# Hazardous Materials/ Weapons of Mass Destruction Incident Command

HMWMDIC-Student Manual

*2nd Edition, 2nd Printing-September 2024*

FEMA/USFA/NFA
HMWMDIC-SM
September 2024
2nd Edition, 2nd Printing

# *Hazardous Materials/Weapons of Mass Destruction Incident Command*

FEMA

# Hazardous Materials/ Weapons of Mass Destruction Incident Command

## HMWMDIC-Student Manual

*2nd Edition, 2nd Printing-September 2024*

FEMA

This page intentionally left blank.

## TABLE OF CONTENTS

This page intentionally left blank.

## ACKNOWLEDGMENTS

The development of any National Fire Academy (NFA) course is a complex process aimed at providing students the best possible learning opportunity we can deliver.

There are many players in the course development, each of whom plays an equally important part in its success. We want to acknowledge their participation and contribution to this effort and extend our heartfelt thanks for making this quality product.

The following people participated in the creation of this course:

Dave Donohue
Hazardous Material Training Specialist
U.S. Fire Administration, National Fire Academy
Emmitsburg, Maryland

Susan Denning
Instructional Systems Specialist
U.S. Fire Administration, National Fire Academy
Emmitsburg, Maryland

Michael Wallace, Project Manager
Cathy Yoder, Quality Manager
VS4S, LLC
Austin, Texas

Andy Byrnes, Subject Matter Expert
Professor, Utah Valley University
Salem, Utah

David Matthew, Subject Matter Expert
Brandon Fire Department
Wichita, Kansas

Michael Mennella, Subject Matter Expert
Captain/Hazardous Material Specialist
Nesconset, New York

Kayleen Holt, Sr. Instructional Designer
Jason Sanger, Instructional Designer
Maureen Boland, Instructional Designer
Scissortail Creative Services, LLC
Tuttle, Oklahoma

Heather Lorimer
Volusia County Fire Rescue
Florida

This page intentionally left blank.

## COURSE DESCRIPTION

This six-day course focuses on the duties and responsibilities of personnel who may assume or support the role of Incident Commander (IC) in hazardous materials emergencies.

After developing an initial plan of action, students will implement a risk-based response, during which they will analyze multiple incidents involving hazardous materials/weapons of mass destruction (WMD) to assess risks, develop an Incident Action Plan (IAP), evaluate the effectiveness of the plan, and either terminate or transfer command.

The student's knowledge of the subject is evaluated through activities and graded scenarios.

Topics include:

- Fundamentals of the Incident Command System (ICS) as defined by the National Incident Management System (NIMS).
- Fundamentals of a risk-based response to hazardous materials/WMD incidents.
- Implementation of a risk-based response to incidents of varying complexity and severity.
- Evaluation of an IAP for a hazardous materials/WMD incident.

Pre-course requirements:

- ICS-200 level is required. Preferred courses are "ICS-100: An Introduction to the Incident Command System" (Q0462) and "ICS-200: Basic Incident Command System for Initial Response" (Q0463) (available through NFA Online).
- Departments must certify applicants as hazardous materials operations level trained.
- Federal Emergency Management Agency (FEMA) ICS Forms Self-Study Course (IS-200).
- Emergency management personnel must be certified by their jurisdiction as part of the Emergency Operations Center (EOC) staff.
- Students should be familiar with their local emergency response plan.
- Students must complete pre-course work.

## COURSE GOAL

Students will be able to successfully coordinate and manage the hazardous materials/WMD incident by implementing a risk-based response. They will be able to manage available resources to reduce the risk to responders, community members, property and the environment.

## AUDIENCE, SCOPE AND COURSE PURPOSE

The target audience is:

- Personnel who may be called upon to assume or support the duties of the IC at hazardous materials incidents as described in 29 Code of Federal Regulations (CFR) 1910.120, and National Fire Protection Association (NFPA) 470, *Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders*.

- Personnel who may be called upon to assume the duties of the Safety Officer at hazardous materials incidents as described in 29 CFR 1910.120 and NFPA 470.

- Personnel who may be called upon to assume or support the duties of the IC at hazardous materials incidents per organizational standard operating guidelines (SOGs).

- Personnel who may be called upon to assume the duties of the Safety Officer at hazardous materials incidents per organizational SOGs.

- Departmental training officers, chief officers, company officers and regularly acting officers, or those who may support them.

- Personnel who would support emergency response personnel through EOC operations.

## GRADING METHODOLOGY

- Activity 1.4, Part 2: Standard of Care Assessment — 20%.
- Activity 2.6, Part 2: Develop an Incident Action Plan — 20%.
- Activity 3.1: Initial Operational Period — 20%.
- Activity 4.3: Multi-Operational Period — 20%.
- Activity 5.2: Incident Termination — 20%.

Other activities are unscored, but students will be provided feedback.

## GRADING RUBRICS

## ACTIVITY 1.4, PART 2

## STANDARD OF CARE ASSESSMENT

Instructor: _____

Group: _____

| Category | Unsatisfactory 1 point | Needs improvement 2 points | Meets objective 3 points | Exceeds objective 4 points | Score |
|---|---|---|---|---|---|
| **Collaboration with peers** | Rarely listens to, shares with and supports the efforts of others in the group. Often is not a good team member. | Often listens to, shares with and supports the efforts of others in the group but sometimes is not a good team member. | Usually listens to, shares with and supports the efforts of others in the group. Does not cause "waves" in the group. | Almost always listens to, shares with and supports the efforts of others in the group. Tries to keep people working well together. | ___/4 |
| **Comprehension** | Student is unable to accurately answer questions posed about the concept/process. | Student is able to accurately answer a few questions posed about the concept/process. | Student is able to accurately answer most questions posed about the concept/ process. | Student is able to accurately answer almost all questions posed about the concepts/process. | ___/4 |
| **Stays on topic** | It was hard to tell what the topic was. | Stays on topic some of the time. | Stays on topic most of the time. | Stays on topic all of the time. | ___/4 |
| **Impact of component on the standard of care** | Does not explain importance of component. | Sometimes does not appear to be explaining the importance of the component. | Mostly explains the importance of the component. | Directly explains the importance of the component with supporting facts. | ___/4 |
| | | | | **Total score:** | ___/16 |

This page intentionally left blank.

## ACTIVITY 2.6, PART 2

## DEVELOP AN INCIDENT ACTION PLAN

Instructor: _____

Group: _____

| Category | Unsatisfactory 1 point | Needs improvement 2 points | Meets objective 3 points | Exceeds objective 4 points | Score |
|---|---|---|---|---|---|
| **Determine appropriate resource needs** | Resources were not appropriately determined. | Resources minimally determined to meet incident objectives. | Resources adequately determined to meet incident objectives. | Resources fully determined to meet incident objectives. | ___/4 |
| **Accountability of resources and personnel** | Resources and personnel not accountable. | All resources and personnel accountability minimally recognized. | All resources and personnel accountability adequately recognized. | All resources and personnel accountability fully recognized. | ___/4 |
| **Documentation of utilized resources** | No documentation of utilized resources. | Utilized resources minimally documented for incident. | Utilized resources adequately documented for incident. | All utilized resources fully documented for incident. | ___/4 |
| **Resource tracking** | No tracking of resources. | Minimal resources tracked for incident. | Resources tracked adequately for incident. | All resources tracked in full for incident. | ___/4 |
| **Incident strategy documentation** | No documentation of incident strategies. | Minimal incident strategies documented for incident. | Incident strategies adequately documented for incident. | All incident strategies fully documented for incident. | ___/4 |
| | | | | **Total score:** | ___/20 |

This page intentionally left blank.

## ACTIVITY 3.1

## INITIAL OPERATIONAL PERIOD

Instructor: _____

Group: _____

| Category | Unsatisfactory 1 point | Needs improvement 2 points | Meets objective 3 points | Exceeds objective 4 points | Score |
|---|---|---|---|---|---|
| **Determine appropriate resource needs** | Resources were not appropriately determined. | Resources minimally determined to meet incident objectives. | Resources adequately determined to meet incident objectives. | Resources fully determined to meet incident objectives. | ___/4 |
| **Accountability of resources and personnel** | Resources and personnel not accountable. | All resources and personnel accountability minimally recognized. | All resources and personnel accountability adequately recognized. | All resources and personnel accountability fully recognized. | ___/4 |
| **Documentation of utilized resources** | No documentation of utilized resources. | Utilized resources minimally documented for incident. | Utilized resources adequately documented for incident. | All utilized resources fully documented for incident. | ___/4 |
| **Resource tracking** | No tracking of resources. | Minimal resources tracked for incident. | Resources tracked adequately for incident. | All resources tracked in full for incident. | ___/4 |
| **Incident strategy documentation** | No documentation of incident strategies. | Minimal incident strategies documented for incident. | Incident strategies adequately documented for incident. | All incident strategies fully documented for incident. | ___/4 |
| | | | | **Total score:** | ___/20 |

This page intentionally left blank.

## ACTIVITY 4.3

## MULTI-OPERATIONAL PERIOD

Instructor: _____

Group: _____

| Category | Unsatisfactory 1 point | Needs improvement 2 points | Meets objective 3 points | Exceeds objective 4 points | Score |
|---|---|---|---|---|---|
| **Determine appropriate resource needs** | Resources were not appropriately determined. | Resources minimally determined to meet incident objectives. | Resources adequately determined to meet incident objectives. | Resources fully determined to meet incident objectives. | ___/4 |
| **Accountability of resources and personnel** | Resources and personnel not accountable. | All resources and personnel accountability minimally recognized. | All resources and personnel accountability adequately recognized. | All resources and personnel accountability fully recognized. | ___/4 |
| **Documentation of utilized resources** | No documentation of utilized resources. | Utilized resources minimally documented for incident. | Utilized resources adequately documented for incident. | All utilized resources fully documented for incident. | ___/4 |
| **Resource tracking (per IAP)** | No tracking of resources. | Minimal resources tracked for incident. | Resources tracked adequately for incident. | All resources tracked in full for incident. | ___/4 |
| **Incident strategy documentation** | No documentation of incident strategies. | Minimal incident strategies documented for incident. | Incident strategies adequately documented for incident. | All incident strategies fully documented for incident. | ___/4 |
| | | | | **Total score:** | ___/20 |

This page intentionally left blank.

## ACTIVITY 5.2

## INCIDENT TERMINATION

Instructor: _____

Group: _____

| Category | Unsatisfactory 1 point | Needs improvement 2 points | Meets objective 3 points | Exceeds objective 4 points | Score |
|---|---|---|---|---|---|
| **Determines incident or emergency response termination** | Unable to determine incident or emergency response termination activities. | Minimally determines incident or emergency response termination activities. | Adequately determines incident or emergency response termination activities with satisfactory explanation. | Fully determines incident or emergency response termination activities with detailed explanation. | ___/4 |
| **Develops appropriate incident demobilization plan** | No incident demobilization plan developed. | Demobilization plan has limited information. | Demobilization plan has adequate information. | Demobilization plan is fully developed. | ___/4 |
| **Develops incident objectives** | No objectives developed for the incident. | Incident objectives are minimally developed. | Incident objectives are adequately developed. | Incident objectives are fully developed. | ___/4 |
| **Assigns appropriate resources** | No resources assigned for termination. | Resources minimally assigned to meet incident objectives. | Most resources appropriately assigned to meet incident objectives. | Resources appropriately assigned to meet incident objectives. | ___/4 |
| **Documents appropriate actions on IAP** | No documentation found on IAP. | IAP is documented with minimal appropriate actions; some actions may be missing. | IAP is adequately documented with appropriate actions. | IAP is fully documented with appropriate actions. | ___/4 |
| | | | | **Total score:** | ___/20 |

This page intentionally left blank.

**SCHEDULE**

| TIME | DAY 1 | DAY 2 |
|---|---|---|
| 8:00 – 9:30 | Introduction, welcome and administrative | Review of Day 1<br><br>Introduction of Day 2<br><br>Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response |
| 9:30 – 9:45 | *Break* | *Break* |
| 9:45 – 12:00 | Unit 1: Fundamentals of Incident Command | Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd) |
| 12:00 – 1:00 | *Lunch* | *Lunch* |
| 1:00 – 3:00 | Unit 1: Fundamentals of Incident Command (cont'd) | Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd) |
| 3:00 – 3:10 | *Break* | *Break* |
| 3:10 – 4:30 | Unit 1: Fundamentals of Incident Command (cont'd) | Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd) |
| 4:30 – 4:40 | *Break* | *Break* |
| 4:40 – 5:00 | Unit 1: Fundamentals of Incident Command (cont'd)<br><br>a. Day 1 takeaways<br>b. Parking lot material<br>c. Announcement | Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd)<br><br>a. Day 2 takeaways<br>b. Parking lot material<br>c. Announcement |

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

| TIME | DAY 3 | DAY 4 |
|---|---|---|
| 8:00 – 9:30 | Review of Day 2<br><br>Introduction of Day 3<br><br>Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd) | Review of Day 3<br><br>Introduction of Day 4<br><br>Unit 3: Initial Operational Period |
| 9:30 – 9:45 | *Break* | *Break* |
| 9:45 – 12:00 | Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd) | Unit 3: Initial Operational Period (cont'd) |
| 12:00 – 1:00 | *Lunch* | *Lunch* |
| 1:00 – 3:00 | Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd) | Unit 3: Initial Operational Period (cont'd)<br><br>Unit 4: Multi-Operational Period |
| 3:00 – 3:10 | *Break* | *Break* |
| 3:10 – 4:30 | Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd) | Unit 4: Multi-Operational Period (cont'd) |
| 4:30 – 4:40 | *Break* | *Break* |
| 4:40 – 5:00 | Unit 2: Fundamentals of Hazardous Materials/Weapons of Mass Destruction Response (cont'd)<br><br>a. Day 3 takeaways<br>b. Parking lot material<br>c. Announcement | Unit 4: Multi-Operational Period (cont'd)<br><br>a. Day 4 takeaways<br>b. Parking lot material<br>c. Announcement |

| TIME | DAY 5 | DAY 6 |
|---|---|---|
| 8:00 – 9:30 | Review of Day 4<br>Introduction of Day 5<br>Unit 4: Multi-Operational Period (cont'd) | Review of Day 5<br>Introduction of Day 6<br>Unit 5: Termination or Transfer (cont'd) |
| 9:30 – 9:45 | *Break* | *Break* |
| 9:45 – 12:00 | Unit 4: Multi-Operational Period (cont'd)<br>Unit 5: Termination or Transfer | Unit 5: Termination or Transfer (cont'd) |
| 12:00 – 1:00 | *Lunch* | *Lunch* |
| 1:00 – 3:00 | Unit 5: Termination or Transfer (cont'd) | End of course/Graduation |
| 3:00 – 3:10 | *Break* | |
| 3:10 – 4:30 | Unit 5: Termination or Transfer (cont'd) | |
| 4:30 – 4:40 | *Break* | |
| 4:40 – 5:00 | Unit 5: Termination or Transfer (cont'd)<br>a. Day 5 takeaways<br>b. Parking lot material<br>c. Announcement | |

This page intentionally left blank.

# FIREFIGHTER CODE OF ETHICS

## Background

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

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

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

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

# FIREFIGHTER CODE OF ETHICS

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

- Always conduct myself, on and off duty, in a manner that reflects positively on myself, my department and the fire service in general.
- Accept responsibility for my actions and for the consequences of my actions.
- Support the concept of fairness and the value of diverse thoughts and opinions.
- Avoid situations that would adversely affect the credibility or public perception of the fire service profession.
- Be truthful and honest at all times and report instances of cheating or other dishonest acts that compromise the integrity of the fire service.
- Conduct my personal affairs in a manner that does not improperly influence the performance of my duties, or bring discredit to my organization.
- Be respectful and conscious of each member's safety and welfare.
- Recognize that I serve in a position of public trust that requires stewardship in the honest and efficient use of publicly owned resources, including uniforms, facilities, vehicles and equipment and that these are protected from misuse and theft.
- Exercise professionalism, competence, respect and loyalty in the performance of my duties and use information, confidential or otherwise, gained by virtue of my position, only to benefit those I am entrusted to serve.
- Avoid financial investments, outside employment, outside business interests or activities that conflict with or are enhanced by my official position or have the potential to create the perception of impropriety.
- Never propose or accept personal rewards, special privileges, benefits, advancement, honors or gifts that may create a conflict of interest, or the appearance thereof.
- Never engage in activities involving alcohol or other substance use or abuse that can impair my mental state or the performance of my duties and compromise safety.
- Never discriminate on the basis of race, religion, color, creed, age, marital status, national origin, ancestry, gender, sexual preference, medical condition or handicap.
- Never harass, intimidate or threaten fellow members of the service or the public and stop or report the actions of other firefighters who engage in such behaviors.
- Responsibly use social networking, electronic communications, or other media technology opportunities in a manner that does not discredit, dishonor or embarrass my organization, the fire service and the public. I also understand that failure to resolve or report inappropriate use of this media equates to condoning this behavior.

**Developed by the National Society of Executive Fire Officers**

# A Student Guide to End-of-course Evaluations

## Ten Things You Can Do to Improve the National Fire Academy


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

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

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

This page intentionally left blank.

# *UNIT 1: FUNDAMENTALS OF INCIDENT COMMAND*

### *TERMINAL OBJECTIVE*

*The students will be able to:*

*1.1 Explain the fundamentals of Incident Command and risk-based response.*

### *ENABLING OBJECTIVES*

*The students will be able to:*

*1.1 Identify the roles and responsibilities of the Incident Commander (IC).*

*1.2 Describe the conditions that warrant the use of Unified Command (UC) at a hazardous materials/weapons of mass destruction (WMD) incident.*

*1.3 Describe the tools that can help the IC make decisions during incident response.*

*1.4 Determine the components of the standard of care and their implications for hazardous materials/WMD response.*

*1.5 Articulate the impact of stress on decision-making.*

This page intentionally left blank.

FEMA

U.S. Fire Administration

# UNIT 1: FUNDAMENTALS OF INCIDENT COMMAND

Slide 1-1

## TERMINAL OBJECTIVE

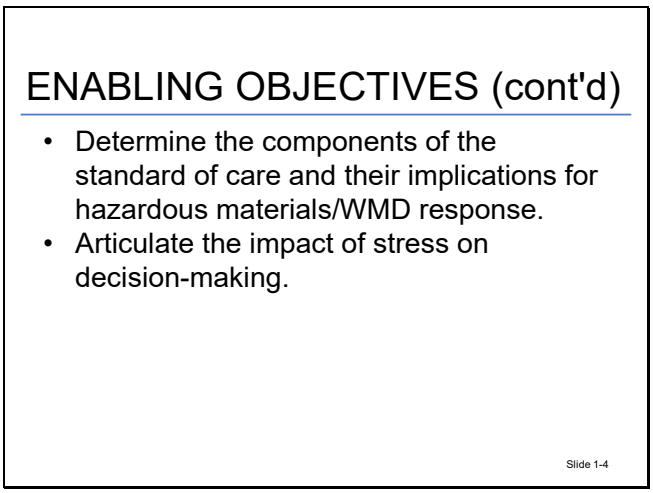
Explain the fundamentals of Incident Command and risk-based response.

Slide 1-2

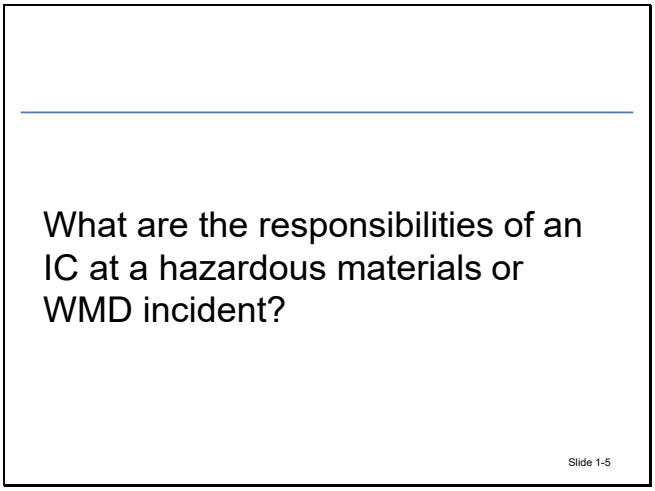
## ENABLING OBJECTIVES

- Identify the roles and responsibilities of the Incident Commander (IC).
- Describe the conditions that warrant the use of Unified Command (UC) at a hazardous materials/weapons of mass destruction (WMD) incident.
- Describe the tools that can help the IC make decisions during incident response.

Slide 1-3




## I. ROLES AND RESPONSIBILITIES OF THE INCIDENT COMMANDER



# ACTIVITY 1.1

## Incident Command System

### Purpose

Assess knowledge of the Incident Command System (ICS).

### Directions

1. Read over the scenario and choose one person from your group to assume the role of Incident Commander (IC).

2. Using your table group's knowledge of Incident Command, formulate a plan on how your group would manage the incident. Be sure to include what you think the roles and responsibilities of the IC should be.

3. Of your group members' jurisdictions, use the local jurisdiction with the fewest resources to manage the incident.

4. Record your plan on an easel pad, and have your group's IC report out to the class.

This page intentionally left blank.

## ACTIVITY 1.1 (cont'd)

## Scenario Background

**Dispatch information:** Time: 15:20. A first-alarm assignment (based on the smallest community response capabilities) is dispatched to a three-vehicle collision involving a U.S. Department of Transportation (DOT) 406 truck/trailer, box truck and a minivan on the overpass of Coronado Blvd. and I-40. En route, dispatch advises there may be entrapment in the box truck and the minivan.

**Circumstances:** The first unit to arrive advises that the minivan collided with the undercarriage of the 406 truck/trailer and is wedged underneath. The box truck collided with the front of the 406 and has taken heavy damage with airbag deployment. Two occupants in the box truck appear seriously injured and unable to self-extricate. The minivan has one occupant who is injured but ambulatory, advising that there are two other occupants in the vehicle. The other occupants of the minivan have injuries and are entrapped. The 406 truck/trailer driver is ambulatory and does not appear to be injured.

**Weather:** Use current weather conditions outside the classroom.

**Truck 1 product:** UN 1203.

**Truck 1 container:** DOT 406.

**Box truck product:** Ethanol, Calcium Hypochlorite — 52%, mixed load.

This page intentionally left blank.

## II. UNIFIED COMMAND

Can you describe the concept of UC and how it may be used at a hazardous materials/WMD incident?

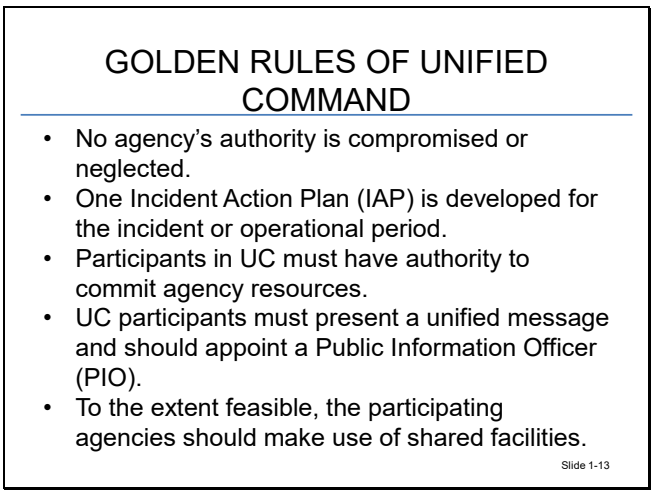
Slide 1-10

When is UC effective? When is it not?

Slide 1-11

When does UC apply at the local, state and federal level?

Slide 1-12




Golden rules of Unified Command (UC):

A. No agency's authority is compromised or neglected.

B. One Incident Action Plan (IAP) is developed for the incident or operational period.

C. Participants in UC must have authority to commit agency resources.

D. UC participants must present a unified message and should appoint a Public Information Officer (PIO).

E. To the extent feasible, the participating agencies should make use of shared facilities.

# ACTIVITY 1.2

## Unified Command

### Purpose

Determine the conditions that warrant the use of UC at a hazardous materials/weapons of mass destruction (WMD) incident.

### Directions

1. Use the U.S. National Response Team (NRT) ICS/UC Technical Assistance document found here: https://www.nrt.org/sites/2/files/ICSUCTA.pdf.

2. Your table group will be assigned one of the following questions on UC to research and prepare a short brief on.

   a. What is UC? (Section 2.2)

   b. What is the relationship between the ICS and UC? (Section 2.3)

   c. How do responders prepare for ICS/UC implementation? (Section 3)

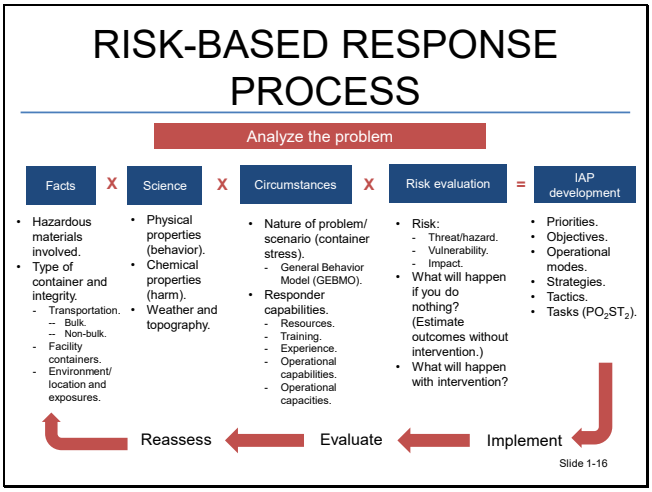
   d. How do responders implement UC during an incident? (Section 4)

3. Record your findings on an easel pad.

4. Select a representative from your group to present your brief.

This page intentionally left blank.

## III. INCIDENT COMMAND TOOLS




A. Risk-based response process.

Analyze the problem:

1. Facts.

   a. Hazardous material involved.

   b. Type of container and integrity.

      - Transportation (bulk/non-bulk).

      - Facility containers.

      - Environment/location and exposures.

2. Science.

   a. Physical properties (behavior).

   b. Chemical properties (harm).

   c. Weather and topography.

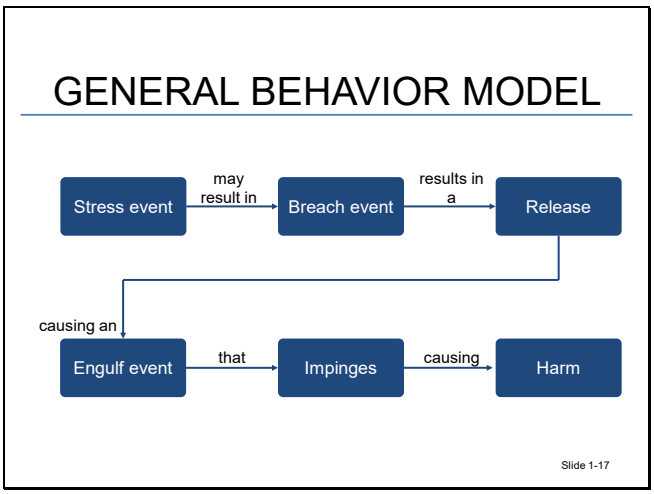
3. Incident circumstances.

   a. Nature of problem/scenario (container stress).

   b. Responder capabilities.

- Resources.
- Training.
- Experience.
- Operational capabilities.
- Operational capacities.

4. Risk evaluation.
   a. Risk: threat/hazard, vulnerability and impact.
   b. What will happen if you do nothing? (Estimate outcomes without intervention.)
   c. What will happen with intervention?
5. Develop the IAP (verbal, tactical worksheet, ICS 201, Incident Briefing) — $PO_2ST_2$.
   a. Priorities.
   b. Objectives.
   c. Operational modes.
   d. Strategies.
   e. Tactics.
   f. Tasks.
6. Implement.
7. Evaluate.
8. Reassess (back to beginning).




B. General Behavior Model (GEBMO).

1. The GEBMO consists of six behavioral events of a container that help provide analysis for a risk-based response:

   a. Stress event: The cause of the event could be thermal, mechanical and/or chemical.

   b. Breach event: A breach occurs when the stress creates or expands an opening in the container.

   c. Release event: Hazardous materials can be expelled through the breach in the form of matter, energy or both.

   d. Engulf event: Once released, the hazardous material will disperse, engulfing an area.

   e. Impinge event: Occurs when the hazardous material comes in contact with exposures (people, property, environment).

   f. Harm event: The effects of the hazardous materials on an exposure. This may be thermal, toxic, radiation, chemical, etiological (causing or contributing to the development of a disease or condition) and/or mechanical.

2. The GEBMO provides a framework for assessing incident potential and estimating outcomes in engulfed areas.

   a. During incident size-up, responders should determine where the incident is in the sequence of GEBMO events.

b. At an incident, containers may be at different stages of stress/break/release.

c. Responders must assess and predict the behavior of all containers to assess potential outcomes accurately.

d. Key factors for estimating outcomes in the engulfed area include size and dimension; number of exposures; concentration of hazardous material; physical, health and safety hazards; and areas of potential harm.

# ACTIVITY 1.3

## Incident Command Tools

### Purpose

Describe the tools that can help manage a hazardous materials/WMD incident.

### Directions

1. In your table groups, use the scenario from Activity 1.1 to discuss the following questions:

   a. How would the risk-based response process help with decision-making?

   b. How would the GEBMO help with decision-making? More information on GEBMO can be found here: www.ludwigbenner.org/models/gebmo.html.

   c. Which one of these does your group think is the most beneficial?

2. Record your responses on an easel pad, and be prepared to share your findings with the class.

This page intentionally left blank.

## IV. STANDARD OF CARE

What do you believe the standard of care to be?

Slide 1-20

What are the standards of care for a hazardous materials/WMD response? How is the standard established?

Slide 1-21

This page intentionally left blank.

# ACTIVITY 1.4, Part 1

## Standard of Care

### Purpose

Review the legal requirements of Occupational Safety and Health Administration (OSHA) 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER) for the IC for a hazardous materials/WMD incident response.

### Directions

1. Work with your table group to research specific elements of OSHA 1910.120 that impact the IC for a hazardous materials/WMD incident response.

   Information can be found at www.osha.gov/laws-regs. Then search "1910.120" in the search box.

   a. 1910.120 (q)(1): Emergency response plan.

   b. 1910.120 (q)(3)(i): Senior emergency response official.

   c. 1910.120 (q)(3)(ii): Assess all hazards.

   d. 1910.120 (q)(3)(iii): "Appropriate" emergency operations and personal protective equipment (PPE).

   e. 1910.120 (q)(3)(iv): Self-contained breathing apparatus (SCBA) use.

   f. 1910.120 (q)(3)(v): Limit personnel and use of the buddy system.

   g. 1910.120 (q)(3)(vi): Backup and first aid personnel.

   h. 1910.120 (q)(3)(vii): Knowledgeable safety officer.

   i. 1910.120 (q)(3)(ix): Decontamination.

   j. 1910.120 (q)(6)(v): On-scene IC training requirements.

   k. 1910.120 (q)(8): Refresher training.

   l. 1910.120 (q)(9)(i): Hazardous materials physicals and medical surveillance.

2. In your small groups, research and prepare a five-minute report on your assigned component.

3. Select a representative to present your information to the class.

This page intentionally left blank.

# ACTIVITY 1.4, Part 2

## Standard of Care Assessment

### Purpose

Assess students' understanding of the standard of care as outlined in OSHA 1910.120, HAZWOPER for hazardous materials/WMD incident response.

### Directions

1. Your table group will be assigned one of the scenarios on the following worksheets. Answer the questions for your assigned scenario.

2. Discuss your answers to the questions presented in your scenario. Prepare a brief response to the questions for each scenario.

3. In your scenario, consider your group a "Board of Inquiry" whose duty it is to assess deficiencies and document them according to 29 Code of Federal Regulations (CFR) 1910.120.

4. Prepare a short brief that discusses your findings to the class.

This page intentionally left blank.

## Activity 1.4, Part 2 (cont'd)

## Scenarios

### Scenario 1

City dispatch receives a call for an individual with "trouble breathing." Rescue Squad 1 (an advanced life support (ALS) unit) is dispatched, with Captain Smith and paramedics Jones and Roberts on board. Upon arrival, Captain Smith observes a whitish cloud escaping from the pump/filtration room at the rear of the local community swimming pool. The vapor is being dispersed as it leaves the building, but the prevailing wind is blowing directly toward the address to which the unit is being dispatched. Captain Smith leaves the unit and immediately develops the following symptoms:

- Burning sensation in his chest.
- Watering eyes.
- Mucous membranes begin to burn and produce liquid.

He immediately returns to the rescue vehicle, and the unit backs away. He requests two additional companies, a chief, and a hazardous materials unit, through city dispatch. Engine 1 and Engine 2 responded with lieutenants Murphy and Sanchez, along with three personnel on each unit. Upon arrival, Engine 1 members don full-turnout PPE, including SCBAs. Lieutenant Sanchez and two firefighters enter the address and remove an unconscious civilian from the pump/filtration room to the Rescue Squad 500 feet away. Lieutenant Murphy and two firefighters also don full turnouts and SCBAs. They enter the address and do a secondary search. They return to the rescue squad and report that no other occupants were found. The victim is treated during this time.

### Questions

1. Who should be the IC?

2. Were the responders "demonstrating competency" according to 29 CFR 1910.120 (40 CFR 311), and where, if ever, did they violate this regulation?

## Scenario 2

State Police Officer Smith is dispatched to a vehicle accident in a remote section of the community. Upon arrival, the officer found that a car with one occupant struck a DOT 406 cargo tank between the tractor and rear wheels, shearing off the piping. The liquid from the tank is on the automobile and the ground surrounding the vehicle. Officer Smith notices a DOT placard with the number 2209. The truck driver and occupant of the automobile are in their respective vehicles and appear unresponsive. Officer Smith first removes the occupant of the car. He then returns and removes the driver of the truck to an area upwind and uphill of the incident. Officer Smith requests an ambulance for the two injured parties and a fire company for a possible fire. The officer notifies dispatch that this may be a hazardous materials incident.

## Questions

1. Did Officer Smith "demonstrate competency" according to 29 CFR 1910.120?

2. By removing the occupants, did Officer Smith incur personal injury?

## Scenario 3

Engine 14 responds to a dumpster fire behind the local supermarket. Upon arrival, Lieutenant Smith observes that a brilliant white fire with dense white smoke has enveloped the dumpster completely. Its walls are glowing red, and Lieutenant Smith orders the heavy caliber deck gun trained on the dumpster. He then orders the nozzle placed into a wide fog pattern and the 1,000-gallon booster tank used as a water supply. Upon application of water, an explosion occurs. The concussion shatters windows in the surrounding stores and rips a hole in the dumpster. Lieutenant Smith requests an additional engine company to respond and to supply water from a nearby hydrant.

With the water supply established by Engine 21, Engine 14 continues to apply water to the dumpster. Several additional explosions occur, but the fire is finally extinguished with 22,000 gallons of water. The parking lot where the dumpster is located has runoff 3 inches deep over most of its 1,000-by-2,000-foot surface. The water is draining slowly into a storm sewer.

Lieutenant Smith orders two firefighters in full turnouts with SCBAs to overhaul the dumpster. Satisfied that the fire is out, Engines 14 and 21 leave the scene to a police officer to secure.

## Questions

1. Did Lieutenant Smith act properly?

2. What facts in this situation suggested that this was not a "normal" fire?

3. Were the actions of the fire unit during the incident at the "operations level"?

## Scenario 4

During an annual fire department inspection of a warehouse, Codes Inspector Gordon notices that a supply closet is in poor order. A small metal can containing yellow crystals and labeled "chromic acid" has fallen off the shelf. Its contents are scattered all over the floor.

Inspector Gordon shows this to the warehouse manager who is accompanying him. The manager calls a member of the maintenance staff who immediately sweeps up the crystals and removes them from the area, depositing them in an outside trash can. Inspector Gordon and the warehouse manager continue the inspection.

## Questions

1. Did Inspector Gordon act appropriately?

2. What level of hazardous materials training should the inspector have completed?

3. If the maintenance staff member suffers side effects from the cleanup of this incident, who is legally responsible for the medical bills, lost work time and personal suffering?

## V. STRESS AND DECISION-MAKING

- Have you ever worked with a responder who routinely makes good decisions under stress?
- Conversely, have you observed a responder who struggles in similar situations?

Slide 1-24

This page intentionally left blank.

# ACTIVITY 1.5

## Stress and Decision-making

### Purpose

Describe the impact of stress on decision-making.

### Directions

1. In your table group, use the scenario from Activity 1.1 to discuss factors that may lead to stress while managing the incident.

2. As assigned by the instructor, identify standards of care that either:

   a. May lead to stress while managing an incident.

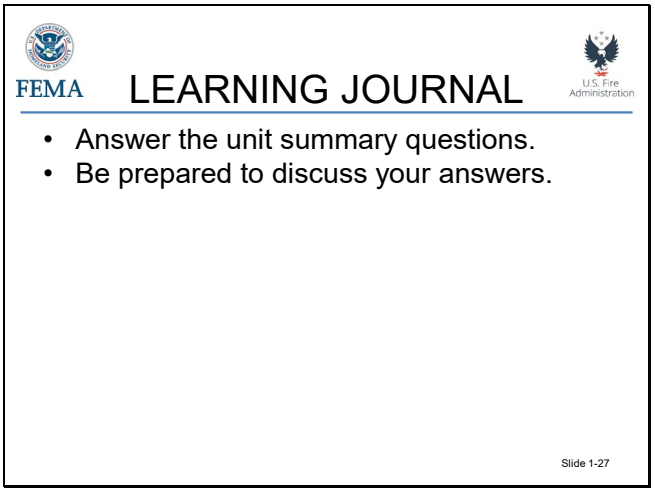
   b. May reduce stress while managing an incident.

3. Identify command tools that may help reduce stress while managing the incident.

4. Record your responses on an easel pad and select a representative to share with the class.

This page intentionally left blank.

## VI. LEARNING JOURNAL



This page intentionally left blank.

# APPENDIX A

# INTRODUCTION TO RISK-BASED RESPONSE

This page intentionally left blank.

## Introduction to Risk-Based Response

- Is a systematic process based on facts, science and circumstances.
- Involves analysis of hazardous materials/weapons of mass destruction (WMD) incidents.
- Assesses hazards, develops an Incident Action Plan (IAP), and evaluates plan effectiveness.

## Historical Approach Versus Risk-Based Response

- Historical approach driven by standard operating procedures (SOPs)/standard operating guidelines (SOGs).
- Risk-based response analyzes hazards, evaluates risks and considers circumstances.
- The experience of responders is crucial.
- Sharing practices and lessons improves risk-based response.

## Components of Risk Assessment

- Threat/hazards: Product, container, environment, cause.
- Vulnerability: Understanding harm potential and protective measures.
- Likelihood of occurrence: Subjective, based on facts, science, experience.
- Consequences: Consideration of life, property and community impact.

## Hazards and Harm

- Hazard: Condition in hazardous materials/WMD incident causing harm.
- Hazard and harm have a cause-and-effect relationship.
- Identifying hazards helps anticipate harm, reduce risk.
- Harm affects life, property, environment.

## Protective Measures and Identification

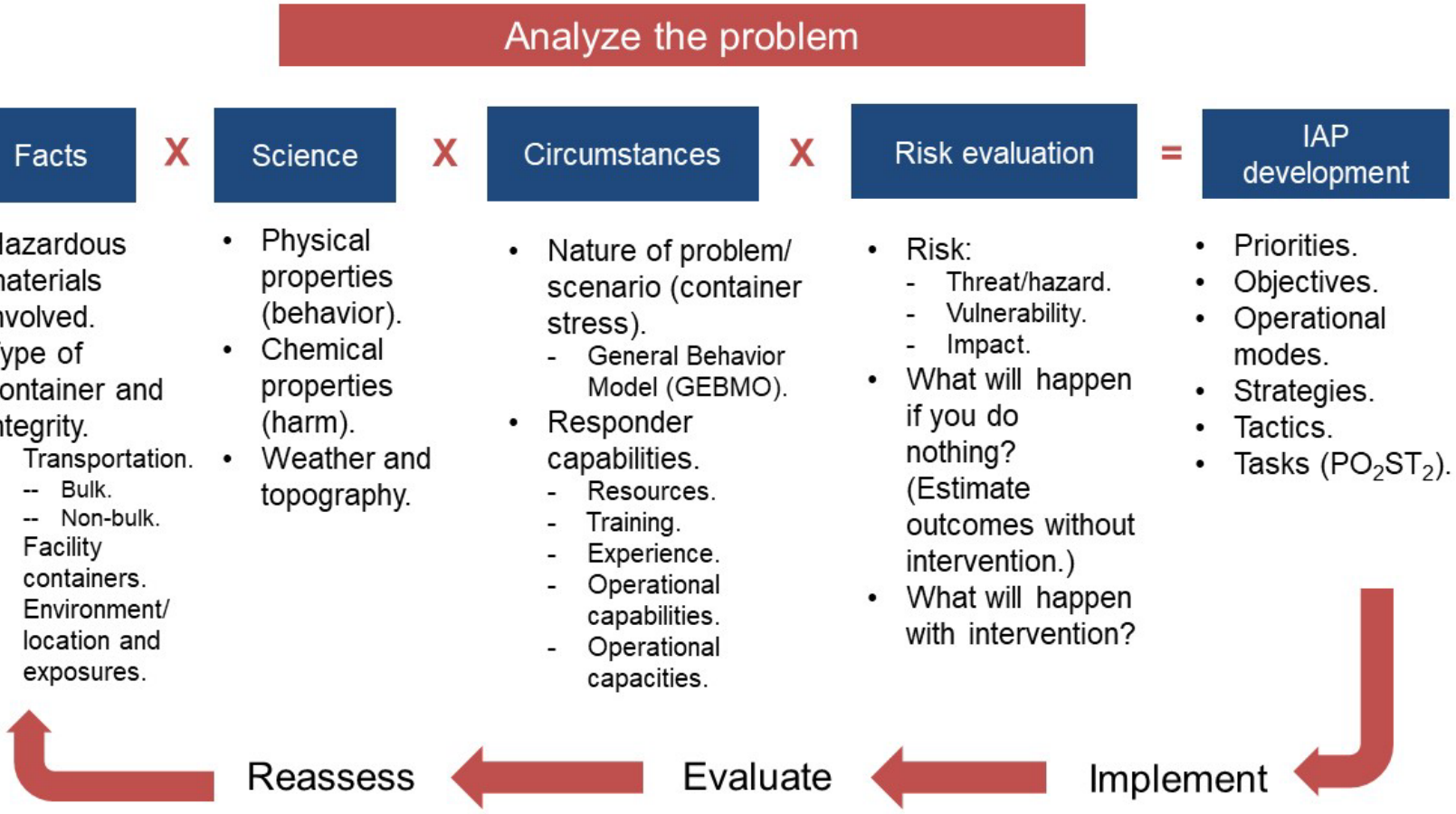
- Responders identify hazards and potential harm early.
- Protection of the public, community and responders based on hazard identification.
- Early hazard and harm identification crucial for protective actions.

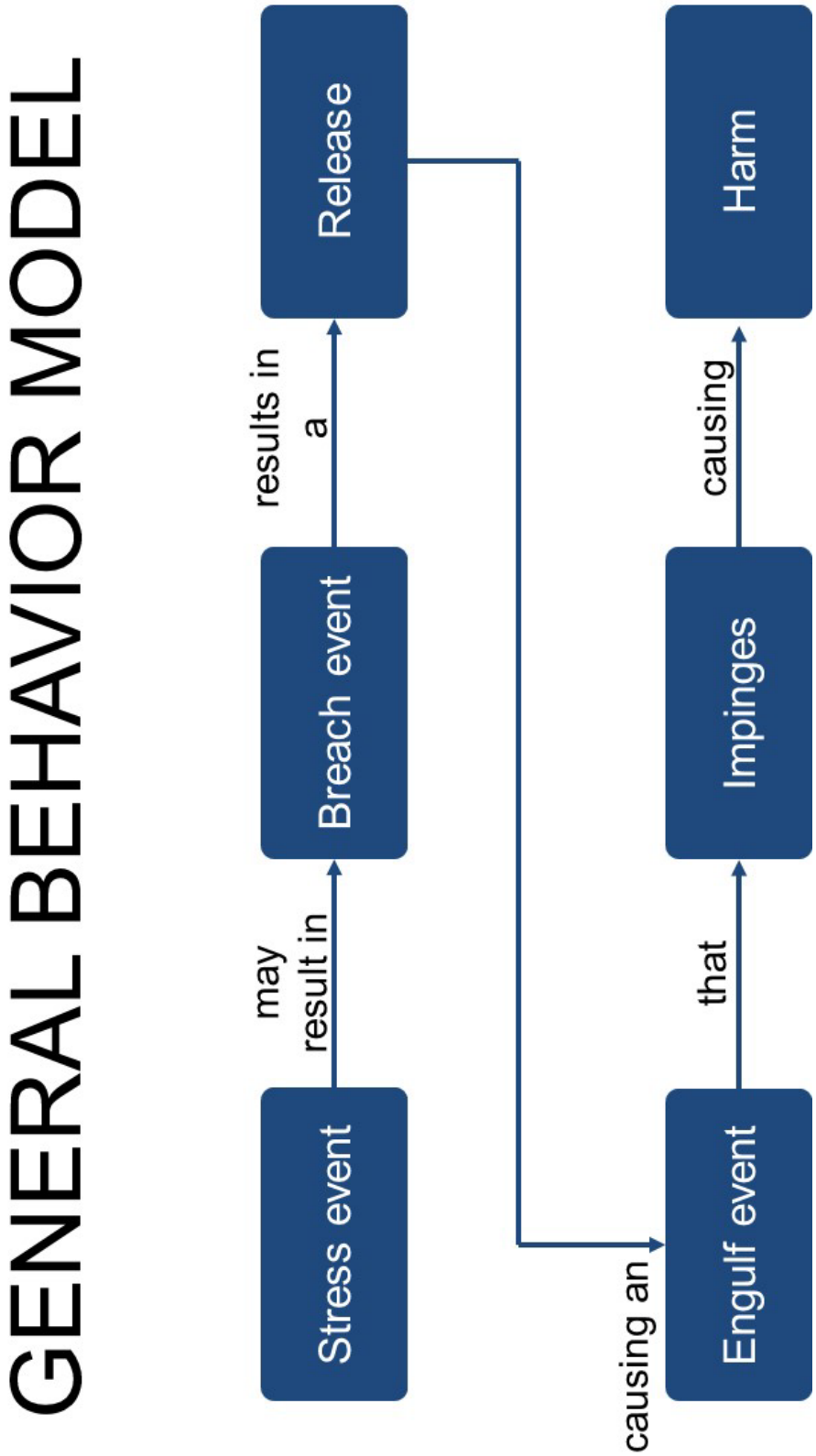
# APPENDIX B

## RISK-BASED RESPONSE AND GENERAL BEHAVIOR MODEL INFOGRAPHICS

This page intentionally left blank.

# RISK-BASED RESPONSE PROCESS




GENERAL BEHAVIOR MODEL
Stress event
may result in
Breach event
results in a
Release
causing an
Engulf event
that
Impinges
causing
Harm

# *UNIT 2: FUNDAMENTALS OF HAZARDOUS MATERIALS/WEAPONS OF MASS DESTRUCTION RESPONSE*

### *TERMINAL OBJECTIVE*

*The students will be able to:*

*2.1 Summarize the fundamentals of a risk-based response to hazardous materials/weapons of mass destruction (WMD) incidents.*

### *ENABLING OBJECTIVES*

*The students will be able to:*

*2.1 Describe the critical elements of site management and foundation of response to a hazardous materials/WMD incident.*

*2.2 Describe the types of hazard response information available from various resources and their advantages and disadvantages.*

*2.3 Describe the risk control measures that can affect the Incident Commander's (IC's) decisions.*

*2.4 Explain the importance of mission-specific competencies.*

*2.5 Describe the types of briefings and critiques for a hazardous materials/WMD incident response.*

*2.6 Evaluate an Incident Action Plan (IAP) for a hazardous materials/WMD incident.*

*2.7 Develop an IAP for a hazardous materials/WMD incident.*

*2.8 Identify the methods and tools for cost recovery for a hazardous materials/WMD incident.*

*2.9 Describe the art and science of incident management.*

This page intentionally left blank.

FEMA

U.S. Fire Administration

# UNIT 2: FUNDAMENTALS OF HAZARDOUS MATERIALS/WEAPONS OF MASS DESTRUCTION RESPONSE

Slide 2-1

## TERMINAL OBJECTIVE

Summarize the fundamentals of a risk-based response to hazardous materials/ weapons of mass destruction (WMD) incidents.

Slide 2-2

## ENABLING OBJECTIVES

- Describe the critical elements of site management and foundation of response to a hazardous materials/WMD incident.
- Describe the types of hazard response information available from various resources and their advantages and disadvantages.

Slide 2-3

## ENABLING OBJECTIVES (cont'd)

- Describe the risk control measures that can affect the Incident Commander's (IC's) decisions.
- Explain the importance of mission-specific competencies.
- Describe the types of briefings and critiques for a hazardous materials/WMD incident response.

Slide 2-4

## ENABLING OBJECTIVES (cont'd)

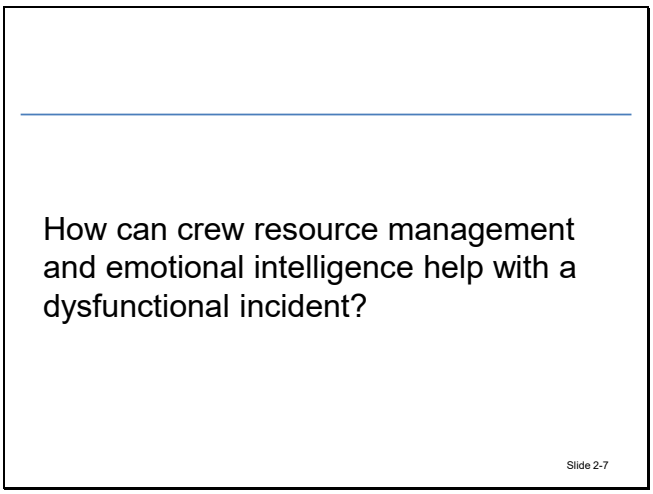
- Evaluate an Incident Action Plan (IAP) for a hazardous materials/WMD incident.
- Develop an IAP for a hazardous materials/ WMD incident.
- Identify the methods and tools for cost recovery for a hazardous materials/WMD incident.
- Describe the art and science of incident management.

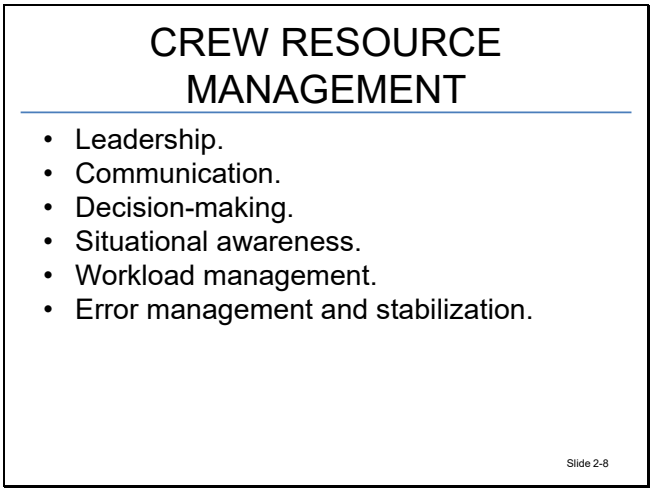
Slide 2-5

# I. SCENE MANAGEMENT

What are the signs and symptoms of a dysfunctional incident?

Slide 2-6




A. Crew resource management.

1. Leadership: This includes getting your people to follow you in dangerous situations.

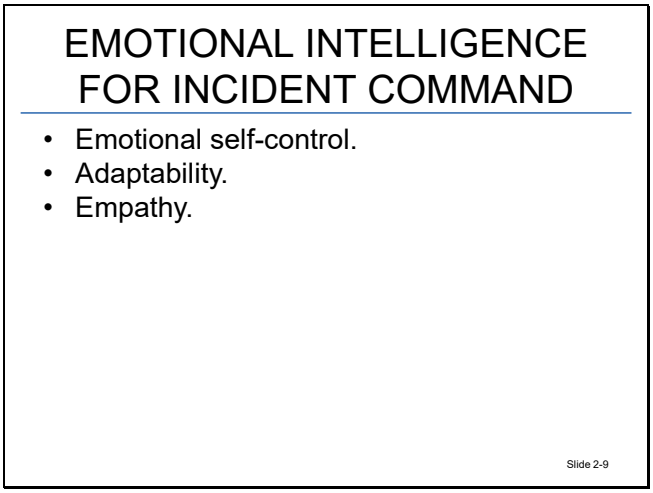
2. Communication: Dangerous situations can affect the sender, messenger, medium, receiver and feedback process.

3. Decision-making: Dangerous situations can affect decision-making due to increased levels of stress, lack of information, changing conditions, lack of resources, etc.

4. Situational awareness: the continual observation of your specific environment and how any change in that environment affects your mission and safety. These continual environmental observations will become part of the overall strategy developed by an Incident Commander (IC).

5. Workload management: This can be influenced by resource availability, weather, environment, complexity of the incident, etc.

6. Error management and stabilization: This includes all incident activities to identify and discover potential errors that lead to unfavorable outcomes of incidents, to ensure that a potential resolution is implemented, and to eliminate all errors before they result in unfavorable outcomes.




B. Emotional intelligence for Incident Command.

1. Emotional self-control: Understanding your emotions and "triggering points" that can affect the ability to command effectively.

2. Adaptability: flexibility, openness, cooperation.

3. Empathy: ability to understand and share the feelings of others.

# ACTIVITY 2.1

## Elements of Scene Management

### Purpose

Describe the critical elements of site management and foundation of response to a hazardous materials/weapons of mass destruction (WMD) incident.

### Directions

1. Your table group will be assigned one of the components of the Crew Resource Management manual, which can be found at this link or the QR code below: https://www.nh.gov/safety/divisions/fstems/ems/training/documents/crewmgt.pdf.

2. Read the information on your assigned component. Research and provide a short brief on the importance of this component for the class. Record your brief summary on an easel pad. The components are:

   a. Leadership.

   b. Communication.

   c. Decision-making.

   d. Situational awareness.

   e. Workload management.

   f. Error management and standardization.

3. In addition, your table group will be assigned the three elements of emotional intelligence for Incident Command. Research and provide a short brief on how these elements relate to your assigned component from the list above:

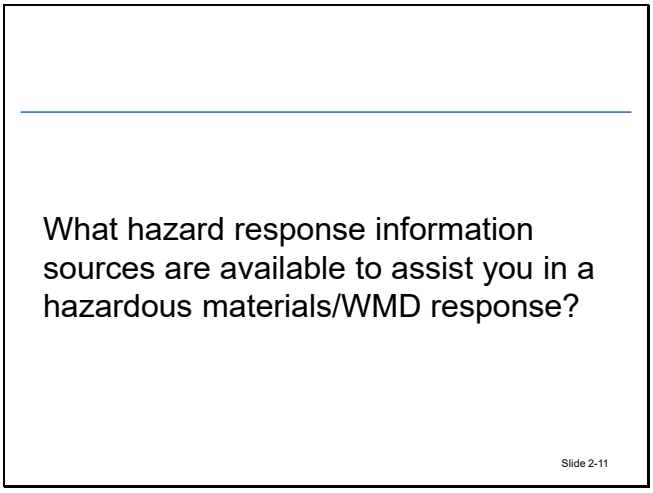
   a. Emotional self-control.

b. Adaptability.

c. Empathy.

4. Select a representative from your group to share your findings.

## II. HAZARD AND RESPONSE INFORMATION



This page intentionally left blank.

# ACTIVITY 2.2

## Hazard and Response Information

### Purpose

Analyze individual hazard response information sources to identify their advantages and disadvantages.

### Directions

1. Study and analyze your assigned resource.
    a. Hazardous materials databases.
    b. Detection and monitoring equipment.
    c. Reference manuals.
    d. Technical information centers.
    e. Technical Information Specialists.
2. Determine advantages and disadvantages of the resource.
    a. Advantages:
    b. Disadvantages:
3. Write your list on your easel pad.
4. Choose a representative and be prepared to present the advantages and disadvantages to the class.

This page intentionally left blank.

## III. RISK CONTROL MEASURES

As an IC, what are risk control measures that could be incorporated into a hazardous materials/WMD incident?

Slide 2-14

### RISK CONTROL MEASURES

The IC approves risk control measures.

Photo courtesy of the Federal Emergency Management Agency (FEMA).

Slide 2-15

The IC approves risk control measures.

This page intentionally left blank.

# ACTIVITY 2.3

## Risk Control Measures

### Purpose

Describe the risk control measures that affect the IC's decisions.

### Directions

1. In your table groups, research your assigned risk control measures and their importance to Incident Command. Refer to 29 Code of Federal Regulations (CFR) 1910.120 from Activity 1.3: Incident Command Tools and Appendix A: Risk Control Measures Information for more information.

2. Focus on how the legal requirements of 29 CFR 1910.120 influence these control measures. Suggested control measures are:

    a. Backup team/rapid intervention team (RIT).

    b. Appropriate emergency operations (offensive, defensive, nonintervention).

    c. Number of emergency personnel on scene (excessive versus inadequate).

    d. Designation of a Safety Officer.

    e. Establishment of decontamination.

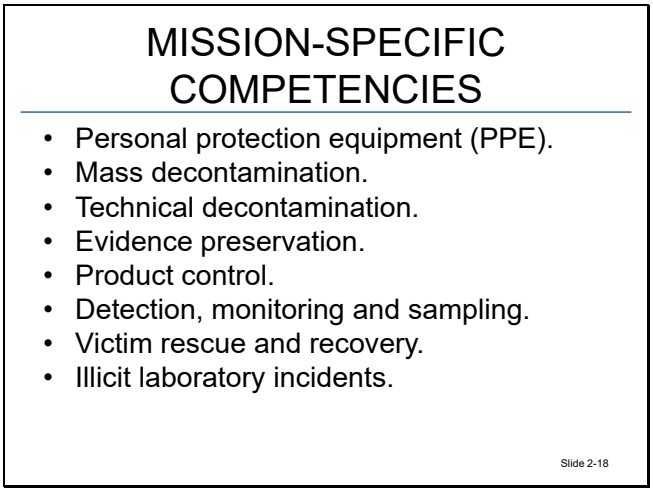
    f. Selection and use of personal protective equipment (PPE).

3. Pass your research to another group. That table group will prepare a short brief for presentation to the class.

4. Select a representative to present the other group's brief to the class.

This page intentionally left blank.

## IV. MISSION-SPECIFIC COMPETENCIES




A. PPE.

B. Mass decontamination.

C. Technical decontamination.

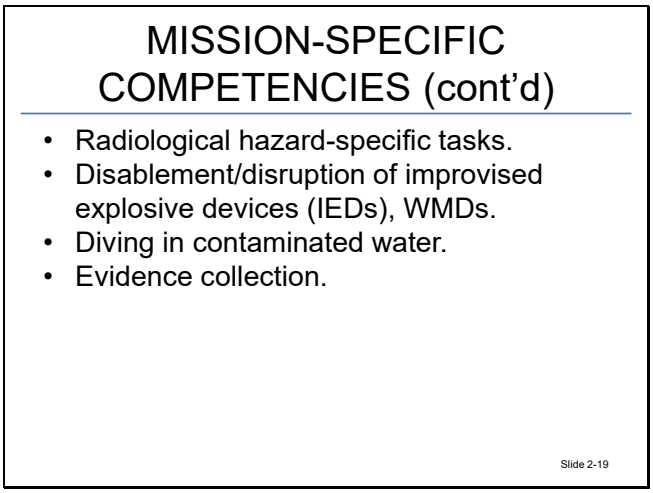
D. Evidence preservation.

E. Product control.

F. Detection, monitoring and sampling.

G. Victim rescue and recovery.

H. Response to illicit laboratory incidents.



I. Radiological hazard-specific tasks.

J. Disablement/disruption of improvised explosive devices (IEDs), WMDs.

K. Diving in contaminated water.

L. Evidence collection.

# ACTIVITY 2.4

## Mission-Specific Competencies

### Purpose

Explain the importance of mission-specific competencies involving a hazardous materials/WMD response.

### Directions

1. In your table groups, research your assigned mission-specific competencies and their importance to Incident Command. National Fire Protection Association (NFPA) 470, *Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders* competencies are:

    a. PPE (8.2).

    b. Mass decontamination (8.3).

    c. Technical decontamination (8.4).

    d. Evidence preservation and public safety sampling (8.5).

    e. Product control (8.6).

    f. Detection, monitoring and sampling (8.7).

    g. Victim rescue and recovery (8.8).

    h. Response to illicit laboratory incidents (8.9).

    i. Radiological hazard-specific tasks (8.10).

    j. Disablement/disruption of IEDs, improvised WMD dispersal devices and operations at improvised explosive laboratories (8.11).

    k. Diving in contaminated water environment (8.12).

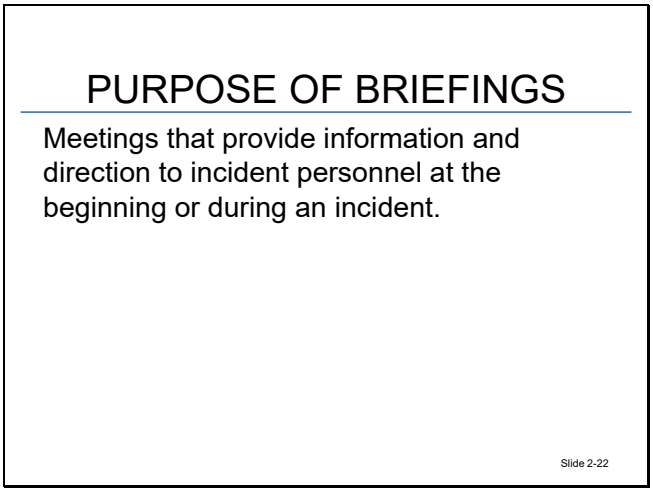
    l. Evidence collection (8.13).

2. You can find the information for the competencies at this link or the QR code below: https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=470.

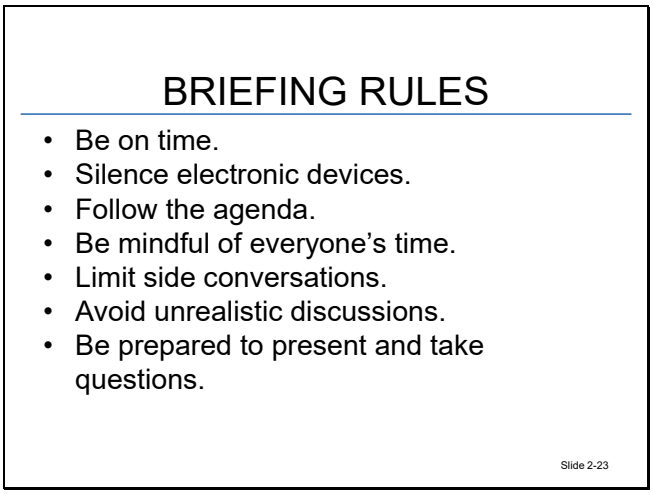
3. Based on the research, each table group will facilitate a class discussion on their assigned competencies.

4. Select a representative to lead the class discussion on your competencies.

## V. INCIDENT BRIEFINGS



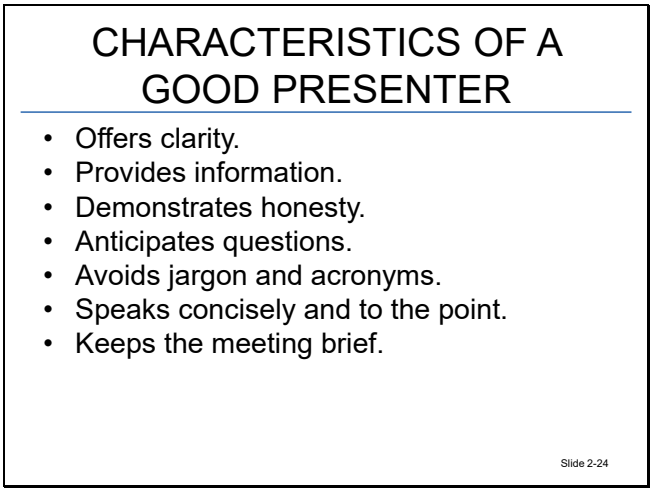

A. Purpose of briefings: meetings that provide information and direction to incident personnel at the beginning or during an incident.




B. Briefing rules.

1. Be on time.
2. Silence electronic devices.
3. Follow the agenda.
4. Be mindful of everyone's time.
5. Limit side conversations.
6. Avoid unrealistic discussion.

7. Be prepared to present and take questions.




C. Characteristics of a good presenter.

1. Offers clarity.

2. Provides information.

3. Demonstrates honesty.

4. Anticipates questions.

5. Avoids jargon and acronyms.

6. Speaks concisely and to the point.

7. Keeps the meeting brief.

# ACTIVITY 2.5

## Incident Briefings

### Purpose

Describe types of briefings and critiques for a hazardous materials/WMD incident response.

### Directions

1. Work with your table group to answer the questions on the worksheet for your assigned topic:

   a. Transfer.

   b. Termination.

   c. Operational period briefing.

   d. Debriefing.

   e. Critique.

2. Use the following resources to help you research your assigned briefing:

   a. Federal Emergency Management Agency (FEMA) Field Operations Guide (FOG): https://www.usfa.fema.gov/downloads/pdf/publications/field_operations_guide.pdf.

b. ICS 200 Unit 5: Briefings: https://www.msema.org/wp-content/uploads/2018/10/05_smics200b_october2013.pdf.

3. Answer the questions on the worksheet as if you are the IC.

4. Select a representative to present your findings to the class.

## ACTIVITY 2.5 (cont'd)

## Incident Briefings

### Transfer

You're the incoming IC.

1. What information do you need?

2. What document(s) would you like to see?

3. Who created the current incident objective(s)?

## Termination

You're the IC who is terminating command.

1. How is terminating command different from transfer?

2. What document(s) should you be in possession of for cost-recovery procedures?

3. Who is on scene after termination?

## Operational Period Briefing

You're the IC.

1. When should you conduct your briefing?

2. What are the components of a good briefing?

3. Who should be present at the briefing?

## Debriefing

You're the IC.

1. When should you conduct your debriefing?

2. What are the components of a good debriefing?

3. Who should be present for the debriefing?

## Critique

You're the IC.

1. What are some components of an effective critique?

2. When does a critique take place?

3. What would be the essential documentation to have for the critique?

This page intentionally left blank.

## VI. INCIDENT ACTION PLAN

What is the purpose of the IAP?

Slide 2-26

What is your experience using an IAP?

Slide 2-27

### INCIDENT ACTION PLAN OVERVIEW

- P — Priorities.
- $O_2$ — Objectives and Operational modes.
- S — Strategies.
- T — Tactics.


Photo courtesy of Pixabay.

Slide 2-28

Incident Action Plan (IAP) overview.

A. P — Priorities: Regardless of the size or complexity of an event or incident, the fundamental priorities remain constant: life safety, incident stabilization and property conservation.

B. $O_2$ — Objectives: Broad descriptions or statements of goals that are achievable and measurable and guide the development of strategies.

Operational modes: All objectives occur in one of the three modes of operation: offensive, defensive or nonintervention.

C. S — Strategies: Overarching activities taken to meet the incident objectives.

D. T — Tactics: Specific activities implemented to accomplish the objectives.

# ACTIVITY 2.6, Part 1

## Incident Action Plan Evaluation

### Purpose

Evaluate an IAP.

### Directions

1. In your group, review and evaluate Handout 2-1: Fraley Train Derailment. Use the following questions to help guide your evaluation:

   a. Does it identify and determine appropriate resource needs?

   b. Were resources ordered in a timely fashion?

   c. Does it use appropriate methods for accountability of resources and personnel?

   d. Was the utilization of resources documented appropriately?

   e. Were resources tracked effectively?

   f. Were appropriate incident strategies documented?

   g. Were resources demobilized effectively?

2. After you have finished with your evaluation, walk around the room to the other table groups to compare/contrast your evaluation findings. Make changes to your evaluation as appropriate.

3. The instructor will select one table group out of the class to create an evaluation summary of the IAP. That group will present the summary to the instructors for feedback.

This page intentionally left blank.

# ACTIVITY 2.6, Part 2

## Develop an Incident Action Plan

### Purpose

Develop an IAP for a hazardous materials/WMD incident.

### Directions

1. In your group, create an IAP based on the scenario used in Activity 1.1: Incident Command. You can download the forms from: https://training.fema.gov/icsresource/icsforms.aspx.

2. Use the following questions to frame your IAP:

   a. Does it identify and determine appropriate resource needs?

   b. Does it use appropriate methods for accountability of resources and personnel?

   c. Was the utilization of resources documented appropriately?

   d. Were resources tracked effectively?

   e. Were appropriate incident strategies documented?

3. After you have finished creating your IAP, team up with another table group to review each other's IAPs for feedback.

4. In addition, use Appendix C: Final Quality Assurance Checklist to review the IAP.

5. Select a representative from your group to present your IAP to the class.

This page intentionally left blank.

## VII. COST RECOVERY

What types of hazardous materials/ WMD incidents qualify for cost recovery?

Slide 2-34

What are some tools or methods used for cost recovery at a hazardous materials/WMD incident?

Slide 2-35

What resources are tracked for cost recovery?

Slide 2-36

This page intentionally left blank.

# ACTIVITY 2.7

## Cost Recovery

### Purpose

Identify the resources for cost recovery of a hazardous materials/WMD incident.

### Directions

1. Using your IAP from Activity 2.6, Part 2, identify the current resources of the incident for:
   a. Vehicles/equipment.
   b. Labor.
   c. Mileage.
   d. Supplies.
   e. Operational charges.
   f. Equipment replacement.
2. Predict future resources of the incident.
3. Record your findings on an easel pad.
4. Select a representative from your group to present your findings to the class.

This page intentionally left blank.

# ACTIVITY 2.8

## Perspectives on Incident Command

### Purpose

Describe the art and science of hazardous materials/WMD Incident Command.

### Directions

1. Watch the video "Perspectives on Command," featuring Greg Noll.

2. Individually answer the following question: How are each of the following a part of the art and science of Incident Command at a hazardous materials/WMD incident?

   a. The use of Unified Command (UC).

   _____

   _____

   _____

   b. Not making big decisions using a single reference.

   _____

   _____

   _____

   c. Having live individuals as references.

   _____

   _____

   _____

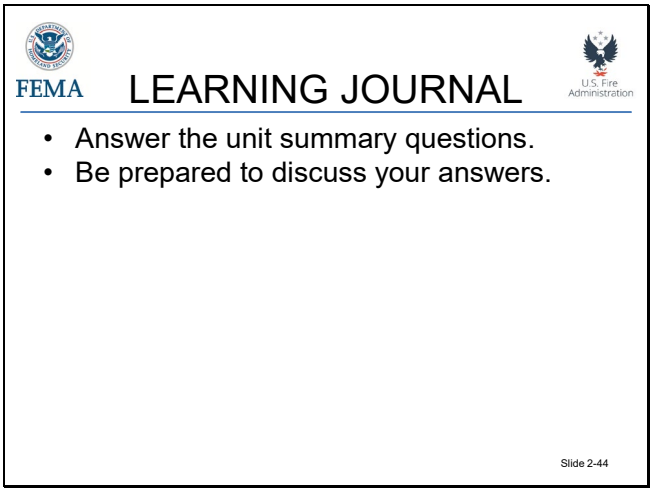
3. Discuss your responses with your table group.

4. On an easel pad, list your comparisons.

5. Select a representative to present your findings to the class.

This page intentionally left blank.

## VIII. LEARNING JOURNAL



This page intentionally left blank.

# APPENDIX A

# RISK CONTROL MEASURES INFORMATION

This page intentionally left blank.

## Securing the Scene

### Controlling perimeters

Perimeters are the boundaries of response operations. Responders may operate inside perimeters. Perimeters are normally staffed and access is controlled. Perimeters should be clearly marked. Control perimeters using personnel without personal protective equipment (PPE) for upwind areas and unmanned vehicles or barricades downwind. The Incident Commander (IC) should expect wind shifts.

### Access control points

Access control points provide entry into perimeters and control zones. Personnel should move only through the access control points when crossing perimeters or zones to prevent the spread of contamination. All control points need a control officer. The control officer checks PPE and log entry and exit times.

## Operational Modes

Designated mode of operation for the incident or period, based on a risk-based hazard assessment of the incident (product, container and the environment), available resources and operational capabilities.

### Nonintervention mode

This operating mode is typically employed after a risk-based response evaluation determines that the risk to emergency responders is greater than the benefit of operating in a defensive or offensive mode.

### Defensive mode

This operating mode is typically employed when a risk-based response evaluation determines that some risk to emergency responders is justified to safely complete the incident objectives.

### Offensive mode

This operating mode is typically employed when a risk-based response evaluation determines that the increased risk to emergency responders is justified to safely complete the incident objectives.

## Backup and Rescue Teams

### The backup team

The backup team is a required team comprising two or more responders equipped with approved PPE/chemical protective clothing (CPC) and assigned by the IC to provide emergency removal of a stricken entry team member from the Hot Zone.

The backup team could be used to assist the entry team if help is needed assisting with equipment requests or more hands-on tasks like working on top of a rail car. If a backup team goes in to assist the entry team, another backup team is put in place. If the entry team mission cannot be completed by the initial entry team, the backup team can become the next entry team after a briefing where mission tasks are identified and another backup team is in place. The backup team should possess any equipment necessary to support safe and effective removal operations for a member in PPE/CPC (rescue dragging device, explosion-proof (XP) hand lights, spare self-contained breathing apparatus (SCBA) cylinder with buddy hose, suit cutter, etc.). The backup team is not a rapid intervention team (RIT) or rapid intervention crew (RIC).

### The rescue team

The rescue team consists of responders trained to receive a stricken entry team member who has been removed from the Hot Zone by the backup team. Use of the rescue team is an option that is activated by the IC based on an assessment of risk and the needs of the incident.

The rescue team should be prepared to receive the stricken member from the backup team within one minute of activation unless otherwise instructed by Incident Command. The rescue team should be responsible for initiating emergency decontamination and life-saving measures immediately after handoff by the backup team. The rescue team possesses the equipment required to rescue the member from the CPC, such as suit cutters. The rescue team hands off the stricken member to emergency medical services (EMS). A rescue team should be considered on all hazardous materials/weapons of mass destruction (WMD) incidents.

The size of a backup team can be increased based on the number of members in the entry team or if the risk assessment indicates the need for additional technicians. The backup team should wear the same class PPE/CPC as the entry team unless approved by the IC based on a risk assessment for the specific hazard and documented in the Incident Action Plan (IAP). Structural firefighter protective clothing; National Fire Protection Association (NFPA) 1994, *Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents*; Class 5 gear; NFPA 2112, *Standard on Flame-Resistant Clothing for Protection of Industrial Personnel Against Short-Duration Thermal Exposures From Fire*; or other ensembles not designed for chemical protection should only be used for flammable environments where the chemical is not toxic via skin exposure (see NFPA 1891, *Standard on Selection, Care, and Maintenance of Hazardous Materials, CBRN, and Emergency Medical Operations Clothing and Equipment*, for specific guidance on selection of protective ensembles for hazardous materials/ chemical, biological, radiological and nuclear (CBRN) environments). The protective ensembles

meet the requirements of NFPA 1994, incorporated in the 2022 edition of NFPA 1990, *Standard for Protective Ensembles for Hazardous Materials and CBRN Operations*.

Based on the hazard-specific risk assessment, the backup team might need to be on air and near the entry team, but not within the hazardous area of the Hot Zone, whenever the backup team is physically a long distance from where the entry team is working, or the entry team will be operating in a large building, or the entry team will be operating above grade or below grade. The backup team should commence entry toward the stricken entry team member within one minute of an entry team member declaring a mayday. When the backup team needs to be deployed further toward the Hot Zone, a second backup team should be available.

Refer to NFPA 1006, *Standard for Technical Rescue Personnel Professional Qualifications*, NFPA 1407, *Standard for Training Fire Service Rapid Intervention Crews*, NFPA 1410, *Standard on Training for Initial Emergency Scene Operations*, NFPA 1500, *Standard on Fire Department Occupational Safety, Health, and Wellness Program*, NFPA 1521, *Standard for Fire Department Safety Officer Professional Qualifications*, NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, and NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments* for additional information on the definitions of RIT and RIC.

This page intentionally left blank.

# APPENDIX B

# INCIDENT ACTION PLAN INFORMATION

This page intentionally left blank.

## Incident Action Plan

The Incident Action Plan (IAP) is developed using a hierarchy of decision-making, action planning and resource use based on the following:

### Incident priorities

Regardless of the size or complexity of an event or incident, the fundamental priorities remain constant:

- **Life safety:** Protect responders and the public. (This includes rescuing endangered civilians, treatment of the injured, and provision for the safety, accountability, and welfare of response personnel. This life safety priority is ongoing throughout the incident.)
- **Incident stabilization:** Minimize the effects by keeping the incident from escalating and bringing it under control.
- **Property conservation:** Protect property, infrastructure, evidence, economy, environment, and provide for recovery.
- **Environmental, historical and cultural preservation:** Preserve the environment and sites of historical and cultural significance.

### Incident objectives

Broad descriptions or statements of the desired outcomes or actions to achieve consistent with the priorities.

### Strategic considerations

- **Isolation:** Gain control of the scene by establishing control areas; isolating contaminated victims for decontamination.
- **Notification:** Request the agencies and resources that will be needed during the incident.
- **Identification:** An assessment of the hazards of the scene (site characterization). Gather the needed information to develop and implement your IAP.
- **Protection:** Implement measures to limit the potential for harm.
- **Control:** Applying the incident priorities and risk assessment, establish and implement tactics and tasks to protect life and stabilize the incident.
- **Termination:** Conclude your agency's responsibility by transfer of information and to the Incident Commander (IC) through your representative within Unified Command (UC).

This page intentionally left blank.

# APPENDIX C

# FINAL QUALITY ASSURANCE CHECKLIST

This page intentionally left blank.

## FINAL QUALITY ASSURANCE CHECKLIST

The checklist below is intended to serve as a tool that the Planning Section Chief (PSC) uses before granting final approval to the Incident Action Plan (IAP).

☐ Do the tasks listed on the Assignment List(s) (Federal Emergency Management Agency (FEMA) Incident Command System (ICS) Form 204, Assignment List) support the Incident Objectives (FEMA ICS Form 202, Incident Objectives)?

☐ Does the incident map reflect the operation elements identified on the Incident Organization Chart (FEMA ICS Form 207, Incident Organization Chart) or the FEMA ICS Form 204?

☐ Does the Incident Telephone Communications Plan (FEMA ICS Form 205 A, Communications List) provide information on the operation elements identified on the FEMA ICS Form 207 or the FEMA ICS Form 204?

☐ Are all assigned radio frequencies, trunked radio systems and talk group assignments identified on the Incident Radio Communications Plan (FEMA ICS Form 205, Incident Radio Communications Plan), and does the information reflect the operation elements identified on the FEMA ICS Form 207 or the FEMA ICS Form 204?

☐ Does information on the Medical Plan (FEMA ICS Form 206, Medical Plan) identify the closest medical facility to each operation element identified on the incident map, the FEMA ICS Form 207, or the FEMA ICS Form 204? Does it identify what should be done if someone is injured or is seriously ill?

☐ Does the IAP use common ICS terminology throughout the document?

☐ Does the Meeting Schedule (FEMA ICS Form 230, Daily Meeting Schedule) contain at a minimum, the following?

- Appropriate incident action planning meetings.
- Strategy meetings.
- Team meetings.
- Public meetings.

Source: https://www.fema.gov/sites/default/files/2020-07/Incident_Action_Planning_Guide_Revision1_august2015.pdf

This page intentionally left blank.

# *UNIT 3: INITIAL OPERATIONAL PERIOD*

### *TERMINAL OBJECTIVE*

*The students will be able to:*

*3.1 Manage a risk-based response for the initial operational period of a hazardous materials/weapons of mass destruction (WMD) incident.*

### *ENABLING OBJECTIVES*

*The students will be able to:*

*3.1 Analyze the problem for the initial operational period.*

*3.2 Develop objectives for the initial operational period.*

*3.3 Analyze resource needs for the initial operational period.*

*3.4 Evaluate progress of the incident response for the initial operational period.*

*3.5 Develop an Incident Action Plan (IAP) for the initial operational period.*

*3.6 Create briefings for the initial operational period.*

This page intentionally left blank.

FEMA

U.S. Fire Administration

# UNIT 3: INITIAL OPERATIONAL PERIOD

Slide 3-1

## TERMINAL OBJECTIVE

Manage a risk-based response for the initial operational period of a hazardous materials/ weapons of mass destruction (WMD) incident.

Slide 3-2

## ENABLING OBJECTIVES

- Analyze the problem for the initial operational period.
- Develop objectives for the initial operational period.
- Analyze resource needs for the initial operational period.

Slide 3-3

## ENABLING OBJECTIVES (cont'd)

- Evaluate progress of the incident response for the initial operational period.
- Develop an Incident Action Plan (IAP) for the initial operational period.
- Create briefings for the initial operational period.

Slide 3-4

# I. INITIAL OPERATIONAL PERIOD

How would you define the initial operational period?

Slide 3-5

What kind of documentation will you need for the initial operational period?

Slide 3-6

# ACTIVITY 3.1

## Initial Operational Period

### Purpose

Implement a risk-based response for the initial operational period of a hazardous materials/ weapons of mass destruction (WMD) incident.

### Directions

1. In your table group, determine which group member's community resources will be used for your assigned scenario found on the following activity pages.

2. The student whose community resources and facilities are used will provide a brief overview of their resources and facilities utilizing the identified scenario location in their community.

3. Use current weather and environmental conditions outside the classroom.

4. Using the Incident Command tools, your group will:

    a. Analyze the problem.

    b. Develop objectives.

    c. Assign resources.

    d. Evaluate progress of the incident response.

    e. Create an Incident Action Plan (IAP), utilizing Incident Command System (ICS) forms.

5. Exchange IAPs with a different table group. Critique each other's IAPs based off your assigned scenarios. Use the grading rubric to guide your critique.

6. Develop and deliver a responder briefing for the Hazardous Materials Group and responders.

This page intentionally left blank.

## ACTIVITY 3.1 (cont'd)

### Scenario 1: Chemical Reaction and Release at a Processing Plant Scenario

Photo courtesy of U.S. Chemical Safety and Hazard Investigation Board (CSB).

**Dispatch information:** Time is 08:05. You are dispatched to the local chemical manufacturing facility for reports of a large cloud coming from the tank farm area of the plant. Dispatch advises that they have received multiple calls from the facility, passing motorists, and nearby homes and businesses. Traffic is at peak levels in the town of 12,000 residents, with school buses making their morning pickups and shift workers coming and going. All callers report a noxious odor associated with the cloud.

**Circumstances:** From preplan information, it is known that the facility runs three shifts and that there are 100 employees on the first and third shifts and 200 employees on the second shift. Plant workers advised that earlier today, at 07:45 hours, a chemical delivery truck had arrived to deliver 6,000 gallons of product. The driver checked in with the control room and was escorted to the fill port connections for the tank farm. The fill port connection area contains fill ports for all the aboveground storage tanks, and the fill ports are not well labeled.

The driver connected his tank vehicle to one of the fill connections, opened the valves, began to offload the product, and returned to the truck's cab to complete the paperwork. A short time later, the driver noticed a strong odor and saw a large cloud from the tank farm area. The driver attempted to return to the fill port area but was not able to due to the strong odor. The driver then attempted to activate the emergency shutoff on his tank vehicle but was unable to do so due to the strong odor and growing cloud. The driver evacuated the area and located some plant employees who were able to notify the control room and trigger the facility's alarm system.

There are two aboveground storage tanks in the tank farm:

**Tank contents:**

Tank 1: 8,500-gallon tank containing sulfuric acid.

Tank 2: 6,500-gallon tank containing sodium hypochlorite.

Note: This will produce chlorine gas.

An active, growing cloud is coming from the top hatch of Tank 1, and an active, growing liquid spill at the tank farm fill port area. Upon arrival of emergency personnel, at least 10 plant personnel present themselves complaining of stinging eyes, coughing and difficulty breathing.

## ACTIVITY 3.1 (cont'd)

### Scenario 2: Multiple Incidents at Riverfront Chemical Plant Scenario

Photo courtesy of CSB.

**Dispatch information:** Time is 14:00. You are dispatched to the local chemical plant for reports of a large spill incident on the property. Dispatch advises that they have received additional reports of an active leak and that the spill has entered the river along the facility's west side.

**Circumstances:** While incidents at this facility are not frequent, less than 12 hours ago, your agency had been dispatched to the same location for a toxic gas leak that sent three workers to the hospital with non-life-threatening injuries. That incident is currently under investigation by the facility and several government agencies. Upon arrival, you are met by facility personnel that report the incident as an active leak from a pipe and estimate that at least 100 gallons of product have been discharged. The product has flowed from the production building 30 feet across a parking lot and into the river.

Spill/leak: oleum.

Toxic gas: phosgene.

This page intentionally left blank.

## ACTIVITY 3.1 (cont'd)

## Scenario 3: Railroad Incident


Photo courtesy of Google Maps image (adapted).

**Dispatch information:** At 15:30 hours, you are dispatched to the area of Railroad Avenue on reports of a possible train wreck. The area is a mix of industrial and residential. En route, dispatch advises that one caller reports being trapped in his vehicle near the wreck.

**Circumstances:** Upon arrival, the first unit advises that the train appears to have struck another train at the siding near Aiken Road. Multiple cars have left the track, at least two railcars are discharging products and units are retreating upwind.

Train derailment: train car placarded with UN 1017 has left the track along with a second car which displays a red and white placard with Division 4.1. The cars are sitting in a "V" or accordion fashion. A yellowish-green cloud is emanating from the area where the cars come together. The cloud is slowly moving downwind and spreading laterally.

This page intentionally left blank.

## ACTIVITY 3.1 (cont'd)

## Scenario 4: Bulk Storage Facility

Figure 1. ITC Fire. This photo shows the ITC fire involving tank 80-8 on March 17, 2019. (Source: ABC13 Houston).


Figure 7. First & Second 80's Tank Farm. This photo shows the fire raging on Tuesday, March 19, 2019, and fully extinguished on Wednesday, March 20, 2019. (Source: KHOU 11 News).

Photos courtesy of CSB report.

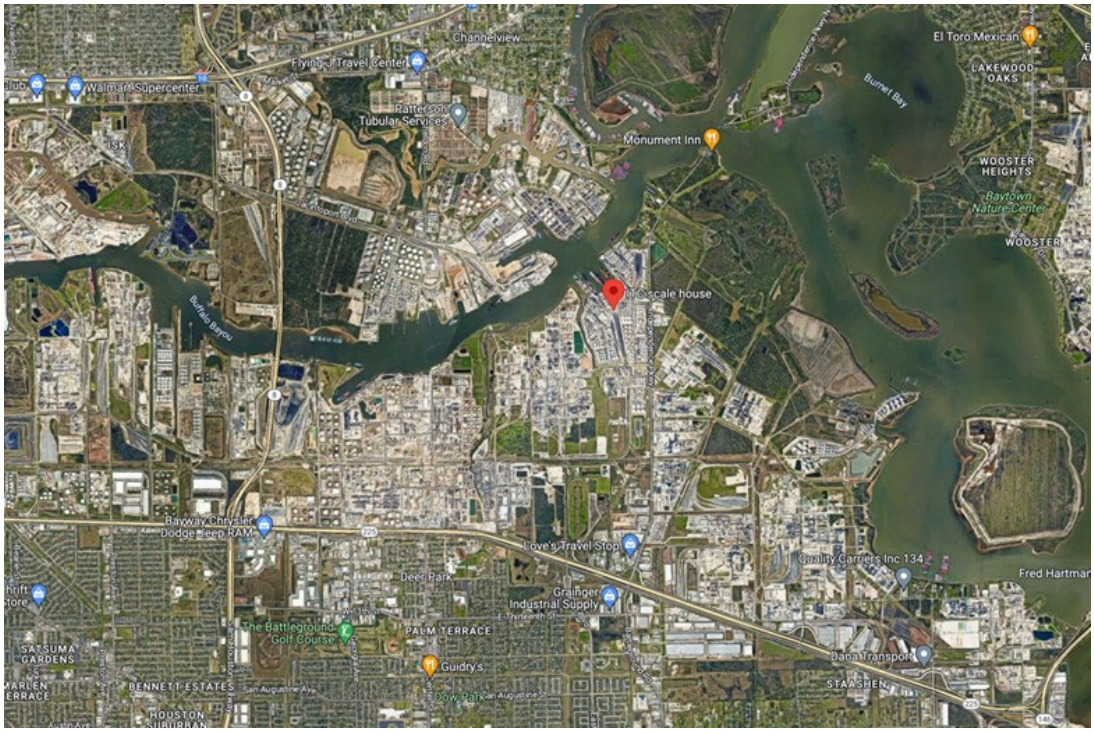



Photo courtesy of Google Maps.

From the CSB report:

A large bulk liquid storage terminal in your metro community has an explosion resulting in multiple large flammable liquid storage containers on fire. The fire originated in the vicinity of an 80,000-gallon aboveground atmospheric pressure storage tank that holds naphtha. Current

efforts have been unable to isolate or stop the release of naphtha products from the tank, and the fire continues to burn, intensify and progressively involve additional tanks in the tank farm. The local community is experiencing disruptions, including several shelter-in-place notifications, which prompted local schools and businesses either to close or operate under modified conditions.

Products: naphtha, butane, nitrogen.

Containers: 80,000-gallon atmospheric storage containers for flammable liquids.

DOT 331 butane tank truck.

DOT 338 liquid nitrogen truck.

## ACTIVITY 3.1 (cont'd)

## Scenario 5: Solvent Facility

Photo courtesy of CSB.

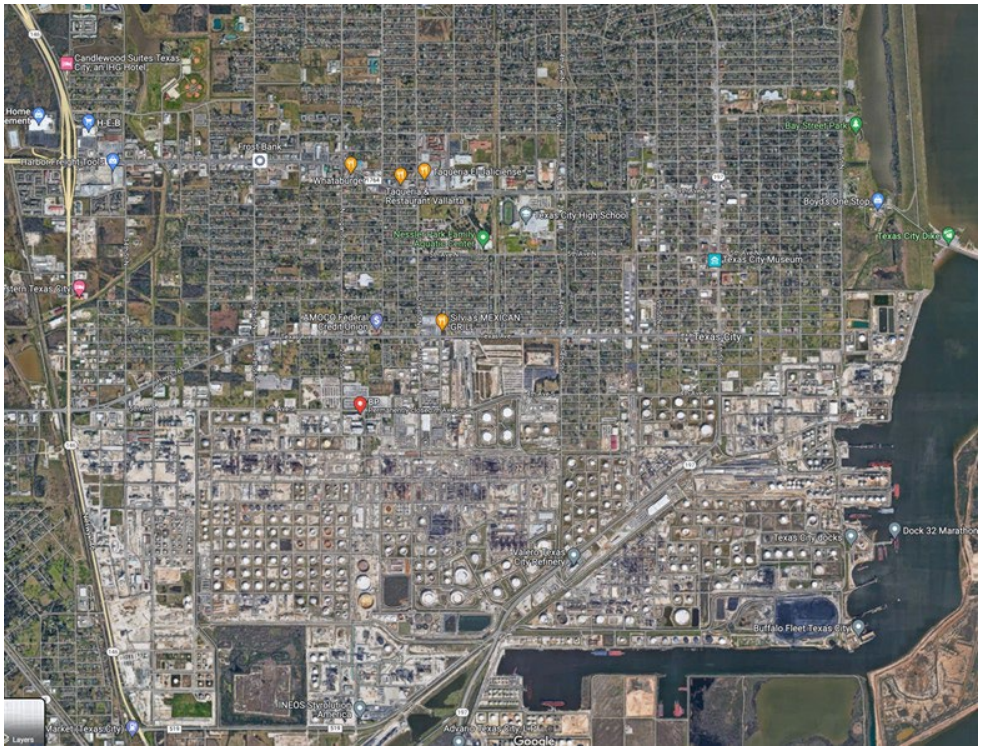



Photo courtesy of Google Maps.

From the CSB report:

An explosion and fire occurred at a solvent facility in your community. The explosion sent parts of a Class 1B flammable liquid tank rocketing into the air, trailing a cloud of smoke and fire from the burning liquid. Witnesses heard the explosion and saw the fireball from several miles

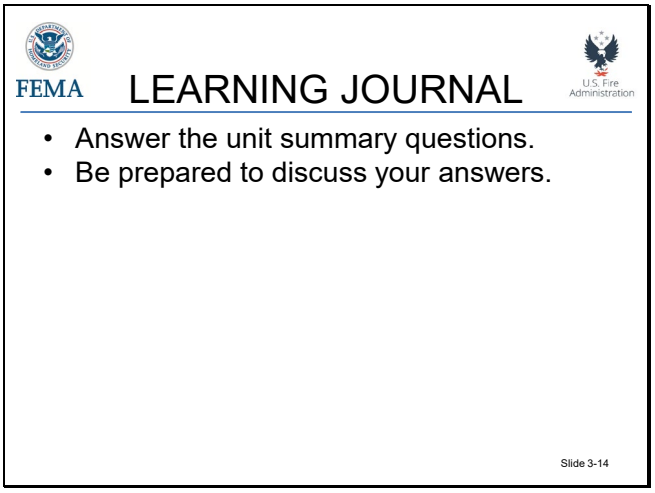
away. Within moments, two more tanks ruptured and released their contents into the rapidly escalating fire that is concentrated inside the earthen spill containment area surrounding the tank farm. As the fire burned, the contents of other tanks over-pressurized or ignited, launching steel tank tops (10 to 12 feet in diameter), vent valves, pipes and steel parts off-site and into the adjoining community. The incident triggered an evacuation of approximately 6,000 residents.

Products: Varnish Maker and Painter's (VM&P) naphtha, benzene, toluene, xylene, cyclohexane.

Containers: 15,000-gallon steel tanks.

DOT 306 and DOT 407 tanker-trailers.

## II. LEARNING JOURNAL



This page intentionally left blank.

# *UNIT 4: MULTI-OPERATIONAL PERIOD*

### *TERMINAL OBJECTIVE*

*The students will be able to:*

*4.1 Manage a risk-based response for the multi-operational period of a hazardous materials/weapons of mass destruction (WMD) incident.*

### *ENABLING OBJECTIVES*

*The students will be able to:*

*4.1 Identify Incident Command System (ICS) leadership positions needed for a multi-operational period incident.*

*4.2 Identify the components of the Planning "P" process for the multi-operational period.*

*4.3 Analyze the problem for the multi-operational period.*

*4.4 Develop objectives for the multi-operational period.*

*4.5 Analyze resource needs for the multi-operational period.*

*4.6 Evaluate progress of the incident response for the multi-operational period.*

*4.7 Develop an Incident Action Plan (IAP) for the multi-operational period.*

*4.8 Create briefings for the multi-operational period.*

*4.9 Create a briefing for elected officials and the media based on the IAP.*

This page intentionally left blank.

FEMA

U.S. Fire Administration

# UNIT 4:
# MULTI-OPERATIONAL PERIOD

Slide 4-1

## TERMINAL OBJECTIVE

Manage a risk-based response for the multi-operational period of a hazardous materials/ weapons of mass destruction (WMD) incident.

Slide 4-2

## ENABLING OBJECTIVES

- Identify Incident Command System (ICS) leadership positions needed for a multi-operational period incident.
- Identify the components of the Planning “P” process for the multi-operational period.
- Analyze the problem for the multi-operational period.
- Develop objectives for the multi-operational period.

Slide 4-3

## ENABLING OBJECTIVES (cont'd)

- Analyze resource needs for the multi-operational period.
- Evaluate progress of the incident response for the multi-operational period.
- Develop an Incident Action Plan (IAP) for the multi-operational period.
- Create briefings for the multi-operational period.
- Create a briefing for elected officials and the media based on the IAP.

Slide 4-4

# ACTIVITY 4.1

## Incident Command System Leadership Positions

### Purpose

Identify Incident Command System (ICS) leadership positions needed for a multi-operational period incident.

### Directions

1. In your table group, identify all leadership personnel and equipment for the incident. Refer to Appendix A: Incident Command System Positions for a Hazardous Materials/ Weapons of Mass Destruction Incident for more information. Leadership personnel can be personnel that are in the fire service or other personnel.

2. On an easel pad, draw an ICS chart and identify those leadership personnel and where their positions fall on the command structure chart.

3. Select a representative to present your findings to the class.

This page intentionally left blank.

# ACTIVITY 4.2

## The Planning "P"

### Purpose

Identify the components of the Planning "P" process for the multi-operational period.

### Directions

1. In your table group, you should have already watched the video "ICS Planning Cycle 1 of 10" on the ICS Planning Cycle found at https://www.youtube.com/watch?v=ebR8dYxBA7Q&list=PL59CC5BB3DA5CABD5.

2. Prepare a five- to 10-minute presentation for the class on your assigned components of the ICS Planning Cycle. They are:

   a. Agency Administrator Briefing.

   b. Incident Briefing.

   c. Strategy/information sharing.

   d. Tactics.

   e. Preparation for planning.

   f. Planning meeting.

   g. Incident Action Plan (IAP) preparation and approval.

   h. Operational Period Briefing.

This page intentionally left blank.

# ACTIVITY 4.3

## Multi-Operational Period

### Purpose

Implement a risk-based response for the multi-operational period of a hazardous materials/ weapons of mass destruction (WMD) incident.

### Directions

1. Your table group has assumed command of a designated incident from Unit 3: Initial Operational Period. Using this scenario with prior incident documentation, including the IAP, manage the incident for the multi-operational period.

2. Use current weather and environmental conditions outside the classroom.

3. Incorporate the Planning "P" process into Incident Command for the multi-operational period.

4. Using the Incident Command tools, your group will:

    a. Analyze the problem.

    b. Develop objectives.

    c. Assign resources.

    d. Evaluate progress of the incident response.

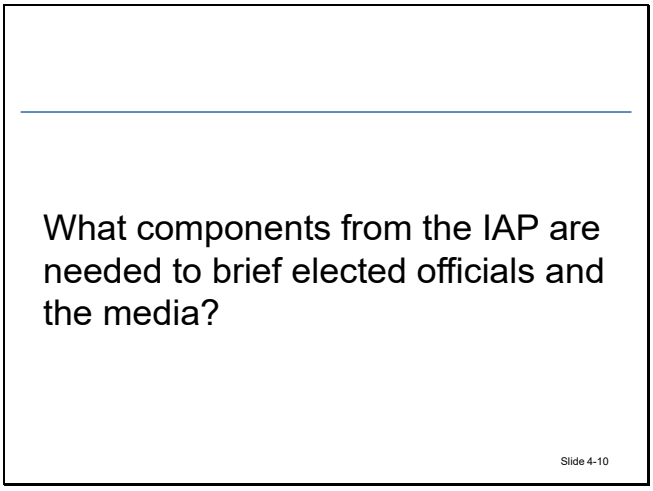
    e. Develop an IAP.

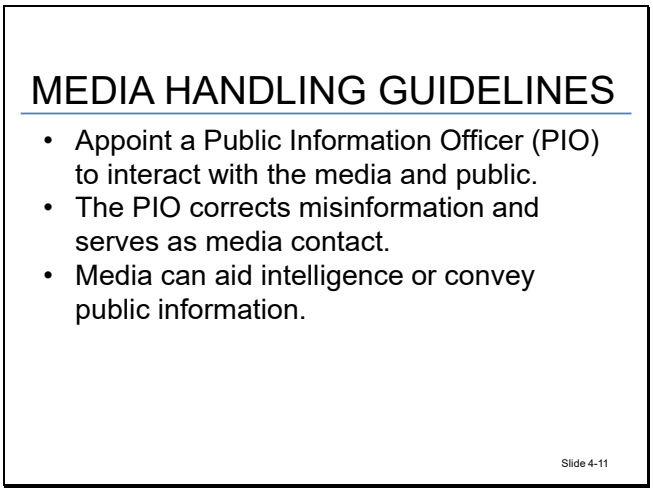
5. Develop and deliver a briefing for the Hazardous Materials Group or general responders (as assigned).

6. Select a representative to deliver the briefing to the class.

This page intentionally left blank.

# I. BRIEFING ELECTED OFFICIALS AND THE MEDIA



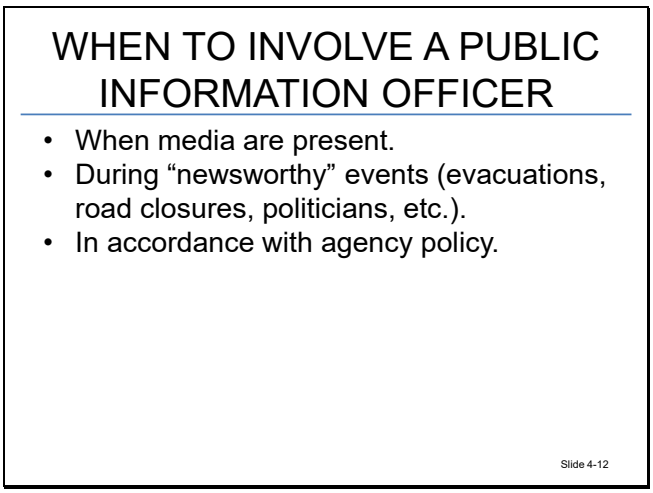




A. Media handling guidelines.

1. Appoint a Public Information Officer (PIO) to interact with the media and public.

2. The PIO corrects misinformation and serves as media contact.

3. Media can aid intelligence or convey public information.




B. When to involve a PIO.

1. When media are present.

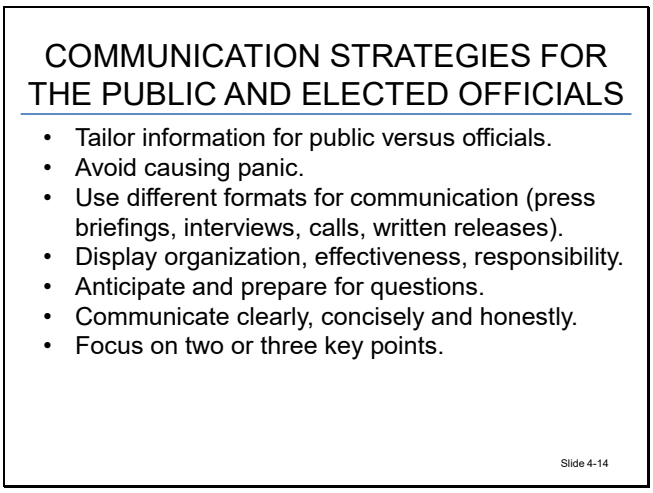
2. During "newsworthy" events (evacuations, road closures, politicians, etc.).

3. In accordance with agency policy.


C. Media rights and exceptions.

1. Media have freedom of the press (First Amendment).

2. Exceptions include not entering crime scenes, trespassing or interfering with operations.




D. Communication strategies for the public and elected officials.

1. Tailor information for public versus officials.

2. Avoid causing panic.

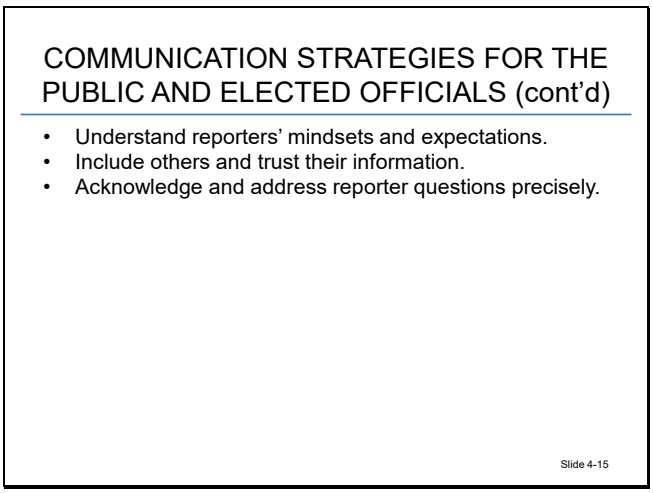
3. Use different formats for communication (press briefing, interviews, calls, written releases).

4. Display organization, effectiveness, responsibility.

5. Anticipate and prepare for questions.

6. Communicate clearly, concisely and honestly.

7. Focus on two or three key points.




8. Understand reporters' mindsets and expectations.

9. Include others and trust their information.

10. Acknowledge and address reporter questions precisely.

VIDEO PRESENTATION

"OFFICIALS GIVE UPDATE ON HAZMAT SITUATION IN SAN PABLO"

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

Slide 4-16

VIDEO PRESENTATION

"CLARKE AND DAWE - THE FRONT FELL OFF"

https://www.youtube.com/watch?v=3m5qxZm_JqM&t=2s

Slide 4-17

# ACTIVITY 4.4

## Briefing Elected Officials and the Media

### Purpose

Conduct a briefing for elected officials and the media based on the IAP.

### Directions

1. Using your current incident scenario, develop and conduct an elected official and media briefing to the class. Refer to Appendix B: The Planning "P" Process for more information.

2. Each member of your table group will play a specific role in the briefing. Potential roles may include:

   a. Incident Commander (IC).

   b. Safety Officer (SOFR).

   c. Hazardous Materials Group Leader.

   d. Research/Science Officer.

   e. Fire chief.

   f. Medical Group Leader.

   g. Facility representative.

3. You will present your briefing to the class, and your briefing will be evaluated by the instructors and the class.

This page intentionally left blank.

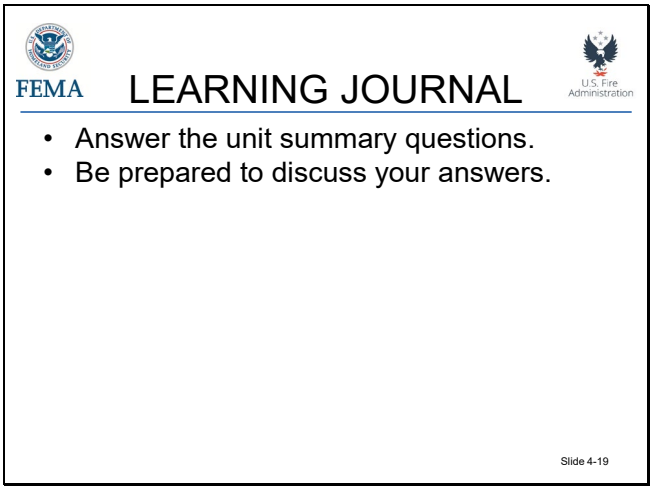
## ACTIVITY 4.4 (cont'd)

### Sample Interview Questions

1. What happened?
2. When did it happen?
3. Where did it happen?
4. Who was involved?
5. What were the causes of the incident?
6. What actions were taken in response to the incident?
7. What are the potential risks to public health and safety?
8. Were there any victims/fatalities?
9. What are the next steps?
10. What are the cultural/environmental/tribal effects?

This page intentionally left blank.

## II. LEARNING JOURNAL



This page intentionally left blank.

# APPENDIX A

# INCIDENT COMMAND SYSTEM POSITIONS FOR A HAZARDOUS MATERIALS/WEAPONS OF MASS DESTRUCTION INCIDENT

This page intentionally left blank.

## Incident Command System Positions for Hazardous Materials/Weapons of Mass Destruction Incidents

### Hazardous Materials Branch Director/Group Supervisor

The Hazardous Materials Branch Director/Group Supervisor manages all tactical operations carried out in the Exclusion/Hot Zone. The Hazardous Materials Branch Director/Group Supervisor will work with an Assistant Safety Officer (SOFR) for Hazardous Materials. The Branch Director/Group Supervisor may also supervise one or more Technical Specialists.

### Assistant Safety Officer for Hazardous Materials

The Assistant SOFR for Hazardous Materials reports directly to the Incident SOFR. This position is responsible for the overall safety of assigned personnel within the Hazardous Materials Branch/Group and must be knowledgeable in the operations being implemented.

### Information/Science — Technical Specialist

The Information/Science — Technical Specialist is responsible for identifying the product, determining chemical and physical properties of the material, and selecting appropriate personal equipment and clothing compatible with the hazard present as well as advising the Incident Commander (IC) on control zones and other public protection decisions.

### Hazardous Materials Resources Unit Leader

The Hazardous Materials Resources Unit Leader tracks and maintains specialized equipment and consumables used by the hazardous materials team.

### Medical Unit Leader

The Medical Unit Leader (MEDL) supervises the medical fitness, wellness and readiness of all responders who will be operating in the Exclusion/Hot Zone. They assure the proper level of treatment and transport capabilities for responders and provide medical approval for all responders who will operate downrange.

### Entry Unit Leader

The Entry Unit Leader supervises all companies and personnel operating in the Exclusion/Hot Zone.

## Decontamination Unit Leader

The Decontamination Unit Leader supervises all operations in the Contamination Reduction/Warm Zone (except for those handled by the Safe Refuge Area Manager). The Decontamination Leader ensures that all rescued citizens, response personnel and equipment have been decontaminated before leaving the incident.

## Site Access Control Unit Leader

The Site Access Control Unit Leader controls all movement of personnel and equipment between the control zones including the Safe Refuge Area.

Tactical operations outside of the control zones, as well as many other hazardous materials-related functions, are managed under the Incident Command System (ICS). Other needs will be met by filling Command and General Staff positions.

# APPENDIX B

## THE PLANNING “P” PROCESS

This page intentionally left blank.

## The Planning "P" Process

### Planning "P"

Many incident management organizations use a formal planning cycle with established meetings and deliverables to mark their progress through the planning process and enable coordination of the entire team. The Planning "P," illustrated in Figure 1, is a graphical representation of the sequence and relationship of the meetings, work periods and briefings that comprise the incident action planning cycle.

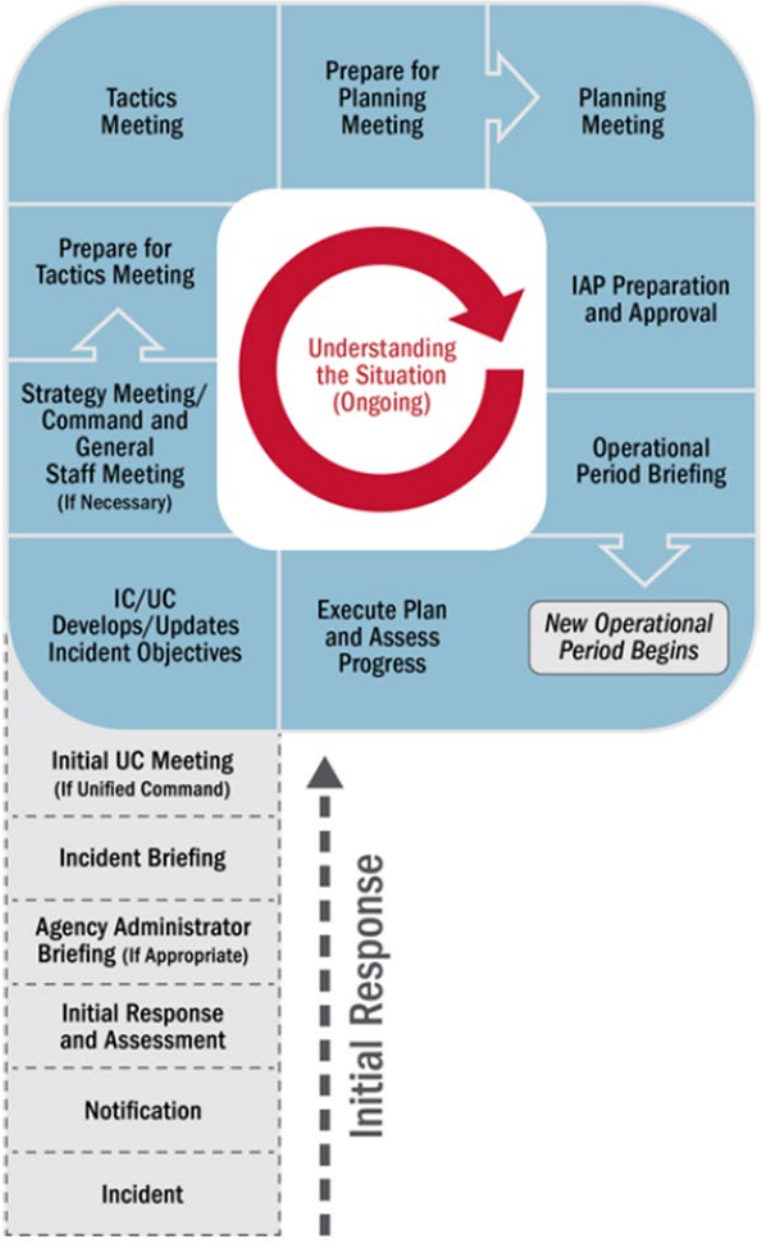



Figure 1. The National Incident Management System (NIMS) Planning "P"

The leg of the "P" describes the initial stages of an incident when personnel work to gain awareness of the situation and establish the organization for incident management. Incident personnel perform the steps in the leg of the "P" one time. Once they are accomplished, incident management shifts into a cycle of planning and operations, informed by ongoing situational awareness and repeated each operational period.

## Initial Response and Assessment

The responder(s) who is first to arrive at the incident scene conducts the initial assessment and takes whatever immediate response actions are appropriate and possible. The initial or rapid assessment is essential to gaining situational awareness. It enables the Incident Commander (IC) to request additional resources and/or support, develop and implement initial tactics. Jurisdiction officials might decide to activate an Emergency Operations Center (EOC) based on the initial assessment.

## Agency Administrator Briefing

The Agency Administrator Briefing is a presentation to the personnel who will be managing or supporting the incident by the administrator or other senior official of the jurisdiction, agency or organization affected by the incident. This briefing occurs when the IC or Unified Command (UC) is assuming duties outside their normal responsibilities or is from an entity or jurisdictional area that does not possess authority to manage the incident they are being assigned. In such cases, the briefing provides supporting details to the delegation of authority or other document that the jurisdiction, agency or organization typically provides for the incident.

## Commander or Unified Command

During the briefing, the Agency Administrator, or a designee, provides information, guidance and direction — including priorities and constraints — necessary for the successful management of the incident. The briefing is intended to ensure a common understanding between the jurisdiction, agency or organization, and incident personnel regarding such things as the environmental, social, political, economic and cultural issues relevant to the incident and its location.

## Incident Briefing

The Incident Briefing marks the transition from reactive to proactive incident management. The initial IC typically delivers the briefing to the incoming IC or UC. This meeting enables the incoming IC or UC to initiate planning for the next operational period.

## Initial Unified Command Meeting

If a UC is managing the incident, the Initial UC Meeting allows members of the UC to meet in private to discuss each jurisdiction or organization's priorities and objectives as well as any limitations, concerns and restrictions. During the Initial UC Meeting, members of the UC generally accomplish the next step by developing the initial joint incident objectives and appoint key staff.

## Objectives Development/Update

The IC or UC establish the incident objectives for the initial operational period. After the initial operational period, the IC or UC reviews the incident objectives and may validate them, modify them or develop new objectives. Incident objectives are based on incident priorities and other requirements. Clearly communicated priorities and objectives support unity of effort among incident personnel and enable the development of appropriate strategies and tactics. When the members of the team clearly understand the intent behind their instructions, they are better equipped to act decisively and make good decisions.

## Strategy Meeting/Command and General Staff Meeting

After developing or revising the incident objectives, the IC or UC typically meets with the Command and General Staff, and sometimes others, to discuss the incident objectives and provide direction. This meeting may be called the Strategy Meeting or the Command and General Staff Meeting and is held as needed to determine how best to meet the incident objectives. The initial Strategy Meeting, which is held the first time through the planning cycle, is particularly important, because it allows team members to share information and jointly determine the initial approach to response operations. The initial Strategy Meeting may include the initial IC and a representative from the Agency Administrator.

## Preparing for the Tactics Meeting

Once the approach to achieving or working toward achieving the incident objectives is determined, the Operations Section Chief (OSC) and staff prepare for the Tactics Meeting by developing tactics and determining the resources that will be applied during the operational period.

## Tactics Meeting

The Tactics Meeting is a forum for key players to review the proposed tactics developed by the Operations Section staff and to conduct planning for resource assignments. The OSC leads the Tactics Meeting, and key participants include the Logistics Section Chief (LSC), Safety Officer (SOFR), a representative from the Planning Section (typically, the Resources Unit Leader (RESL)), and other Technical Specialists or team members invited by the OSC, LSC or SOFR.

The team uses ICS Forms 215, Operational Planning Worksheet, and 215A, Incident Action Plan Safety Analysis, to facilitate and document decisions they make during the meeting.

## Preparing for the Planning Meeting

Following the Tactics Meeting, preparations begin for the Planning Meeting. Team members collaborate between the Tactics Meeting and the Planning Meeting to identify support needs and assign specific operational resources to accomplish the operational plan.

### Planning Meeting

The Planning Meeting serves as a final review and approval of operational plans and resource assignments developed during and after the Tactics Meeting. Ideally, the Planning Meeting involves no surprises and simply serves as a review of a plan that the Command and General Staff have collaboratively developed and agreed upon. At the end of the Planning Meeting, Command and General Staff and any agency officials involved confirm that they can support the plan.

Table 1: The Incident Action Plan

| The Incident Action Plan and typical attachments | Normally prepared by Incident Command System |
|---|---|
| Incident Objectives (Incident Command System (ICS) Form 202) | IC or UC |
| Organization Assignment List or Chart (ICS Forms 203, 207) | Resources Unit |
| Assignment List (ICS Form 204) | Resources Unit |
| Incident Radio Communications Plan (ICS Form 205)<br>Or Communications List (ICS Form 205A) | Communications Unit |
| Medical Plan (ICS Form 206) | Medical Unit |
| Incident Maps | Situation Unit |
| General Safety Message/Site Safety Plan (ICS Form 208) | SOFR |
| **Other potential components** | **Incident dependent** |
| Air Operations Summary | Air Operations |
| Traffic Plan | Ground Support Unit |
| Decontamination Plan | Technical Specialist |
| Waste Management or Disposal Plan | Technical Specialist |
| Demobilization/Deactivation Plan | Demobilization Unit |
| Site Security Plan | Law Enforcement, Technical Specialist or Security Manager |
| Investigative Plan | Intelligence/Investigations Function |
| Evacuation Plan | As needed |
| Meeting Schedule (ICS Form 230) | Situation Unit |
| Sheltering/Mass Care Plan | As needed |
| Other (as needed) | As needed |

## Planning Meeting agenda — general elements

- Introductions — Planning Section Chief (PSC).
- Remarks — IC/UC.
- Weather and incident projections — PSC.
- Incident objectives — PSC.
- Current operations and proposed plan — OSC.
- Technical specialist (as needed).
- Communications and medical plan — LSC.
- Financial requirements — Finance/Administration Section Chief (FSC).
- Media plan for information — Public Information Officer (PIO).
- Interagency issues — Liaison Officer (LNO).
- Safety plan — SOFR.
- Call for approval of the plan — PSC.

- Closing remarks — IC/UC.
- Deadlines/meeting time reminders — PSC.

## Incident Action Plan Preparation and Approval

Based on concurrence from all elements at the end of the Planning Meeting, the IC or UC approves the plan. After this final approval, the Planning Section staff assemble the plan and ensure that it is ready for use during the Operational Period Briefing.

A written Incident Action Plan (IAP) is composed of a series of standard forms and supporting documents that convey the intent of the IC or UC, as well as the OSC for the operational period. The IC or UC determines which ICS forms and attachments to include in the IAP; the PSC ensures that staff in the appropriate sections, branches or units prepare the forms and attachments. The IC or UC gives final approval of the written IAP before Planning Section staff reproduce and disseminate it. IAPs may be distributed electronically, in hard copy or both.

## Operational Period Briefing

Each operational period starts with an Operational Period Briefing. Incident supervisory and tactical personnel receive the IAP during the briefing. During this briefing, various members of the Command and General Staff present the incident objectives, review the current situation, and share information related to communications or safety. Following the Operational Period Briefing, supervisors brief their assigned personnel on their respective assignments as documented in the IAP. During longer operational periods, shift change briefings may be conducted within an operational period.

### Operational Briefing agenda — general elements

- Introductions — PSC.
- Review incident objectives — IC/UC.
- Current incident objective status — OSC.
- Boundaries/branch — group locations — OSC.
- Group/unit assignments — OSC.
- Safety issues/safety message — SOFR.
- Communications and medical plan — LSC.
- Incident information (as needed) — PIO, FSC, LNO.
- Closing remarks — IC/UC, Agency Administrator.
- Close meeting — PSC.

# *UNIT 5: TERMINATION OR TRANSFER*

### *TERMINAL OBJECTIVE*

*The students will be able to:*

*5.1 Manage the termination of the hazardous materials/weapons of mass destruction (WMD) incident.*

### *ENABLING OBJECTIVES*

*The students will be able to:*

*5.1 Determine termination of incident or of the emergency response.*

*5.2 Determine objectives for the termination of the hazardous materials/WMD incident.*

*5.3 Analyze resource needs for the termination of the hazardous materials/WMD incident.*

*5.4 Record actions needed in the Incident Action Plan (IAP) for the termination of the hazardous materials/WMD incident.*

*5.5 Create briefings for the termination of the hazardous materials/WMD incident.*

This page intentionally left blank.

FEMA

U.S. Fire Administration

# UNIT 5: TERMINATION OR TRANSFER

Slide 5-1

## TERMINAL OBJECTIVE

Manage the termination of the hazardous materials/weapons of mass destruction (WMD) incident.

Slide 5-2

## ENABLING OBJECTIVES

- Determine termination of incident or of the emergency response.
- Determine objectives for the termination of the hazardous materials/WMD incident.
- Analyze resource needs for the termination of the hazardous materials/WMD incident.

Slide 5-3

## ENABLING OBJECTIVES (cont'd)

- Record actions needed in the Incident Action Plan (IAP) for the termination of the hazardous materials/WMD incident.
- Create briefings for the termination of the hazardous materials/WMD incident.

Slide 5-4

# ACTIVITY 5.1

## Incident Termination Phase

### Purpose

Determine the termination of an incident.

### Directions

1. In your table groups, define the terms “incident termination” and “emergency response termination.” Refer to Appendix A: Incident Termination Information for more information.

2. Determine the characteristics of each term.

3. Discuss how each one of them impacts decision-making when terminating an incident.

4. Record your findings on an easel pad, and select a representative to present to the class.

This page intentionally left blank.

# ACTIVITY 5.2

## Incident Termination

### Purpose

Manage the termination of the hazardous materials/weapons of mass destruction (WMD) incident.

### Directions

1. Your table group has assumed command of a designated incident from Unit 4: Multi-Operational Period. Using this scenario with prior incident documentation/Incident Action Plan (IAP), manage the incident termination.

2. Use current weather and environmental conditions outside the classroom.

3. Using the Incident Command tools, your group will:

    a. Determine incident or emergency response termination. Document your justification.

    b. Develop a Demobilization Plan (see Appendix B: Incident Demobilization Information for more information).

    c. Develop objectives.

    d. Assign resources.

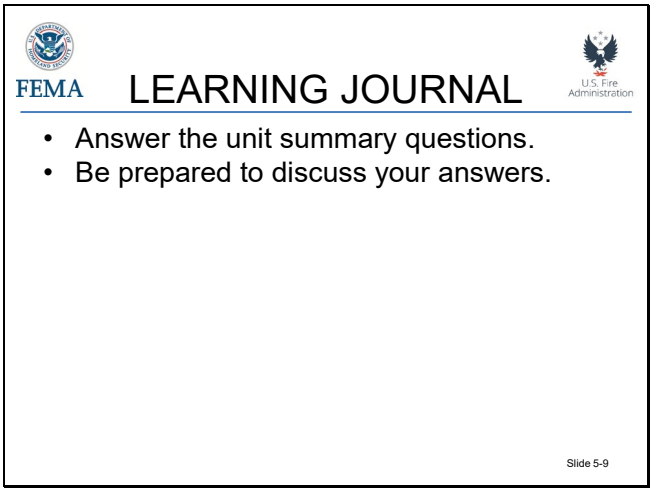
    e. Document appropriate actions in the IAP.

4. Develop and deliver a responder briefing for the Hazardous Materials Group and responders.

5. Present your briefing to another table group. Evaluate the other table group's briefing using the rubric in the beginning of the Student Manual (SM).

This page intentionally left blank.

## I. LEARNING JOURNAL




## II. END OF COURSE

This page intentionally left blank.

# APPENDIX A

# INCIDENT TERMINATION INFORMATION

This page intentionally left blank.

## TERMINATING THE INCIDENT

Termination is an important phase of any hazardous materials incident. Termination is that portion of incident management after the cessation of emergency tactical operations in which personnel are involved in documenting safety procedures, site operations, hazards faced and lessons learned from the incident and includes specifications for debriefing, Post-Incident Analysis (PIA) and critique in a specific sequence.

### Debriefing

The debriefing is designed to capture response actions and provides for release of necessary information to emergency response personnel immediately after the "emergency" phase of operations. It should be conducted before responders leave the scene and in a location free from distractions. A debriefing should cover the following topics:

**Health information**

- Substances to which personnel may have been exposed.
- Signs and symptoms of exposure.
- Information for personal exposure records.
- Signs and symptoms of "critical incident stress" if responders or civilians are injured or killed.
- Responsibilities for follow-up evaluations if appropriate.

**Equipment and apparatus**

- Identification of equipment damage and plans for cleaning or disposing of contaminated materials.
- Delegation of responsibility for handling contaminated garments.
- Review of post-incident equipment decontamination procedures.

**Follow-up contact**

- Delegation of a follow-up contact person.

- The role of the follow-up contact is to collect and maintain all incident documents, as well as any other incident information, and make it available to anyone involved in the scene after the responders have left, such as cleanup personnel.

### Immediate problems

- Review of equipment failures, safety, major personal problems and potential legal ramifications.
- Information of critical incident stress debriefings, if appropriate.
- Any other critical information.

## Critique or Post-Incident Analysis

A critique is an evaluation of the response to an incident in which participants identify their strengths and weaknesses. It should take place about a week after the event. It should include the response team, section chiefs, branch directors and any other key players in the incident. A critique is a positive way to reinforce the lessons learned from an incident. The more complex the incident, the more important it is that experiences and knowledge be shared. A good critique program will improve performance by implementing lessons learned and implementing an improvement plan.

### Benefits of a critique

A good critique promotes:

- Trust in the response system as being self-correcting.
- Cooperation.
- Continuing to refine skills.
- Preplanning for future incidents.
- Sharing of information between response agencies.

### Avoiding pitfalls during a critique

- You should **never** use a critique to assign blame. Public meetings are not an appropriate time to discipline personnel.

- A critique should be a valuable learning experience.

# APPENDIX B

# INCIDENT DEMOBILIZATION INFORMATION

This page intentionally left blank.

## INCIDENT DEMOBILIZATION INFORMATION

Demobilization entails the organized, secure and efficient release of incident resources. Responders are demobilized when their designated deployment period concludes or their services are no longer required.

Authorization is necessary before any resources, including responders, can leave the incident site. Coordination of demobilization activities falls under the purview of the Demobilization Unit. Any queries regarding demobilization should be directed to this unit.

The role of the Demobilization Unit involves several key responsibilities:

- Development of the Demobilization Plan.
- Implementation, supervision, monitoring and coordination of the demobilization process.
- Facilitation of emergency demobilization during urgent situations.
- Assurance of adherence to agency demobilization policies.
- Handling safety matters associated with demobilization policies.
- Oversight of economical completion of suppression resource demobilization.
- Resource allocation by matching them with their respective home units.
- Familiarity with large air transport capabilities, appropriate jet port locations and flight logistics.
- Examination and assessment of resource records to gauge demobilization scope.
- Acquisition of objectives, priorities, schedules and ongoing resource requirements for the Demobilization Plan. This information is sourced from section chiefs, unit leaders, incident agency representatives and dispatch.
- Compilation of surplus resources, likely release times and travel arrangements.
- Communication with agency dispatch regarding the release schedule.
- Creation of an incident checkout process for all units, including logistics and transportation evaluations, to support demobilization. Processing of emergency release requests.
- Preparation of pertinent materials like directories (e.g., maps, instructions) for integration into the Demobilization Plan. Ensures completion of Incident Command System (ICS) Form 221, Demobilization Check-Out for each resource before major demobilization.

- Review and endorsement of the Demobilization Plan, distributing copies to section chiefs, agency dispatch, and the Incident Commander (IC) for final approval. Ensures a clear understanding of demobilization responsibilities among all sections/units.

- Dissemination of the Demobilization Plan on-site and off-site to command and general staff, relevant unit leaders, agency representatives, checkout locations, incident agency dispatch, and others involved in implementation. Posting of the plan in prominent locations.

- Active supervision and monitoring of the demobilization process, including maintaining communication with those responsible for its execution. Ensures compliance with established standards in the Demobilization Plan for released resources, including rest and feeding requirements. Adjusts priorities and tasks as needed, verifies transportation arrangements back to home base, assesses reassignment availability and qualifications, and coordinates surplus personnel and resource assignments with the Resource Unit Leader.

- Ongoing coordination with agency dispatch during plan implementation. Establishes notification protocols, confirms transportation plans and updates/adjusts release schedules as necessary.

- Execution of resource demobilization and finalization of the incident's demobilization phase. This involves coordination with the agency's demobilization organization to ensure efficient release of all excess resources and the resolution of outstanding issues. Updates the Planning Section Chief accordingly.

# ACRONYMS

This page intentionally left blank.

## ACRONYMS

| | |
|---|---|
| **AED** | automated external defibrillator |
| **AEGL** | Acute Exposure Guideline Level |
| **AHJ** | authority having jurisdiction |
| **ALOHA** | Areal Locations of Hazardous Atmospheres |
| **ALS** | advanced life support |
| **CBRN** | chemical, biological, radiological and nuclear |
| **CBRNE** | chemical, biological, radiological, nuclear and explosive |
| **CFR** | Code of Federal Regulations |
| **COML** | Communications Unit Leader |
| **COMP** | Compensation/Claims Unit Leader |
| **CPC** | chemical protective clothing |
| **CSB** | U.S. Chemical Safety and Hazard Investigation Board |
| **DMOB** | Demobilization Unit Leader |
| **DOCL** | Documentation Unit Leader |
| **DOT** | U.S. Department of Transportation |
| **EMS** | emergency medical services |
| **EOC** | Emergency Operations Center |
| **EPA** | U.S. Environmental Protection Agency |
| **ERDSS** | Emergency Response Decision Support System |
| **ERG** | Emergency Relocation Group |
| **FDUL** | Food Unit Leader |
| **FEMA** | Federal Emergency Management Agency |

| | |
|---|---|
| **FOG** | Field Operations Guide |
| **FP** | flash point |
| **FSC** | Finance/Administration Section Chief |
| **GEBMO** | General Behavior Model |
| **GSUL** | Ground Support Unit Leader |
| **HAZWOPER** | Hazardous Waste Operations and Emergency Response |
| **IAFC** | International Association of Fire Chiefs |
| **IAP** | Incident Action Plan |
| **IC** | Incident Commander |
| **ICP** | Incident Command Post |
| **ICS** | Incident Command System |
| **IDLH** | immediately dangerous to life and health |
| **IED** | improvised explosive device |
| **IG** | Instructor Guide |
| **JIC** | Joint Information Center |
| **LEL** | lower exposure limit |
| **LNO** | Liaison Officer |
| **LSC** | Logistics Section Chief |
| **MEDL** | Medical Unit Leader |
| **NAERG** | North American Emergency Response Guide |
| **NFA** | National Fire Academy |
| **NFPA** | National Fire Protection Association |
| **NIMS** | National Incident Management System |

| | |
|---|---|
| **NIOSH** | National Institute for Occupational Safety and Health |
| **NRT** | U.S. National Response Team |
| **OSC** | Operations Section Chief |
| **OSHA** | Occupational Safety and Health Administration |
| **PIA** | Post-Incident Analysis |
| **PIO** | Public Information Officer |
| **PPE** | personal protective equipment |
| **PSC** | Planning Section Chief |
| **RESL** | Resources Unit Leader |
| **RIC** | rapid intervention crew |
| **RIT** | rapid intervention team |
| **SADT** | self-accelerating decomposition temperature |
| **SAW** | Student Activity Worksheet |
| **SCBA** | self-contained breathing apparatus |
| **SDS** | safety data sheet |
| **SM** | Student Manual |
| **SOFR** | Safety Officer |
| **SOG** | standard operating guideline |
| **SOP** | standard operating procedure |
| **STEL** | short-term exposure limit |
| **TDS-D** | threats/hazards |
| **TFR** | temporary flight restrictions |
| **UC** | Unified Command |

| | |
|---|---|
| **UEL** | upper exposure limit |
| **USFA** | U.S. Fire Administration |
| **VM&P** | Varnish Maker and Painter's |
| **WMD** | weapons of mass destruction |
| **XP** | explosion proof |