

COURSE NUMBER 55-0505-8

5/18/2005

2 HOURS

INTRO TO HAZ-MAT

# Introduction to Hazardous Materials



Submitted by: "A" shift, Station 3

Sgt. Jerry Long

2

Cpt. Michelle Collins

## **Lesson Title**

Introduction to Hazardous Materials

## **Lesson Objectives**

1. Identify the definition of a Hazardous Material.
2. Identify the definitions of the following terms:
  - a) Hazardous Waste
  - b) Hazardous Substance
  - c) Hazardous Chemical
  - d) Extremely Hazardous Substance
  - e) Dangerous Goods
3. Identify the five transportation modes used to move hazardous materials.
4. Identify types of fixed locations where you may encounter hazardous materials, other than bulk manufacturing and storage facilities.
5. Identify what constitutes a Hazardous Materials Incident.
6. Identify the issues related to hazardous materials that are regulated by government.
7. Identify the responsibilities of the awareness level and the operational level first responder.
8. Identify the variables that must be taken into consideration during incident assessment.
9. Identify the agencies that would be called upon to handle a hazardous materials incident.

## **Time Frame**

2 hours

## **Level of Instruction**

Lecture

## **Materials Needed**

Lesson Plan

A.C.C. Fire and Emergency Services S.O.P.'s/S.O.G.'s

2004 Emergency Response Guidebook

## **References**

I.F.S.T.A. Awareness Level Training for Hazardous Materials 1<sup>st</sup> Edition,  
Chapter 1

## **Course Goals**

Prepare first responders to identify and assess a hazardous materials incident.

## **Introduction**

This course is a basic introduction to hazardous materials. By the end of this lesson each candidate will know how hazardous materials are transported and where they may encounter them. They will know the different levels of training including the responsibilities of each and who should be trained to what level. Each candidate will also be able to perform an initial assessment for a hazardous materials incident.

## **Definition of Hazardous Material**

(As defined by the Department of Transportation [D.O.T.] in 49 CFR 171.8) A substance or material, including a hazardous substance, that has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety and property when transported in commerce and which has been so designated.

## **Definition of terms that may be used by other agencies**

### **Hazardous Waste**

Discarded materials regulated by Environmental Protection Agency (EPA) because of public health and safety concerns. Regulatory authority is granted under the Resource Conservation and Recovery Act. (U.S.)

### **Hazardous Substance**

Any substance designated under the Clean Water Act and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as posing a threat to waterways and the environment when released. (U.S. Environmental Protection Agency)

### **Hazardous Chemical**

Defined by Occupational Safety and Health Administration (OSHA) as any chemical that is a physical hazard or health hazard to employees.

### **Extremely Hazardous Substance**

Chemicals determined by the Environmental Protection Agency to be extremely hazardous to a community during an emergency spill or release as a result of their toxicities and physical/chemical properties. There are 402 chemicals listed under this category.

### **Dangerous Goods**

1) Any product, substance or organism included by its nature or by the regulation in any of the nine United Nations classifications of hazardous materials. 2) Term used to describe hazardous materials in Canada. 3) Term used in the United States and Canada for hazardous materials aboard aircraft.

## **Modes of Transportation**

- Roadways
- Railways
- Waterways
- Airways
- Pipelines

## **Ordinary Fixed Storage Facilities**

- Service Stations
- Hardware Stores
- Doctors Offices
- School Laboratories
- Agricultural Stores
- Farms
- Residences

## **Haz-Mat First Responders must become familiar with the following:**

- Methods of pre-incident planning, recognition and incident control
- Types, properties and characteristics of hazardous materials
- Methods of transporting and storing hazardous materials
- Proper handling of hazardous materials
- Appropriate defensive actions to take in emergencies including hazardous Materials
- Local, State and Federal regulation governing hazardous materials

## **Agency's that Mandate Training Standards for the Haz-Mat First Responder**

- Occupational Safety and Health Administration (OSHA)
- Environmental Protection Agency (EPA)
- Canadian Workplace Hazardous Materials Information System (WHMIS)

## **National Fire Protection Association (NFPA) Standards for the Haz-Mat First Responder**

- NFPA 471, *Recommended Practice for Responding to Hazardous Materials Incidents*
- NFPA 472, *Standard for Professional Competence of Responders to Hazardous Material Incidents*
- NFPA 473, *Standard for Competencies for EMS Personnel Responding To Hazardous Materials Incidents*

## **A Hazardous Materials Incident**

- Involves a substance that has been released or is on fire that poses an unreasonable risk to people, the environment and property.
- Must be determined as soon as possible upon arriving at the emergency scene.
- Can evolve from a seemingly routine situation.

## **Government Regulated Issues Related to Hazardous Materials**

- Packaging
- Labeling
- Placarding
- Use
- Training of personnel
- Inspection and operation of fixed facilities
- Transportation vehicles and methods

## **At a Haz-Mat Incident the First Responder may be involved concurrently with things such as:**

- Rescue
- Evacuation or sheltering-in-place
- Exposure protection
- Confinement or containment
- Emergency notification

## **Who should be trained as a Haz-Mat First Responder?**

- Firefighter
- Private industry employee
- Law enforcement officer
- Member of an emergency medical service
- Municipal employee
- Transportation employee
- Utility worker
- Member of the military

## **Responsibilities of the Awareness Level First Responder**

- Suspect or recognize the presence of a hazardous material
- Protect themselves
- Call for appropriate assistance
- Secure the area

## **Responsibilities of the Operational Level First Responder**

- Awareness Level Responsibilities
- Confine the release in a defensive fashion from a safe distance

## **Warning**

**First responders must know the limitations of their training and act only within those parameters. For safety reasons, they must not exceed the responsibilities of their roles.**

### **Potential for Hazardous Materials Incidents**

- The magnitude can vary from relatively isolated effects to widespread destruction.
- Can exist any time during the life of the material.
- Can exist during storage, use and disposal.

### **Incident Assessment Variables**

- Risk to rescuers
- Probability of victim survival
- Difficulty of rescue
- Capabilities and resources of on-scene forces
- Possibility of explosions or sudden material releases
- Available escape routes and safe havens
- Constraints of time and distance

### **Agencies Involved in Handling Hazardous Materials Incidents**

- Fire service
- Law enforcement
- Emergency medical service
- Private material manufacturer, shipper or handler
- Government agencies with mandated interests such as health and environmental resources departments
- Various technical support groups such as CHEMTREC/CANUTEC
- Specialized emergency response groups

### **Two goals can be achieved when agencies formulate their Hazardous Material Pre-Incident Plans together:**

- Vital resource information can be easily shared.
- Rapport between the participating agencies can be developed.

### **Lesson Summary**

1. What is the definition of a Hazardous Material?
2. What are the five transportation modes used to move Hazardous Materials?
3. Where could you encounter Hazardous Materials?
4. What are the responsibilities of the Awareness Level and Operational Level First Responder?
5. What variables should be considered during incident assessment?