

Unit 1 Introduction

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Unit 1 Goal

The goal of the Hazardous Materials Operations Level Response Course is to properly train personnel at the Operations level so they may operate in a safe and effective manner at a hazardous materials incident, according to government regulations and professional standards.

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Unit 1 Objectives

**The responder shall be able to;**

- Define Hazardous Materials and identify the types of hazards and the harm caused by hazardous materials
- Recognize and identify hazardous materials involved in an emergency incident
- Understand the role of the Operations level responder
- Be familiar with the basic events of a hazardous material incident
- Be familiar with the basic decision making process of operational response
- Know the basic concepts of the Virginian Hazardous Material Response System

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**What is a Hazardous Material?**



**What is a Weapon of Mass Destruction?**



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**Federal Agencies & Regulations**

- US Department of Transportation
- Environmental Protection Agency
- Occupational Health and Safety Administration
- SARA – Superfund Amendments and Reauthorization Act
- Community Right to Know
- Local Emergency Planning Committee
- OSHA – HAZWOPER 1910.120q



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**Federal Definitions**

- Hazardous Materials –Department of Transportation (US DOT)**  
"... A substance or material, capable of posing an unreasonable risk to health, safety, and property when transported in commerce..."  
Applies to materials transported in commerce.
- Hazardous Substances –Occupational Safety and Health Administration**  
"... exposure to which results or may result in adverse effects on the health or safety of workers."  
Applies to employee health.
- Hazardous Substances –Environmental Protection Agency (US EPA)**  
"... Any substance listed in 40 CFR Table 302.4 that, when released into the environment above a certain amount, must be reported and, depending upon the threat to the environment, federal involvement may be authorized..."  
Applies to materials released into the environment.



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## Federal Definitions

**Extremely Hazardous Substances**—Environmental Protection Agency (US EPA)

These chemicals may be subject to emergency planning and ,in the event of a release emergency notification.


Applies to materials released into the environment.

**Hazardous Waste**—Environmental Protection Agency (US EPA)

These chemicals that are regulated under the Resource. Conservation and Recovery Act (RCRA). "Cradle to Grave Law".

**Highly Hazardous Chemicals** Occupational Safety and Health Administration

Materials covered under the Process Safety Management regulations.



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## Hazardous Materials

### Code of Virginia Title 44-146.34

- Substances or materials which may pose unreasonable risks to health, safety, property, or the environment when used, transported, stored, or disposed of, which may include materials which are solid, liquid, or gas.
- Also includes...
  - Materials meeting the requirements of other state or federal laws (OSHA-29 CFR, EPA-40 CFR, DOT-49 CFR)



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## Weapon of Mass Destruction

### United State Code18 USC § 2332a

- Any destructive device as defined by section 921 of this title; (covers explosives, incendiaries, and projectiles)
- Any weapon designed or intended to cause death or serious bodily injury through the release, dissemination, or impact of toxic or poisonous chemicals, or their precursors;
- Any weapon involving a biological agent, toxin, or vector;
- Any weapon that is designed to release radiation or radioactivity at a level dangerous to human life;



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### Weapon of Terrorism Code of Virginia Title 18.2-46.4

Any device or material that is designed, intended, or used to cause death, bodily injury or serious bodily harm, through the release, dissemination, or impact of (i) poisonous chemicals; (ii) an infectious biological substance; or (iii) release of radiation or radioactivity.



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### EVADE for Secondary Devices:

- **E**valuate scene
- **V**isually scan operating areas
- **A**void touching or moving anything
- **D**esignate and enforce scene control zones
- **E**vacuate victims, other responders, and nonessential personnel



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### Class Activity Video

#### "Emergency Preparedness: Findings From Chemical Safety Board Accident Investigations".

- Identify the key areas of safe and effective response to hazardous material emergencies
- Were first responders prepared to safely and effectively operate at incidents involving hazardous materials?
- Identify the outcomes of the actions taken by first responders.



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CSB Video



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Discussion

**Identify the potential harm and exposures to the release of HM/WMD in your community.**

**What exposures are most vulnerable?**



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**Commonwealth of Virginia  
The Hazardous Materials Response Program**



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**Commonwealth of Virginia  
Hazardous Material Response Program**

Code of Virginia §44-146.34

- Statewide response program for emergencies involving hazardous materials.
- Managed by the Virginia Department of Emergency Management in cooperation with other state agencies, localities and emergency responders.
- A comprehensive and integrated system of planning, response and training to safely and effectively control hazardous material emergencies and prevent loss to life, property and the environment.



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**Hazardous Material Response Program GOALS**

- Protect the Commonwealth, from the devastating effects cause by the release of hazardous materials
- Develop a systematic, comprehensive, and integrated approach to hazardous materials response
- Meet the legal requirements found in the Occupational Safety and Health regulations;
- Meet standards published by the National Fire Protection Association;
- Prepare first responders to operate safely, effectively, and efficiently
- Develop emergency responders in such a way as to form the backbone of the Commonwealth's advanced hazardous materials response capabilities.



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**HM Response Program  
Concept of Operations**

**• Local Response**

- Notify VEOC
- Public warning and initiate protective actions
- Within capabilities, restore situation to normal
- Request State Assistance, as needed

**• State Response**

- Regional Hazardous Material Officer
- Regional Haz Mat Teams
- Additional state or private resources



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### Role of the First Responder Operations Level

- Respond to incidents involving hazardous materials
- Identify potential hazards, harm and potential outcomes
- Protect life
- Implement Defensive tactical operations **[No Chemical Contact]**
- Prevent harm
- Control the spread of material




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### Evaluating Emergencies Involving Hazardous Materials

- Identify the hazards
- Identify the incident events
- Limit the level of harm
- Operate Safely, Effectively, Efficiently




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### Emergency Incidents Involving Hazardous Materials Can occur any place at any time.

In Transportation

In the Workplace

Into the Environment




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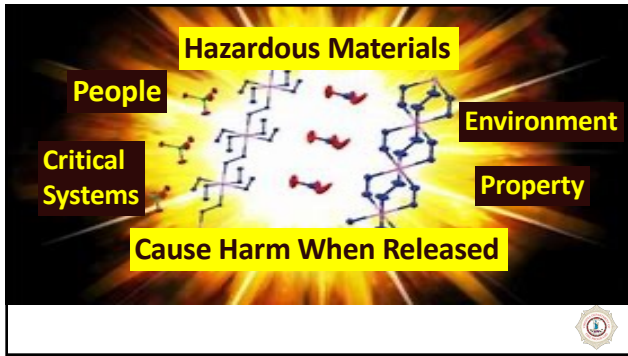
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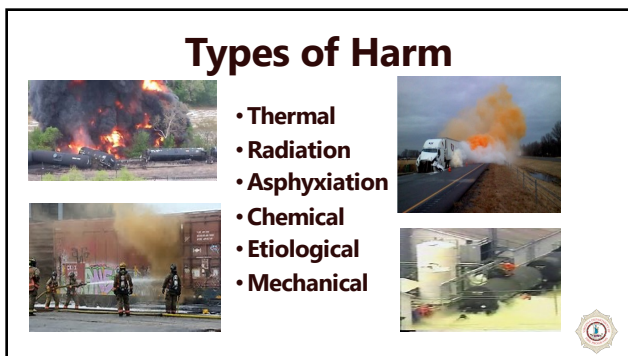
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### Decide Process

#### **Framework for Decision Making**

- **Detect** the presence of hazardous material
- **Estimate** likely harm without intervention
- **Choose** incident response objectives
- **Identify** response options
- **Do** best option
- **Evaluate** Progress



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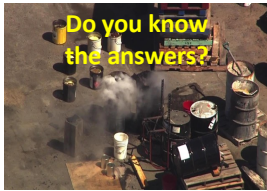
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### The Value of Pre-Incident Planning for Haz Mat Emergencies



- What chemicals are present?
- Where are they located?
- What type of container?
- What are the hazards?
- What is a safe and effective response?
- What happens if some one is exposed?



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#### **Safe Procedures for handling emergency response involving hazardous materials. OSHA 29 CFR 1910.120(q)(3)**

- I. The senior emergency response official responding to an emergency shall become the individual in charge (IC) of a site-specific incident command system (ICS).
- II. The IC shall identify all hazardous substances or conditions.
- III. The IC shall implement appropriate emergency operations. Assume that the personnel protective equipment worn is appropriate for the hazard.



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**Procedures for handling emergency response  
29 CFR 1910.120(q)(3)**

- IV. Employees engaged in emergency operations and exposed to an inhalation hazard or potential inhalation hazard shall wear positive-pressure self-contained breathing apparatus (SCBA).
- V. Limit the number of emergency response personnel at the emergency site, exposure to incident or site hazards. Operations in hazardous areas shall be performed using the buddy system in groups of two or more.
- VI. Back-up personnel shall be standing by with equipment ready to provide assistance or rescue. Qualified basic life support personnel, as a minimum, shall also be standing by with medical equipment and transportation capability



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**Procedures for handling emergency response  
29 CFR 1910.120(q)(3)**

- VII. The individual in charge of ICS shall designate a safety officer with specific responsibility to identify and evaluate hazards and provide direction with respect to the safety of operations.
- VIII. When judged to be an IDLH and/or to involve an imminent danger condition, the safety officer shall have the authority to alter, suspend, or terminate those activities.
- IX. After emergency operations have terminated, the IC shall implement appropriate decontamination procedures.



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## Case History

Ammonium Nitrate Explosion, West, Texas  
April 17, 2013



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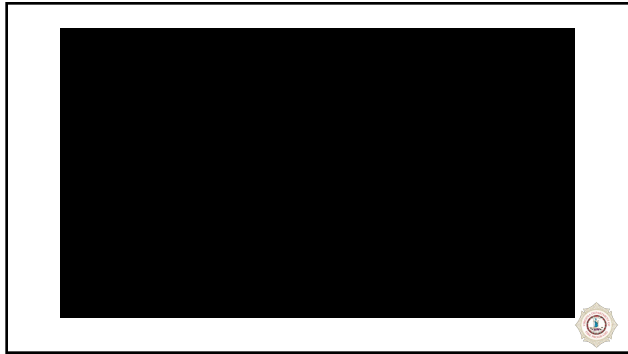
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**UNIT REVIEW QUESTIONS**

Describe the role and limitations of the First Responder Operations level at an incident involving hazardous materials.

Describe the importance of establishing control zones to isolate the hazard area?

Identify the 6 events in the General Behavior Model.

Identify the 6 steps in the DECIDE process.

What does the acronym TRACEM mean?

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