Course Title: Hazardous Materials Operations

Course Duration: 40 hours

Program: Hazardous Materials Program

Level of Training: Performance-Defensive (OSHA Operations)

Course Prerequisites: Hazardous Materials Awareness

Course Description: The Hazardous Materials Operations course provides to those who are or will be operating as a member of a fire department, law enforcement agency, EMS agency, emergency management agency, or other first responder agency, the basic skills needed to evaluate and work defensively at an incident involving the release of hazardous materials. The objectives of the course are to teach participants: basic hazards and risk-assessment techniques for Hazmat and CBRNE environments; selecting and using proper personal protective equipment provided to the first responder at the Operations level; performing basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available; an understanding of the types of CBRNE and WMD events that may be presented to the first responder; and an understanding of the relevant standard operating guidelines and termination procedures.
Course Content:

**Module: 1**  
Title: Laws, Regulations, & Standards

**Terminal Learning Objective:**  
At the conclusion of this module, the student will *apply* the laws, regulations and standards to examples of WMD and hazardous materials incidents.

**Module: 2**  
Title: Response Components

**Terminal Learning Objective:**  
At the conclusion of this module, the student will *determine* the strategic and tactical objectives to be completed at all hazardous materials incidents.

**Module: 3**  
Title: Chemical and Physical Properties

**Terminal Learning Objective:**  
At the conclusion of this module, the student will *predict* how the chemical and physical properties of a product will affect response to a hazardous materials incident.

**Module: 4**  
Title: Health and Safety

**Terminal Learning Objective:**  
At the conclusion of this module, the student will *relate* health hazards with an associated material and its container.

**Module: 5**  
Title: Intelligence & Resources

**Terminal Learning Objective:**  
At the conclusion of this module, the student will interpret intelligence and resource information as it relates to the hazardous materials response.
Module: 6
Title: Personal Protective Equipment

Terminal Learning Objective:
At the conclusion of this module, the student will *categorize* the different types of personal protective equipment (PPE) by their characteristics and be able to *don, doff, and work in* each type of PPE available to the Operations trained responder.

Module: 7
Title: Recognition and Identification of Transportation Containers

Terminal Learning Objective:
At the conclusion of this module, the student will *recognize* different types of transportation containers and markings and *determine* the hazards associated with the materials transported or stored within the container. (NFPA 472 5.2.1) (OSFM 23-4.3)

Module: 8
Title: Fixed Facilities

Terminal Learning Objective:
At the conclusion of this module, the student will *recognize* different types of transportation containers and markings and *determine* the hazards associated with the materials transported or stored within the container. (NFPA 472 5.2.1) (OSFM 23-4.3)

Practical – PPE, Placards & Labels – See Drill Sheet for Specifics

Module: 9
Title: Terrorist and Other Criminal Activities

Terminal Learning Objective:
At the conclusion of this module, the student will *classify* terrorist incidents into the five basic categories of Chemical, Biological, Radiological, Nuclear, and Explosive.
Module: 10
Title: Incident Analysis

Terminal Learning Objective:
At the conclusion of this module, the student will describe procedures for predicting the release of a material from its container and determine the best protective actions for affected exposures.

Module: 11
Title: Monitoring

Terminal Learning Objective:
At the conclusion of this module, the student will explain the different types of monitors and techniques available and demonstrate effectively monitoring an atmosphere for an unknown material.

Practical – Monitoring – See Drill Sheet for Specifics

Module: 12
Title: Product Control

Terminal Learning Objective:
At the conclusion of this module, the student will be able to describe the various defensive options available to the Operations trained responder and demonstrate confining a hazardous material to a certain area.

Module: 13
Title: Foam

Terminal Learning Objective:
At the conclusion of this module, the student will be able to describe the various types of foam and application techniques available and demonstrate using foam to suppress vapors.

Practical – Foam & Product Control – See Drill Sheet for Specifics
Module: 14
Title: Termination

Terminal Learning Objective:
At the conclusion of this module, the student will explain procedures to be followed at the termination of a hazardous materials incident. (NFPA 472 5.6)

Module: 15
Title: Decontamination

Terminal Learning Objective:
At the conclusion of this module, the student will describe the different types of decontamination and demonstrate proper selection, set-up, operation, and tear down of a decontamination line.

Practical – Decontamination – See Drill Sheet for Specifics

Module: 16
Title: Incident Management

Terminal Learning Objective:
At the conclusion of this module, the student will describe the different roles in the incident management system (IMS) and what role the first responder will play in a hazardous material incident.

Tabletop Incident – See Drill Sheet for Specifics

Module: 17
Title: Unknown Hazard Analysis

Terminal Learning Objective:
At the conclusion of this module, the student will identify ways to obtain information about a product that is not known.

Final Incident – See Drill Sheet for Specifics
Evaluation Strategy:

Written homework and practical skills testing are completed throughout the course. A written test and final practical incident are conducted at the completion of the course. In addition, several simulated evolutions and table-top scenarios are used throughout the course.

Textbook:


Recommended Reading:
Day 1: 5-17, 22-43, 67-72, 84-87, 123-126 pages
Day 2: 51-66, 94-107, 115-120 pages
Day 3: 92, 245-255, 313-320 pages

References:


# Course Schedule

## DAY ONE

**Start Time:** 0800

<table>
<thead>
<tr>
<th>Event</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation and Introductions</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Module 1: Laws &amp; Regulations, &amp; Standards</td>
<td>1 hour and 15 min</td>
</tr>
<tr>
<td>Module 2: Response Components</td>
<td>1 hour</td>
</tr>
<tr>
<td>Module 3: Chemical &amp; Physical Properties</td>
<td>1 hour</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
<tr>
<td>Module 4: Health and Safety</td>
<td>1 hour</td>
</tr>
<tr>
<td>Module 5: Intelligence and Resources</td>
<td>2 hours</td>
</tr>
<tr>
<td>Module 6: Personal Protective Equipment</td>
<td>1 hour and 30 min</td>
</tr>
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**Assignment:** Day One Homework – Due Day Two 08:00
## DAY TWO

Start Time: 0800

<table>
<thead>
<tr>
<th>Event</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Review Day 1 Homework</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Module 7: Recognition &amp; Identification of Transp.</td>
<td>1 hour and 45 min</td>
</tr>
<tr>
<td>Module 8: Fixed Facilities</td>
<td>2 hours</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Practical – PPE, Placards, and Labels</strong></td>
<td>2 hours</td>
</tr>
<tr>
<td>Module 9: Terrorist &amp; Other Criminal Activities</td>
<td>1 hour</td>
</tr>
<tr>
<td>Module 10: Incident Analysis</td>
<td>1 hour</td>
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**Assignment: Day Two Homework – Due Day Three 08:00**
## DAY THREE

Start Time: 0800

<table>
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<th>Event</th>
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<tbody>
<tr>
<td>Review Day 2 Homework</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Module 11: Monitoring</td>
<td>1 hour</td>
</tr>
<tr>
<td><strong>Practical - Monitoring</strong></td>
<td>2 hours and 15 min</td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>Module 12: Product Control</td>
<td>1 hour</td>
</tr>
<tr>
<td>Module 13: Foam</td>
<td>1 hour</td>
</tr>
<tr>
<td><strong>Practical - Foam &amp; Product Control</strong></td>
<td>1 hour and 30 min</td>
</tr>
<tr>
<td>Module 14: Termination</td>
<td>1 hour</td>
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</table>

**Assignment: Day Three Homework – Due Day Four 0800**
### DAY FOUR

**Start Time:** 0800

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<th>Event</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Review Day 3 Homework</td>
<td>20 minutes</td>
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<tr>
<td>Module 15: Decontamination</td>
<td>1 hour and 10 min</td>
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<td><strong>Practical – Decontamination</strong></td>
<td>4 hours and 30 min</td>
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<tr>
<td><strong>Lunch</strong></td>
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</tr>
<tr>
<td>Module 16: Incident Management</td>
<td>1 hour</td>
</tr>
<tr>
<td><strong>Table Top Incident</strong></td>
<td>2 hours</td>
</tr>
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</table>

**Assignment:** Day Four Homework – Due Day Five 0800
### DAY FIVE

Start Time: 0800

<table>
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<tr>
<th>Event</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Review Day 4 Homework</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Module 17: Unknown Hazard Analysis</td>
<td>30 minutes</td>
</tr>
<tr>
<td><strong>Final Incident</strong></td>
<td>3 hours</td>
</tr>
<tr>
<td>Review/critique of Final Incident</td>
<td>30 minutes</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
<tr>
<td>Incident and Class Practical Paperwork</td>
<td>1 hour</td>
</tr>
<tr>
<td>Test</td>
<td>2 hours and 30 min</td>
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