It's All About Prevention

The Resource Conservation and Recovery Act

Charlotte Mooney
Chief, Cleanup Programs Branch, US EPA
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Agenda

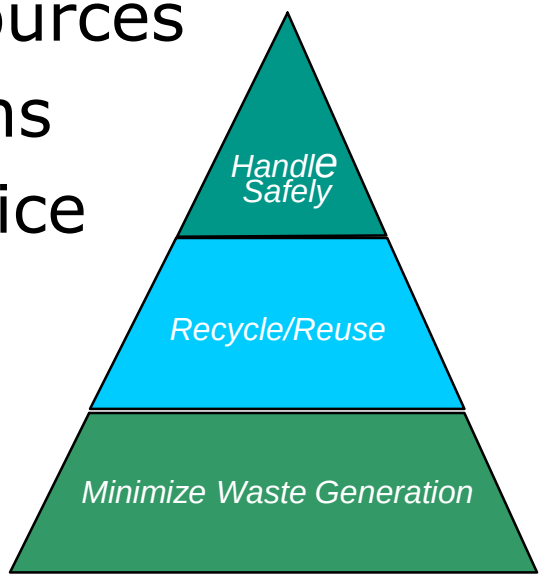
- RCRA Overview
- What is Hazardous Waste?
- Who is Regulated, and How?
- The Definition of Solid Waste and Recycling
- Subtitle C Corrective Action
- Enforcement

RCRA Overview

Resource Conservation and Recovery Act

Objectives

- Protection of human health and the environment
- Prevention of further pollution
- Conservation of valuable resources
- Public involvement in decisions
- Fairness - environmental justice



Statutory History

- 1965 - Solid Waste Disposal Act (SWDA)
  - the first federal statute designed to improve solid waste disposal practices
- 1970 - Resource Recovery Act
- 1976 - Resource Conservation and Recovery Act (RCRA)
  - added hazardous waste management provisions
- 1984 - Hazardous and Solid Waste Amendments (HSWA)
  - expanded scope and requirements
- 1992 - Federal Facilities Compliance Act

RCRA Subtitles

- **Subtitle D: Solid Waste** – focuses on traditional non-hazardous waste such as municipal garbage
  - 40 CFR parts 239 - 259
- **Subtitle C: Hazardous Waste** – ensures safe management of hazardous waste from the moment generated to final disposal
  - 40 CFR parts 260 – 278
- **Subtitle I: Underground Storage Tanks** – standards for USTs storing petroleum or certain hazardous substances
  - 40 CFR parts 280 - 282

Hazardous Waste Program

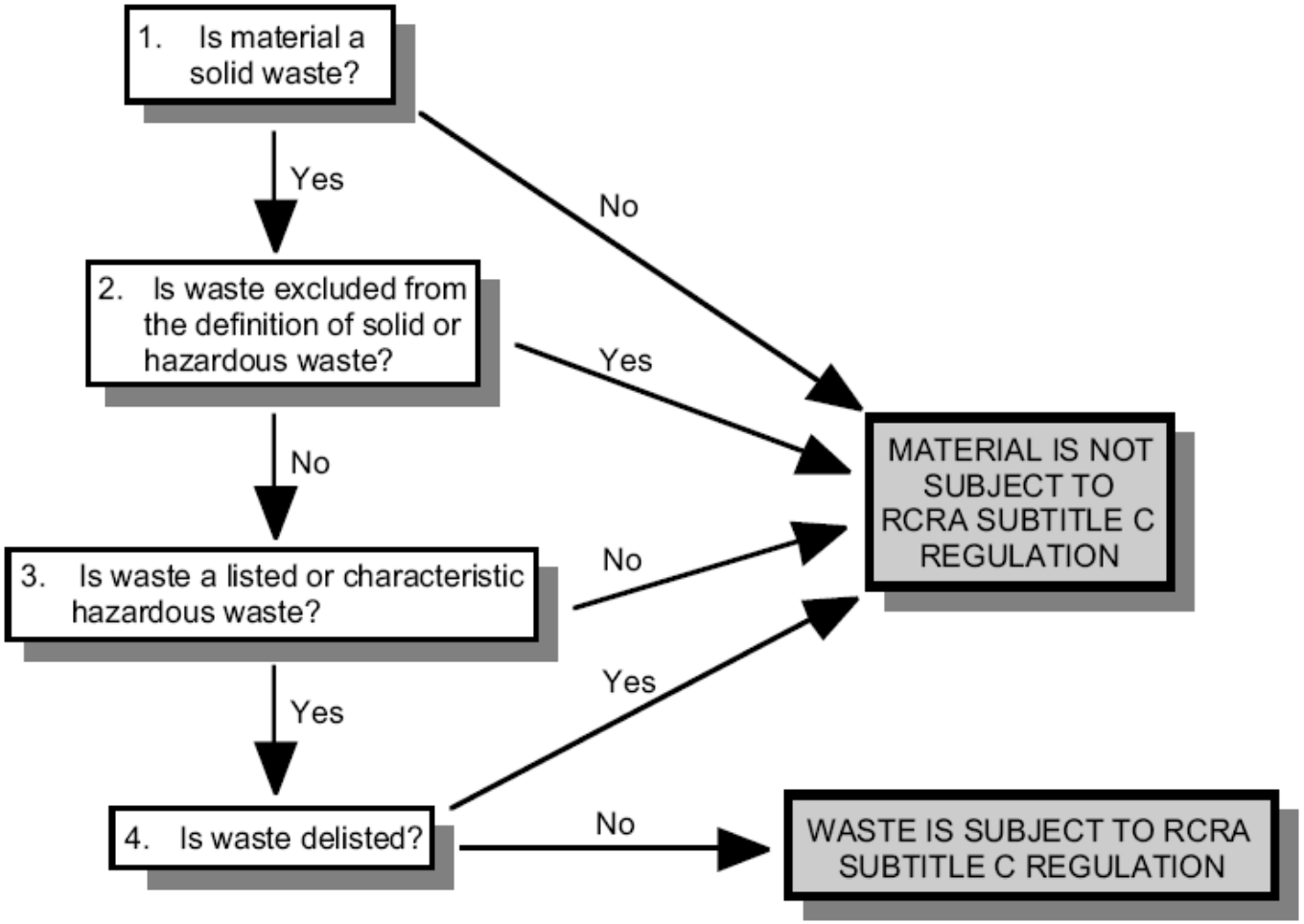
- Important Parts of Program
  - Identify Hazardous Waste
  - Track Waste from Cradle-to-Grave
  - Proper Treatment, Storage, and Disposal
    - Design criteria (e.g., landfill liners, leachate collection)
    - Permits for Treatment, Storage, and Disposal Facilities (TSDF)
    - Land Disposal Restrictions (LDR)
      - Treat hazardous wastes before land disposal (e.g., incineration, stabilization)
  - Corrective Action for Past and Present Releases at TSDFs

RCRA Program Structure

- National minimum standards
  - EPA develops regulations
  - States are authorized to implement in lieu of EPA
  - States can be more stringent
  - Some site-specific flexibility
- Complex set of regulations
- Some chemicals/wastes regulated by other EPA programs
  - Example: PCBs (Toxic Substances Control Act, TSCA)

What is Hazardous Waste ?

What is a Hazardous Waste under RCRA Subtitle C?



Definition of Hazardous Waste

- In order for a material to be classified as a hazardous waste, it must first be a solid waste
  - A solid waste is any solid, liquid, or contained gaseous material that is discarded
- A hazardous waste is a solid waste, which because of its quantity, concentration, or physical, chemical, or infectious characteristic *may*:
  a) Cause, or significantly contribute to, an increase in mortality or serious irreversible, or incapacitating reversible, illness; or
  b) Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed

Hazardous Wastes in RCRA

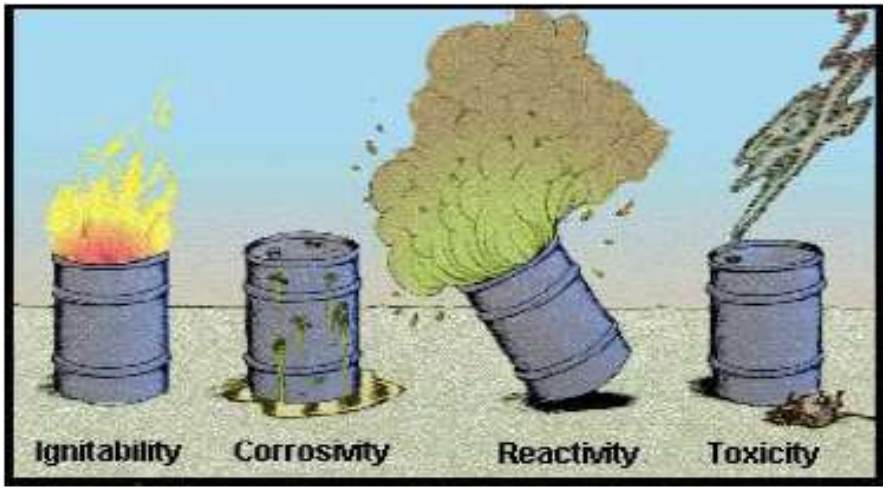
- Listed Wastes
- Characteristic Wastes

Listed Waste

- **Listed wastes** are wastes from identified generic industrial processes, wastes from certain industry sectors, and unused (commercial) chemical products and formulations (261, Subpart D)
- Three criteria to list a waste as hazardous:
  - Toxic Listed Waste: Waste that typically contains toxic chemicals at levels that could pose a threat to human health and the environment if improperly managed
  - Acute HW: The waste contains such dangerous chemicals that it could pose a threat to human health and the environment even when properly managed
  - The waste typically exhibits one of the four characteristics of HW: ignitability, corrosivity, reactivity, or toxicity

Characteristic Waste

- Characteristics - properties that indicate a waste poses a threat if mismanaged
- There are four characteristics:
  - Ignitability
  - Corrosivity
  - Reactivity
  - Toxicity



Characteristic Waste (continued)

- **Ignitability**
  - Wastes that can readily catch fire and sustain combustion. Includes liquids, compressed gases, and oxidizers
- **Corrosivity**
  - Liquid Wastes that can readily corrode or dissolve flesh, metal, or other materials such as aqueous solutions with a high or low pH
- **Reactivity**
  - Wastes that are unstable or are capable of detonation or explosive reaction or decomposition under certain conditions; or react violently, form potentially explosive mixtures, or generate toxic gases, vapors, or fumes when mixed with water
- **Toxicity:**
  - Wastes that potentially can leach toxic chemicals into groundwater when managed improperly

Who is Regulated, and How?

RCRA Subtitle C Program

"Cradle-To-Grave" Waste Management

- The path taken by hazardous waste, from start to finish, is regulated:
  - Generators of Hazardous Waste (e.g., factory)
  - Transporters of Hazardous Waste (e.g., truck)
  - Facilities that Treat, Store, or Dispose of Hazardous Waste (e.g., landfill, incinerator)
- The Basics: All Must Notify, Get Identification Number, Use Hazardous Waste Manifest, Comply with Appropriate Requirements

Prevention: Cradle-to-Grave Tracking

- Hazardous Waste Manifest System - forms, reports, and procedures to track hazardous waste from generation to final disposal
- Uniform Hazardous Waste Manifest - multipart, multi-copy form required by both DOT and EPA
  - type and quantity of waste, instructions for handling, and signatures of all parties
  - each party must keep a copy
- Once the waste reaches its destination, the receiving facility returns a signed copy of the manifest to the generator, confirming that the waste has been received

Uniform Hazardous Waste Manifest
EPA Form 8700-22

Prevention: Cradle-to-Grave Tracking

New e-Manifest System

- On June 30, 2018, EPA launched a national system for tracking hazardous waste shipments electronically
- Established by the 2012 Hazardous Waste Electronic Manifest Establishment Act
- Two options:
  - Fully electronic – e-signed by all handlers
  - Hybrid – e-signed by initial transporter and subsequent handlers
- Costs recovered through user fees
- Benefits - cost savings, increased accuracy and timeliness, rapid notification of problems, integration with other reporting

Generator Regulations

- A generator is a person, by site, whose act or process produces hazardous waste or whose act first causes a hazardous waste to become subject to regulation
- 3 types of generators based on how much HW is generated each month:
  - Very small quantity generators (VSQGs)
    - < 100 kilograms (kg) or 220 pounds (lbs) per month
  - Small quantity generators (SQGs)
    - 100 - 1,000 kg or 220 - 2,200 lbs per month
  - Large quantity generators (LQGs)
    - > 1,000 kg or 2,200 lbs per month

Generator Regulations (Continued)

- Depending on generator category, the regulations require:
  - Identification Numbers
  - Waste accumulation time and quantity limits
  - Contingency/emergency plans, regular inspections
  - Employee training
  - Technical and closure requirements for waste management units
  - Compliance with land disposal standards (LDRs)
  - Tracking – hazardous waste manifest

Hazardous Waste Transporters

- Transporters must:
  - Have an EPA ID number
  - Use the hazardous waste manifest tracking system to document movement of hazardous waste from location to location
  - Comply with DOT regulations that set forth standards for vehicles, packaging, and labeling

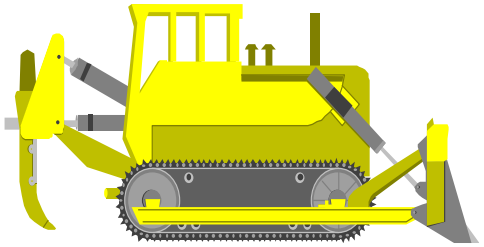
Treatment Storage Disposal Facilities

- Comprehensive standards for safe waste treatment and disposal to prevent releases
- Implemented through RCRA permits
- Permits address:

- Recordkeeping
- Contingency Plan
- Manifests
- Training
- Reports to EPA
- EPA ID number
- Security Requirements
- Financial Assurance
- Closure plans
- Permit
- Inspections
- Operating criteria
- Design criteria
- Engineering Certifications

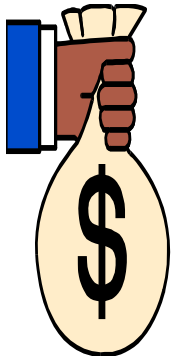
Prevention: Closure

- Clean closure - remove waste and decontaminate site
- Waste-in-place - treated waste remains in place
  - Install engineered closure systems
  - Post-closure care
    - maintain closure systems
    - monitor ground water
    - respond to releases if necessary



Prevention: Financial Assurance

- Owner/operator of permitted TSDF must maintain financial assurance that sufficient funds will be available to cover:
  - Closure
  - Post-closure care if necessary
  - Coverage for accidents
  - Liability:
    - Sudden accidental occurrences
    - Non-sudden accidental occurrences



- Financial instruments include trust funds, surety bonds, letters of credit, insurance

The Definition of Solid Waste and Recycling

The Basics

What do you need to know to determine if something is a solid waste for purposes of RCRA hazardous waste regulation?

(1) What is the material?

(2) What is being done with the material?

In most cases, <u>both</u> these questions need to be answered

- The same material might be a solid waste in some cases, and not others
- The same management practice might be solid waste management in some cases, and not others

40 CFR 261.2(c) Table 1

	Use constituting disposal (§261.2(c)(1))	Energy recovery/fuel (§261.2(c)(2))	Reclamation (§261.2(c)(3)), except as provided in §§261.4(a)(17), 261.4(a)(23), 261.4(a)(24) or 261.4(a)(27)	Speculative accumulation (§261.2(c)(4))
Spent Materials	(*)	(*)	(*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	___	(*)
By-products (listed in 40 CFR 261.31 or 261.32)	(*)	(*)	(*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	___	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	___	___
Scrap metal that is not excluded under 40 CFR 261.4(a)(13)	(*)	(*)	(*)	(*)

Materials noted with a "*" are solid wastes

Recent DSW Exclusions

- Listed by-products and sludges are not solid wastes when reclaimed, if managed under one of the recent DSW exclusions:
  - Generator Controlled Exclusion (recycling onsite, within the same company or through certain toll manufacturing agreements)
  - Transfer-Based Recycling Exclusion (transferred off-site for recycling)
  - Remanufacturing Exclusion (higher-valued solvents sent for remanufacturing)

Legitimate recycling

- No matter what type of recycling - in order to be excluded or subject to reduced requirements, the recycling must be legitimate and not sham.

<u>Legitimate</u>: Lead-contaminated foundry sands reused in foundry molds

<u>Sham</u>: Lead-contaminated foundry sands reused as playground sand

Legitimate recycling

Factor 1: Materials must provide a useful contribution to the recycling process or to a product or intermediate (40 CFR 260.43(a)(1))

Factor 2: Recycling must produce a valuable product or intermediate (40 CFR 260.43(a)(2))

Factor 3: Materials must be managed as valuable commodities (40 CFR 260.43(a)(3))

Factor 4: Products of recycling don't contain significant concentrations of hazardous constituents (40 CFR 260.43(b))

*Must meet Factors 1-3 and must consider Factor 4 to be legitimate recycling

Subtitle C Corrective Action

Prevention – Corrective Action

Corrective action addresses clean up of past and present releases from RCRA Treatment, Storage, and Disposal Facilities

Corrective Action - TSDFs

Corrective Action

- HSWA provisions:
  - Section 3004(u) - requires corrective action through permit requirements for all releases of hazardous waste or constituents from any solid waste management units; permit may contain schedules of compliance
  - Section 3004(v) - requires corrective action through permit requirements for releases migrating beyond the facility boundary
  - Section 3008(h) - authorizes EPA to order corrective action, as necessary to protect human health and the environment, at interim status facilities
- Regulations:
  - 40 CRT 264.101 – Corrective Action for Solid Waste Management Units
  - 40 CFR 264 Subpart S – Special Provisions for Cleanup

Corrective Action – Basic Process

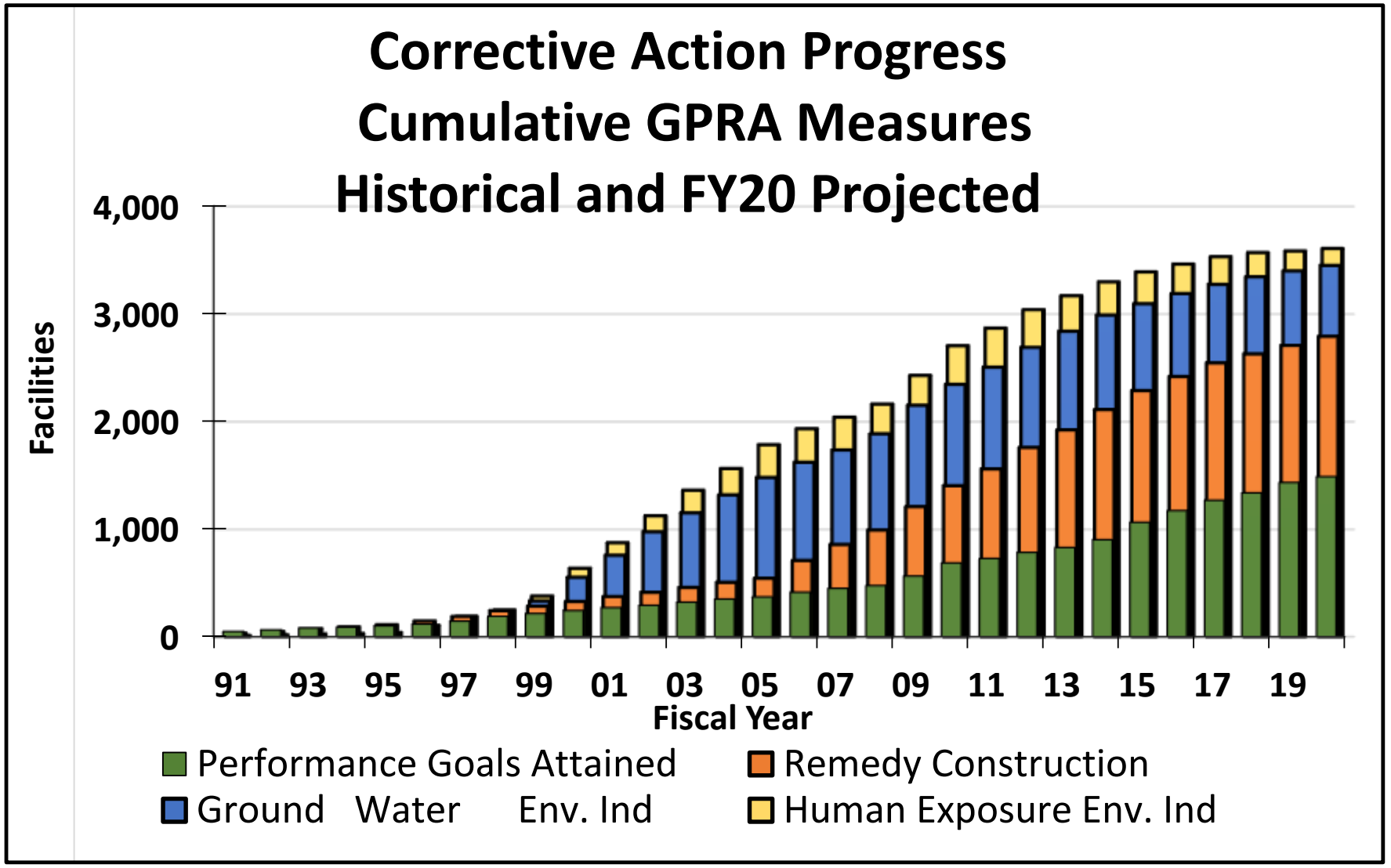
- Identify releases from Solid Waste Management Units (SWMU)
  - RCRA Facility Assessment (RFA)
- Characterize the site
  - RCRA Facility Investigation (RFI)
- Identify possible solutions or remedies
  - Corrective Measures Study (CMS)
- Select and perform a remedy
  - Corrective Measures Implementation (CMI)

Corrective Action Measures

- **Environmental Indicators (EI)**
  - **Human Exposures Under Control** - ensures that people near a particular facility are not exposed to unacceptable levels of contaminants
  - **Migration Of Contaminated Groundwater Under Control** - ensures that contaminated groundwater does not spread and further contaminate groundwater resources
- **Remedy Construction** - construction of the final remedy designed to achieve long-term protection of human health and the environment is complete
- **Ready for Anticipated Use** – (next slide)
- **Performance Standards Attained** – the cleanup objectives selected for the protection of human health and the environment are met

Corrective Action Measures

- **Ready for Anticipated Use (RAU)**
  - Human Exposures Under Control EI has been met
  - Cleanup goals have been achieved for media that may affect current and reasonably anticipated future land uses of the facility so that there are no unacceptable risks
  - All institutional controls (IC), engineering controls (EC), or other controls, identified as part of a response action or remedy as required to help ensure long-term protection, are in place


Corrective Action Progress
Cumulative GPRA Measures
Historical and FY20 Projected
Facilities
4,000
3,000
2,000
1,000
0
91
93
95
97
99
01
03
05
07
09
11
13
15
17
19
Fiscal Year
Performance Goals Attained
Remedy Construction
Ground Water Env. Ind
Human Exposure Env. Ind

Enforcement

Enforcement

- Section 3007 - Inspections and Information Gathering
- Section 3008
  - Compliance orders, public hearings, violation of compliance orders, criminal penalties, knowing endangerment, civil penalties, interim status corrective action orders
- Section 3013 - Monitoring, Analysis, and Testing
- Section 7002 - Citizen Suits
- Section 7003 - Imminent Hazards

Contact Info

Charlotte Mooney, Chief
Cleanup Programs Branch
Office of Resource Conservation and Recovery
US EPA
703.308.7025
mooney.charlotte@epa.gov