HAZWOPER 8-Hr Refresher
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Hazardous Waste Regulations and Hazardous Materials
OUTLINE

• Hazardous Waste Regulations
  - Federal Programs: OSHA, EPA, and D.O.T.
  - Resource Conservation and Recovery Act (RCRA)
  - Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
  - Toxic Substance Control Act (TSCA)
  - D.O.T.

• Hazardous Materials
  - Recognition and Awareness of Hazards
  - Types of Hazardous Materials
  - Hazard Communication
RCRA

- Enacted in 1976
- Expanded federal role in solid waste management
- 10 Subtitles; Hazardous Waste -Subtitle C
- 1984 Hazardous and Solid Waste Amendments (HSWA)
- Cradle-to-grave concept
- Minimization of waste
- Corrective actions for releases and enforcement
- More stringent hazardous waste management standards
- Comprehensive underground storage tank concept
RCRA-Hazardous Waste

• Begin by defining solid waste
• 40 CFR 261.2
• Solid Waste is a Solid, Liquid, or Contained Gaseous Material that is discarded.
RCRA-Hazardous Waste

WHAT IS HAZARDOUS WASTE?

• 40 CFR Parts 260-279: Regulations on hazardous waste identification, management, and corrective action are authorized by EPA.

• 40 CFR 261.3: definition of a hazardous waste:
  (a) A solid waste, as defined in § 261.2, is a hazardous waste if:
  (1) It is not excluded from regulation as a hazardous waste under § 261.4(b); and
WHAT IS HAZARDOUS WASTE?

  
  (2) It meets any of the following criteria:
  
  - It exhibits any inherent characteristics of hazardous waste *(Characteristic Wastes)*
  - It is defined as hazardous waste because is listed as such in the EPA regulations *(Listed Wastes)*
  - It is a mixture containing a listed hazardous waste and nonhazardous waste unless it is specifically excluded *(Mixture Rule)*
  - It is a waste derived from the treatment, storage or disposal of a listed hazardous waste *(Derived-from Rule)*
CERCLA

- 42 U.S.C. §9601 et seq
- Enacted in 1980; also known as Superfund.
- Regulations regarding the cleanup of uncontrolled hazardous waste sites and response to releases of hazardous substances.
- Amended by Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.
  - **SARA Title I** – Required Department of Labor to create standards for protection of haz mat/waste workers
  - **SARA Title III** – Emergency Planning and Community Right to Know Act (EPCRA), 1986; Toxic Release Inventory (TRI) Reporting
- Enforcement Authorities:
  - §104(a) - Respond to hazardous releases from dumps
  - (e) - Gather info; access; seek penalties
  - §106(a) - Issue orders for PRPs to do cleanup
  - §120 - federal facilities
  - §122 - settlement agreements w/PRP to do cleanup or pay for EPA to cleanup
Toxic Substances Control Act (TSCA)

• EPA is required to establish standards for testing new chemicals introduced to consumers & businesses.
• Chemical manufacturers are required to develop adequate Environmental & Health data (toxicity) on the new chemical and provide the data to EPA.
• Companies are required to notify EPA within 90 days before manufacturing a new chemical & provide test data on the safety of their product.
D.O.T.

- Primary purpose is to protect the public and transportation equipment; measures to protect the public also protect employees.
- Covers transportation by aircraft, rail, vessels, and motor vehicles.
- **Hazardous Materials Regulations (49 CFR 171-180)**
  - Contain training requirements for all hazardous materials employees regarding the safe loading, unloading, handling, storing, and transporting of hazardous materials, and also regarding emergency preparedness.
  - Contain information requirements for hazardous materials emergency response.
DOT and OSHA Requirements apply to the following:

• Recording and reporting occupational injuries and illnesses
• First Aid
• PPE
• Fall protection
• Exposure to toxic and hazardous substances
• Safety management; e.g. loading and unloading
• Handling of hazardous materials
• Health and safety program (if applicable)
D.O.T.
The DOT classifies hazardous materials into 9 primary hazard classes which are subdivided into multiple subsidiary risk groups.

Class 1: Explosives
Class 2: Compressed Gases
Class 3: Flammable Liquids
Class 4: Flammable Solids
Class 5: Oxidizers
Class 6: Poisons & Toxics
Class 7: Radioactive materials
Class 8: Corrosives
Class 9: Miscellaneous hazardous materials
BREAK
HAZARDOUS MATERIALS
Recognition and Awareness

• EPA: Hazardous Waste, Extremely Hazardous Substance, Toxic Chemical, Hazardous Substance
• DOT: Poses an unreasonable risk to the health and safety of people and the environment, if not properly controlled during all uses.
• OSHA:
  - Hazardous substance: defined under § 103(14) of CERCLA
  - Hazardous waste: a waste or combination of wastes as defined in 40 CFR 261.3, or those substances defined in 49 CFR 171.8
Recognition and Awareness

Extremely Hazardous Substances (EHS) – Substances listed in Appendices A and B of 40 CFR Part 355. Any of the 366 chemicals identified by EPA on the basis of toxicity, and listed under SARA Title III. The list is subject to revision.

Example: Chlorine  TPQ - 100 lbs.  RQ – 10 lbs.
Recognition and Awareness

Where To Start?

• Job Hazard Analysis
• Safety Plan
• Proper Training
• Experience
• Common Sense
• COMPASS Method
Types of Hazards

Five Hazard Types:

• Chemical
• Fire or Explosion
• Radiological
• Biological
• Physical
Types of Hazards

Five Hazard Types

• Chemical
  - Effect can be local and/or systemic
  - Effect varies widely by Exposure route and Acute and chronic exposure
  - Example: Hydrofluoric Acid (HF) - very corrosive and rated #4 on the NFPA Blue Diamond; very poisonous; fluorine source for freon.

• Fire and Explosion Hazards
  - Chemical reactions
  - Ignition of flammable material
  - Shock sensitive compounds
  - Example: Bottle Bombs - Explosive and easy and common to produce; hazardous to face, chest, and hands; can be hidden in garbage bags/containers; if shaken, it can detonate
Types of Hazards

Five Hazard Types

• Radiological hazards
  - Medical
  - Industrial
  - Low level wastes
Types of Hazards

Five Hazard Types

• **Biological Hazards**
  - Micro Biology
    Viruses, bacteria, parasites
  - Macro Biology
    Animals, poisonous insects and plants

• **Physical Hazards**
  - Sharp objects
  - Low light
  - Slip trip fall
  - Electrical
  - Noise
  - Oxygen deficiency
  - Temperature extremes
  - Power tools
  - Vibration
Confined Spaces

• Confined space meets all three conditions:
  – Employee can enter area
  – Limited or restricted means of entry or exit
  – Not designed for continuous occupancy

• “Entry” - any part of the person’s body breaks the plane of an opening into the space

• OSHA Regulation: 8 CCR 5156-5158 (Requires a written procedures and specific training)
Confined Spaces

- Storage tanks
- Process vessels
- Pits
- Silos
- Boilers
- Vats
- Degreasers
- Reaction vessels
- Vessels
- Storage bins
- Ventilation ducts
- Sewers
- Tunnels
- Underground vaults
- Tank cars
- Holes
- Large pipes
- Excavations
- Rooms in buildings
- Hoppers
Confined Spaces

Two types of confined spaces

• Permit-required
  - Contains or has a potential to contain a hazardous atmosphere.
  - Contains a material with the potential for engulfment of an entrant.
  - Has an internal configuration such that an entrant could be trapped or asphyxiated.

• Non-Permit required
  - Does not contain hazards capable of causing death or serious physical harm.
  - Does not contain atmospheric hazards which cannot be maintained at safe levels with engineering controls such as ventilation.

Recognize the Hazards in confined spaces:

• Atmospheres: Asphyxiating, Toxic, Flammable, and Explosive
• Physical and Mechanical
Avoiding Hazards

• Administrative Controls
• Engineering Controls
• Personal Protective Equipment
Hazard Communication

Purpose of OSHA’s Hazard Communication Standard

• To ensure that employers and employees know about work hazards and how to protect themselves so that the incidence of illnesses and injuries due to hazardous chemicals is reduced.

• Employer and employee responsibilities

• Hazard Communication Program (Written)

• Container Label

• Material Safety Data Sheet (MSDS)
Hazard Communication

Written HazCom Program
- Describes container labeling, MSDS, and employee training for each workplace
- List of the hazardous chemicals
- Make information regarding hazards and protective measures available to other employers onsite
- Employee training
NFPA 704 Label

• Required for facilities with hazardous materials

• Placed near entrances to facility

• Placed on containers
Placards, Labels, and Markings

DOT and EPA Hazardous Waste Regulations
• 49 CFR Parts 171 to 179
• 40 CFR 263
  - Packaging;
  - Labeling, marking, and placarding;
  - Identification, preparation and use of the Uniform Hazardous Waste Manifest;
  - Generator certification;
  - Emergency response information.
Placards, Labels, and Markings

• Placards are for
  – Outer containers
  – Trucks
  – Cylinders
  – Other vehicles used for transport

• Labels are for
  – Packages
  – Packagings
  – Overpacks

• Markings are additional identifiers that further describe the package
Common Markings

• Proper Shipping Names and United Nation (UN) numbers

• Reportable Quantities (RQ) and Marine Pollutant designations

• Orientation arrows

• Limited Quantity designations

• Exemption numbers
DOT Placards and Labels
Shipping Papers

Shipping Papers Identification, Preparation and Use of the Uniform Hazardous Waste Manifest

• Proper shipping name
• Hazard class
• Identification number
• Packing group
• Total Quantity by weight, volume or other appropriate quantity
MSDS

Prepared by the chemical manufacturer or importer and describe:

- Physical hazards, such as fire and explosion
- Health hazards, such as signs of exposure
- Routes of exposure
- Precautions for safe handling and use
- Emergency and first-aid procedures
- Control measures
OSHA Signs

• 29 CFR 1926.200
  – Accident prevention signs and tags
• 29 CFR 1910.145
  – Specifications for accident prevention signs and tags
• Many other sign regulations specific to various work environments
• Pictograms (New)
QUESTIONS?