



# Pennsylvania State Fire Academy

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## Minimum Standard for Accreditation (MSA)

August 2004

**Course Title:** Hazardous Materials Defensive Practices (HMDP)

**Length of Course:** 16 Hours

**Lecture/Lab Breakdown:** 8/8

**Prerequisites:** IAFF or other First Responder Operations-level training per OSHA 29 CFR 1910.120[q]

**Referenced Texts:** Hazardous Materials Managing the Incident 2<sup>nd</sup> edition (Noll, Hildebrand, & Yvorra), Firefighting hand book second edition Essentials of firefighting and Emergency Response (Delmar), Decontamination for Hazardous Materials Emergencies (Timothy Henry)

**Course Goal:** Ideally the student shall develop a working proficiency of Defensive Practices when working with Hazardous Materials.

**Description of Course:** A hands on program developing proficiencies when working with hazardous material and WMD emergencies. An emphasis will be placed in the safe handling and control of personnel and the spill site. This will be done with drills in setting up zones, identifying material and its properties, and identifying levels of protective clothing necessary. Drills in proper types of decontamination, both land and water containment practices will be included. This will be achieved using as many items commonly available or easily accessibly to fire personnel.

**Description of Methodology to be used:** This course will utilize lecture, audiovisuals, demonstrations, and practical exercises.

**Student Equipment/Supply Needs:** Full Turnout Gear with bunker boots and pants, positive pressure S.C.B.A., Notebook, Pen/Pencil.

**Equipment/Audiovisual/Supply requirements:** TV/VCR, Power point Projector, Flip Chart/Chalk Board. See attached equipment list.

### - COURSE OUTLINE (General - Not Detailed)

<u>Time</u>	<u>Content</u>	<u>Instructor Notes</u>
:30	Registration, Introduction	
:30	Review of First Responder – Operations Competencies	

(continued)

**COURSE OUTLINE (continued)**

<b><u>Time</u></b>	<b><u>Content</u></b>	<b><u>Instructor Notes</u></b>
2.0	Strategic and Tactical Considerations Selection of Protective Clothing (Lecture) <ol style="list-style-type: none"><li>1. Levels of Protective Clothing</li><li>2. Selection Process - Decision Matrix</li><li>3. Level I Structural Firefighting Protective Clothing</li></ol>	
1.0	4. Donning and Doffing PPE (practical)	
1.0	Spill Control (Lecture) <ol style="list-style-type: none"><li>1. Safety</li><li>2. Site Management</li><li>3. Necessary Equipment</li><li>4. Strategies<ol style="list-style-type: none"><li>a. Diking</li><li>b. Diversion</li><li>c. Retention (Land &amp; Water)</li></ol></li></ol>	
3.0	Spill Control Exercise (practical)	
2.0	Decontamination (Lecture) <ol style="list-style-type: none"><li>1. Emergency Procedures</li><li>2. Mass Decon</li><li>3. Technical Decon</li></ol>	
5.0	Decontamination Exercise (practical)	
1.0	Conclusion, Written Exam, Evaluation	

**Competency Evaluation Mechanism:** Students must successfully complete a written test with a minimum of 70 per cent. Evaluation will also take place during practical exercise periods. This will consist of instructor observations of student performance in relation to performance objectives given, both for the individual and group activities. Necessary corrections are expected to be made, based upon instructor suggestions and directions.

**Course Objectives (Learning Outcomes):**

The student will:

1. Show proficiencies working with hazardous materials in a defensive manner as defined in OSHA 29 CFR 1910.120 [q]
2. Compare and contrast the capabilities and limitations of different levels of protective clothing available.
3. Identify the proper level of protective clothing required to deal safely with the material involved.
4. Complete drills in utilizing proper PPE (continued)

**Course Objectives (Learning Outcomes): continued**

5. Identify and establish proper Decontamination practices
6. Learn how to identify and set up "Hot", "Warm" and "Cold" zones.
7. Identify and demonstrate proper containment procedures to minimize environmental impact of Haz-Mat material.
8. Identify and demonstrate the difference between diversion, retention, and absorption on land. Also how to use natural barriers to assist you in your task.
9. Identify and demonstrate building and uses of underflow, overflow, and filtration dams. Demonstrations of inflated fire hose may also be included.
10. Demonstrate the proper application and use of commercial sorbents available to the emergency services.
11. Identify and demonstrate different types and stages of the decontamination procedure.
12. Identify if protective clothing can be effectively decontaminated, if yes, how, and if not to properly dispose of items.

## EQUIPMENT REQUIREMENTS

### A. Apparatus

1. At least two fully equipped pumpers
2. Aerial apparatus (optional)

### B. Equipment

1. Hose and nozzles
2. Salvage covers or opaque material
3. Ladders
4. Rope
5. Decon Pools
6. Decon brush
7. Garden hose

### C. Supplies

1. Decon solutions
  - a. Laundry detergent
  - b. Household bleach
2. Collection items
  - a. Sealable plastic bags for valuables and personal items
  - b. Bags or containers to collect contaminated clothing
3. Spare clothing for individuals who have to be disrobed
  - a. Medical scrubs
  - b. Coveralls
  - c. Hospital gowns
  - d. Sweats
  - e. Blankets or sheets
  - f. Opaque plastic bags
  - g. Additional items for colder conditions
4. Other items
  - a. Plastic electrical ties
  - b. Identification tags or bracelets
  - c. Paper and writing instruments (pens, pencils, permanent markers) to record personal information
  - d. Clipboards
  - e. Scissors or trauma shears to assist in clothing removal

**Questions/Comments: Rita Wessel, Curriculum Specialist: Extension 106  
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