



# The Resource Conservation and Recovery Act (RCRA) and The Federal Facility Compliance Act (FFCA)

# Objectives

## **Terminal Objective**

**Given the Environmental Laws and Regulations course manual as a reference, you will be able to:**

- **Describe the general intent of the Resource Conservation and Recovery Act (RCRA) and the Federal Facilities Compliance Act and how they affect hazardous waste generators.**

# Objectives

## Enabling Objectives

- **Describe DOE responsibilities under RCRA..**
- **Explain the applicability of Subtitle C (Hazardous Waste Management) to DOE.**
- **Define RCRA-regulated wastes and materials.**

# Objectives

## Enabling Objectives (continued)

- **List treatment, storage, and disposal facility responsibilities that DOE must comply with under RCRA.**
- **Describe the applicability RCRA interim status and permitting process for DOE.**
- **State the purpose of the land disposal restrictions and their applicability to DOE.**

# Objectives

## Enabling Objectives (continued)

- **List the different types of administrative actions that may be taken against RCRA violators.**
- **Explain RCRA's relationship to other environmental or health and safety laws.**
- **List the responsibilities of hazardous waste generators under RCRA.**

# Objectives

## Enabling Objectives (continued)

- **Define the following terms: treatment, storage, disposal, facility, delisting, interim status.**
- **State the Site Treatment Plan (STP) requirements for each DOE site that generates or stores mixed waste.**
- **Identify regulatory challenges posed by mixed waste.**

# Overview

*In 1976, Congress remodeled the Solid Waste Disposal Act of 1965 into a major new program--the Resource Conservation and Recovery Act (RCRA).*



# Overview

## **RCRA's intent was to:**

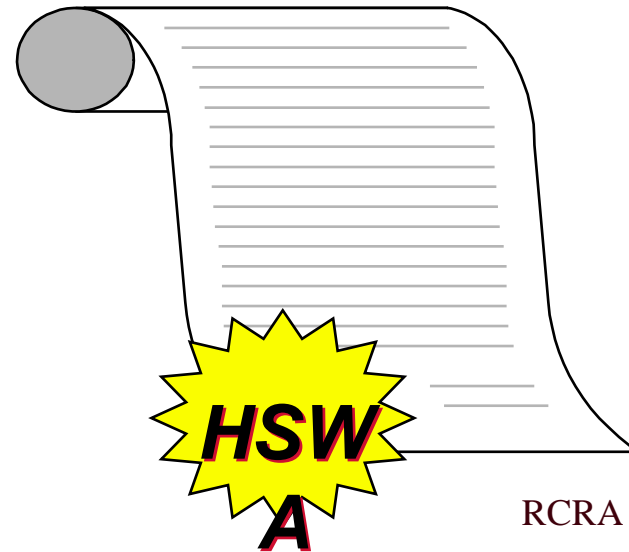
- **Create a national policy framework**
- **Promote recovery techniques and methods to reduce generation of waste**
- **Outline environmentally sound management of hazardous and nonhazardous wastes**





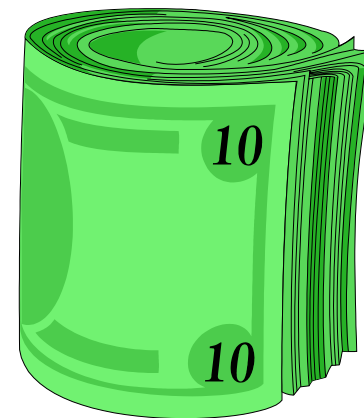
# Overview

*RCRA was expanded in scope and detail by the Hazardous and Solid Waste Amendments (HSWA) of 1984.*



# The FFCAct

*The Federal Facility Compliance Act, enacted on October 6, 1992, enables States to fine Federal agencies, including the DOE, for RCRA violations.*



RCRA

10

# FFCAct Objectives

**The FFCAct waives previously established sovereign immunity for fines and penalties against Federal facilities that violate RCRA and/or:**

- **State,**
- **Interstate, or**
- **Local hazardous and solid waste management requirements**



# Overview



## **RCRA contains 10 subtitles:**

- **Subtitle C - “Hazardous Waste Management”**
- **Subtitle D - “State and Regional Solid Waste Plans”**
- **Subtitle I - “Regulation of Underground Storage Tanks”**

# Overview

- **Subtitle J - “Demonstration Medical Waste Tracking Program”**
- **Six remaining subtitles provide legal and administrative structure for achieving the law’s objectives**



# Overview of Subtitle C

**Subtitle C, “Hazardous Waste Management,” outlines waste management procedures for:**

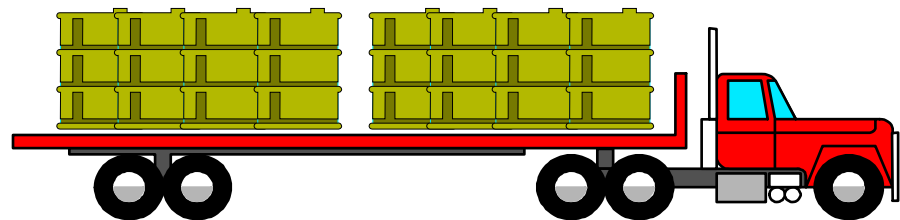
- **Generators of hazardous waste**
- **Transporters of hazardous waste**
- **Owners/operators of treatment, storage, and disposal facilities (TSDFs)**



# Overview of Subtitle C

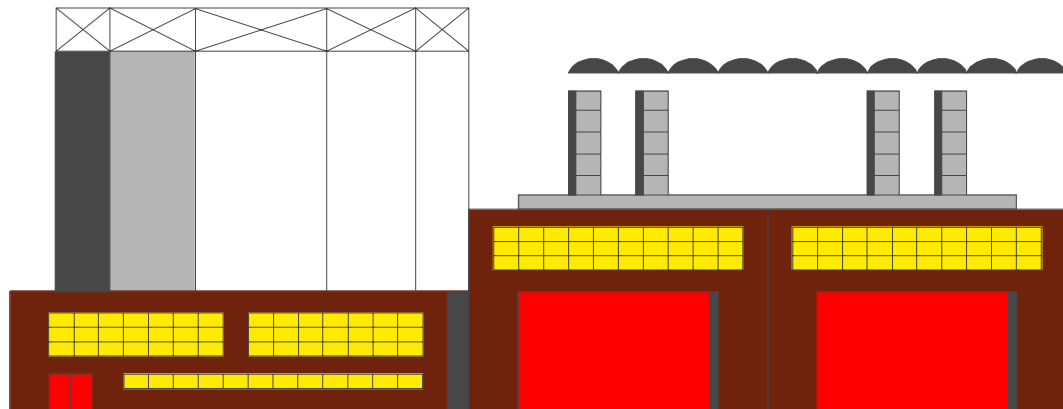
**Subtitle C regulates waste from generation to final disposal by:**

- **Defining/identifying hazardous waste**
- **Regulating generators, transporters, and owners/operators of TSDFs**
- **Enforcing regulations**



# Hazardous Waste Generators

*A “Hazardous Waste Generator” is the entity that first creates hazardous waste as defined under RCRA.*





# Hazardous Waste Generators

**Hazardous waste generators are responsible for:**

- **Providing for regulated waste accumulation and shipment preparation**
- **Designing a recordkeeping system and providing manifests**
- **Instituting plans for segregation and waste minimization**

# Hazardous Waste Generators

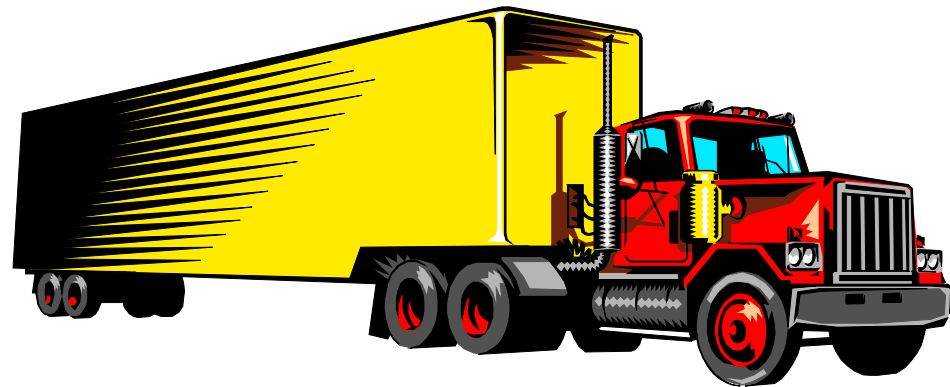
**When generators determine a waste is hazardous they must:**

- **Obtain an Environmental Protection Agency (EPA) identification number within 90 days**
- **Allow transportation, storage, treatment, and disposal only by other persons with EPA identification numbers**



# Hazardous Waste Generators

- **Provide reports on hazardous waste activities**
- **Ensure proper packaging for transport to prevent leakage**



# Hazardous Waste Generators

**RCRA outlines waste accumulation regulations that include:**

- **Storage of up to 55 gallons of waste in satellite accumulation areas**
- **On-site waste storage for up to 90 days without a storage facility permit**



# Hazardous Waste Generators

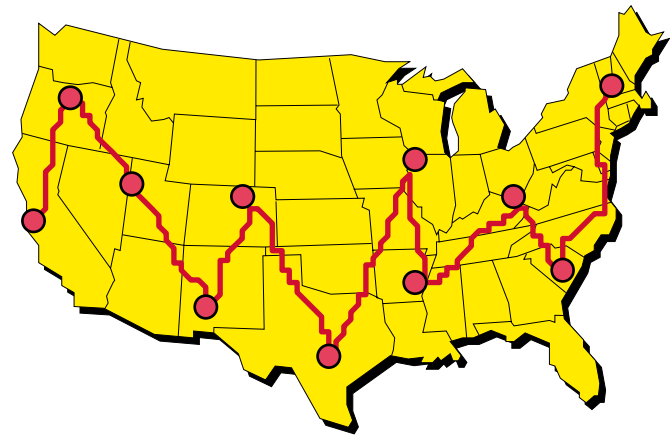
- **Accurate container labeling and dating**
- **Development of an emergency plan and personnel training requirements**



# The Manifest

**Generators must prepare the “Uniform Hazardous Waste Manifest” to serve as a document of accountability. Manifests must:**

- **Accompany wastes on public roads**
- **Identify generators and TSDFs**



# The Manifest



- **Verify that wastes are packaged and marked according to Department of Transportation (DOT) regulations**
- **Certify adoption of a waste minimization program**

# Recordkeeping

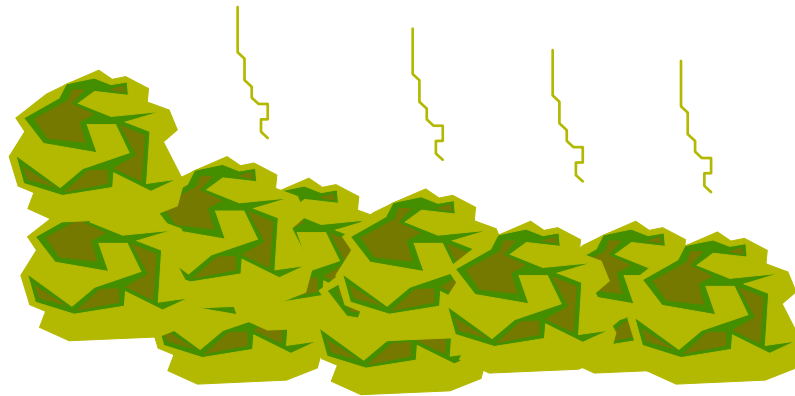
## **Generators must also:**

- **Keep signed Manifests for 3 years after shipment date**
- **Keep required reports for 3 years**
- **Keep records of waste characterization**
- **Submit Manifest discrepancy reports when necessary**



# RCRA-Regulated Materials

*A hazardous waste must be a solid waste. Solid waste is defined as any waste that has been discarded or abandoned, including solid, liquid, semisolid, or gaseous waste.*



# Hazardous Waste

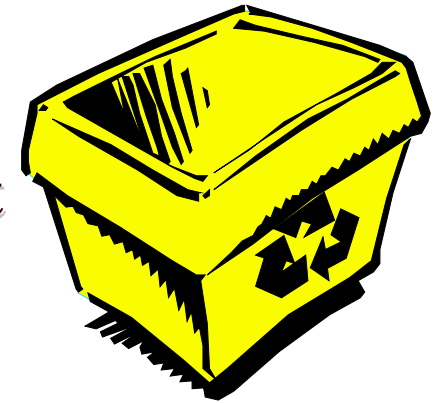
**The following are excluded from RCRA's definition of hazardous waste:**

- **Domestic sewage**
- **Irrigation returns**
- **Permitted industrial point-source discharges**
- **Source, special nuclear, and byproduct materials regulated under the Atomic Energy Act (AEA)**

# Recycled Materials

**Recycled materials are not considered solid waste if they are:**

- **Used to make an industrial product**
- **Used as substitutes for commercial products**
- **Returned to the original process from which they are generated without being reclaimed**



# Hazardous Waste

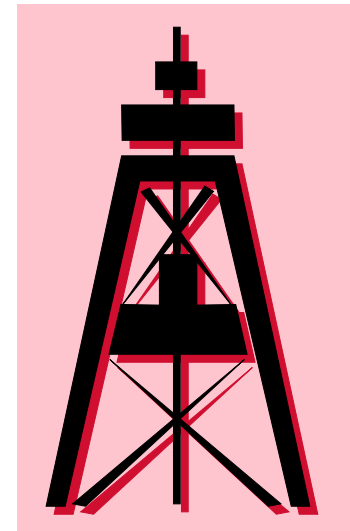
**A solid waste is hazardous if it:**

- **Is not excluded by regulation**
- **Is a waste mixture containing listed hazardous wastes**
- **Is derived from the treatment of a listed waste**
- **Exhibits one or more characteristics of a hazardous waste**

# Hazardous Waste

The following are excluded from RCRA's solid waste definition:

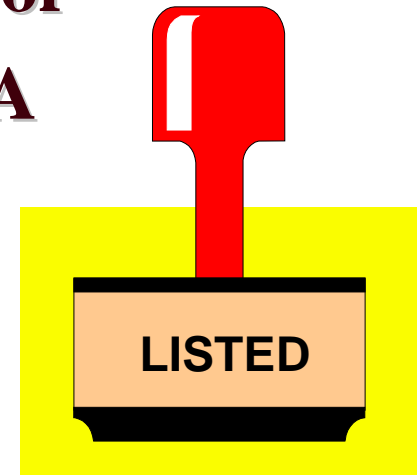
- Source, special nuclear, or by product material as defined by the AEA
- Waste from processing ores and minerals
- Utility wastes
- Oil and gas drilling muds and brines
- Waste that is reused or recycled



# Hazardous Waste

**A waste is hazardous if it:**

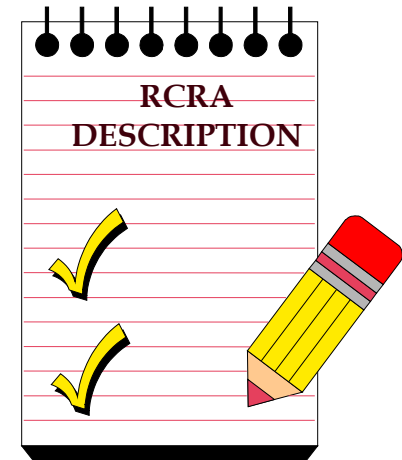
- **Meets specific characteristics, or**
- **Is specifically listed by the EPA**



# Characteristic Waste

A waste is hazardous if it meets any of the RCRA listing descriptions or exhibits a hazardous waste characteristic:

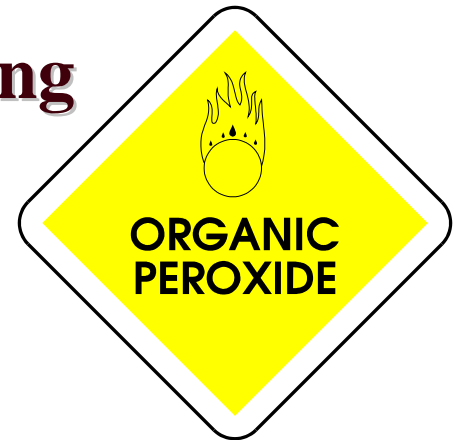
- Ignitable
- Corrosive
- Reactive
- Toxic



# RCRA Hazardous Waste

**The toxicity characteristic is determined by:**

- **Subjecting the waste to the Toxicity Characteristic Leaching Procedure (TCLP)**
- **Measuring the leachate for certain heavy metals, pesticides, and organics**





# RCRA Hazardous Waste

**Reactivity is the hazardous waste characteristic that includes wastes that:**

- **Are normally unstable**
- **React violently with water**
- **Form toxic gases when mixed with water**
- **Are capable of detonation or explosion**



# RCRA Hazardous Waste

**Corrosivity is the characteristic exhibited by liquids that either:**

- **Have a pH less than or equal to 2, or greater than or equal to 12.5**
- **Corrode carbon steel at a certain rate per year**



# RCRA Hazardous Waste

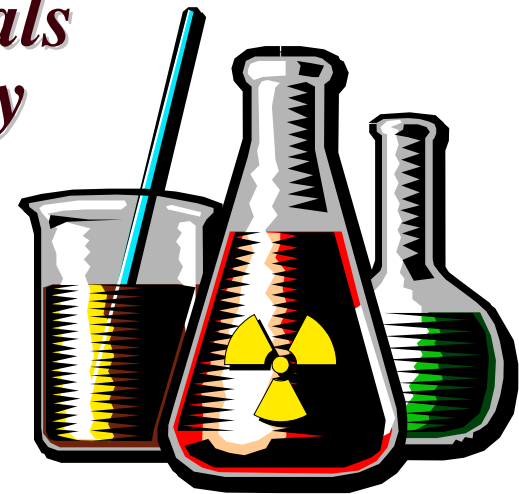
**Ignitability usually indicates a liquid waste that has a flashpoint of less than 140<sup>0</sup> F, but it can also include:**

- **Solids that spontaneously ignite**
- **Ignitable compressed gases**
- **Oxidizers as defined by the Department of Transportation (DOT)**



# Characteristic Wastes

*A characteristic waste remains hazardous only as long as it exhibits the hazardous characteristic. Characteristic hazardous wastes mixed with other materials are considered hazardous if they still exhibit the characteristic after being mixed.*



# Listed Wastes

**EPA listed wastes include the following:**

- **Type “F”- Hazardous waste from nonspecific sources**
- **Type “K” - Hazardous waste from specific sources**
- **Commercial chemicals:**
  - **Type “P” - Acutely hazardous**
  - **Type “U” - Toxic and hazardous**

# Listed Wastes

*Listed wastes meet the definition of hazardous waste regardless of the concentration of hazardous constituents. Listed wastes remain hazardous until the EPA specifically delists them.*

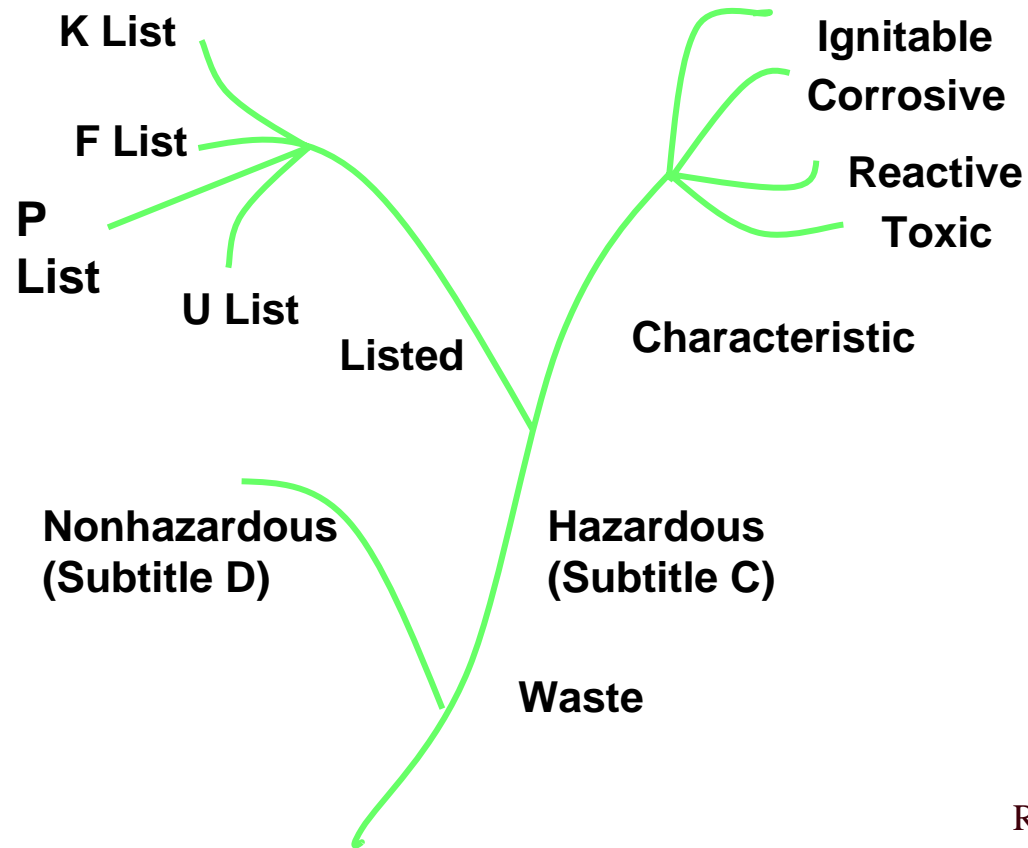


# Delisting

**Delisting is the process of exempting a specific waste. To delist the owner/operator of a facility must:**

- **Petition for an amendment**
  - **The petition must satisfy the EPA and State authorities**
- **Make sure the waste does not meet any criteria that originally listed it as hazardous or contain any other harmful constituent**

# RCRA "Tree"

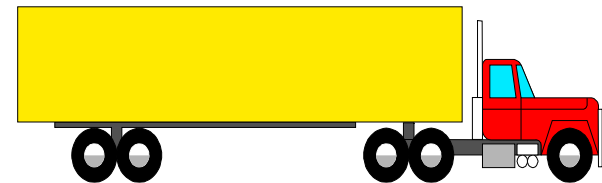




# Transporting Hazardous Waste

**Transport regulations under 40 CFR 263 include:**

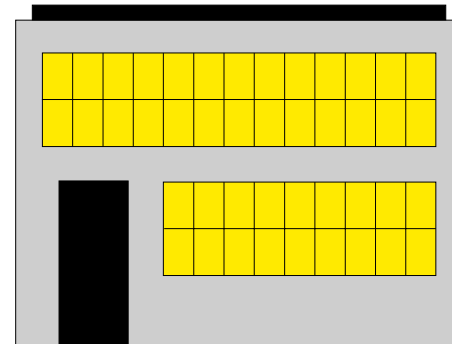
- **Coordinating with the DOT**
- **Designing a recordkeeping system; providing manifests**
- **Instituting emergency plans and spill response procedures**



# TSDF Definitions

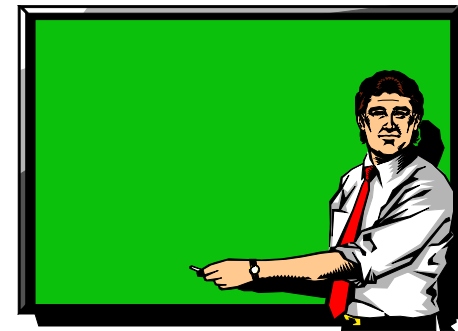
## Key definitions for TSDFs:

- **Treatment - Any method to change waste's physical, chemical, or biological composition**
- **Storage - Holding waste temporarily**



# TSDF Definitions

- **Disposal - Placing any solid or hazardous waste into land or water**
- **Facility - All land structures and improvements used for treatment, storage, or disposal**



# TSDF Responsibilities

## Owners/operators of TSDFs must:

- Adhere to permitting requirements
- Develop operating standards
- Comply with design standards



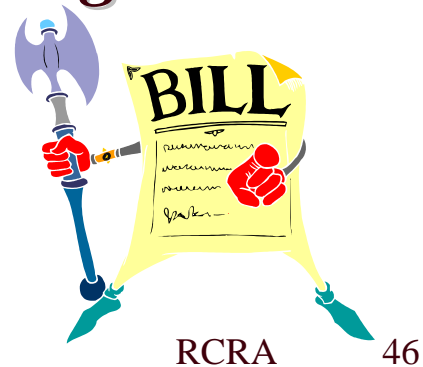
# TSDF Responsibilities

- **Comply with land disposal restrictions (LDRs)**
- **Complete corrective actions when necessary**
- **Provide for closure/postclosure of the facility**



# Interim Status and Permits

*Congress established an interim status that allowed existing hazardous waste management facilities to operate legally without permits. Interim status facilities still represent a large segment of regulated TSDFs.*



# Interim Status and Permits

**DOE facilities that treat, store, or dispose of hazardous waste must obtain a permit (40 CFR 270) from the EPA or authorized State agency. Exceptions include:**

- **When RCRA requirements are inconsistent with the AEA**
- **DOE facilities that accumulate hazardous waste for less than 90 days**

# TSDF Training Requirements

**Under 40 CFR 265.16, 40 CFR 264.16 and 29 CFR 1910.120, TSDFs are required to:**

- **Provide on-the-job training, classroom training, and annual reviews for personnel**
- **Provide instructors qualified in hazardous waste management procedures**





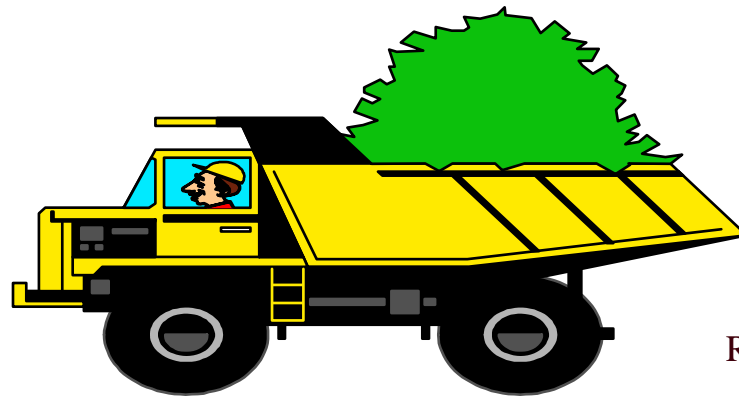
# TSDF Training Requirements

- **Maintain records of training**
- **Keep records of current personnel**
- **Preserve records of former employees for 3 years**



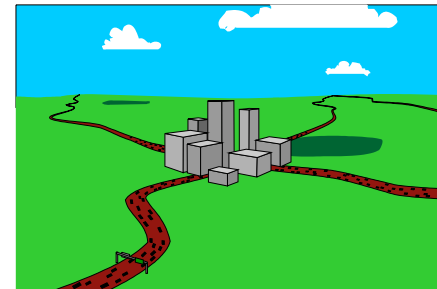
# Land Disposal Restrictions

*The HSWA established deadlines for the EPA to define conditions for the disposal of hazardous waste on land. Treatment standards (divided into three groups) began November 1986 and continued through May 1990.*



# Land Disposal Restrictions

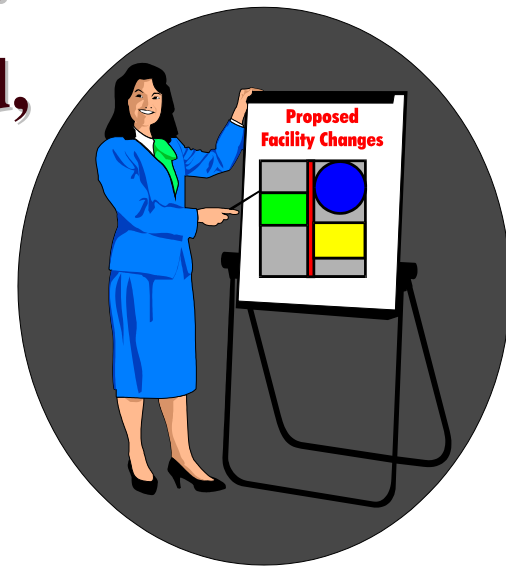
*Waste banned from land disposal is also banned from storage. DOE facilities lack treatment technologies to comply with LDRs. Problems have been addressed with variances allowed by the EPA and in compliance agreements.*



# Permit Modifications

**Under 40 CFR 270.41, acceptable permit modifications may be due to:**

- **New wastes being treated, stored, or disposed of**
- **Facility or activity alterations (including process changes)**



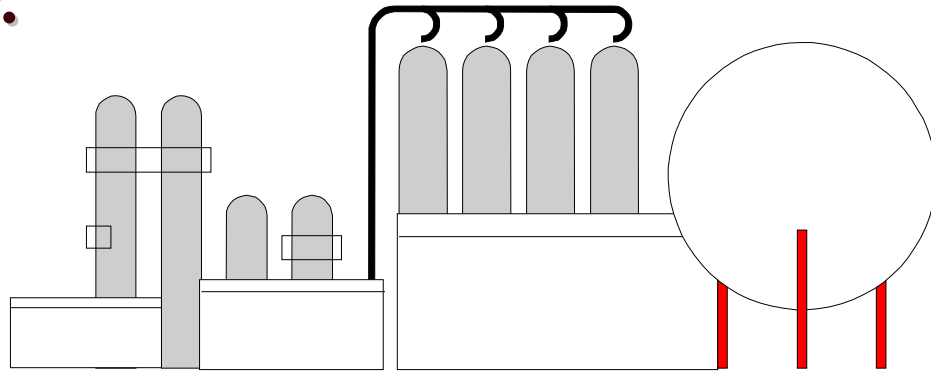
# Permit Modifications

- **New information justifying different permit conditions**
- **New requirements**
- **An act of God, strike, etc.**



# Corrective Action

*Section 3004(u) of RCRA gives authority to the EPA to require corrective action for past releases at all facilities, including interim status facilities.*



# TSDF Closure and Postclosure

**Standards for closing TSDFs include:**

- **Minimizing further maintenance**
- **Controlling, minimizing, or eliminating escape**
- **Complying with specific facility-type standards**



# TSDF Closure and Postclosure

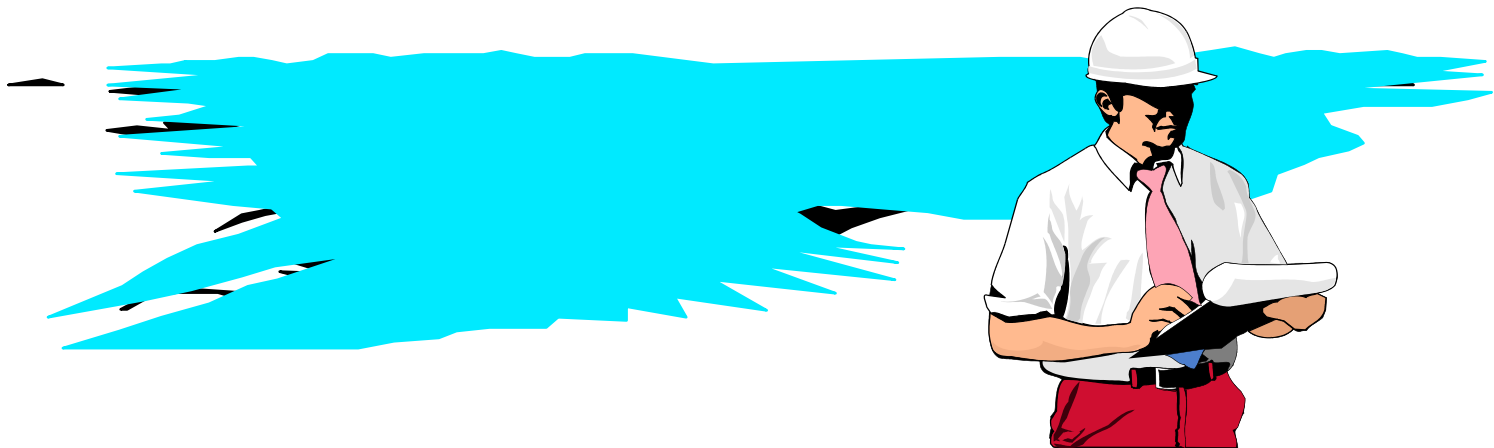
- **Disposing or decontaminating equipment, structures, and soils**
- **Monitoring postclosure for 30 years**





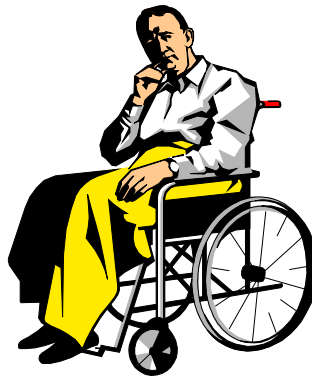
# Minimum Technology Requirements

*All new, replacement, or expanded units at interim status surface impoundments, landfills, or waste piles must have double liners, leachate collection devices, and groundwater monitoring capabilities.*



# The HSWA

*The HSWA were established by Congress to address concerns about inadequate controls for hazardous waste management that would increase risks to health and the environment.*



# The HSWA

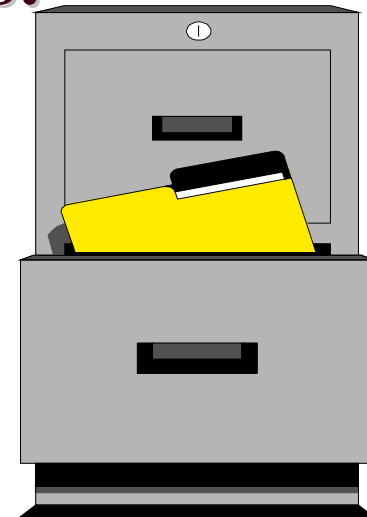
## **The HSWA introduced three changes:**

- **Restricts land disposal use for untreated hazardous waste**
- **Prevents hazardous waste from migrating into groundwater**
- **Requires corrective action for hazardous waste releases at any facility seeking a RCRA permit**
- **Monitoring postclosure for 30 years**

# Corresponding Regulations

**RCRA provided for the EPA and States to serve as the regulating agencies:**

- **The EPA then developed 40 CFR 240 through 281 to implement RCRA**



# Regulations Pertaining to the DOE

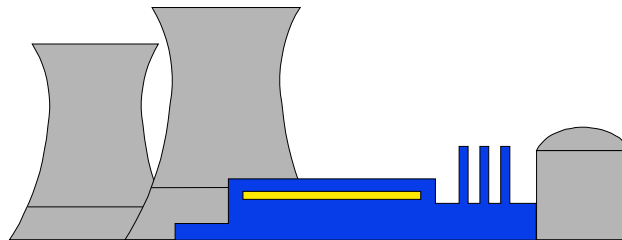
- **40 CFR 124 - “Procedures for Decisionmaking”**
- **40 CFR 260 series**



# RCRA Applicability

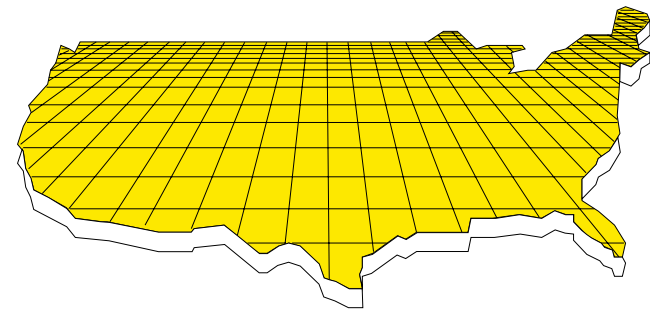
**RCRA applies to operations that:**

- **Generate, transport, treat, store, or dispose of waste**
- **Store hazardous materials in Underground Storage Tanks (USTs)**
- **Produce, burn, distribute, or market hazardous-waste-derived fuels**



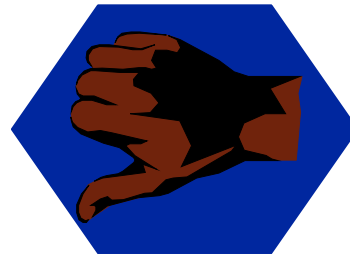
# RCRA Authority

*Subtitle C, Section 3006 - Authorized States to develop their own hazardous waste programs. To be granted authority, States must have a permitting system, manifest system, administrative resources, and enforcement authority.*



# Compliance Orders and Liability

*RCRA enforcement goals ensure that regulatory and statutory provisions are met and compel necessary corrective action.*





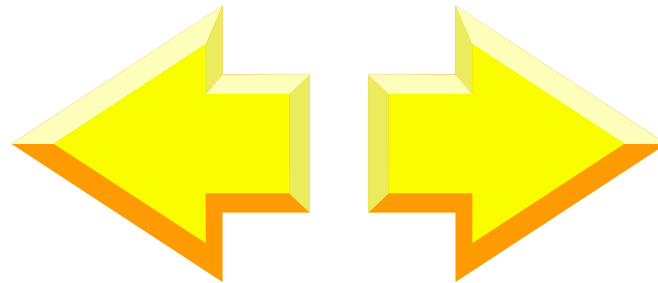
# Compliance Orders and Liability

## **Noncompliance with RCRA can result in:**

- **Administrative actions - suspending or revoking the RCRA permit**
- **Civil actions - penalty of up to \$25K for each day of violation**
- **Criminal lawsuits - penalties ranging from \$50K to \$250K/day of violation and prison terms from 2 to 15 years**

# The Mixed Waste Challenge

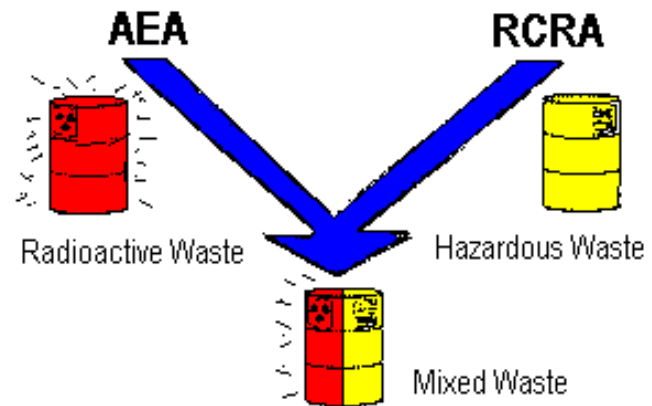
*The regulation of mixed radioactive and hazardous waste is one of the most complicated areas facing the regulatory arena. Because mixed waste is comprised of radioactive waste and hazardous waste, it is subject to dual regulation.*



# Regulation of Mixed Waste

**Mixed waste is subject to:**

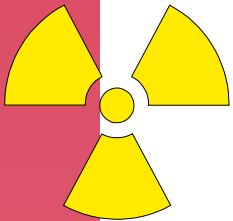
- **RCRA requirements**
- **AEA requirements**



# Regulation of Mixed Waste

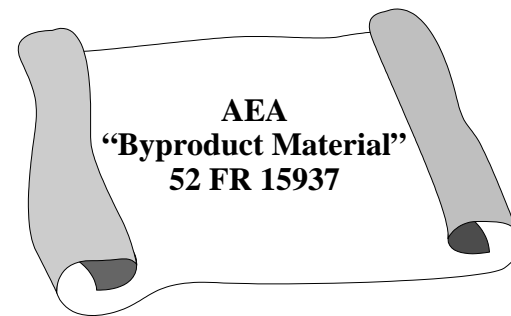
**The EPA clarified the applicability of RCRA to mixed waste on July 3, 1986, when it issued a policy statement (51 FR 24504), which stated:**

- **Radioactive components of mixed waste are regulated by the AEA**
- **Hazardous components of mixed waste are regulated by RCRA**



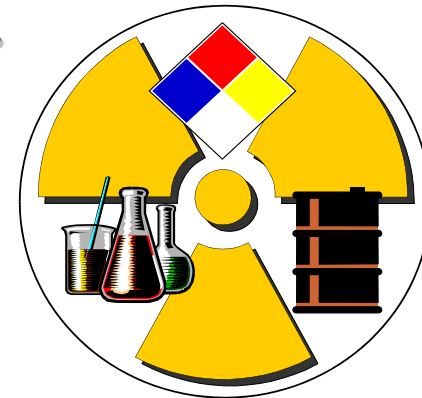
# Regulation of Mixed Waste

*On May 1, 1987, the DOE issued a rule (10 CFR 962) that interpreted the AEA term “byproduct material” for purposes of RCRA’s applicability to DOE wastes. The definition was further clarified by the FFCAct.*



# Regulation of Mixed Waste

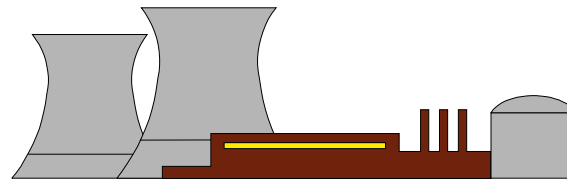
*The FFCAct defined mixed waste as “. . . waste that contains both hazardous wastes and source, special nuclear, or byproduct material subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.).”*



# The DOE's Mixed Waste

**The FFCAct has become a major driver for the DOE's mixed waste management activities. The Act:**

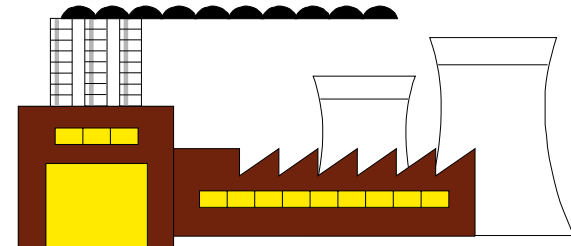
- **Requires site treatment plans for DOE facilities that generate or store mixed waste**



# Site Treatment Plans (STP)

**STPs provide information about each site's:**

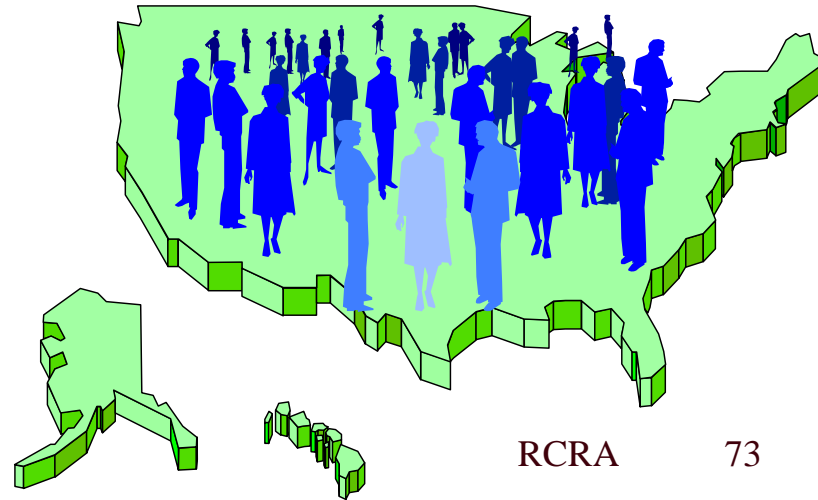
- **Waste**
- **Technology needs**
- **Existing and planned treatment facilities**
- **Treatment options**





# STP Requirements

*DOE developed an STP for each site that generates or stores mixed waste. STP approval was granted by the host State or EPA after consulting with other affected States and the public.*



# STP Requirements

**States approved STPs by issuing enforceable orders to the DOE:**

- **So long as the DOE is complying with these orders, the DOE continues to be immune to storage prohibition enforcement**
- **If the DOE violates the orders, States can assess penalties for violation**

# STP Requirements



*In instances where treatment technologies exist, each STP provided a schedule and milestones for constructing the necessary mixed waste treatment capacity.*

# STP Requirements



*For mixed waste that does not have an identified existing treatment technology, each STP included a schedule for identifying and developing proposed treatment technologies.*

# Stakeholder Involvement

*The FFCAct provides opportunities for increased State and public participation in the DOE's mixed waste decisionmaking process.*



# Stakeholder Involvement

**Other site-specific stakeholder efforts include:**

- **Working with States on site-specific issues**
- **Incorporating stakeholders into the STP development process**



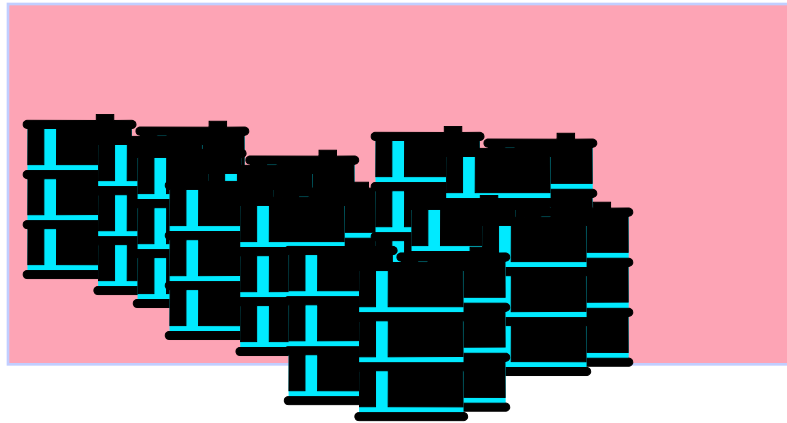
# Issues—Equity



*States' involvement with other States to address equity issues associated with the offsite management of waste is critical to the STP development process.*

# Issues—Equity

*Some States are concerned that they might host a disproportionate share of the DOE's mixed waste management activities.*





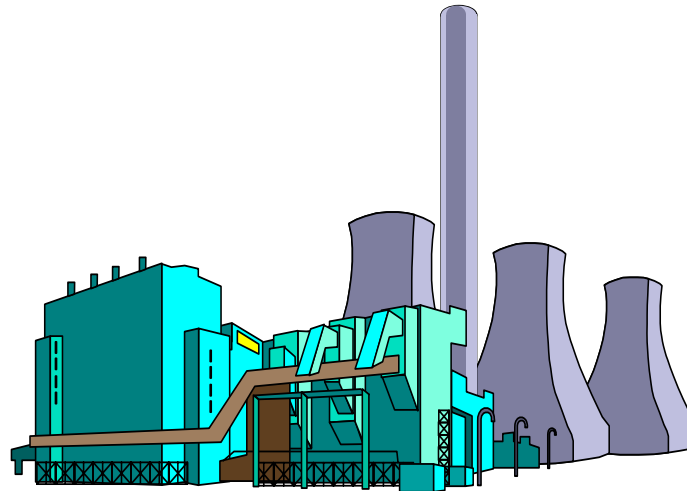
# Issues—Equity

## State equity concerns include:

- **Disposal of the residues resulting from mixed waste treatment**
- **Commercial treatment and disposal facilities that may be considered for the management of mixed waste**

# Issues—Equity

- **The management of mixed waste that has yet to be generated, particularly those from environmental restoration activities**



# Issues—Disposal

*The FFCAct addresses only storage and treatment, not disposal. Because of the treated wastes' ultimate fate, States feel it is imperative that the DOE include locations being considered as disposal facilities in its equity discussions.*

# Issues—Cleanup Agreements

**Several DOE sites currently have cleanup agreements (or permits) that are regulated by:**

- **RCRA**
- **CERCLA**

# Issues—Cleanup Agreements

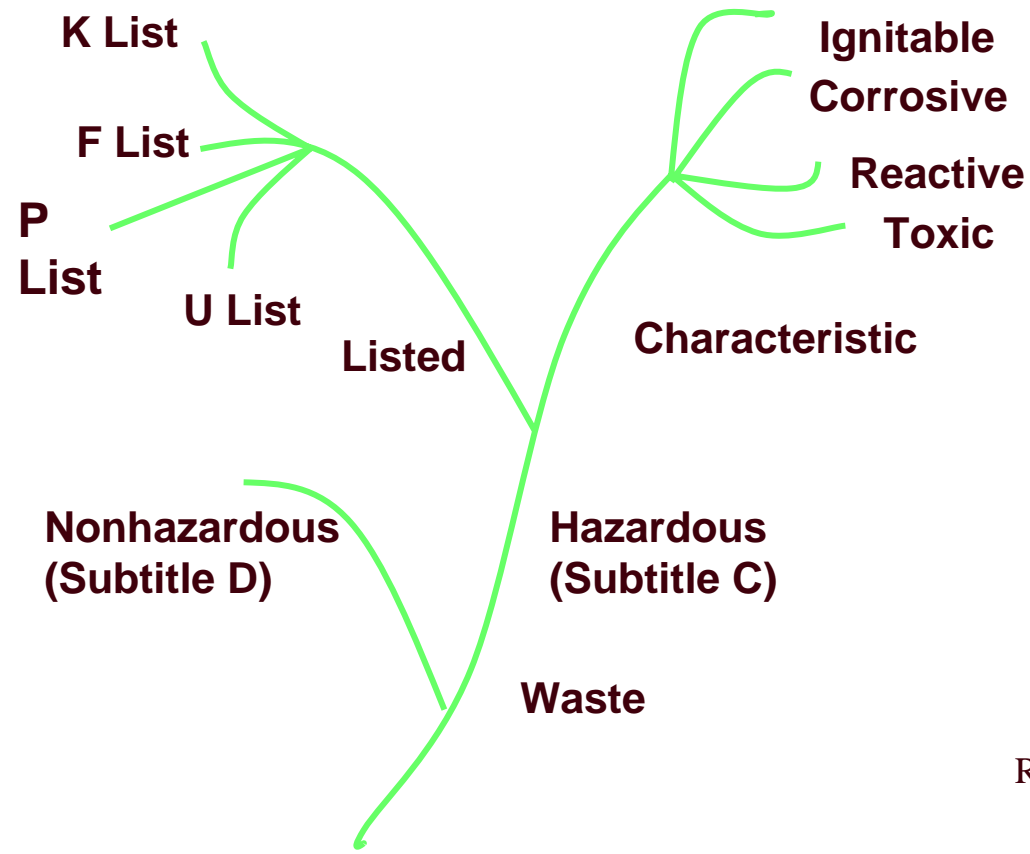
*The DOE and States appear to agree that decisions regarding the treatment of mixed waste generated from cleanup activities should be made pursuant to the process outlined in existing cleanup agreements.*

## Subtitle D

**Encourages technical standards for solid waste disposal facilities. States' solid waste management programs:**

- **Are voluntary and include written plans**
- **Require EPA approval**
- **Provide opportunities for Federal technical and financial aid**

# RCRA "Tree"



# Review Questions

1. According to the “Byproduct Rule”, hazardous constituents in mixed low level waste are regulated by, while the radioactive portion of the waste is regulated by DOE.
  - a. EPA
  - b. The State
  - c. Both EPA AND the State
  - d. Either EPA OR the State



# Review Questions

2. **All “solid wastes” regulated by RCRA are, in fact, solid wastes. Hazardous liquid wastes are only regulated by the Clean Water Act, and hazardous gases are only regulated by the Clean Air Act.**
  - a. **True**
  - b. **False**

# Review Questions

- 3. Materials that might cause radioactive waste to be mixed waste include.**
  - a. A strong acid**
  - b. A heavy metal**
  - c. Sodium chloride**
  - d. An F listed solvent**

# Review Questions

**4. There are designated Best Demonstrated Available Technologies (BDAT's) for most RCRA wastes.**

- a. True**
- b. False**

# Review Questions



## **5. Define the acronym:**

**HSWA**

# Review Questions

- 6. A waste may end up being classified as a hazardous waste under RCRA as a result of one of two designation criteria. One of the criteria types is characteristic waste. The other is:**
- a. Toxic**
  - b. Ignitable**
  - c. Listed**
  - d. Corrosive**

# Review Questions

**7. In order to obtain a felony conviction for a RCRA crime, the prosecutor must show that environmental damage resulted from the violation.**

- a. True**
- b. False**

# Review Questions

**8. A state is an EPA-authorized state for RCRA. This means that its state RCRA requirements are identical to EPA's RCRA requirements.**

- a. True**
- b. False**

# Review Questions

9. **The only materials regulated by RCRA are those that have toxic effects on animals and humans.**
  - a. **True**
  - b. **False**



# Review Questions

**10. In order to ensure there was no doubt about its applicability to DOE, the Resource Conservation and Recovery Act specifically stated that source, special nuclear, and byproduct materials were included under the RCRA definition of a hazardous waste.**

**a. True**

**b. False**

# Review Questions

**11. RCRA goes into effect when waste is:**

- a. Generated**
- b. Discarded**
- c. Abandoned**
- d. Buried**



## Related Courses

- **Resource Conservation Recovery Act (RCRA) Corrective Action**
- **Pollution Prevention & Waste Minimization in Environmental Restoration**
- **Pollution Prevention Opportunity Assessment**



## Related Courses

- **RCRA Update [Web-based Course]**

**For more information, ask to see your instructor's copy of the NETO Course Catalog or view the catalog and the online schedule at [www.em.doe.gov/neto/](http://www.em.doe.gov/neto/)**