Introduction to HazWOpER

- Personnel activity involved in investigations and clean-up must be thoroughly familiar with health and safety programs and procedures, and must be specially trained to work safely in contaminated areas. In addition, visitors to a site must receive adequate training on hazard recognition and on the site's Standard Operating Procedures to enable them to conduct their visit safely.
- Site activities involving drum handling, underground storage tank removal, remediation operations, and facility decontamination require more training. The training in this module is a general orientation to this topic. Further training can be obtained in a comprehensive hazardous waste site health and safety seminar (OSHA 40 hour course).

What does Hazwoper stand for?

- Haz - Hazardous
- W – Waste
- Op – Operations
- E – Emergency
- R – Response
  - HazWOpER

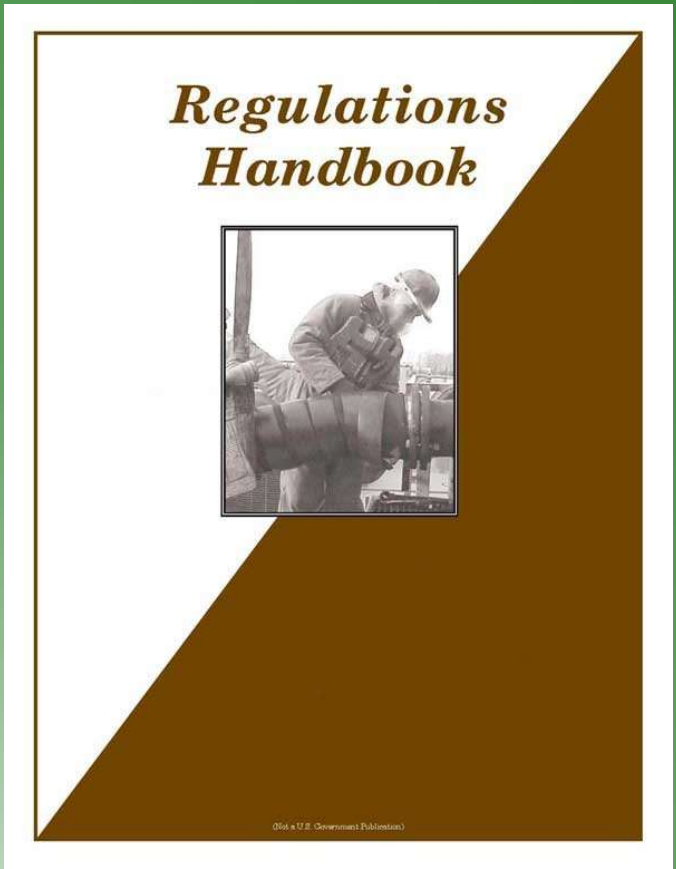
Learning Objective

- At the end of this module you will be able to:
  - Identify the responsibilities of hazardous waste site and emergency response personnel
  - Explain the content and necessity of the medical surveillance program
  - Describe training requirements, based on job function
  - Explain the importance of using the appropriate personal protective equipment, as well as its limitations
  - Explain the significance of the site-specific health and safety plans
  - Describe the established procedures for emergency situations.

Responsibilities

- All personnel working at the sites are responsible for meeting the following requirements:
  - Obey all aspects of the site-specific health and safety plan
  - Fulfill relevant training requirements
  - Comply with any medical surveillance criteria
  - Wear the appropriate protective clothing and equipment
  - Know the location of emergency equipment
  - Understand the emergency procedures
  - Conduct all work in a safe manner and according to the site's Standard Operating Procedures and any other applicable requirements.

Regulations and Standards



- Prior to working at hazardous waste and/or emergency response sites, personnel must first comply with the Worker Protection Standard (40 CFR 311), and EPA employees must refer to EPA Standard Operating Safety Guides, and any other applicable rules and regulations.

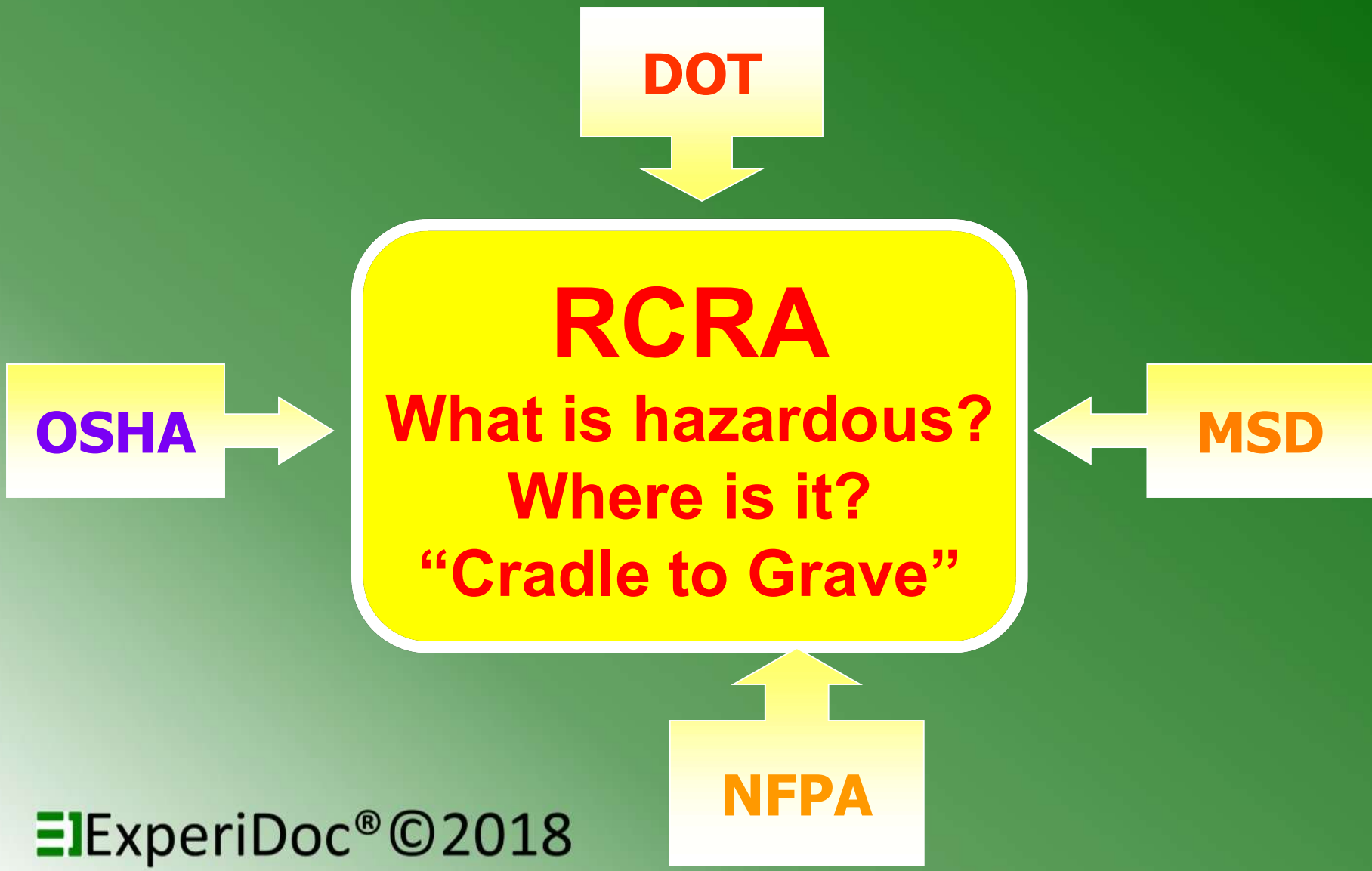
What is Haz-WOPER?

- Hazardous Waste Operations & Emergency Response
  - OSHA Standard
  - Originated 1986
  - Multiple levels of training
  - Refresh annually

Haz-WOPER History

- EPA Formation: 1970
  - Responsible for regulating Pollution
  - What is a Pollutant?
    - Resource Conservation & Recovery Act: 1976
      - Called for management of Hazardous Waste from "Cradle to Grave"
      - Did contain rudimentary training requirements
    - Other Agencies transpose list

Haz-WOPER History



Haz-WOPER History

- CERCLA: Comprehensive Emergency Response Compensation Liability Act
  - Joint, Strict, and Several Liability
- "SUPERFUND" 1980
  - Generated revenue and methods for selection
  - Property owner ultimately responsible

Haz-WOPER History

- SARA: Superfund Amendments Reauthorization Act 1986
  - Created protection for the innocent property owner
  - OSHA Haz-WOPER standard
- OSHA Formation: 1970

When do you need Haz-WOPER?

- EPA activities vs. OSHA requirements
  - 40 hour vs. 24 hour
  - OSHA has varying degrees of training
  - Training required by contract?
  - Employer meets or exceeds regulatory requirements

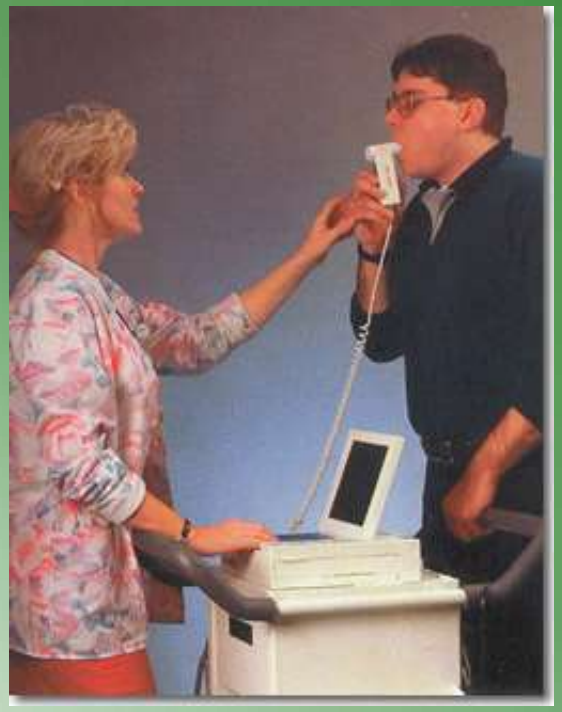
OSHA's 5 levels of training

- 1) Awareness level: trained by employer
  - Scope of work
- 2) Operations level: at least 8 hours
  - Not directly involved
- 3) Haz-mat technician: at least 24 hours
  - Responds to haz-mat

OSHA's 5 levels of training

- 4) Haz-mat specialist: at least 24 hours
  - Responds to haz-mat & Acutely hazardous materials
- 5) On scene incident commander: at least 24 hours
  - Qualified to perform within capabilities & resources

Medical Surveillance



- Workers handling hazardous waste and hazardous materials may experience high levels of physical and physiological stress. A medical surveillance program is necessary to assess and monitor workers' health and fitness both prior to employment and during the course of work.
- A medical program also provides for:
  - Emergency and other medical treatment as needed
  - Maintaining accurate records
    - To conduct future epidemiological studies
    - To adjudicate claims
    - To provide evidence in litigation
    - To report workers' medical conditions to federal, state, and local agencies.

Medical Surveillance

- A medical evaluation program should provide the following components:
  - Surveillance
  - Treatment
  - Recordkeeping
  - Program review.

Medical Surveillance

- To assure adequate baselining of workers' pre-employment medical conditions and documentation of potential effects of exposure and contamination, the following medical surveillance should be provided:

- Pre-employment Screening
- Periodic Medical Examinations
- Termination or Reassignment Examinations

Test your knowledge

The medical termination examination of an employee at a hazardous waste site….

- **Must always be a full examination**
- **May be waived if no symptoms of exposure have been reported.**
- **May be limited if the last full medical examination was within the last 8 months.**
- **May be limited if no exposure has occurred since the last examination.**

Personnel Training Requirements

- Employees may not engage in field activities until they have been trained to a level commensurate with their job function and responsibilities and with the degree of anticipated hazards.

Personnel Training Requirements

- The objectives of training programs for employees engaged in hazardous waste site and emergency response activities are:
  - To ensure that workers are aware of the potential hazards they may encounter
  - To provide the knowledge and skill necessary to perform the work with minimal risk to worker health and safety
  - To make workers aware of the purpose and limitations of safety equipment
  - To ensure that workers can safely respond to emergency situations.

Personnel Training Requirements: General Site Workers

- General Site workers should receive a minimum of 40 hours of training specific to their jobs and responsibilities. In addition to the classroom instruction, general site workers should engage in actual field training activities, including three days under the direct supervision of a trained experienced supervisor.

Personnel Training Requirements: General Site Workers

- Overview training should include, but not limited to, the following topics:
  - **Site safety plans**
  - **Safe work practices**
  - **Nature of anticipated hazards**
  - **Handling emergencies and self-rescue**
  - **Handling, storage, and transportation of hazardous materials**
  - **Safe use of field equipment**
  - **Safe sampling techniques**
  - **Employee rights and responsibilities**
  - **Rules and regulations for vehicle use**
  - **Use, care, and limitations of personal protective clothing and equipment.**
- A general site worker who may be exposed to unique hazards or who may occasionally supervise others should receive additional training in the following subjects.
  - **Site surveillance site safety plan development**
  - **Use and decontamination of fully encapsulating personal protective clothing and equipment**
  - **Use of instruments to measure explosivity, reactivity, oxygen level, etc.**
  - **Safe use of specialized sampling and monitoring equipment**
  - **Topics specific to identified site activities or hazards.**

Personal Training Requirements: Supervisors and On-site Managers

- On-site management and supervisors, such as Project Team Leaders, should receive the same training as the general site workers for whom they are responsible. Supervisory personnel should receive additional training in the following areas:
  - Management of hazardous waste clean-up operations and emergency responses
  - Management and coordination of the site work zones
  - Communication with the press and local community.

Personnel Training Requirements: Health and Safety Staff

- Health and safety staff with specific responsibilities for health and safety guidance on site should be familiar with the training provided to general site workers and their supervisors. The health and safety staff should receive advanced training in health and safety issues, policies, and techniques.

Personnel Training Requirements: Visitors

- No visitors should be permitted in the Exclusion Zone unless they have been trained, fit-tested, and medically approved for respirator use. Any onsite visitors must be provided with personal protective equipment (PPE) (e.g., hard hats, steel-toes shoes) appropriate to the work area or associated hazards.

Personnel Training Requirements: Reference Tables

- The specific types and levels of training for emergency response required by OSHA's 29 CFR 1910.120 are as follows.
  - First Responder - Awareness Level
  - First Responder - Operations Level
  - Hazardous Materials Technician
  - Hazardous Materials Specialist
  - Hazardous Materials Incident Commander

Test your knowledge

Employees may engage in field activities once they have completed the classroom instruction part of the training.

- True
- False

Personal Protective Equipment

- PPE should be selected to provide the best possible protection against the chemicals and environment to which the workers will be exposed. The types of protective equipment which may be needed include:
  - Eye and face protection
  - Foot protection
  - Respiratory protection
  - Hearing protection
  - Hand protection
  - Body protection
  - Head protection.
- Detailed information is provided in the module, “Personal Protective Equipment.”

Site-Specific Health and Safety Plans

- The site characterization is the basis for developing the site health and safety plan.
- **Site Characterization-** Identifies hazards for PPE selection and safe work site practices.
- **Site-Specific Health and Safety Plans-** Monitoring, Emergency Response, Site Control and Decontamination.

Test your knowledge

Site-specific health and safety plans only address monitoring and site control.

- **True**
- **False**

Emergency Situations

- The nature of work at hazardous waste sites makes emergencies a continual possibility.
- Any hazard on site can precipitate an emergency: chemicals, biological agents, radiation, or physical hazards may act alone or in combination to create explosions, fires, spill, toxic atmospheres, or other dangerous and harmful situations.

Emergency Situations

- Due to the variability of site emergencies, a contingency plan should be developed that sets forth policies and procedures for responding to site emergencies and incorporates the following:
- Personnel- Specific Duties
- Site Layout and Operations- Safe distances and refuge areas
- Emergency Medical Treatment- First Aid and Decon stations
- Equipment- Site specific safety and emergency gear
- Emergency Response Procedures- SOP's and Notifications
- Documentation and Reporting- Personnel and Site Reporting

Scope of Hazwoper Standard

1. CLEAN-UP OPERATIONS REQUIRED BY GOVERNMENTAL BODY @ UNCONTROLLED HAZ-WASTE SITES

Scope of Hazwoper Standard

2. CORRECTIVE ACTION FOR SITES COVERED BY RCRA

Scope of Hazwoper Standard

3. VOLUNTARY CLEAN-UP OPERATIONS RECOGNIZED BY A GOVERNMENTAL BODY @ UNCONTROLLED HAZ-WASTE SITES

Scope of Hazwoper Standard

4. EMERGENCY RESPONSE OPERATIONS FOR RELEASES OR POTENTIAL RELEASES OF HAZARDOUS SUBSTANCES WITHOUT REGARD TO THE LOCATION OF THE HAZARD

Scope of Hazwoper Standard

5. OPERATIONS INVOLVING HAZ-WASTE AT TSD's (Treatment, Storage, and Disposal facilities)

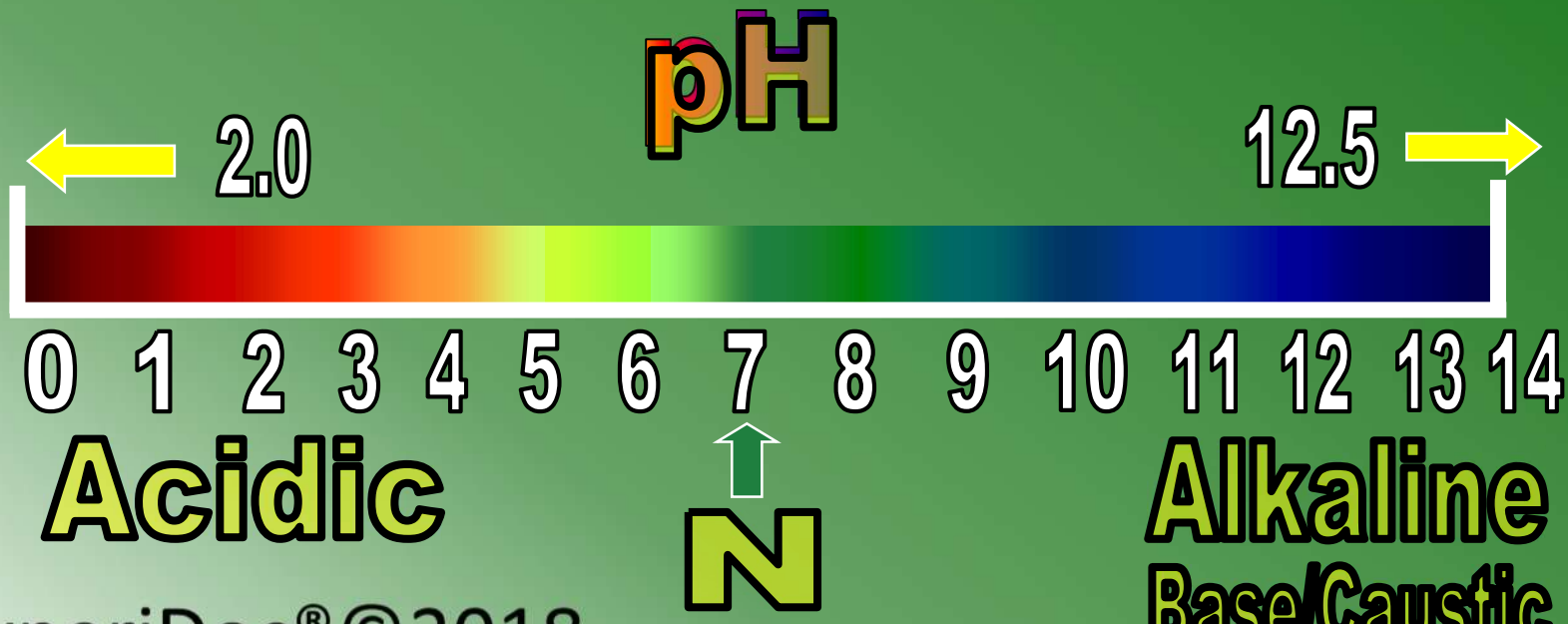
Characteristics of hazardous wastes (RCRA)

1. IGNITABLE

UNDER RCRA, IGNITABLES HAVE A FLASH POINT OF < 140^{O}F

Characteristics of hazardous wastes (RCRA)

2. CORROSIVE



Characteristics of hazardous wastes (RCRA)

3. REACTIVE

REACTIVE WASTE HAVE SPECIFIC DISPOSAL/TREATMENT REQUIREMENTS

Characteristics of hazardous wastes (RCRA)

4. TOXIC

UNDER RCRA TOXIC SUBSTANCES MUST HAVE THE TCLP UNLESS LISTED

OR DEMONSTRATES TOXICITY VIA EXPERIMENTATION

RCRA HAZARDOUS WASTE LISTS

What is a hazardous waste?

- A hazardous material becomes a hazardous waste if it displays at least one characteristic of a hazardous material and has no current recognized use.
  - Toxic
  - Corrosive
  - Ignitable
  - Reactive

RCRA's Hazardous Waste Lists

- 5 Lists designating specific materials or waste streams as hazardous waste
  - The K List
  - The F List
  - The P List
  - The U List
  - The D List

The K List

- Hazardous waste from specific sources
  - result of a specific manufacturing process that produces the same waste every time
    - Examples include:
      - Wastewater treatment sludges from heavy metals processes
      - Distillation bottoms from various petrochemical processes, etc.

The F List

- Hazardous waste from non-specific sources
  - May be a specific material or a waste from a process which is not generated by a specific generator
    - Examples include:
      - Spent halogenated solvents
        - METHYLENE CHLORIDE
      - Spent non-halogenated solvents
        - TOLUENE
      - Pyridine, etc.

The P List

- Acutely hazardous waste
  - **Specific unusable chemicals which can cause serious health impairing symptoms or death in minute quantities**
    - **Generating more than one kilogram of a P listed waste per month can affect one's generator status**
    - **Un-used materials**
      - Pure
      - Off-specification
      - No legitimate use
      - No recycler can be found
        - **EXAMPLES INCLUDE: SODIUM AND POTASSIUM CYANIDE, OSMIUM TETROXIDE, AND TETRAETHYL LEAD, ETC.**

The U List

- Hazardous waste that is:
  - Discarded commercial chemicals
  - Off specification chemicals
  - Unusable chemical intermediates
  - Container/spill residues, or
  - Residues that are toxic and may show one or more other hazardous waste characteristics
    - Examples include: Methylene chloride, toluene, phenol, pyridine, etc.

The D List

- The D List is characteristic waste.
  - These wastes include the four hazardous waste characteristics
    - Ignitability
    - Corrosivity
    - Reactivity
    - Toxicity
    - Plus: 39 specifically listed waste materials
      - Examples include: lead, silver, pyridine, etc.

Generator Status: Based on Production

Large Quantity Generators	> 1000 kg/mo
Small Quantity Generator	> 100 kg/mo ≤ 1000 kg/mo
Conditionally Exempt Small Quantity generator	≤ 100 kg/mo

Generator Status: Storage Requirements

Large Quantity Generators 90 DAYS

Small Quantity Generator 180 DAYS

Conditionally Exempt 1 YEAR
Small Quantity generator

Under RCRA Spills must be documented

Satellite storage:

- No more than 55 gallons
- Up to 1 year of storage
- or until container is full then 3 DAYS to replace

Other Things Required under RCRA

- ✓ Waste Minimization Program:
  - Verification provided on manifest
- ✓ Proper Waste Storage per DOT or other government bodies
- ✓ Transporter Selection and Proper Manifesting
- ✓ Waste Stream Identification
- ✓ Generator is ultimately responsible for their waste "Cradle to Grave"

Summary

- Before work can commence on hazardous waste sites and at emergency responses, the steps listed below must be taken to ensure the health and safety of workers, visitors, and the surrounding community:
  - Establish a site-specific health and safety plan based on the site characteristics
  - Implement a medical surveillance program and ensure personnel awareness of the purpose and necessity of participating
  - Fulfill training requirements for site workers and supervisory personnel prior to their engaging in any waste site or emergency response activities
  - Ensure that the appropriate personal protective equipment (PPE) is available and personnel are trained in the selection and use of proper PPE for a given situation
  - Establish procedures for emergency situation. Personnel must be familiar with the site emergency plan and know their roles and responsibilities in the event of an emergency.

- You have completed the module:
- Hazardous Waste Operations & Emergency Response.