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NARPM Presents...RCRA for RPMs

Sponsored by: EPA Office of Superfund Remediation and Technology Innovation

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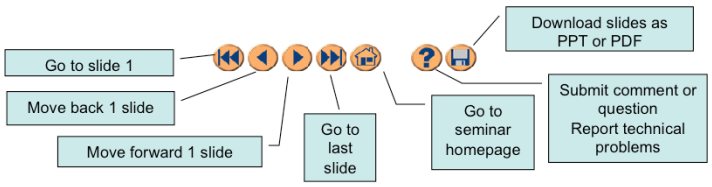

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With that, please move to slide 3.


Module 1: RCRA Overview
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Why RCRA Requirements are Important to RPMs

- Define what are hazardous and non-hazardous wastes
- Establish many action-specific applicable or relevant and appropriate requirements (ARARs) for on-site waste management
- Establish applicable requirements for off-site waste management
- Affect your strategy and costs for characterizing, treating, storing, and disposing wastes generated during response actions

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Overview of RCRA

- Enacted in 1976 to address problems with improper management of solid and hazardous waste
- Goals:
  - Protect human health and environment from hazards posed by waste disposal
  - Conserve energy and natural resources through recycling and recovery
  - Reduce the amount of waste generated
  - Ensure wastes are properly managed

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Statutory Framework of RCRA

- Amended the Solid Waste Disposal Act
- Major amendments have included the:
  - Hazardous and Solid Waste Amendments of 1984 (HSWA)
  - Federal Facilities Compliance Act of 1992 (FFCA)
  - Land Disposal Program Flexibility Act of 1996
- Includes 10 subtitles; created three major regulatory programs
  - Solid waste (Subtitle D)
  - Hazardous waste (Subtitle C)
  - Underground storage tanks (Subtitle I)

Regulatory Framework for Implementing Subtitle C of RCRA

- Subtitle C provides the statutory framework for the hazardous waste regulatory program
- EPA is authorized to issue regulations on hazardous waste identification, management, and corrective action
- Regulations are set forth in 40 CFR Parts 260-279

Applicability of State Hazardous Waste Laws and Regulations

- States may be delegated authority to implement RCRA requirements
- Regulations promulgated by EPA under RCRA and HSWA authorities have different effective dates in authorized states
- If the state is authorized, the state's RCRA regulations are applicable
- Other state environmental laws and regulations may be applicable to non-hazardous wastes

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Module 2: Hazardous Waste Determination
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Hazardous Waste Determination Basics

- An issue that almost always must be addressed during CERCLA responses
- A prerequisite for RCRA applicability
- The basic process involves four steps
- Answer three questions first
- Be careful of words or terms with special definitions

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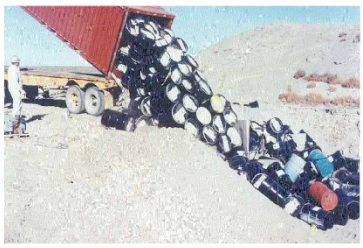
Major Regulations Used to Identify Hazardous Waste

- Exclusions from definition of solid waste
- Definition of solid waste
- Exclusions from definition of hazardous waste
- Definition of hazardous waste
- Variances and rule-making petitions

Exclusions From the Definition of Solid Waste

- Congress and EPA have excluded certain materials from regulation under RCRA by not defining them as “solid waste”
- A list of materials excluded from RCRA regulation is set forth in 40 CFR 261.4(a)



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The Definition of Solid Waste

- The definition of solid waste is set forth in 40 CFR 261.2
- Solid wastes are “discarded” materials
- “Discarded” includes materials that are:
  - “Abandoned”
  - Recycled in certain ways
  - Considered “inherently waste-like”
  - “Military Munitions”

Exclusions From the Definition of Hazardous Waste

- Congress and EPA have excluded certain solid wastes from the definition of hazardous waste
- A list of solid wastes excluded from RCRA regulation is set forth in 40 CFR 261.4(b)



Definition of Hazardous Waste
40 CFR 261.3

- Includes solid waste that:
  - Is listed as hazardous waste by EPA ("listed waste")
  - Exhibits any of four characteristics of hazardous waste ("characteristic hazardous waste")
  - Is a mixture of solid waste and a listed hazardous waste ("mixture rule")
  - Is derived from the treatment, storage, or disposal of other hazardous waste ("derived-from rule")

Listed Hazardous Wastes

- Wastes from non-specific sources (40 CFR 261.31, F-codes)
- Wastes from specific sources (40 CFR 261.32, K-codes)
- Discarded commercial chemical products (40 CFR 261.33, P- and U-codes)

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Listed Hazardous Wastes

- Differences between listed and characteristic hazardous wastes
- Determination whether a waste is listed at CERCLA sites
- Basis for listing wastes
- Acutely hazardous wastes

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Characteristics of Hazardous Wastes

- Ignitability (40 CFR 261.21)
- Corrosivity (40 CFR 261.22)
- Reactivity (40 CFR 261.23)
- Toxicity (40 CFR 261.24)
- Determination whether a waste exhibits any characteristic

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Definition of Hazardous Waste Mixture and Derived-From Rules

- Legal history
- Mixture rule
- Derived-from rule

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The Contained-In Policy

- Requires contaminated environmental media, such as contaminated soils, to be managed as hazardous waste if it contains listed hazardous wastes or exhibits a characteristic of hazardous waste
  - Is an ARAR at CERCLA responses
- Occurs on a case-by-case basis
- Lacks definitive federal guidance or regulations determining appropriate contained-in levels

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Variances and Petitions

- “Delisting” listed hazardous waste
- “Contained-out” determination

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Alternative Regulatory Program for Certain Hazardous Wastes

- "Universal wastes" are hazardous waste subject to an alternative regulatory program set forth in 40 CFR Part 273
- Universal wastes include:
  - Batteries
  - Pesticides
  - Mercury-containing equipment
  - Lamps

Examples

- A remedial action involves potentially recycling or disposing of the following materials. Determine if they are potentially hazardous waste under RCRA:
  - Used oil located in tanks
  - Pipe insulation containing friable asbestos
  - Decontaminated tank shells
  - Several drums containing used methylene chloride solvents
  - Several drums of paint thinner (no material safety data sheet (MSDS))
  - A plastic drum containing a mixture of alkaline and rechargeable batteries (Ni-Cad)
  - Grossly contaminated pipe racks and soils containing petroleum hydrocarbons, benzene, chromium, and polychlorinated biphenyls (greater than 50 ppb)
  - Several drums containing used and partially used aerosol containers (mostly spray paint)


Module 3: Land Disposal Restrictions
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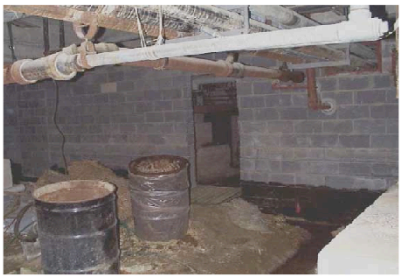
Land Disposal Restrictions Basics

- Purpose of the LDRs
- Definition of land disposal for purposes of the LDRs
- LDRs “attach” to the hazardous waste at the point of generation



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Land Disposal Restrictions

- Major regulations involved (40 CFR Part 268):
  - Identification of restricted wastes
  - Determination of treatment standards
  - Prohibitions against dilution and storage
  - Compliance with tracking and recordkeeping requirements
  - Variances and petitions from the LDR treatment standards

Identification of Restricted Wastes

- Hazardous wastes subject to the LDR program are identified under 40 CFR Part 268 Subpart C
- Hazardous wastes subject to the LDR program are referred to as “restricted wastes,” and wastes that cannot be land disposed are called “prohibited wastes”
- Most hazardous wastes are covered under the LDR program

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Treatment Standards

- Generators must determine whether the waste must be treated before it can be land disposed
- Definition of treatment standard
- Treatment standards are established based on BDAT and expressed in several manners
- “Treatability groups” and “treatment subcategories”
- Treatment standards are set forth at 40 CFR Part 268 Subpart D

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Treatment Standards

- Universal Treatment Standards (UTS)
- Treatments standards for Underlying Hazardous Constituents (UHC)
  - Applicable to characteristic hazardous wastes
- Alternative treatment standards are available for:
  - Lab packs
  - Hazardous debris
  - Contaminated soils

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Determination of Treatment Standards

- Identify each applicable RCRA hazardous waste code for the waste
- Determine the waste's treatability group, subcategory (if applicable), and alternative treatment standard (if applicable)
- Determine the regulated constituents if the waste is F001-F005 and F039
- Determine if UHCs require treatment for characteristic wastes

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Alternative Treatment Standards for Contaminated Soil

- Creates a new treatability group: contaminated soils
- Provides the option of meeting LDR standards for contaminated soil versus the standard established for existing industrial wastes
- Treatment standard requires that the concentrations of hazardous constituents be reduced by 90 percent, capped at 10 times the UTS

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Alternative Treatment Standards for Contaminated Soil

- Measurement of the 90 percent reduction must be consistent with UTS
- A treatability variance for soils is not required
- Treatment required for UHCs present at 10 times their respective UTS

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Prohibitions Against Dilution and Storage

- Dilution prohibition (40 CFR 268.3)
- Storage prohibition (40 CFR 268 Subpart E)

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Variances and Petitions From the LDR Treatment Standards

- Treatability variance
- Alternative treatment method petition
- No-migration petition
- Delisting

Treatability Variance

- Allowance for treatability variance from treatment standard
- Requirement that waste be physically or chemically different
- Applicability to waste mixtures, derived-from residues, and environmental media

Tips on Treatability Variances

- Authority to grant a treatability variance is delegated to EPA regional offices
- No public comment period is required for removal actions, but the variance should be included in the Administrative Record
- A variance can be a stand-alone document or can be included in an Action Memorandum or Record of Decision
- A concurrence memorandum issued by the RCRA program usually is required

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Examples

- Determine the LDR treatment standards for the following wastes and whether they are prohibited from land disposal:
  - Several drums of spent solvent mixture containing benzene and toluene containing more than 10 percent of each chemical
  - Cleanout from an electroplating vat (tank) that contains cyanide, chromium (TCLP > 6.1mg/L), and silver (TCLP < 5 mg/L)
  - Contaminated soils that include cresols (TCLP > 220 mg/L), arsenic (total analysis 80 mg/kg), PCBs (<25 ppb) and mercury (TCLP 0.1 mg/L)


Module 4: Common RCRA Requirements for Managing Hazardous Waste On-Site and Off-Site
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On-Site and Off-Site Management of Hazardous Waste

- Typical RCRA requirements or policies that apply to the on-site management of hazardous waste and hazardous remediation waste, include:
  - Container standards
  - Temporary unit
  - Area of Contamination (AOC)
  - Corrective Action Management Unit (CAMU)
  - Staging pile
  - Reinjection of hazardous ground water
  - Closure and post-closure care requirements
- Off-site requirements include:
  - Pre-transport standards
  - Manifests
  - EPA identification numbers
  - LDR tracking requirements
  - Biennial reports

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Containers

- Standards are in 40 CFR Parts 264 and 265 Subpart I
- Containers must be in good condition, compatible with the waste, closed during storage, and provided with secondary containment
- Special regulations apply for managing ignitable, reactive, and incompatible wastes
- Spilled or leaked waste must be removed as needed
- Residues, remaining containers, liners, bases, and contaminated soil must be decontaminated or removed at closure

Temporary Unit

- Accommodates the non-land-based storage of remediation waste
  - Allows alternative standards to requirements for hazardous waste tank systems or containers
- Time of operation is limited

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Area of Contamination Concept

- Discrete area of contamination that equates to a single RCRA land-based unit
- Movement of wastes within an AOC does not trigger LDRs or minimum technology requirements (MTR)
- AOC concept is only applicable to remediation wastes

Corrective Action Management Unit

- A special type of land-based unit created for the management of remediation waste
- Only certain wastes are eligible for management in CAMUs
- Design standards for CAMUs where waste will remain after closure include:
  - Liner requirements
  - Caps
  - Corrective action for any releases

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Corrective Action Management Unit

- Principal hazardous constituents (PHCs) in wastes must meet treatment standards before placement in a CAMU
- CAMUs that are used for treatment or storage only are subject to requirements for staging piles
- A CAMU must be designated in an AM or ROD

Differences Between an AOC and CAMU

- Waste may be treated ex-situ and placed in a CAMU
- A CAMU may be located in an uncontaminated area
- Wastes may be consolidated in CAMUs from areas not contiguously contaminated
- The recent CAMU rulemaking does not affect use of AOCs

Staging Pile

- A staging pile is a new unit for managing remediation waste created by the HWIR-Media rule
- Waste managed in a staging pile is not subject to LDRs or MTRs
- Mixing, sizing, blending, or other physical operations are allowed, but no "treatment"
- Requirements

Reinjection of Contaminated Ground Water During Cleanups

- Underground injection of ground water contaminated with hazardous waste frequently occurs as part of CERCLA response actions
- Underground injection is defined as “land disposal” for purposes of the LDR program
- Section 3020 of RCRA addresses the underground injection of hazardous waste in the context of RCRA and CERCLA cleanups

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Reinjection of Contaminated Ground Water During Cleanups

- Under EPA policy, reinjected ground water is exempt from compliance with LDRs provided:
  - It is treated before reinjection (both ex-situ and in-situ)
  - The cleanup is protective of human health and the environment
  - The injection is part of response action under CERCLA 104 or 106 or RCRA corrective action

Closure and Post-Closure Care Requirements

- Apply to RCRA hazardous waste management units at facilities that operated under a RCRA permit or interim status (TSDFs)
- Two approaches to closure:
  - Clean closure
  - Closure with waste in place
- Post-closure care applies to units that close with waste in place

Off-site Management of Hazardous Waste

- RCRA pre-transport regulations
  - Refer to and require compliance with the Department of Transportation (DOT) hazardous material regulations
- Hazardous Waste Manifest
- EPA identification numbers
- LDR tracking requirements
- Biennial Reports

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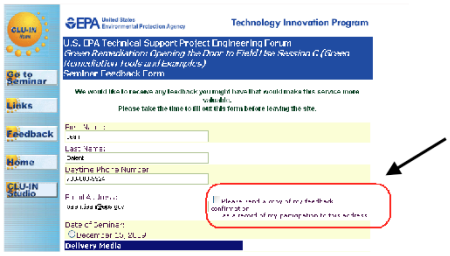

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