

# INTRODUCTION TO HAZARDOUS MATERIALS

## CHAPTER 2



# OBJECTIVES

## **Terminal Objective:**

Describe federal policies and relevant consensus standards regarding hazardous materials response in the United States.

## **Enabling Objectives:**

- Describe the required chemical emergency notification process required by federal regulations.
- Identify the difference between hazmat incidents and other emergencies
- State the role of Awareness level personnel according to the National Fire Protection Association (NFPA) 1072-2017 edition.
- Define the terms hazardous materials and Weapons of Mass Destruction (WMD) according to federal regulations and NFPA.



# HAZARDOUS MATERIALS

- Incidents involving hazardous materials and WMD are more complex than other types of incidents.
- *Hazardous Materials* are generally defined as “anything that gets out of its container and harms the things it touches.”  
-Ludwig Benner, NTSB



# POLICIES GOVERNING RESPONSE PROCEDURES

A complex mixture of:

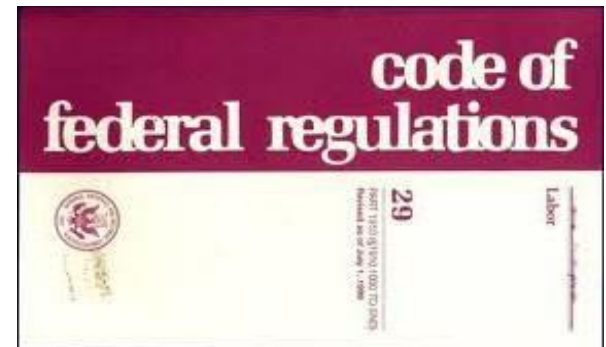
- Governmental laws
- Regulations
- Codes
- Ordinances
- Precedence combined with research & industrial consensus standards



# FEDERAL LAWS

Four basic categories of federal law that address regulations for response:

- Environment: 40 CFR
- Transportation: 49 CFR
- Health and Safety: 29 CFR
- Security: 6 CFR
- many others





# EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT (EPCRA)

- Primary federal law impacting chemical emergency response in the United States
- EPA charged with regulating EPCRA requirements
- Has four primary provisions:
  1. Emergency planning
  2. Emergency release notification
  3. Hazardous chemical storage reporting requirements
  4. Toxic chemical release inventory  
(permitting and reporting requirements for industry)



# EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT (EPCRA)

## Community Planning

- State governors were required to develop State Emergency Response Commissions (SERCs).
- SERCs were tasked with defining Local Emergency Planning Districts (LEP Districts).
- Within each LEP District, regional government and industry were required to develop Local Emergency Planning Committee (LEPCs).



# WHO SHOULD BE INVOLVED IN “PROACTIVE” PLANNING?

Representatives from:

- Fire service
- Law enforcement
- Emergency management
- Emergency medicine
- Financial people
- Groups providing food/shelter/support
- Industry



Someone from every group that may be involved!





# EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT (EPCRA)

## Community Planning

- Native American Tribes were also required to develop Tribal Emergency Response Commissions (TERCs) and Tribal Emergency Planning Committees (TEPCs) similar to that of the states to develop tribal specific emergency response plans.
- LEPCs consist of different groups, including local business.
- The LEPCs developed Local Emergency Response Plans around possible releases of Extremely Hazardous Substances (EHSs) and their Threshold Planning Quantities (TPQs) listed by EPA.



# EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT (EPCRA)

- Locations, amounts, and effects of EHSs must be reported to the LEPC, SERC, and fire department.
- Other non-specified chemicals may apply if deemed extremely hazardous for reasons other than just physical & chemical properties.
- Reporting is required of toxic chemical releases due to normal operations.
  - Companies must report routine releases listed toxic chemicals into environment.



# EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT (EPCRA)

## Emergency Release Notification

- In the event of release of an EHS or Hazardous Substance (HS), in excess of their Reportable Quantity (RQ), the release must be reported to the LEPC, the SERC, & the National Response Center (NRC).
- The notification process should begin even if the quantity is not known or potentially in excess of the RQ.

*See next slide for an example*



# EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT (EPCRA)

## Facility Response:

- XYZ Chemical Co. in Jefferson County has an accidental release of Benzene to the environment in excess of its RQ (10 lbs/1 gal)
- XYZ Chemical Co. will notify the following agencies:
  - LEPC (Jeff. Co. EMA)
  - SERC (State EPA office)
  - NRC (1-800-424-8802)

## Transportation Response:

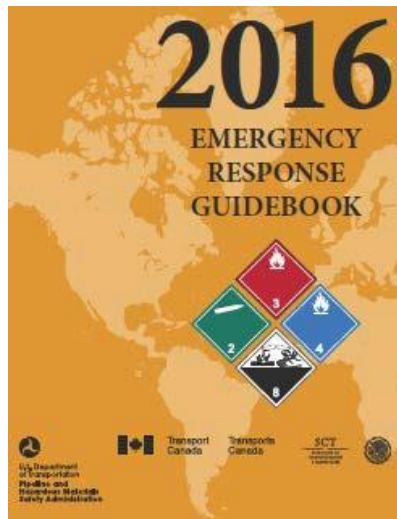
- XYZ Freight Co. has an accidental release of Benzene to the environment in excess of its RQ (10 lbs/1 gal)
  - Process can be initiated by calling 911
  - Fire dept. arrives on-scene
  - If driver has not called LEPC, SERC, & NRC, the fire dept. should do so

The responsibility for making notification lies with the owner/operator, but EPA does allow for emergency services to initiate the process!



# WHAT MUST BE REPORTED?

Page 5 of the 2016 Emergency Response Guidebook outlines information to be reported in the initial notification (paragraph 4):



## NOTIFICATION AND REQUEST FOR TECHNICAL INFORMATION

Follow the steps outlined in your organization's standard operating procedures and/or local emergency response plan for obtaining qualified assistance. Generally, the notification sequence and requests for technical information beyond what is available in this guidebook should occur in the following order:

### 1. NOTIFY YOUR ORGANIZATION/AGENCY

- Based on information provided, this will set in motion a series of events
- Actions may range from dispatching additional trained personnel to the scene, to activating the local emergency response plan
- Ensure that local fire and police departments have been notified

### 2. CALL THE EMERGENCY RESPONSE TELEPHONE NUMBER ON THE SHIPPING DOCUMENT

- If shipping paper is not available, use guidance under next section "NATIONAL ASSISTANCE"

### 3. NATIONAL ASSISTANCE

- Contact the appropriate emergency response agency listed on the inside back cover of this guidebook
- Provide as much information about the hazardous material and the nature of the incident
- The agency will provide immediate advice on handling the early stages of the incident
- The agency will also contact the shipper or manufacturer of the material for more detailed information if necessary
- The agency will request on-scene assistance when necessary

### 4. PROVIDE AS MUCH OF THE FOLLOWING INFORMATION AS POSSIBLE:

- Your name, call-back telephone number, fax number
- Location and nature of problem (spill, fire, etc.)
- Name and identification number of material(s) involved
- Shipper/consignee/point-of-origin
- Carrier name, rail car or truck number
- Container type and size
- Quantity of material transported/released
- Local conditions (weather, terrain)
- Proximity to schools, hospitals, waterways, etc.
- Injuries and exposures
- Local emergency services that have been notified

Page 5



# SUPERFUND AMENDMENT AND REAUTHORIZATION ACT (SARA)

OSHA Standard 29 CFR1910.120 “HAZWOPER”:

- SARA required the Secretary of the Dept. of Labor/OSHA to develop a standard to protect the health & safety of workers who work to clean-up, dispose of, and respond to hazardous substances, chemicals, materials, etc.





# OSHA'S HAZWOPER STANDARD

## 29 CFR 1910.120

### Topics Covered by Paragraph (q)

- Emergency response plans
- Chain of command and personnel roles
- Emergency Response Procedures
- Training
- Medical Surveillance
- Personal Protective Equipment
- Post Emergency Response Operations



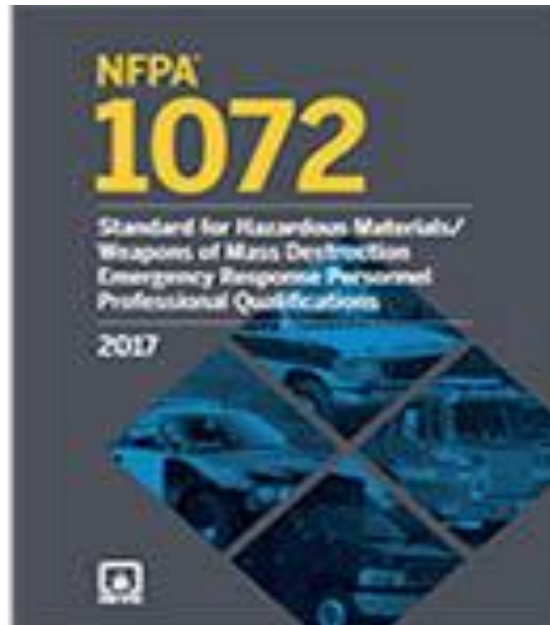
EPA incorporates OSHA requirements by reference

- 40 CFR 311



# HAZMAT TRAINING COMPETENCIES

NFPA 1072-2017 Edition: *Standard for Hazardous Materials/WMD Emergency Response Personnel Professional Qualifications*



# NFPA 1072 AWARENESS-LEVEL COMPETENCIES

## Analyze the Incident

- Recognize the presence of a hazardous material or weapon of mass destruction
- Identify the hazardous material or weapon of mass destruction
- Collect hazard information

## Implement the Planned Response

- Isolate the hazard area
- Initiate the notification process



# DEFINITIONS

- Definitions of hazardous materials can be confusing
- Multiple agencies define hazardous materials based on their mission and scope





# HAZARDOUS MATERIALS

NFPA 1072 states that a hazardous material is matter (solid, liquid, or gas) or energy that when released, is capable of creating harm to people, the environment, and property.



# REGULATORY DEFINITIONS

## Department of Transportation (49 CFR)

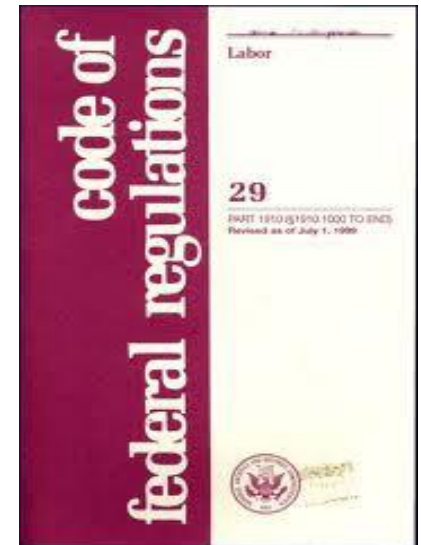
- Hazardous Materials

## Environmental Protection Agency (40 CFR)

- Hazardous substance
- Extremely hazardous substance
- Hazardous waste

## OSHA (29 CFR)

- Hazardous chemicals





# WEAPONS OF MASS DESTRUCTION

- Any explosive, incendiary, or poison gas, bomb, grenade, rocket having a propellant charge of more than four ounces, or missile having an explosive or incendiary charge of more than one-quarter ounce, or mine or similar device
- Any weapon involving chemical(s) or their precursors
- Any weapon involving a disease organism
- Any weapon that is designed to release radiation or radioactivity at a level dangerous to human life



# SUMMARY

- Governmental policy
- Notification requirements
- Consensus standards
- Definitions

