fire suppression

3 Private emergency response forces/brigades **(1561, 1-1.2)**

(c) NFPA 1561 standard does not apply to fire brigades organized only to fight incipient stage fires as defined in OSHA, 29 CFR 1910.155(c)(26) **(1561, 1-1.3)**

(d) The purpose of NFPA 1561 standard is to define and describe the essential elements of an incident management system **(1561, 1-2.1)**

(e) The purpose of an incident management system is to:

1 Provide structure and coordination to the management of emergency incident operations

2 In order to provide for the safety and health of emergency response members and other persons involved in those activities

3 NFPA 1561 standard is intended to meet the requirements of 6-1.2 of NFPA 1500, *Standard on Fire Department Occupational Safety and health Program*, and OSHA, 29 CFR 1910.120(q)(3) **(1561, 1-2.2)**

a An incident management system that complies with NFPA 1561 shall be established with written standard operating procedures applying to all members involved in emergency operations. All members involved in emergency operations shall be familiar with the system **(1500, 6-1.2)**

b The senior emergency response official responding to an emergency shall become the individual in charge of a site-specific Incident Command System **(29 CFR 1910.120 (q)(3)(i))**

40 The standard is not intended to restrict any jurisdiction from exceeding these minimum requirements

5 The standard is not intended to restrict any jurisdiction from adopting a system tailored to meet local needs while satisfying the minimum requirements of this standard

(f)0 Definitions **(1561, 1-3)**

1 **Incident Commander.**

2 **Incident Scene.**

3 **Incident Termination.**

4 **Liaison.**

5 **Resources.**

6 **Shall.** _____.

7 **Should.**

8 **Staging**

9 **Standard Operating Procedure.**

10 **Unified Command.**

(2)00 System Structure

- (a) The emergency response force shall adopt an incident management system to manage all emergency incidents and shall be designed to meet the particular characteristics of the emergency response force based on: **(1561, 2-1.1)**

1 _____

2 _____

3 _____

- (b)0 The incident management system shall be defined and documented in writing. Standard operating procedures shall include: **(1561, 2-1.2)**

1 Requirements for implementation of the incident management system

2

- 3 The emergency response force shall prepare and adopt written plans, based on the incident management system, to address:

- 4 Requirements of different types of incidents that can be anticipated

a _____

b _____

50 Provide standardized procedures and supervisory assignments that can be applied to the needs of: **(1561, 2-1.3)**

a _____

b _____

c _____

(c)00 The incident management system shall be utilized at:

1 **All emergency incidents**

2 The incident management system shall also be applied to: **(1561, 2-1.4)**

a _____

b _____

c _____

d Simulated incidents that are conducted for training and familiarization purposes. The emergency response force shall develop an integrated incident management system in coordination with other agencies that are involved in emergency incidents **(1561, 2-2.1)**

(d)00 The incident management system shall provide a plan to coordinate operations with other agencies that have jurisdiction at the incident scene **(1561, 2-2.2)**

1 _____

2 _____

(e)0 Where the incident is under the command authority of the emergency response force, the incident commander shall provide for liaison and coordination with all other cooperating agencies **(1561, 2-2.3)**

(f) Where the incident is under the overall jurisdiction of an agency other than the Emergency response force, the emergency response force team shall: **(1561, 2-2.4)**

1 _____

2 _____

(g)0 The incident management system shall provide a series of supervisory levels that are available for implementation to create a command structure. The particular levels to be utilized in each situation shall depend on: **(1561, 2-3.1)**

1 _____

2 _____

3 _____

- (h)0 The incident management system shall be modular to allow: **(1561, 2-3.2)**
 - 1 Application of only those elements that are necessary at a particular incident
 - 2 _____

- (i)0 The incident commander shall: **(1561, 2-3.3)**
 - 1 Determine which levels and elements of the incident management system are to be implemented in each case
 - 2 _____

- (j)0 The command structure for each incident shall: **(1561, 2-3.4)**
 - 1 Maintain an effective supervisory span of control (_____ personnel)
 - 2 Be determined by the ability of each supervisor
 - a To monitor the activities of assigned subordinates
 - b To communicate effectively with them

- (k)00 The incident management system shall define standardized supervisory assignments. These assignments shall be activated upon assignment by the incident commander **(1561, 2-3.5)**
 - (l) Standardized supervisory assignments shall define:
 - 1 _____
 - 2 _____
 - 3 _____

4 Assignments shall be defined by:

a _____

b _____

c _____

50 The scope of authority that will be delegated at each supervisory level and shall be outlined in standard operating procedures **(1561, 2-3.5.1)**

(m)0 An assignment that is defined by function shall be based on performing or supervising a particular function or set of functions **(1561, 2-3.5.2)**

(n) An assignment that is defined by location shall be based on supervising all activities that are conducted within a designated area **(1561, 2-3.5.3)**

1 Area shall be defined by standard terminology or specified by the incident commander at the time of assignment

(o)0 The incident commander shall have the authority to:

1 _____

2 It shall be the responsibility of the incident commander to clearly identify the parameters of an assignment when deviating from the standard assignments **(1561, 2-3.6)**

(p)0 All members who could be involved in emergency operations shall _____ **(1561, 2-4.1)**

(q) Members who are expected to perform as incident commander or to be assigned to supervisory levels within the command structure shall: **(1561, 2-4.2)**

1 Be trained and familiar with the incident management system

- 2 Be trained and familiar with the particular levels at which they are expected to perform.
 - a The emergency response force shall define training requirements for supervisors
 - b The emergency response force shall define experience requirements for supervisors

(r)00 The incident commander shall make assignments based on:

- 1 _____
- 2 _____
- 3 Positions that require specific expertise shall be assigned to qualified individuals **(1561, 2-4.3)**

(3)00 System Components

(a) The incident management system shall:

- 1 _____

- 2 _____

_____ **(1561, 3-1.1)**

(b)0 Standard operating procedures shall:

- 1 Define the responsibility for one member to assume the role of incident commander from the beginning of operations at the scene of each incident **(1561, 3-1.2)**
- 2 Define the circumstances and procedures for transferring command and to whom it shall be transferred. The transfer of command shall be accomplished through a structured process **(1561, 3-1.3)**

(c)0 Command staff functions shall be those elements of the incident management system that: **(1561, 3-2.1)**

1 _____

2 _____

(d)0 Standard operating procedures shall define the roles and responsibilities for members assigned to command staff functions **(1561, 3-2.2)**

(e) Members performing command staff functions **(1561, 3-2.3)**

1 _____

2 _____

3 The assigned members shall keep the incident commander informed of significant occurrences

(f)0 Planning functions shall refer to those components of the incident management system that are involved with information management to support: **(1561, 3-3.1)**

1 The incident commander

2 Other levels of the incident command structure

(g)0 The incident management system shall include a standard approach for information: **(1561, 3-3.2)**

1 _____

2 _____

3 Dissemination

4 _____

5 The system shall account for the organizational

a _____

b Availability of resources

c _____

d Situation status reports

e _____

f Reference information

g _____

h Diagrams

i Other pertinent information

60 Information management shall utilize standard terminology and methods at all levels of the command structure **(1561, 3-3.2.1)**

(h)0 The incident management system shall include standard methods to _____ and _____ the assignment of resources throughout the duration of an incident **(1561, 3-3.3)**

(i) The incident management system shall include a standard approach to utilize technical advisors to: **(1561, 3-3.4)**

1 _____

2 Assist the incident commander

(j)0 The logistics components of a incident management system shall include those functions that provide: **(1561, 3-4.1)**

1 Equipment

2 _____

3 Material

4 _____

(k)0 Members assigned to logistics functions shall keep the incident commander informed, through regular reports, on: **(1561, 3-4.2)**

1 Amount

2 _____

3 _____

(l)0 Operations functions shall refer to those tactical components of the incident management system that are directly involved in: **(1561, 3-5.1)**

1 _____

2 _____

3 Other hazardous activities that are within the primary mission of the emergency response force

(m)0 The incident commander shall assign intermediate levels of supervision and organize resources

(n) NFPA 1561 and based on the scale and complexity of operations **(1561, 3-5.2)**

(o) All supervisors assigned to operations functions shall: **(1561, 3-5.3)**

1 Support an overall strategic plan, as directed by the incident commander

2 _____

(p)0 Supervisors assigned to operations functions shall: **(1561, 3-5.4)**

1 Be responsible for supervising the activities of all resources assigned under their span of control

2 Be responsible for coordination with higher levels of the command structure and with other supervisors at the same level

3 Consider as primary concerns

a _____

b _____

(q)00 The incident management system shall include standard operating procedures for radio communications that provide for: **(1561, 3-6.1)**

1 The use of standard protocols

2 The use of _____ at all types of incidents

(r)0 Without requiring major changes or transitions, the communications standard operating procedures shall be established to: **(1561, 3-6.2)**

1 _____

- 2 Support the escalation of operations from routine to unusual without requiring major changes or transitions
- (s)0 Standard terminology shall be established to: **(1561, 3-6.3)**
 - 1 Transmit information, including strategic modes of operation
 - 2 _____
 - 3 _____
 - 4 The communications system shall provide a standard method of communication to: **(1561, 3-6.4)**
 - a Transmit emergency messages
 - b _____
 - c All levels of the incident command structure with priority over routine communications
 - 50 The incident management system shall provide standard operating procedures for communication operators and dispatchers **(1561, 3-6.5)**
 - a _____ shall provide procedures for support to emergency incident operations
 - b Operators and dispatchers shall be trained to function effectively within the incident management system
- (t)00 The incident management system shall provide standard operating procedures for the utilization of communications systems, including radio channels and other capabilities that are provided **(1561, 3-6.6)**
- (u) The incident management system shall provide a standard system to manage: **(1561, 3-7.1)**

1 _____

2 _____

(v)0 Where emergency activities are being conducted in a location where a delay would be involved in activating standby resources, the incident commander shall establish _____ close to the area where the need for those resources is anticipated **(1561, 3-7.2)**

(w) The incident management system shall provide for financial services when necessary for the safe conduct of an incident **(1561, 3-8.1)**

(x) The incident commander shall assign finance functions based on the needs or complexity of the incident **(1561, 3-8.2)**

(4)0 Roles and Responsibilities

(5) The incident commander shall be responsible for the overall coordination and direction of all activities at the incident scene. This shall include: **(1561, 4-1.1)**

1 _____

2 _____

(a)0 The incident commander shall be responsible: **(1561, 4-1.2)**

1 For establishing a command structure that meets the needs of the particular situation

2 For determining the _____ that will be employed

3 For summoning and assigning adequate resources to deal with the situation

4 _____

5 For communicating directions and interpreting progress reports from assigned persons in the command structure

6 _____

(b)0 The incident commander shall:

1 Make assignments and provide direction, as required by the nature and circumstances of the incident, in order to manage the activities of all members and other resources at the incident scene **(1561, 4-1.3)**

2 Assign supervisory duties and responsibilities to create an organization structure, within the framework of the incident management system, based on the needs of each particular incident

a The established structure shall provide a _____ at all levels of the organization

b The established structure shall exercise supervision over all aspects of the incident **(1561, 4-1.4)**

30 As the incident increases in size and complexity and as additional personnel and units are assigned to operate at the scene, expand the command structure to maintain effective levels of supervision and span of control **(1561, 4-1.4.1)**

4 Be responsible for the assignment of duties and responsibilities to individuals

a Includes the _____ necessary to accomplish the assignments.

- b** The standard operating procedures adopted by the emergency response force shall define the scope of authority that will be delegated at each level of the organization **(1561, 4-1.4.2)**
- 50** Utilize standardized terminology and predefined job descriptions to make supervisory assignments **(1561, 4-1.5)**
- 6** Determine the overall strategy for the incident
 - a** _____

 - b** Ensure that any change in strategy is communicated to all supervisory levels **(1561, 4-1.6)**
 - c** Supervisors shall assume responsibility for: **(1561, 4-2.1)**
 - 1** _____
 - 2** Responsibility for the safety and health of members and other authorized persons within their designated areas
 - d0** Supervisors shall work toward assigned objectives within the overall strategy defined by the incident commander. They shall regularly report: **(1561, 4-2.2)**
 - 1** _____, in meeting the objectives
 - 2** _____, in meeting those objectives
 - 3** Any _____ from established plans
- 700** When supervisors are in a position to recommend changes in strategy or tactics, these recommendations shall be

communicated to the incident commander through supervisory levels **(1561, 4-2.3)**

- a Supervisors shall be alert to recognize conditions and actions that create a hazard within their span of control. All
- b Supervisors shall have the _____ and _____ to take immediate action to correct imminent hazards **(1561, 4-2.4)**

(c)00 Supervisors at each level of the command structure shall:

1 Receive direction from and provide progress reports to higher level supervisors **(1561, 4-2.5)**

2 _____

3 Provide direction to lower level supervisors or members within their span of control **(1561, 4-2.6)**

(d)0 When conflicting orders are received at any level of the incident management system

1 _____

2 If the conflicting order is required to be carried out, the member giving the new order shall so inform the member who provided the initial order **(1561, 4-2.7)**

(e)0 The incident management system shall provide for _____ to the incident scene **(1561, 4-3.1)**

(f) All supervisors shall maintain a constant awareness of the position and function of all members assigned to operate under their

supervision. This awareness shall structure the _____
_____ that is required for operational safety **(1561, 4-3.2)**

(g) The emergency response force shall adopt and routinely use a
_____ to: **(1561, 4-3.3)**

1 Maintain accountability for each member engaged in
activities at an incident scene

2 _____

3 Provide an accurate accounting of those members actually
responding to the scene on each company or apparatus

4 Maintain accountability for the _____
_____ at the scene of the
incident **(1561, 4-3.3.1)**

5 Members who arrive at the scene of the incident by means
other than fire apparatus shall be identified by a system that
accounts for: **(1561, 4-3.3.2)**

a _____

b _____

(h)00 The personnel identification system shall include a means to
specifically: **(1561, 4-3.4)**

1 Identify members

2 Keep track of members

a _____

b _____

1 Areas such as confined spaces

- (i)000 The incident management system shall include a standard operating procedure to:
 - 1 Evacuate personnel from an area where an imminent hazard condition is found to exist and account for their safety

 - 2 Include a method to notify immediately all personnel in the affected area by means of:
 - a _____
 - b _____
 - c Means in accordance with the requirements specified in 3-6.4 of NFPA 1561 **(1561, 4-3.5)**

- (j)00 The incident commander shall consider the circumstances of each incident and make suitable provisions for rest and rehabilitation for members operating at the scene. These considerations, according to the circumstances of the incident, shall include:
(1561, 4-4.1)
 - 1 _____
 - 2 _____
 - 3 _____

- (k)0 All supervisors shall maintain an awareness of the condition of members operating within their span of control and ensure that adequate steps are taken to provide for their safety and health. The command structure shall be utilized to request relief and reassignment of fatigued crews. **(1561, 4-4.2)**

APPLICATION: N/A

EVALUATION: Intersperse oral questions throughout the lesson. Administer specific exam.

CONCLUSION

Time: 5 min

SUMMARY: Highlight those concepts and philosophies which this lesson covers.

REMOTIVATION: Being familiar with the principles of IMS could prevent a hazardous materials disaster.

STUDENT STUDY GUIDE
ANALYZING THE PROBLEM

INCIDENT COMMANDER
min

INTRODUCTION

TIME: 5

ATTENTION: Let us now study the specific roles of the incident commander at a hazardous materials incident

REVIEW: The information you learned in Awareness and Operations will also begin to play a role in this lesson

OVERVIEW: In this lesson we will be looking at the command level knowledge a Hazardous Materials Incident Commander requires.

MOTIVATION: This is the step from the responder to the manager. How well you learn this lesson may very well determine how well you handle an actual incident.

TRANSITION: Let's look at how the incident commander will analyze a hazardous materials incident.

BODY

TIME: 2 hrs 20 min

USE:

ICS Lesson Plan

NFPA 471/472 Handbook, Current edition

NFPA 1561, Current Edition

Hazardous Materials, Managing the Incident, Current Edition

Hazardous Materials For First Responders, Current Edition

PRESENTATION:

200000003. ANALYZING THE PROBLEM

00000000a. Given access to printed resources, technical resources, or computer data bases, monitoring equipment information and a hazardous materials scenario, interpret hazard and response information with at least 80% accuracy. **(5-2.1)**

(1) Types of hazard and response information available **(5-2.1.1)**

(a) Reference Manuals **(4-2.2.1)**

1 Each source emphasizes different information

2 _____

3 Common reference manuals:

a The Condensed Chemical Dictionary

b NFPA Guide for Hazardous Materials

c CHRIS Manual

d Emergency Action Guides

e Emergency Handling of Hazardous Materials for Surface Transportation

f NIOSH/OSHA Pocket Guide

40 Fire Protection Guide on Hazardous Materials

a NFPA 325M (Fire Hazard Properties of Flammable Liquids, Gases, and Solids)

b NFPA 49 (Hazardous Chemical Data)

c NFPA 491M (Manual of Hazardous Chemicals Reactions)

d NFPA 704 (Recommended method for the ID of hazardous material)

(b)00 Hazardous Materials data bases

1 Use the source that best fits the specific incident

2 Computer-Aided Management of Emergency Operations (CAMEO 3.0)

3 Oil and Hazardous Materials Technical Assistance Database (OHM/TADS)

4 Registry of Toxic Effects of Chemical Substances (RTECS)

5 Chemical Hazard Response Information System (CHRIS)

6 Emergency Information System (EIS) - Some MAJCOMs are presently using this system

7 Hazardous Materials Information System (HMIS) - A.F. MSDS inventory

(c)0 Technical Information centers

1 Responders should know what information each center can provide

2 Chemical Transportation Emergency Center (CHEMTREC)

a Can provide initial response information on more than one million product specific _____.

b _____

c Can help the responder identify unknown materials using waybill numbers and other sources

d _____

(d)00 Technical Information specialists

1 Responders should develop a network of people with technical knowledge

2 _____

(e)0 Monitoring equipment

1 _____

2 _____

3 Combustible Gas Indicators (CGI)

4 _____

5 Colormetric Indicator Tubes

6 _____

7 Radiation Survey Instrument

(f)0 It's suggested that you use at least _____ different sources of information

(2)0 Advantages and Disadvantages (Considerations)

(a) Reference Materials

1 _____

- 2 _____
- 3 Need for extra copies for extended operations
- 4 May not have a complete listing of chemicals in your community

(b)0 Data Bases

- 1 _____
- 2 _____
- 3 Hardware requirements
- 4 _____

(c)0 Technical Information Centers

- 1 _____
- 2 Must know services available

(d)0 Technical Information Specialist

- 1 _____
- 2 _____

(e)0 Monitoring Equipment

- 1 _____
- 2 _____
- 3 Must know how to use the information gained from the equipment

b.000 Given a scenario involving hazardous materials, determine the most probable outcome within the endangered area with at least 80% accuracy **(5-2.2)**

- (1) Estimating the number of exposures (People, Environment, Property,) within the endangered area **(5-2.2.1) (4-2.5.3)**
 - (a) An estimate is a series of predictions that attempts to provide an overall picture of potential outcomes.

 - (b) Analysis of gathered information
 - 1 Physical
 - 2 Cognitive
 - 3 Technical
 - (c)0 The National Fire Academy's (NFA) Initial Response to Hazardous Materials Incidents, Course II: Concept and Implementation suggests breaking an incident into three components:
 - 1 _____
 - 2 _____
 - 3 _____
 - (d)0 Each of these should then be broken into three sub-groups:
 - 1 _____
 - 2 _____
 - 3 _____
 - (e)0 Additionally, incidents may have three elements that may occur separately or at the same time.
 - 1 _____
 - 2 _____
 - 3 _____

- (f)0 The estimate identifies the relationship between the three components of an incident and the three elements of an incident.
 - (g) Predictions should be based on _____.
 - (h) This analysis continues throughout the incident.
 - (i) When new information is gathered, old estimates should be verified for updating.
 - (j) _____
 - (k) _____
- (2)0 Toxicological terms and exposures values, and their significance in predicting the extent of health hazard **(5-2.2.2) (4-2.5.2.1)**
- (a) Immediately Dangerous to Life and Health value (IDLH)
 - 1 The maximum level to which a healthy worker can be exposed for _____ and escape without suffering irreversible health effects or impairment.
 - 2 This level of exposure should be avoided
 - 3 If you have to be exposed at this level wear a level A or B suit and SCBA.
 - 4 This limit is established by _____
 - (b)0 Lethal concentrations (LC50)
 - 1 The median lethal concentration of a hazardous material.
 - 2 The _____ of a material in air (inhalation route) that is expected to kill 50 percent of a group of test animals when administered for a specific time.

(c)0 Lethal dose (LD50) - A single dose that will cause the death of 50 percent of a group of test animals exposed to it by any route other than _____.

(d) Permissible exposure limit (PEL)

1 OSHA uses this term in its health standards covering exposures to _____.

2 The American Council of Governmental and Industrial Hygienists (ACGIH) uses TLV/TWA.

3 PEL, which generally relates to legally enforceable TLV limits, is the maximum concentration,

_____.

(e)0 Threshold limit value ceiling (TLV-C)

1 The _____ concentration to which a healthy adult can be exposed without risk of injury.

2 Comparable to the IDLH, exposures to higher concentrations should not occur, not even for an instant.

(f)0 Threshold limit value short-term exposure limit (TLV-STEL)

1 _____

_____.

2 Exposure should not occur more than _____ times a day with at least ____ hour between exposures.

(g)0 Threshold limit value, time-weighted average (TLV-TWA) - The maximum concentration, averaged over 8 hours, to which healthy adults can be repeatedly exposed for 8 hours per day, 40 hours per week.

(h) Parts per million (ppm), parts per billion (ppb)

1 The values used to establish the exposure limits above are quantified in parts per million or parts per billion.

- 2 1 percent equals 10,000 ppm, 1 percent equals 10,000,000 ppb
- 3 If you obtain a reading from a sampling instrument of 0.5 percent, it is equal to 5,000 ppm, or 5,000,000 ppb.
- 4 If you determine the TLV is 7,500 ppm, you can relate the reading from the instrument to determine the degree of hazard.

(i)0 Emergency response planning guide value (ERPG)

- 1 Value established by the American Conference of Governmental Industrial Hygienists (ACGIH) similar to Threshold Limit Value (TLV).
- 2 Values intended to provide estimates of concentration ranges where one might reasonably anticipate observing adverse effects as described in the definitions for ERPG-1, ERPG-2, and ERPG-3 as a consequence of exposure to the specific substance.
- 3 ERPG-1 - The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing other than mild transient adverse health effects or perceiving a clearly defined objectionable odor.
- 4 ERPG-2 - The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.
- 5 ERPG-3 - The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing life-threatening health effects.

(3)00 Radioactive materials and their significance in predicting health hazard
(5-2.2.3) (4-2.5.2.2)

(a) Alpha radiation

- 1 Not considered dangerous unless _____.
- 2 If ingested it will attack _____.
- 3 A sheet of paper will stop alpha penetration.

(b)0 Beta radiation

- 1 Beta particles can damage exposed skin tissue
- 2 Full protective clothing, including positive pressure self-contained breathing apparatus, will protect against MOST beta radiation.
- 3 1/24" aluminum will stop Beta penetration.

(c)0 Gamma radiation

- 1 _____
- 2 Protective clothing _____ prevent gamma radiation from harming the body.
- 3 3" of lead will slow down Gamma penetration.

(d)0 Half-life

- 1 _____
- 2 _____

(e)0 Time, distance, shielding

- 1 Methods of protecting oneself from harmful exposures to radiation.
- 2 Time
 - a The shorter the time of exposure, the lower the dosage.

b Exposures are _____; they add on each other.

30 Distance

a The farther the exposure, the lower the amount of radiation.

b If you double your distance from the source, the intensity is lowered by _____

40 Shielding

a Blocking radiation by using varying thicknesses of different materials.

b Use _____

(4)000 Methods of predicting potential harm within an area (5-2.2.4)

(a) Determine the toxicity of concentrations of a released hazardous material within the engulfed area

(b) _____ that persons in the area would be endangered

(c) _____ of that exposure

APPLICATION: N/A

EVALUATION: Interspersed throughout the lesson with the use of oral questions and written specific exam.

CONCLUSION

Time: 5 min

SUMMARY: Reemphasize the importance of analysis prior to implementation.

REMOTIVATION: The analysis you make of the overall situation, as well as the work being accomplished by your awareness and operations level personnel will be your responsibility as an Incident Commander.

ASSIGNMENT: N/A

CLOSURE: Let's press on with planning the response.

STUDENT STUDY GUIDE
PLANNING THE RESPONSE

INCIDENT COMMANDER
min

INTRODUCTION

TIME: 5

- ATTENTION: Establishing your game plan is the second most important step after gathering (analyzing) the facts. That's what this lesson is all about.
- REVIEW: You've learned how to analyze the fact's in awareness and operations lessons.
- OVERVIEW: This lesson will organize your objectives and verify those of your responders.
- MOTIVATION: This particular lesson will require a lot of attention as it does contain some technician level knowledge of which the IC needs in order to complement the responders.
- TRANSITION: Let's begin planning our objectives for the response.
-

BODY

TIME: 4 hour 50 min

SW X3AZR3E771 012-IV-04, ICS LessonPlan
HO X3AZR3E771 012-01 Glossary of Terms
NFPA 471/472 Handbook, Current Edition
NFPA 1561
Hazardous Materials for First Responders, Current Edition
Hazardous Materials, Managing the Incident, Current Edition

PRESENTATION:

300000004. PLANNING THE RESPONSE

- a. Given a scenario of facility and transportation hazardous materials incidents, describe the response objectives for the scenario with at least 80% accuracy. (5-3.1)

(1) Response Objectives (Strategies) based on _____ (5-3.1.1)
(4-3.1.1)

(a) The response objectives for hazardous materials technician includes _____ operations.

(b) Response objectives are based on:

1 _____

2 _____

3 _____

(c)0 Two basic principles apply to making your response objectives:

1 _____

2 _____

(d)0 Response objectives can include:

1 Modifying the _____ being applied to the container.

2 Changing the _____ of the breach

3 Changing the _____ being released

4 Changing the _____

5 Reducing exposures

6 Reducing the _____

(e)0 These objectives can be met either _____, _____, or through _____.

(2)0 Always insure you keep the "Big Picture insight. Don't allow yourself to become overwhelmed by one problem.

b.0 Given a transportation incident involving hazardous materials, identify the possible action options (defensive, offensive, and non-intervention) by response objective for each problem with at least 80% accuracy. **(5-3.2)**

(1) Potential Action Options **(5-3.2.1) (4-3.2.1)**

(a) Reference the Response Objective Analysis

(b) Options can be either _____ or _____.

(c) Two types of options available

1 _____ actions to resolve the immediate problem (offensive)

2 _____ actions taken to prevent the problem from escalating (defensive)

(d)0 Steps in determining potential response options (Tactics)

1 Base strategy on analysis

a Event sequence

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

b0 Response Objectives

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

200 Determine potential response options (Tactics) available by response objective (Strategy)

a Defensive - _____

b Offensive - _____

c Non-Intervention - no involvement

(e)00 Techniques for accomplishing response objectives (5-3.2.2)

1 Adsorption (472, 4-3.4.1) (471, 6-4.2.1)

a A chemical method of decontamination.

b Involves the interaction of a hazardous liquid and a solid sorbent surface.

c Adsorption produces heat and can cause spontaneous combustion.

d Adsorbents must be disposed of properly.

- e The sorbent surface is rigid and no volume increase occurs as is the case with absorbents. (activated charcoal, silica or aluminum gel, and clays)

20 Neutralization (472, 4-3.2.1) (471, 6-4.2.6)

- a They alter a contaminant chemically so that the resulting chemical is harmless.
- b Many neutralizers present hazards of their own.
- c One advantage is that by rendering the material harmless you reduce the problem of disposal. (Adding soda ash to an acidic solution can increase the pH, making it chemically harmless.)
- d Chemical reactions result in the release of heat and energy.
- e Only trained personnel should use neutralizers
- f Some states require certification in order to neutralize

30 Overpacking (472, 4-3.5.1) (471, 6-4.1.5)

- a Overpack drums are used to contain drums that have been temporarily fixed.
- b The most common form of overpacking is accomplished by the use of an oversized container.

40 Patch and Plug (472, 4-3.5.1) (471, 6-4.1.6)

- a The use of compatible plugs and patches to reduce or temporarily stop the flow of materials from small holes, rips, tears, or gashes in containers.
- b **CAUTION:** Be careful that you don't get an excessive amount of the hazardous material on you.

(2)000 Always keep safety of your personnel in mind.

c.0 Given scenarios with known and unknown hazardous materials and reference materials, identify the appropriate personal protective equipment with at least 80% accuracy. **(5-3.3)**

(1) Approving protective clothing for the specific action option **(5-3.3.1)**
(471, CH. 5)

(a) Level A - _____

1 The chemical substance has been identified and requires the highest level of protection for the skin, eyes and the respiratory system based on either:

a _____

b Site operations and work functions involving a high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates of materials that are harmful to skin or capable of being absorbed through the intact skin.

20 Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible.

3 Operations must be conducted in confined, poorly ventilated areas until the absence of conditions requiring Level A protection is determined.

(b)0 Level B - _____

1 The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection. This involves atmospheres:

a With IDLH concentrations of specific substances that do not represent a severe skin hazard; or

b That do not meet the criteria for use of air purifying respirators.

20 Atmosphere contains less than _____ percent oxygen.

3 Presence of incompletely identified vapors or gases is indicated by direct -reading organic vapor detection instrument, but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the skin.

(c)0 Level C - _____

1 The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin.

2 The types of air contaminants have been identified, concentrations measured, and a canister is available that can remove the contaminant.

3 All criteria for the use of air purifying respirators are met.

(d)0 Level D - _____

1 The atmosphere contains no known hazard.

2 Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

(2)00 Break-through of protective clothing **(5-3.3.2) (4-3.3.3.1)**

(a) Degradation - _____

1 Either _____ or _____

2 Results in an increased chance that a hazardous material will permeate and penetrate a garment.

3 Can be minimized by:

a Avoiding unnecessary contact with chemicals and rough surfaces

b Effective decontamination procedures

40 _____

5 Watch expected breakthrough times with duration of use.

(b)0 Penetration

1 _____

2 A regular inspection program is vital to preventing penetration incidents.

- seams, zippers, valves

(c)0 Permeation

1 Different fabrics have different resistance levels

2 All fabrics will absorb chemicals over a period of time

3 NFPA 1991, Standard on Vapor-Protective Suits for Hazardous Chemical Emergencies, requires documentation on permeation resistance for three hours for 21 specific chemicals.

4 NFPA 1992, Standard on Liquid Splash-Protective Suits for Hazardous Chemical Emergencies, and NFPA 1993, Standard on Support Function Protective Garments for Hazardous Chemical Operations, require the manufacturer provide documentation on a garment's permeation resistance for one hour to 7 specific chemicals.

5 Before buying CPC ensure it has been certified to the correct standard.

6 Watch expected breakthrough times with duration of use.

(3)00 Safety and Emergency Procedures for wearing protective clothing **(5-3.3.3)**
(4-4.2.1)

(a) _____ should be on
standby. **(29 CFR 1910.134)**

- (b) Establish_____ prior to starting operations.
- (c) Monitored personnel for the effects of heat
 - 1 Pre-entry vitals
 - 2 Times
 - a On air, in suit
 - b Rotational rest period (_____ . minimum)
- (d)00 A rehabilitation program should be used to ensure proper rest and recovery.
- (e) Command vests, cones, or colored lights are important features to identify the various sector commanders. All personnel need to know and be able to identify the safety officer.
- (f) Keep the basics in mind when positioning personnel and equipment (upwind, uphill, escape routes, etc.)
- (g) Identify_____ and_____. There is a need to monitor the hazard zones constantly to ensure that no bystanders enter the areas.
- (h) A security officer should be designated to maintain the overall site. Local law enforcement is a good source of security to handle this task.
- (i) Always ensure that all personnel in the incident area are in the proper level of protective clothing.
- (j) EMS Safety (**NFPA 473**)
 - 1 Ambulance personnel usually do not have SCBA
 - 2 Victims may be contaminated with poisons, pesticides, etc.
 - 3 Consider reactivity of materials with oxygen, and other medical materials

(k)0 Regardless of the situation, SAFETY is paramount. Mistakes at hazardous materials incidents usually produce irreversible results.

(4)0 Physical and Psychological stresses that affect the users of protective clothing **(5-3.3.4) (4-3.3.3.7)**

(a) Increased physical stress levels due to:

1 The higher the level of protection,
the _____

2 _____

3 _____

(b)0 Increased mental stress level due to:

1 Severity of incident

2 Combination of physical stresses

(c)0 The HMT receive should adequate rest and rehabilitation after wearing specialized protective clothing. (Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH)

(d) _____ before donning CPC will reduce some effects of excess heat.

(e) Critical Incident Stress Debriefing (CISD) requirements covered in ICS

(f) _____

d.00 Given a hazardous material scenario, identify the steps in developing a plan of action, with at least 80% accuracy. **(5-3.4)**

(1) Developing a plan of action based on the selected response options **(5-3.4.1) (4-3.5)**

(a) All personnel must be given a _____ prior to working on scene

(b) Within the capability of available

- 1 Personnel
 - 2 Personal protective equipment
 - 3 Control equipment
- (c)0 Hazardous materials control (4-3.5.1)
- 1 Select response option
 - 2 Adsorption
 - a The process in which a sorbet interacts with a solid sorbent surface.
 - b **CAUTION:** Spontaneous combustion can occur.
 - Activated charcoal, silica or aluminum gel, and clays.
 - 30 Neutralization
 - a The process of applying acids or bases to a spill to form a neutral salt.
 - b **CAUTION:** Ensure compatibility
 - Adding soda ash to an acidic solution can increase the pH, making it chemically harmless.
 - 40 Overpacking
 - a Overpack drums are used to contain drums that have been temporarily fixed.
 - b The most common form of overpacking is accomplished by the use of an oversized container.
 - 50 Plug and Patch

- a The use of compatible plugs and patches to reduce or temporarily stop the flow of materials from small holes, rips, tears, or gashes in containers.
- b **CAUTION:** Be careful that you don't get an excessive amount of the hazardous material on you.

60 Components for a typical plan of action:

- a _____
- b Entry objectives
- c _____
- d On-scene control
- e _____
- f Personal protective equipment
- g _____
- h Communications procedures
- i _____
- j _____

(2)000 Public Protective Actions (5-3.4.2)

(a) Evacuation

- 1 _____
- 2 _____
- 3 _____

(b)0 In place protection

- 1 _____
- 2 _____
- 3 Stay away from doors and windows
- 4 _____.

(3)00 Procedures and Agencies of Responsibility **(5-3.4.3)**

(a) Receive the initial notification and provides secondary notification and activation of response agencies

- 1 Fire
- 2 Law Enforcement
- 3 Command Post

(b)0 Makes on-going assessments of the situation, and commands on scene personnel-(Incident Commander)

(c) Coordinate support and mutual aid

- 1 Incident Commander
- 2 Liaison Officer

(d)0 Provide law enforcement and on scene security (crowd control, traffic control, and rerouting)

- 1 Law Enforcement
- 2 F. D. Personnel

(e)0 Provides resources for public safety protective action (evacuation or in place protection)

- 1 Disaster Preparedness
- 2 Law Enforcement
- 3 F. D. Personnel
- (f)0 Provide fire suppression services when appropriate
 - 1 F. D. Personnel
 - 2 Mutual Aid
- (g)0 Provide on scene medical assistance and medical treatment
 - 1 F. D. Personnel
 - 2 Logistics
- (h)0 Provide public notification and information
 - 1 _____
 - 2 Command Post
 - 3 Disaster Preparedness
 - 4 _____
 - 5 _____
- (i)0 On-scene communications support
 - 1 Communication/Command Post
 - 2 Logistics
- (j)0 On scene decontamination when appropriate
 - 1 F. D. Personnel

2 Disaster Preparedness

3 Hospital

(k)0 Operational level hazard control services

1 F. D. Personnel

2 Disaster Preparedness

3 Security Police

(l)0 Technician level hazard mitigation services

1 F. D. Personnel

2 Disaster Preparedness

(m)0 Environmental remedial action cleanup services

1 Bio environmental

2 Planning

3 Logistics

(4)00 Determining effectiveness of action plan **(5-3.4.4)**

(a) _____

(b) _____

(c) Prioritized response options based on their effect on the outcomes

1 _____

2 _____

3 _____

4 _____

(5)00 Presenting a Safety Briefing prior to personnel working in the hazardous area **(5-3.4.5) (4-3.5.2.1) (NFPA 471, CHAP 4)**

(a) Areas (procedures) to cover:

1 _____

2 Hazards risk analysis

3 _____

4 _____

5 Use of buddy system

6 _____

7 _____

8 Standard operating procedures

9 Safe work practices

10 Medical assistance

11 _____

12 Decontamination procedures (**NFPA 471, Chpt 4-1.3**)

13 Hazard monitoring plan

14 Other relevant topics

(b)0 Personnel to whom, briefing should be given

1 _____

2 Any other personnel who may play a role in the response that would involve the wearing of personal protective equipment or decon, (i.e.; EMS, Hosp, Sps)

3 Before entering hazardous area

a _____

- b _____
- c _____
- d _____
- e _____
- f _____

APPLICATION: N/A

EVALUATION: Intersperse oral questions throughout the lesson and administer specific written exam.

CONCLUSION

Time: 5 min

SUMMARY: Your planning must be based on a strong analysis of the incident

REMOTIVATION: Just like analyzing the incident, planning for the incident sets up the response for the action phase - implementation.

ASSIGNMENT: N/A

CLOSURE: Let's press on with implementing the response.

STUDENT STUDY GUIDE
IMPLEMENTING THE PLANNED RESPONSE

INCIDENT COMMANDER
min

INTRODUCTION

TIME: 5

ATTENTION: "Implementing the Planned Response" is like the point of no return. Mistakes at this stage of the incident, quite simply, can get responders killed!

REVIEW: We've analyzed, planned and now we must implement.

OVERVIEW: From the Incident Commander's point of view the implementation doesn't mean they get in suits and do the work - although trying it in a training environment wouldn't hurt. It means approving, verifying, and supporting the awareness, operations, and technician levels

MOTIVATION: Being in charge is not always fun or rewarding, but in a hazardous materials incident it could have very big legal ramifications. Don't let it intimidate you just be knowledgeable in your decisions and actions

TRANSITION: Let's take a look at implementing all that knowledge

BODY

TIME: 1 hr 20 min

ICS Lesson Plan
Glossary of Terms
Local Emergency Response Plan
NFPA 471/472 Handbook, Current Edition
NFPA 1561, Current Edition
Hazardous Materials for First Responders, Current Edition
Hazardous Materials, Managing the Incident, Current Edition

PRESENTATION:

400000005. IMPLEMENTING THE PLANNED RESPONSE

- a. Given the local emergency response plan, identify the requirements of the plan including the required procedures for notification and utilization of non-local

resources (private, state, and federal government personnel) with at least 80% accuracy. **(5-4.1)**

- (1) Obtaining clean-up and restoration services **(5-4.1.1)**
 - (a) Emergency contracts
 - (b) On-base capabilities
 - (c) Local Emergency Response Plan
 - (d) Standard Operating Procedures
- (2)0 Steps for implementing the local planned response as required under SARA Title III Section 303 **(5-4.1.2)**
 - (a) Understand the contents in the local emergency response plan
 - (b) Standard operating procedures
- (3)0 Emergency plan must address: **(5-4.1.3) (SUPP. 4, CHAP. 5)**
 - (a) _____
 - (b) _____
 - (c) Emergency recognition and prevention
 - (d) _____
 - (e) Security and control Zones
 - (f) _____
 - (g) _____
 - (h) Emergency medical care and procedures for alerting and response
 - (i) Critique response and follow up Procedures

(j) _____

(4)0 Elements of IMS necessary to coordinate response activities

(a) Purpose of the IMS

(b) System structure

1 Implementation

2 Interagency coordination

3 Command structure

4 Training and qualifications

(c)0 System components

1 Incident Commander: has the overall management responsibility for the incident

2 Command staff

a _____

b _____

c _____

30 Operations: _____

4 Planning: responsible for collection, evaluation, dissemination, and use of information about the development of the incident and status of resources

5 Logistics: Responsible for providing _____, and _____ for the incident

6 Finance: responsible for tracking all incident cost and evaluating the financial considerations of the incident

7 Communications

(d)0 Key Hazard Sector Functions within the Incident Command System (4-4.1.2)

1 Safety (A-3-4.2.6 and Supplement 7)

a _____.

b Must be knowledgeable of emergency response operations

c Specific responsibilities:

1 _____

2 _____

200 Entry/reconnaissance

a Gather info. about incident layout

b Develop a checklist of the following items:

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 Number, type, and condition of containers

c0 An entry officer may supervise hot zone activities

d Falls under Hazard Group supervisor

30 Information/research

a Responsible for developing, documenting, and coordinating incident information.

b Should include _____ considerations and protective clothing and equipment selection.

40 Resources (Logistics)

a Responsible for keeping track of available _____.

b Should be kept at a staging area until assigned.

c Coordinate with operations officer.

50 Decontamination - Responsible for the operations of the decontamination unit.

6 Operations

a Responsible for the primary mission activities.

b Allocates and assigns resources

70 Hazard Sector Officer

a Also referred to as the hazardous materials group supervisor

b Responsible for implementing the plan of action

c Oversees Entry/reconnaissance and decon

(e)00 Roles and responsibilities

- 1 Incident commander
- 2 Supervisory personnel
- 3 Personnel accountability
- 4 Rest and rehabilitation

(5)00 Primary local, state, regional, federal government agencies and their regulatory scope **(5-4.1.5)**

(6) Resources available to the IC, Two types: **(5-4.1.6)**

(a) Government

- 1 _____
- 2 _____
- 3 _____
- 4 _____

(b)0 Private Sector

- 1 _____
- 2 Contractors/Consultants

b.000 Given a simulated hazardous materials incident and the necessary resources to implement the planned response, demonstrate the ability to direct the resources in a safe and efficient manner with at least 80% accuracy. **(5-4.2)**

(1) Terminating a hazardous material incident **(5-4.2.1)**

(a) Involves documenting activities

- 1 Comply with local, state, and federal regulations on reporting and documenting the incident
- 2 Include post incident critique comments and adjustments to the plan

(b)0 Complete the Air Force reporting procedures

1 Helps future responses

2 Assists in developing a data trail

(2)00 Steps in terminating (5-4.2.1.1)

(a) Incident Debriefing

(b) Critique the Incident

1 _____

2 _____

(c)0 After action activities

1 Analyzing information gathered during debriefing and critique

2 Documenting that analysis

3 Follow up to ensure recommendations made are implemented to improve emergency response operations

(3)00 Procedures for Incident debriefing (5-4.2.1.2)

(a) _____

(b) _____

(c) _____

(d) _____

(4)0 Transferring Authority of the Emergency (5-4.2.1.3)

- (a) One officer to one of higher authority
 - (b) From the _____ phase to the _____ phase
 - (c) The procedure should be identified in the incident management systems standard operating procedures and local emergency response plan.
- c.00 Given a simulated hazardous materials incident, identify appropriate information to provide to the media and local, state, and federal officials with at least 80% accuracy. **(5-4.3)**
- (1) Providing information to the media **(5-4.3.1)**
 - (a) Standard operating procedures should outline this procedure
 - (b) Information must be accurate and can assist in possible public evacuations, or protective actions
 - (c) Releasing information to the public
 - 1 Initial report
 - 2 Regular updates
 - 3 Final report
 - (2)00 Responsibilities of public information officer **(5-4.3.2)**
 - (a) _____
 - (b) Establishes a safe press area
 - (c) _____
 - (d) Generally the Public Affairs Officers responsibility
 - (e) _____

APPLICATION: N/A

EVALUATION: Interspersed throughout the lesson with the use of oral questions and administer specific written exam.

CONCLUSION

Time: 5 mins

SUMMARY: Remember that the incident command structure that you will teach may be tailored to your specific location.

REMOTIVATION: Analyzing the incident and planning for the incident sets the stage. Implementing the planned response carries out that effort.

ASSIGNMENT: N/A

CLOSURE: Let's Evaluate our progress.

STUDENT STUDY GUIDE
EVALUATING PROGRESS

INCIDENT COMMANDER
min

INTRODUCTION

TIME: 5

ATTENTION: Evaluating the response will keep you, the incident commander, from needlessly endangering the responders that you are responsible for.

- REVIEW: Having covered the goals, analyzing the problem, planning the response, and implementation of the planned response it's time to put it into a complete package.
- OVERVIEW: Evaluating the progress is basically the same step you find in any management style. You always need to evaluate what you have done to determine, Is it working?, Is there a better or easier way? or What changes need to be made.
- MOTIVATION: Not doing this step each and every time or not doing it well makes all the previous effort expended almost worthless. You owe it to yourself and all the other responders to complete the process and wrap the incident up professionally.
- TRANSITION: It's time to evaluate the progress both of the incident commander lesson and of our progress through this course.

BODY

TIME: 6 hr 50 min

USE:

ICS Lesson Plan

Glossary of Terms

NFPA 471/472 Handbook, Current Edition

NFPA 1561

Hazardous Materials, Managing the Incident, Current Edition

Hazardous Materials for First Responders, Current Edition

PRESENTATION:

500000006. EVALUATING PROGRESS

- a. Given scenarios of facility and transportation hazardous materials incidents, evaluate the progress of the plan of action to determine whether the efforts are accomplishing the response objectives with at least 80% accuracy. **(5-5.1)**
 - (1) Procedures evaluating whether the action options are effective in accomplishing the objectives **(5-5.1.1)**

- (a) _____
- (b) _____
- (c) _____
- (d) _____
- (e) _____

(f) Feedback should include some of the following; **(5-5.1.3)**

- 1 Effectiveness of personnel
- 2 Appropriateness of personnel protective clothing and equipment
- 3 Size of control zones
- 4 Decon procedures

(2)00 Comparing actual behavior of the material and container to predicted behavior **(5-5.1.2)**

(a) The IC must ask the following questions about the event

- 1 _____
- 2 _____
- 3 _____
- 4 _____

(b)0 These questions should be continuously asked until incident termination

b.00 Given a simulated hazardous materials incident, demonstrate the ability to report and document the incident with at least 80% accuracy. **(5-5.2)**

- (1) Reporting requirements of federal, state and local agencies **(5-5.2.1)**
 - (a) Should be outlined in agency's SOP's
 - (b) It is the IC's responsibility to ensure proper agencies have be notified
 - 1 This may be delegated
 - 2 Bio-environmental or Disaster Preparedness may do this
- (2)00 Importance of Documentation **(5-5.2.2)**
 - (a) Types of documentation
 - 1 Training records
 - 2 Exposure records
 - 3 Incident reports
 - 4 Critique reports
 - (b)0 Can prove to be a great asset if claims are made against the incident
 - 1 May take years to surface yet you'll be required to remember everything
 - 2 Be sure reports are accurate and complete
- (3)00 Keeping an activity log and exposure records **(5-5.2.3)**
 - (a) Assign someone to keep a log of incident events to include personal exposure records
 - 1 Helpful in completing the incident analysis and conducting the critique
 - 2 Exposure records are federally required as per **29 CFR 1910.120(f)(8)**

(b)0 Assign someone to gather the necessary information about:

- 1 _____.
- 2 _____
- 3 _____
- 4 _____
- 5 _____

(4)00 Requirements for compiling and filing hazardous materials incident reports IAW local plans **(5-5.2.4) (5-5.2.5)**

(a) Compiling **(5-5.2.4)**

- 1 The ultimate responsibility lies on the IC
- 2 Often accomplished by Information /Research

(b)0 Filing (5-5.2.5)

- 1 IAW with local, state, federal requirements
- 2 Addressed in pre-planning documents

c.000 Given the details of a simulated hazardous materials incident conduct a critique of the incident with at least 80% accuracy. **(5-5.3)**

(1) Procedure for conducting a multi-agency critique **(5-5.3.1)**

(a) Initial meeting to determine who should be involved

- 1 Ensures no one is overlooked
- 2 Allows for proper representation for each agency

(b)0 Purpose

- 1 Review incident to identify and document lessons learned
- 2 Review activities and determine what worked and what didn't

(2)00 Critique process should be _____

(3) _____

(4) Participant critique

(5) Operations critique

(6) Session critique

(7) Characteristics of a critique

d.0 Given emergency scenarios of various sizes, types, and complexities, as a team, apply the IMS principles, within 60 minutes with 9 out of 9 evaluation elements identified correctly.

(1) Using a hazardous materials scenario, a team will organize a response using the eight step process and simulate the following

(a) _____

(b) _____

(c) Accomplish hazard and risk evaluation

(d) _____

(e) _____

(f) Implement response objectives

(g) _____

(h) _____

(2)0 _____ (*Step One of the "Eight-Step Process)* **(Managing the Incident, Chapter 5)**

- (a) Assuming command and establishing control of the incident scene
- (b) Assuring safe approach and positioning of emergency response resources at the incident scene
- (c) _____
- (d) _____
- (e) Establishing hazard control zones to assure a safe work area for emergency responders and supporting resources
- (f) Sizing up the need for immediate rescue and implementing initial public protective actions

(3)0 _____ (*Step Two of the "Eight-Step Process)* **(Managing the Incident, Chapter 6)**

- (a) Basic principles of recognition, identification, classification and verification at a hazardous materials emergency
 - 1 Survey the incident
 - a Recognition
 - b Identification
 - c Classification
 - 20 Verification

(b)0 Determine seven methods of identifying hazardous materials

1 _____

2 _____

a Non-bulk

b Bulk

c Facility Containment Systems

30 _____

a Facility Markings

1 _____

2 _____

b0 Bulk Packaging and Transportation Markings

1 _____

2 Railroad Tank Car Markings and Colors

3 _____

4 Intermodal Portable Tank Markings

c0 Pipelines

40 Non-bulk Package Markings

a Agricultural Chemicals and Pesticide Labels

b Regulatory Markings

c Labels

d Special Labels

50 Shipping Papers and Facility Documents

a Shipping Paper Requirements

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____

b0 Shipping Papers - Additional Entries

- 1 _____
- 2 Not Otherwise Specified (N.O.S.) Notations
- 3 Subsidiary Hazard Class
- 4 _____
- 5 Marine Pollutant
- 6 EPA Waste Stream Number
- 7 EPA Waste Characteristic Number
- 8 _____
- 9 Poison Notation
- 10 Poison-Inhalation Hazard (PIH) Notation
- 11 _____
- 12 Dangerous When Wet Notation
- 13 Limited Quantity (LTD QTY)
- 14 _____

15 Trade Name

16 _____

17 Shipper Contact

c0 Shipping Papers - Emergency Response Information

d Facility Documents

e Monitoring

60 _____

7 _____

(c)0 Basic Designs and Construction Features of Bulk Packages, Non-Bulk Packages, and Storage Vessels

1 Fixed Tanks, Storage Tanks

2 Tank Containers (Intermodal portable tanks)

3 Piping

4 Railroad tank cars

5 Cargo tanks (Tank trucks and trailers)

6 Carboys

7 Cylinders

8 Drums

(d)0 Types of Railroad Tank Cars

1 Ton-pressure tank cars with and without expansion domes

2 _____

3 _____

4 High pressure tube cars

5 _____

(e)0 Types of Intermodal Tank Containers

1 _____

2 _____

3 DOT Spec. 51 portable tank

4 Specialized intermodal tank containers, including cryogenic intermodal tank containers and tube modules

5 Types of Specialized Marking Systems found at all Fixed Facilities

(f)0 DOT Specification Markings for Bulk and Non-bulk Packaging, and their significance in identifying the design and construction of the packaging and the types of Hazardous Materials likely found

(g) Pipeline Identification

1 _____

2 _____

3 _____

4 _____

(h)0 Identify and Describe Placards, Labels, Markings, and Shipping Documents used for the Transportation of Hazardous Materials

(4)0 Hazard and Risk Evaluation (*Step Three of the "Eight-Step Process"*)
(Managing the Incident, Chapter 7)

(a) Describe the Concept of Hazard Assessment and Risk Evaluation
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- 1 Hazardous nature of material(s) involved
- 2 _____
- 3 Containment system and type of stress applied to the container
- 4 _____
- 5 _____

(b)0 Describe the Common Hazard Terms found in Hazard Information Sources and their significance in a Hazardous Materials Incident.

- 1 General terms and definitions
- 2 Identification Terms
- 3 _____
- 4 _____
- 5 Health hazards
- 6 _____
- 7 _____
- 8 Corrosivity hazards
- 9 _____

(c)0 Identify the types of hazard and response information available from each of the following resources and explain the advantages and disadvantages of each resource:

- 1 Reference Manuals
- 2 Technical Information Specialists
- 3 Hazard Communication and Right-to-Know Regulations

- 4 Technical Information Centers
 - a Emergency response information
 - b Chemical industry mutual aid network
 - c Non-emergency information
- 50 Hazardous Materials Data Bases
- 6 Material Safety Data Sheets (MSDS)
- 7 Monitoring instruments

(d)0 Types of monitoring equipment used to determine:

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____

(e)0 Limiting factors associated with the selection and use of monitoring equipment:

- 1 Carbon monoxide meter

- 2 Colormetric detector tubes
- 3 Combustible gas indicator (CGI)
- 4 Oxygen meter
- 5 pH paper, meters, and strips
- 6 Passive dosimeter
- 7 Radiation detection instruments

(f)0 Steps in an analysis process for identifying unknown materials

(g) Identify and describe the components of the General Hazardous Materials Behavior Model

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____

(h)0 Identify the Guidelines for performing a damage assessment of a pressurized container

(i) Factors which influence the underground movement of hazardous materials in soil and through groundwater

(j) Hazards associated with the movement of hazardous materials in types of sewer collection systems

- 1 Storm sewers
- 2 Sanitary sewers
- 3 Combination sewers

- (k)0 Five site safety procedures for handling an emergency involving a hydrocarbon spill into a sewer collection system
- (l) Steps for Determining Strategic Goals and Tactical Response objectives for a hazardous materials incident
- (5)0 Select Personal Protective Clothing and Equipment (*Step Four of the "Eight-Step Process" (Managing the Incident, Chapter 8)*)
 - (a) Terms and their impact and significance on the selection of chemical protective clothing:
 - 1 _____
 - 2 _____
 - 3 _____
 - 4 _____
 - 5 _____
 - (b)0 Three Indications of material degradation of chemical protective clothing
 - (c) Differences between limited-use and multi-use chemical protective clothing materials
 - (d) Identify the process and factors to be considered in selecting the proper level of respiratory protection at a hazardous materials incident
 - (e) Advantages, limitations, and proper use of types of respiratory protection at hazardous materials incidents:
 - 1 Air purifying respirators
 - 2 Atmosphere supplying respirators
 - a Self-contained Breathing Apparatus (SCBA)
 - b Supplied Air Respirator (SAR)

- (f)00 Identify the operational components of the air purifying respirators and supplied air respirators by name, and match the function of the component
- (g) Advantages, limitations, and proper use of structural firefighting clothing at a hazardous materials incident
- (h) Four levels of chemical protection (EPA/NIOSH), the equipment required for each level, and the conditions under which each level is used
 - 1 Level A
 - 2 Level B
 - 3 Level C
 - 4 Level D

(6)00 _____ (*Step Five of the "Eight-Step Process" (Managing the Incident, Chapter 9)*)

- (a) Define Terms as related to the function of Information Management:
 - 1 Information
 - 2 Data
 - 3 Facts
- (b)0 Types of information required to safely and effectively manage a hazardous materials incident
 - 1 _____
 - 2 _____
 - 3 _____
 - 4 _____

(c)0 Criteria for Evaluating hazardous materials information management systems for field applications

(d) Hazardous Materials Branch Functions required to Manage Information at a hazardous materials incident

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

(e)0 Define the term "Resources" as related to the function of resource coordination

1 Human Resources

2 Equipment Resources

3 Supply Resources

(f)0 Describe the process and procedures for coordinating internal and external resource groups at a hazardous materials incident

1 Internal

2 External

(g)0 Three techniques for improving coordination and communications with internal and external resource groups

1 Most resource coordination problems fall into three categories:

- a Failure to understand or work within the structure of the Incident Management System
 - b Given the type and nature of the incident, failure to anticipate potential problems and "gaps" in information and resources
 - c Communications and personality problems between the players
- 1 _____
 - 2 _____
 - 3 _____
 - 4 _____

(7)0000 _____ (Step Six of the "Eight-Step Process) (Managing the Incident, Chapter 10)

(a) Describe the process of size-up as a method of determining the strategic and tactical options available to produce a favorable outcome at a hazardous materials incident

- 1 Understanding Events
- 2 Producing Good Outcomes
 - a Past Events
 - b Present Events
 - c Future Events

(b)00 Definition of terms:

- 1 Strategic Goals
- 2 Tactical Objectives

- (c)0 Objectives and dangers of search and rescue operations at a hazardous materials incident
- (d) Factors for selecting and evaluating response objectives to achieve the following strategic goals:

- 1 Rescue
 - a Technical Rescues
 - b Risk Taking
- 20 Public Protective Actions
- 3 _____
- 4 _____
- 5 _____
- 6 _____

- (e)0 Application, advantages, and limitations of the following methods of spill control:

- 1 _____
- 2 _____
- 3 Covering
- 4 _____
- 5 _____
- 6 _____
- 7 _____
- 8 Dispersion
- 9 _____
- 10 Vapor Dispersion

11 _____

(f)0 Application, advantages, and limitations of the following methods of leak control:

1 Neutralization

2 Overpacking

3 Plugging and Patching

4 Solidification

5 Vacuuming

(g)0 Application, advantages, and limitations of fire control operations for the following emergencies:

1 Flammable liquids

a Hazard and Risk Evaluation

b Tactical Objectives

20 Flammable Gases

a Hazard and Risk Evaluation

b Tactical Objectives

30 Reactive chemical fires and reactions

a Hazard and Risk Evaluation

b Tactical Objectives

(h)00 Factors to be considered in evaluating a confined space rescue (**29 CFR 1910.146**)

(i) Safety considerations for product removal and transfer operations, including:

- 1 Site safety guidelines
- 2 _____
- 3 _____
- 4 _____
- 5 Chemical compatibility issues

(j)0 Application, advantages, and limitations of the following product transfer methods:

- 1 Portable pumps
- 2 Pressure differential
- 3 Vacuum trucks

(8)00 _____ (*Step Seven of the "Eight-Step Process"*)
(Managing the Incident, Chapter 11)

(a) Definition of Terms:

- 1 Contaminant
- 2 Contamination
- 3 Decontamination (decon)
- 4 Decontamination Corridor
- 5 Decontamination Officer
- 6 Technical Decontamination

- 7 Emergency Decontamination
- (b)0 Define surface and permeation contamination and their significance in decontamination operations
 - 1 Surface Contaminants
 - 2 Permeation Contaminants
- (c)0 Describe the difference between direct contamination and cross contamination and their significance in site safety operations
 - 1 Direct Contamination
 - 2 Cross Contamination
- (d)0 Describe the potential harmful effects of the following terms on the human body relating to contamination:
 - 1 Highly acute toxicity contaminants
 - 2 Moderate to highly chronic toxicity contaminants
 - 3 Embryotoxic contaminants
 - 4 Allergenic contaminants
 - 5 Flammable contaminants
 - 6 Highly reactive or explosive contaminants
 - 7 Etiologic contaminants
 - a Virulence
 - b Dose
 - c Physical Environment
 - d ERP's Health Status
 - 80 Radioactive contaminants

(e)0 General Decontamination Methods

1 Physical Methods

a _____

b _____

c Absorption and adsorption

d _____

e Blowing and vacuuming

f _____

20 Chemical Methods

a Chemical degradation

b _____

c Solidification

d _____

(f)00 Three methods for evaluating the effectiveness of decontamination

1 _____

2 _____

3 _____

(g)0 Duties and responsibilities of the Decontamination Officer

1 _____

2 _____

3 decon team, including decon area set-up, decon methods and procedures, staffing, and protective clothing requirements

4 Coordinate decon operations with the Entry Officer and other personnel within the Hazardous Materials Branch

5 Coordinate the transfer of decontaminated patients requiring medical treatment and transportation with the Hazardous Materials Medical Group

6 _____

7 Monitor the effectiveness of decon operations

8 _____

(h)0 Basic criteria for selecting the decontamination site

(i) General conditions which require an Emergency Decontamination

(j) Nine General stations in the decontamination sequence for conducting field decontamination

1 Establish an _____ and handle emergency decontamination as necessary

2 Technical Decon

3 _____

4 Removal and isolation of PPE

5 _____

6 Wash the body

7 Dry off the body and put on clean clothing

8 _____

9 _____

(k)0 Definition of terms:

- 1 Gross decontamination
- 2 Secondary decontamination
- (l)0 Three types of fixed or engineered safety systems which may be used to assist ERP in decontamination within special hazardous materials facilities
 - 1 Positive and negative pressure atmospheres
 - 2 Safety showers
 - 3 Emergency eyewash fountains
 - 4 Fixed ventilation systems
- (m)0 Four general emergency medical concerns when handling a contaminated patient
- (n) Define "Infection Control" as it applies to Decontamination
- (o) Define the following terms as they relate to infection control:
 - 1 Body Fluids
 - 2 Contaminated
 - 3 Disinfection
 - 4 Exposure
 - 5 Fluid-resistant clothing
 - 6 Leakproof bags
 - 7 Medical gloves
 - 8 Medical waste
 - 9 Mucous Membrane
 - 10 Sharps container
 - 11 Splash-resistant eyewear

12 Sterilization

13 Universal precautions

(p)0 Define the term "Clean-up" as it applies to decontamination

(q) Four general clean-up concerns when decontaminating equipment

(9)0 _____ (Step Eight of the "Eight-Step Process")
(Managing the Incident, Chapter 12)

(a) Identify the need to conduct effective incident termination activities

(b) Three basic phases of Incident Termination

1 _____

2 _____

3 _____

(c)0 On-scene incident debriefing procedures and their significance in terminating a hazardous materials incident

1 Health information

2 Equipment and apparatus exposure review

3 Provide a follow-up contact person

4 Identify problems requiring immediate action

(d)0 Post-Incident analysis as a method of documenting incident activities

1 Command and Control

2 Tactical Operations

3 Resources

4 Support Services

5 Plans and procedures

6 Training

(e)0 Regulatory reporting requirements of federal, state, and local agencies

(f) Importance of documentation for a hazardous materials incident including training records, exposure records, incident reports, and critique reports

(g) Procedures for conducting a critique of a hazardous materials incident

1 _____

2 _____

3 _____

APPLICATION: Students will practice a scenario pertinent to their location.

EVALUATION: Interspersed throughout the lesson with the use of oral questions, specific exam, skills test, and CerTest

CONCLUSION

Time: 5 min

SUMMARY: Evaluating the progress of a hazardous materials response should provide you with the input to decide whether or not you stay, or pull your responders out. Remember, avoid a no win situation

REMOTIVATION: Wrapping up the entire incident correctly and completely is important to ensure lessons learned are implemented before the next response.

ASSIGNMENT: N/A

Courtesy of HQ AFRC/CEXF

CLOSURE: Its time for the CerTest and then the last block of instruction.