

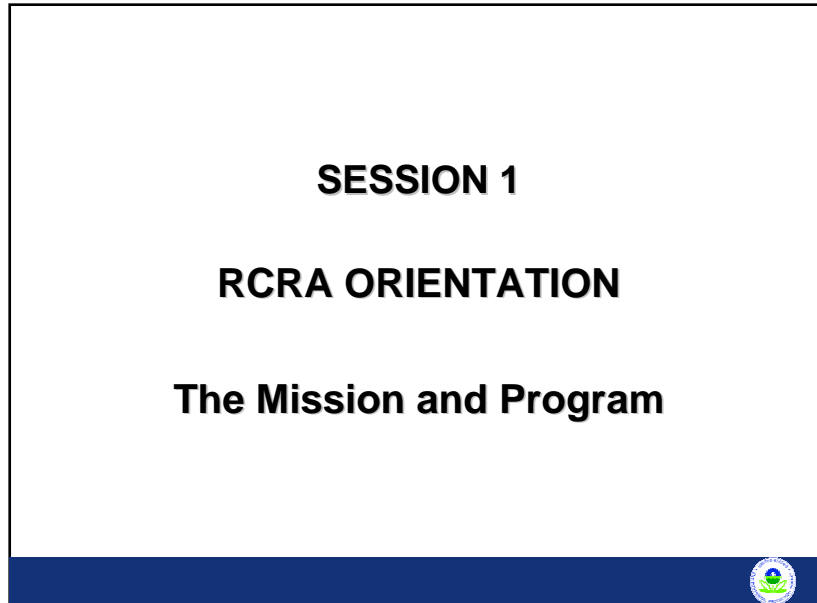
US EPA ARCHIVE DOCUMENT

RCRA Academy 2005
EPA Region 4 – Atlanta, GA

November 2005



Booz | Allen | Hamilton



- » Look at RCRA's big picture: Why? When? What? How? Who?
- » Understand RCRA in historical context of why it was needed and how it developed
- Overall, this Orientation will strive to provide an overview of the RCRA program. One of the most difficult aspects of RCRA as you will soon discover is its expansiveness. The major focus of the orientation will be to give you information on all components of program, and link them together rather than concentrating on any one particular subject.
 - » It will also be helpful to put RCRA into the larger context of environmental laws and regulations to see how it interacts with other laws
- We will identify the dynamic nature of RCRA over time and how it has evolved over the last 19 years

Agenda: The Mission and Program

- ▶ Introduction to RCRA
- ▶ RCRA's Major Subtitles
- ▶ The Regulated Community
 - Generators
 - Transporters
 - Treatment, Storage, and Disposal Facilities (TSDFs)
- ▶ Review





- Introduce RCRA and its basic elements
 - » This will give us the foundation on which to build for next few days.
- Identify and discuss the purpose and the scope of RCRA
 - » Look at what Congress wanted RCRA to accomplish
- Examine RCRA in historical context
 - » Determine where it came from and how it has evolved
- Introduce the roles of EPA and the States under RCRA
 - » and take a look at how together EPA and the states implement the RCRA program
- Look at the future direction of RCRA
 - » Identify some of EPA's broad initiatives and how they are changing RCRA; The 25th anniversary of RCRA was celebrated in October of 2001; EPA continues to build on lessons learned in the last quarter of a century to constantly improve and develop the RCRA program

Introduction to RCRA

Enacted in 1976, RCRA is a law, set of regulations, and regulatory program

- ▶ *A Law*—Congress outlined in RCRA the framework by which EPA would regulate waste
- ▶ *A Set of Federal Regulations*—based on Congress's mandate in RCRA, EPA established the comprehensive set of standards
- ▶ *A Regulatory Program*—EPA and states implemented the statute and regulations through guidance and policy statements

- Let's start w/ the RCRA basics. What does it stand for (RCRA)?
- RCRA is -
 - » *A federal law* enacted by Congress in which Congress sets out broad goals, polices, and structure, and in which Congress gives a mandate to EPA to frame and implement a regulatory program
 - » *A set of Federal regulations* codified in the **Code of Federal Regulations**, or CFR. These regulations are what EPA developed pursuant to the congressional mandate
 - EPA takes the framework laid out by Congress in the Act, and builds upon it to create the regulations necessary for implementation.
- And lastly, RCRA is a *regulatory program* implemented by EPA and the states. Implementation of the statute and regulations is actually achieved through guidance and policy statements (e.g., Federal Register preamble, guidance documents), outreach and support to the regulated community, data-gathering, permitting, petitions, environmental remediation, and ultimately enforcement.
- In the last few years, the Internet has made it possible for almost all of these resources to be accessible instantaneously, making it easier and easier for the regulated community to follow the regulations.
- For example, **RCRA Online** is a Web site comprised of RCRA memos and other important documents to assist the regulated community in complying w/ the program. This site is listed on the Resource List.

Introduction to RCRA

In 1984, Congress enacted the Hazardous and Solid Waste Amendments (HSWA)

- ▶ Expanded and reinforced RCRA's protective framework
- ▶ Established over 70 statutory provisions, requiring EPA action, including:
 - Creation of the land disposal restrictions (LDR) program
 - Facility-wide corrective action
 - Specific permitting deadlines for hazardous waste facilities
 - A nationwide look at the conditions of solid waste landfills
- ▶ Rules promulgated pursuant to HSWA are effective immediately in all states
- ▶ Non-HSWA RCRA rules are only effective in states authorized for the base program after the state modifies its rules to include the new RCRA rule

Congress signed HSWA on November 8, 1984



Introduction to RCRA

RCRA's three primary goals are to:

- ▶ Promote protection of human health and environment through effective waste management
- ▶ Conserve materials and energy resources through waste recycling and recovery
- ▶ Reduce or eliminate waste generation as expeditiously as possible

RCRA §1003(a)

- When Congress crafted RCRA, it outlined a program designed to achieve three primary goals regarding waste problems that were facing the nation:
- **First**, RCRA was designed to *promote protection of HHE*.
 - It established safe handling and management standards to prevent exposure to dangerous (i.e., hazardous) wastes (e.g., keep spent solvents in container that will not leak, warn and train those around waste about its hazards, and ensure that the waste is disposed of properly)
- **Second**, RCRA was designed to *conserve materials and energy resources* through waste recycling and recovery.
 - RCRA recognized that waste could be reused, reclaimed, or even burned for energy recovery
 - and was designed to utilize the inherent value in waste rather than just burying it
 - (If a company must use halogenated solvents to clean its equipment, than it can recycle those solvents in a solvent still to remove impurities so they can be used again...In this case, only the waste from the still and not the solvent must be disposed)
- **Finally**, RCRA was designed to *reduce or eliminate waste generation* as expeditiously as possible...In other words, stop the generation of the waste in the first place through
 - Waste minimization and pollution prevention efforts (a company, for example, could use citrus base solvents, rather than halogenated chemical solvents, to clean its parts)

Congress outlined four programs in RCRA

- ▶ *Solid waste*—focuses on traditional nonhazardous solid waste, such as municipal garbage; Subtitle D
- ▶ *Medical waste*—a two-year pilot program to track the generation and management path of infectious waste; Subtitle J
- ▶ *Underground storage tanks (USTs)*—added to RCRA in 1984, the UST standards establish design and operating requirements to prevent leaks from underground tanks; Subtitle I
- ▶ *Hazardous waste*—developed to ensure the safe management of hazardous waste from the moment it is generated to its final disposal; Subtitle C




- When drafting RCRA, Congress intended for the program to address 4 things:
 - » **Solid waste:** The term solid waste does not refer a physically solid form of waste, but can refer simply to discarded material such as municipal waste/household waste (garbage)/industrial waste. In other words, the stuff we all throw away each and every day
 - The term, solid waste, is also used in other contexts...as we will learn...but for this introduction, solid waste simply means non-hazardous waste...
 - » **The RCRA program is primarily designed to address Hazardous waste:** Hazardous waste is simply a subset of solid waste subject to special standards because its harmful or dangerous
 - The focus of this training session will discuss the HW standards
 - The hazardous waste regulations are all derived from Subtitle C of the RCRA statute. Therefore, if you hear someone refer to RCRA, as the Subtitle C program, they're referring to the hazardous waste regulations.
 - » **UST:** regulations to protect groundwater from leaking USTs, hazardous constituents
 - » **Medical Waste**

RCRA's Major Subtitles


Subtitle D governs the management and disposal of solid (nonhazardous) waste

- ▶ Governs both industrial waste (Part 257) and municipal solid waste (Part 258)
- ▶ Regulations contain basic criteria and practices for disposal facilities, including, but not limited to:
 - Location restrictions
 - Operating and design criteria
 - Closure requirements
- ▶ State agencies implement Subtitle D program



www.epa.gov/epaoswer/non-hw/muncpl/index.htm

40 CFR Parts 257 and 258



- Not a lot of solid waste regulation
- Mainly criteria to address solid waste disposal units
 - » Part 257 (1978)
 - » Part 258 (1991 as a result of HSWA)
- **Location restrictions**
 - » Airport safety: site X far from airport so as to not pose bird hazard to aircraft
 - » Floodplains
 - » Fault areas & seismic zones
- **Operating & design criteria**
 - » Access requirements, run-on & run-off controls, liquid restrictions, liner requirements
- Part 258 more stringent than Part 257 because can accept HHW

RCRA's Major Subtitles

Subtitle J created a two-year Medical Waste Demonstration Program

- ▶ Congress enacted the Medical Waste Tracking Act in 1988 after medical wastes washed up on east coast beaches
- ▶ Program to track medical waste (Part 259) from cradle to grave in four states and Puerto Rico, ended in 1991
- ▶ RCRA no longer regulates medical waste, but other laws and agencies do, including:
 - Clean Air Act; Federal Insecticide, Fungicide, and Rodenticide Act
 - Department of Transportation, Occupational Safety and Health Administration, Nuclear Regulatory Commission, United States Postal Service



- New Jersey
- New York
- Connecticut
- Rhode Island
- Puerto Rico

- Tracked MW using universal form, inspection requirements, enforcement

- 2 interim **Reports to Congress**, but final one never submitted

- No longer federal program (removed Part 259 from CFR)
- Implemented by **states**, other **EPA laws**, and other **federal agencies**
 - » CAA: MW incinerators
 - » FIFRA: MW treatment technologies that use certain chemicals
 - » DOT/USPS: transportation-related MW aspects

EPA promulgated underground storage tank (UST) regulations pursuant to RCRA Subtitle I

- ▶ 40 CFR Part 280 regulates USTs storing petroleum or certain hazardous substances
- ▶ Requirements to prevent, detect, and clean up releases, as well as financial responsibility
- ▶ The Office of Underground Storage Tanks (OUST) runs the UST program



About 705,000 USTs nationwide store petroleum or hazardous substances that can harm the environment and human health if the USTs release their stored contents.



- **1988** (program as we know it today is result of HSWA)
- Requirements for both **petroleum** and **hazardous substance** USTs
- More stringent requirements for new tanks
- Upgrade requirements for existing tanks (1998 deadline)
- **UST system:** design, construction, installation, notification
- **Operating requirements**
 - » Spill and overfill control
 - » Release detection – automatic tank gauging, vapor monitoring, GWM
- **Corrective Action and Closure**
- **Financial Responsibility**

RCRA's Major Subtitles

RCRA Subtitle C governs the management and disposal of hazardous waste

- ▶ Regulates commercial businesses as well as federal, state, and local government facilities that generate, transport, treat, store, or dispose of hazardous waste
- ▶ Regulations designed to ensure proper management of hazardous waste from the moment it is generated until its ultimate disposal or destruction
- ▶ EPA or a state hazardous waste agency enforces the hazardous waste laws



40 CFR Parts 260 - 279



- Cradle-to-grave
- Proper management is achieved through setting standards for: hazardous waste management **units**, facility **operations & emergency procedures**, as well as mechanisms to ensure **compliance**
- **Part 271 State Authorization Procedures**

Subtitle C Program

The Subtitle C program defines who, what, why, and how waste is regulated

- ▶ *Who*—generators, transporters, and treatment, storage, and disposal facilities (TSDFs)
- ▶ *What*—identification of hazardous waste
- ▶ *Why*—protection of groundwater, air, and human health
- ▶ *How*—implementation tools, including permits, closure requirements, financial assurance, corrective action, and enforcement

Examples of businesses that typically generate hazardous waste include dry cleaners, auto repair shops, hospitals, and photo processing centers



The Regulated Community

The challenge that EPA faced was developing regulations that considered the following

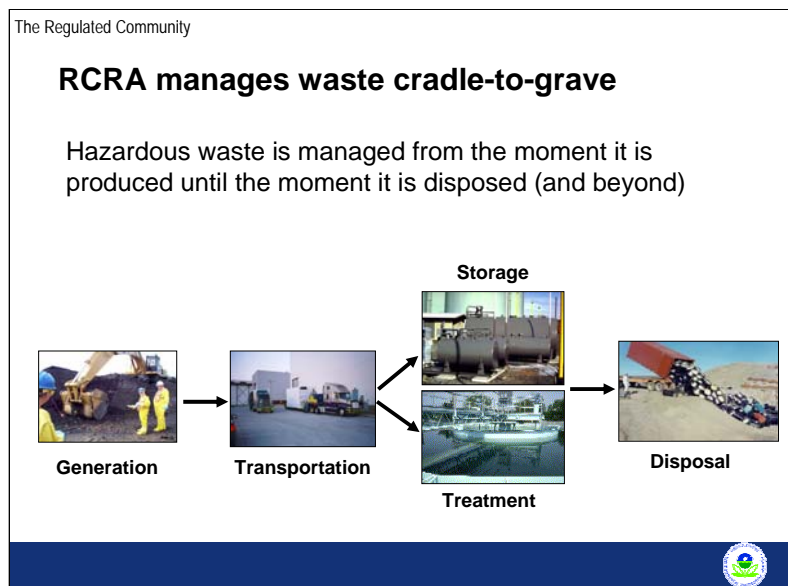
- ▶ Waste management practices already in existence
- ▶ Extent of burden on existing practices
- ▶ Cost of regulatory control



As of September 30, 1995, the burden imposed by RCRA regulation was 12,600,000 hours per year



- When RCRA became law in 1976, EPA was faced with a daunting task -- how to regulate materials and activities that had been in existence for ages, that had previously little if any regulatory control. Businesses were handling wastes, and the goal was not to put these businesses out of business. In addition there would always be new wastes, new companies, new processes, and new technologies. Regulations had to withstand the ever changing business forces and had to keep up with new technological advances.
- EPA met the challenge by including every plausible waste management practice and activity that could potentially cause threats to human health and the environment in the regulatory scheme.
- In developing these regulations, EPA examined the various waste mgt practices that were already in existence, how much burden existed for those practices, and how much it cost to comply w/ regulations
- After doing so, EPA had to determine which waste handlers or processes would absorb the burden and cost of regulatory compliance and wanted to fairly allocate this burden and cost.
- The end result was a program in which regulatory control and oversight was proportional to the amount of waste management that was occurring.
- With more waste management, there is potentially more risk. Therefore, the more risk the greater the regulatory burden and oversight. This doesn't mean that some practices are more harmful than others, its just that some pose more risk to human health and environment and require tighter regulatory control.



- We're going to use this diagram to focus on one piece of the regulated community at a time.
- We'll first start off with hazardous waste generators and their roles and responsibilities.
- During the rest of this discussion about the Subtitle C community, we will discuss the other segments of the cradle to grave management system.

A generator is a person whose act first creates or produces a hazardous waste

- ▶ Generators become subject to regulations *involuntarily*
- ▶ Hazardous waste is produced as a result of business practices
- ▶ Regulations not intended to be overly burdensome



*Any person, by site, whose act or process produces hazardous waste identified or listed in Part 261 of this chapter or whose act first causes a hazardous waste to become subject to regulation" (§260.10)

40 CFR §261.5, Part 262



- The first link in the Cradle to Grave management system is the generator.
- What is a Generator? Can be anyone or any business. There is no typical generator. Examples include:
 - Gas stations
 - Dry cleaners
 - Auto repair
 - Photo processing labs
 - Chemical manufacturers
 - Iron smelters
 - Army base
 - EPA print shops or labs
- Regulations designed to protect human health and the environment, but not too restrictive to impede daily business operations.
- These businesses are in business to produce goods or provide services and sell those goods or services for a profit. The goal of most businesses is not to generate hazardous waste. Hazardous waste generation is simply a by-product of the goods or services businesses provide (it is incidental to their business)

The Regulated Community: Generators

RCRA regulates three classes of generators based on the quantity of hazardous waste produced each month

- ▶ Large quantity generators (LQGs) produce the most waste (2,200 lbs/1,000 kg or more)
- ▶ Small quantity generators (SQGs) produce moderate amounts (between 220 and 2,200 lbs or 100 and 1,000 kg)
- ▶ Conditionally exempt small quantity generators (CESQGs) produce the least amount (220 lbs/100kg or less)

40 CFR §261.5, Part 262



- The regulations establish three classes of generators based on the quantity of hazardous waste produced each month and subject those generators that produce the most hazardous waste to the greatest amount of regulatory control
- The classes of generators that were established coincide with the quantities of waste that businesses typically produce. Three categories:
 - Large quantity generators (LQGs)
 - » Small quantity generators (SQGs)
 - » Conditionally exempt small quantity generators (CESQGs)
- We'll briefly talk about each. Let's start with LQGs

An LQG generates one or more of the following amounts of hazardous waste in a calendar month:

≥ 1,000 kg (2,200 lbs)

> 1 kg (2.2 lbs) acute

> 100 kg (220 lbs) spill cleanup material containing acute hazardous waste



In 2003, there were 15,584 LQGs generating nearly 30 million tons of hazardous waste

40 CFR §262.34(a)



- What is a large quantity generator?
 - » A LQG is someone who produces over 1000 kg, or 2200 lbs., a ton of hazardous waste in a calendar month
 - » Or, a LQG could be someone who generates 1 kg of acute HW in a month
 - The difference (acute v. regular) will be explained tomorrow
 - Finally, if someone generates more than 100 kg of spill cleanup material with acute waste, they'd be a LQG
- **Less than 5% of the total number of generators are LQGs, but they generate the majority of waste**
- Some examples of large quantity generators and their waste streams:
 - » *Auto manufacturer*
 - Solvents
 - Paint residues
 - » *Explosives manufacturer*
 - Various reactive waste streams
 - *Military Base*
 - Solvents
 - Waste explosives
 - *Chemical manufacturer*
 - Specific chemical by-products

LQGs must comply with certain requirements

- ▶ Identification (ID) numbers and the Biennial Report exist to keep track of those generating and managing wastes
- ▶ Waste can be accumulated (and non-thermally treated) on site for up to 90 days in certain units (e.g., tanks, containers, containment buildings)
- ▶ Air emission standards must be met when applicable
- ▶ Contingency plans and emergency procedures must be designed for individual facilities
- ▶ Facility personnel must be properly trained

40 CFR §262.34(a)



- The LQG standards provide the means for EPA to ensure that waste is handled appropriately and safely with very little interference to the business.
- Even though generators are not in the business to manage hazardous waste, EPA is still concerned with who is generating the waste and how they are managing it. Knowing who is generating and managing waste means EPA can monitor if it is being done properly and safely.
 - » To monitor this type of information, EPA established procedures for LQGs to register with EPA and for reporting waste activity
 - » **EPA ID#:** EPA and states use these 12 characters to monitor and track HW activities; a LQG must use it when he/she sends their waste off to be disposed of in a landfill or burned in an incinerator; a LQG can get the form off the Internet or by contacting its particular state.

The Regulated Community: Generators

EPA ID numbers are obtained by filing the Site ID Form (EPA Form 8700-12)

OMB# 2050-0028 Expires 1/31/2006

SEND COMPLETED FORM TO: The Appropriate State or EPA Regional Office.		United States Environmental Protection Agency RCRA SUBTITLE C SITE IDENTIFICATION FORM	
1. Reason for Submittal (See instructions on page 13.) MARK ALL BOX(ES) THAT APPLY	Reason for Submittal: <input type="checkbox"/> To provide Initial Notification of Regulated Waste Activity (to obtain an EPA ID Number for hazardous waste, universal waste, or used oil activities) <input type="checkbox"/> To provide Subsequent Notification of Regulated Waste Activity (to update site identification information) <input type="checkbox"/> As a component of a First RCRA Hazardous Waste Part A Permit Application <input type="checkbox"/> As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # _____) <input type="checkbox"/> As a component of the Hazardous Waste Report		
2. Site EPA ID Number (page 14)	EPA ID Number 		
3. Site Name (page 14)	Name:		
4. Site Location Information (page 14)	Street Address: City, Town, or Village: _____ State: _____		

www.epa.gov/epaoswer/hazwaste/data/form8700/forms.htm



The Regulated Community: Generators

The Site ID Form collects the following facility information

- ▶ Site name and location information
- ▶ Site land type
- ▶ North American Industry Classification System (NAICS) code(s)
- ▶ Site contact person and mailing address
- ▶ Legal owner and operator
- ▶ Type of regulated waste activity
- ▶ Description of hazardous waste
- ▶ Certification statement

NAICS, developed jointly by the U.S., Canada, and Mexico to provide new comparability in statistics about business activity across North America, replaced the Standard Industrial Classification (SIC) system in 1997



The Regulated Community: Generators

The Biennial Report is due March 1 of every even-numbered year

- ▶ Reporting cycle covers hazardous waste activities occurring during odd-numbered calendar year (e.g., 2005)
- ▶ Collects data on hazardous waste generation and management in the United States
- ▶ Consists of four forms: Site ID Form, Form GM (*Waste Generation and Management*), Form WR (*Waste Received from Off Site*), and Form OI (*Off-site Identification*)
- ▶ Communicated to public, through National Biennial RCRA Hazardous Waste Report

www.epa.gov/epaoswer/hazwaste/data/index.htm#brs



- » **Biennial Report**—every two years, LQGs and treatment, storage disposal facilities have to send in a report to EPA which shows how much waste they generated during the prior year

The Regulated Community: Generators

RCRAInfo is EPA's comprehensive information system for hazardous waste data

- ▶ Collects facility information in the following four areas:
 - Handler (Site ID Form)
 - Permitting
 - Corrective Action
 - Compliance Monitoring & Enforcement (CM&E)

- ▶ Replaced the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS)

- ▶ Only authorized users have access to the system



SQGs produce moderate amounts of waste

- ▶ An SQG generates between 100 kg and 1,000 kg (220 - 2,200 lbs) per calendar month
- ▶ SQGs have less stringent requirements
 - Obtain EPA identification numbers
 - Accumulate waste on site for no more than 180 or 270 days
 - Accumulate no more than a total of 6,000 kg at any one time
 - Must establish a basic contingency plan and emergency procedures
 - Facility personnel must have basic training

There are approximately 178,000 SQGs in existence today.

40 CFR §262.34(d)



- Next class of generators - SQGs
- READ SLIDE: generates between 100 kg and 1000 kg per month, which is about 220-2200 lbs
- They can often be same types of facilities as LQGs simply smaller scale
- As with LQGs, the extent of regulatory burden is based on the extent of hazardous waste management
- Just like LQGs, EPA wants to ensure that waste is handled appropriately and safely, with very little interference to the business
- Regulations are designed to address the same issues as we discussed with LQGs. However, the SQG requirements are more flexible and have reduced burden in some areas
- *These standards are less stringent than LQG regulations*

The Regulated Community: Generators

CESQGs produce one or more of the following amounts of hazardous waste in a calendar month:

≤ 100 kg (220 lbs)

≤ 1 kg (2.2 lbs) acute

≤ 100 kg (220 lbs) spill cleanup material containing acute hazardous waste



40 CFR §261.5



- Next class of generator - CESQG
- Smallest class of generator
- They are the generators who produce less than 100 lbs of HW in a calendar month, or less than a kg of acute waste or less than 100 kg of spill cleanup material containing acute waste
- Again, the extent of the regulatory burden is based on the extent of hazardous waste management
- As a very small generator, the regulatory burden is greatly reduced, but still have to manage hazardous waste in a manner that is protective of human health and the environment. As the name implies, these generators are conditionally exempt from some regulations

CESQGs have the least stringent requirements

- ▶ Only 1,000 kg (2,200 lbs) can be accumulated on site at any one time
- ▶ Waste must be sent to one of seven types of facilities listed in regulations, which include:
 - State or federally regulated hazardous waste treatment, storage, or disposal facility (TSDF)
 - A facility permitted, licensed, or registered by a state to manage municipal or industrial solid waste
 - A facility that uses, reuses, or legitimately recycles the waste (or treats it prior to use, reuse, or recycling)
 - A universal waste handler or destination facility

In 1999, there were between 400,000 and 700,000 CESQGs

40 CFR §261.5



- CESQGs can only accumulate up to 1000 kg of HW at one time
- And, they must ensure delivery to one of 7 types of facilities listed out in the regulations
- **Seven types of facilities:** some of these facilities we will be discussing over the next few days, so you may not be familiar with them now, but just keep in mind that CESQG waste must go to one of them:
 - State or federally regulated hazardous waste management treatment, storage, or disposal facility (TSDF)
 - A facility permitted, licensed, or registered by a state to manage municipal or industrial solid waste
 - A facility that uses, reuses, or legitimately recycles the waste (or treats it prior to use, reuse, or recycling)
 - A universal waste handler or destination facility
- » What's unique about these CESQGs is that their hazardous waste can go to a landfill that is designed for nonhazardous waste. We'll talk more about this issue later.

The Regulated Community: Generators

Some facilities may be episodic generators

- ▶ Generators do not produce waste in the exact same quantities each month
- ▶ Generators may be subject to different standards at different times depending upon generation rate
- ▶ A generator must determine its generator class each month



51 *FR* 10146, 10153; March 24, 1986



- So, we have discussed 3 different types of generators that EPA regulates differently based on the amount of waste they manage.
- However, do you think generators produce waste in the exact same quantities each month?
- NO. Often times production schedules may change or processes may vary resulting in sporadic waste generation.

The Regulated Community: Transporters

Transporters are persons engaged in the off-site transportation of hazardous waste

- ▶ Transporters are regulated by both EPA and the Department of Transportation (DOT)
- ▶ A hazardous waste manifest ensures that waste is tracked from its generation location to its final disposal site
- ▶ Transporters must obtain EPA ID numbers



"person engaged in off-site transportation of hazardous waste by air, rail, highway, or water" (§260.10)

40 CFR Part 263



- In talking about generators, I emphasized that they were not in the hazardous waste business (i.e., they're not in it for the money). Transporters, on the other hand, do manage waste for a profit!
- Transporters are subject to two sets of standards. EPA and the Department of Transportation have dual control over them.
- The EPA transporter standards are primarily tracking requirements. Each time hazardous waste is sent from one location to another, EPA requires a tracking document to accompany the waste. This tracking form is the hazardous waste manifest.
- All segments of the regulated community are subject to the manifest requirements. Generators (LQG and SQG), transporters, and TSDFs. The manifest ensures that each handler of hazardous waste is responsible for the waste even when it leaves their respective facilities.
- DOT provides all of the other requirements that transporters must follow

The Regulated Community: Transporters

Manifests track hazardous waste until it reaches a TSDf

- ▶ The manifest identifies the waste and parties involved with the shipment (generator, transporter, TSDf)
- ▶ It is a mechanism to ensure accountability
- ▶ Provides notification to the generator of waste arrival at TSDf (get a signed copy back)
- ▶ Makes emergency information easily accessible



Appendix to 40 CFR Part 262



- Manifests provide a variety of information.
- Where ever hazardous waste goes, it must be accompanied by a manifest.
- There is a copy of the manifest in the Regulations at Appendix to Part 262.

Transporters must comply with DOT regulations

- ▶ DOT establishes standards for hazardous materials in transportation (hazardous wastes are a subset of hazardous materials)
- ▶ Vehicle standards, packaging standards and labeling requirements must be met
- ▶ DOT also requires personnel training



40 CFR Part 263, 49 CFR Parts 100-185



- DOT standards, as I mentioned, cover just about everything else dealing with hazardous waste transportation
 - » Vehicle Standards - like testing and inspection requirements for tank trucks
 - » Packaging standards - like specifications and tests for manufacturing boxes and barrels.
 - » Labeling requirements - like marking the individual packages with its contents and placarding or identifying the trucks that are carrying the material.
- This interaction, at times can be complex. Should you ever have questions about these regulations, the DOT runs an information center that provides assistance with its hazardous materials regulations.

The Regulated Community: Transporters

Transfer facilities provide temporary storage for hazardous waste in transport

- ▶ Transportation-related facilities, including loading docks, parking areas, storage areas, and other similar areas where shipments of hazardous waste are held during the normal course of transportation
- ▶ Can store waste for 10 days or less



40 CFR §§260.10 and 263.12



The Regulated Community: TSDFs

TSDFs are facilities engaged in the treatment, storage, or disposal of hazardous waste

- ▶ TSDFs are in the hazardous waste management business
- ▶ TSDFs must comply with a more extensive set of regulations
- ▶ Substantial interaction with EPA is required to ensure management is conducted safely



In 2003, 1,726 TSDFs managed 42.1 million tons of hazardous waste

40 CFR Part 264/265



- TSDFs are in the hazardous waste management business, like the transporters (they are in it for the money). In some cases these facilities actually side with the environmental groups lobbying for more regulations because more regulations on waste means more money for them.
- As I said before, the extent of the RCRA regulatory burden is based on the extent of hazardous waste management
- TSDFs maintain the heaviest regulatory burden under RCRA
- RCRA covers every aspect of their business from the moment a waste arrives at the TSDF until the moment it leaves or is placed in its final resting place, such as a landfill. RCRA even controls these facilities beyond the grave or point of disposal to protect from future risk to human health and the environment
- TSDFs pay a high regulatory price for the luxury of working entirely in the hazardous waste business. Unlike generators, these requirements are not always self implementing, often substantial interaction with EPA is required to make sure hazardous waste management is conducted safely.

The Regulated Community: TSDFs

TSDFs have two types of standards

- ▶ **General facility standards apply to every TSDF**
 - Recordkeeping*
 - Contingency plans & emergency procedures*
 - Manifesting*
 - Personnel training*
 - Obtaining an ID number & biennial reporting*
 - Security requirements
 - Financial assurance
 - Closure and post-closure care
 - Permitting
- ▶ **Unit-specific standards apply to the types of units at a facility**
 - Design criteria
 - Operating criteria
 - Inspections
 - Engineering certifications

* Similar to LQG requirements



40 CFR Part 264/265 

- These facilities as I mentioned, are highly regulated. There are two general categories of standards that the facility must follow:
 - » General facility standards; and
 - » Unit-specific standards
- Let's take a look at these standards beginning with the general facility standards.

Unit-specific standards apply to the types of units at a facility

- ▶ Unit-specific standards contain requirements for:
 - Inspections (e.g., weekly tank inspections)
 - Engineer certifications (e.g., structural integrity)
 - Design criteria (e.g., secondary containment)
 - Operating criteria (e.g., ceiling limitations on volume)
- ▶ Groundwater monitoring is required only for land-based units
- ▶ Corrective action will apply in some instances



40 CFR Part 264/265



- Each unit has unique requirements that they must comply with. There are four common elements between the unit-specific standards. Each standard contains requirements for
 - Some standards apply to only certain units or depend on site-specific issues.
 - Groundwater monitoring is only required of land based units like landfills and surface impoundments.
 - Corrective action (or the cleanup of contamination) is addressed for LDUs in the regulations. However, for the most part, RCRA clean up efforts are initiated using statutory authorities and implemented using existing guidance and policy. We'll discuss corrective action and how it works during Session Four.

The Regulated Community: TSDFs

Each unit has individual requirements

- ▶ *Tank*—a stationary unit that holds hazardous waste
- ▶ *Container*—portable unit that holds hazardous waste
- ▶ *Containment building*—a building designed to contain hazardous waste (debris/soil) that itself functions as if it were a tank or container



40 CFR Part 264/265



The unit specific standards apply only if a TSDF is managing waste in a particular type of unit. The unit specific standards provide precise control over activities occurring in these units.

- The units that RCRA provides unit specific standards for include:
 - » Read Slide
 - » **Tanks and containers** are the most common types of HW mgt units.

The Regulated Community: TSDFs

Each unit has individual requirements

- ▶ *Surface impoundment*—pond, lagoon, pool that holds hazardous waste
- ▶ *Landfill*—in-ground unit used to dispose waste



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- Surface impoundments
- Landfills
- Both types of these units require liner systems to prevent contamination.

Each unit has individual requirements

- ▶ Incinerator
- ▶ Waste pile
- ▶ Miscellaneous units
- ▶ Drip pads
- ▶ Land treatment units



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- **Incinerators**
- **Waste piles**
- **Miscellaneous** units are just that - miscellaneous. EPA added this provision to allow for the construction and permitting of units that do not fit into one of the other categories. The general standards they established are designed to cover the diverse technologies and units not yet covered by the regulations. This allows the regulated community to continue to develop innovative ways of treating hazardous waste.
- Some examples of units that are covered under these provisions include: placement of hazardous waste in geologic repositories (like WIPP and Yucca mountain), OB/OD of waste explosives and biological treatment units.
- There are also a few other, less common, units that I didn't mention
 - Drip pads
 - Land treatment units
 - Both have very specific applications.

RCRA governs the management and disposal of waste

- ▶ RCRA was enacted in 1976 and significantly amended by HSWA in 1984
- ▶ RCRA has four major subtitles governing solid and hazardous waste, underground storage tanks, and medical waste
- ▶ The Subtitle C program defines who, what, why, and how waste is regulated
- ▶ The RCRA Subtitle C regulated community consists of generators, transporters, and TSDFs

