

Understanding the Hazardous Waste Rules



Guidance for Hospital
Environmental Health &
Safety Professionals

Hospital Compliance Initiative
RCRA Requirements

Introduction

- What is hazardous waste?
- Typical healthcare hazardous wastes
- Requirements for CE-small quantity generators
- Requirements for small quantity generators



Hospital Compliance Initiative
RCRA Requirements

Introduction

- Summary of additional requirements for large quantity generators
- Treatment, storage, and disposal facilities
- Universal waste requirements
- Description of a hazardous waste inspection
- Contact information

What Is RCRA?

- Resource Conservation and Recovery Act
- RCRA's goals:
 - Protect human health and the environment from the hazards posed by waste disposal;
 - Conserve energy and natural resources through waste recycling and recovery;
 - Reduce or eliminate the amount of waste generated, including hazardous waste; and
 - Ensure that wastes are managed in an environmentally safe manner

What Is RCRA?

- RCRA Subtitle C - hazardous waste management program
 - Safe management of hazardous waste from generation to disposal
- RCRA Subtitle D - solid waste management
- RCRA Subtitle I - underground storage tanks



What Is RCRA?



RCRA Hazardous Waste
Regulations, 40 CFR

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What Is RCRA?

- Part 260 - Hazardous Waste Management System: General
- Part 261 - Identification and Listing of Hazardous Waste
- Part 262 - Standards Applicable to Generators of Hazardous Waste
- Part 263 - Standards Applicable to Transporters of Hazardous Waste

What Is RCRA?

- Part 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- Part 265 - Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- Part 266 - Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

What Is RCRA?

- Part 268 - Land Disposal Restrictions
- Part 270 - EPA Administered Permit Programs: The Hazardous Waste Permit Program
- Part 271 - Requirements for Authorization of State Hazardous Waste Programs
- Part 272 - Approved State Hazardous Waste Management Programs

What Is RCRA?

- Part 273 - Standards for Universal Waste Management
- Part 279 - Standards for the Management of Used Oil
- Part 280 - Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)

What Is RCRA?

- Part 281 - Approval of State Underground Storage Tank Programs
- Part 282 - Approved Underground Storage Tank Programs

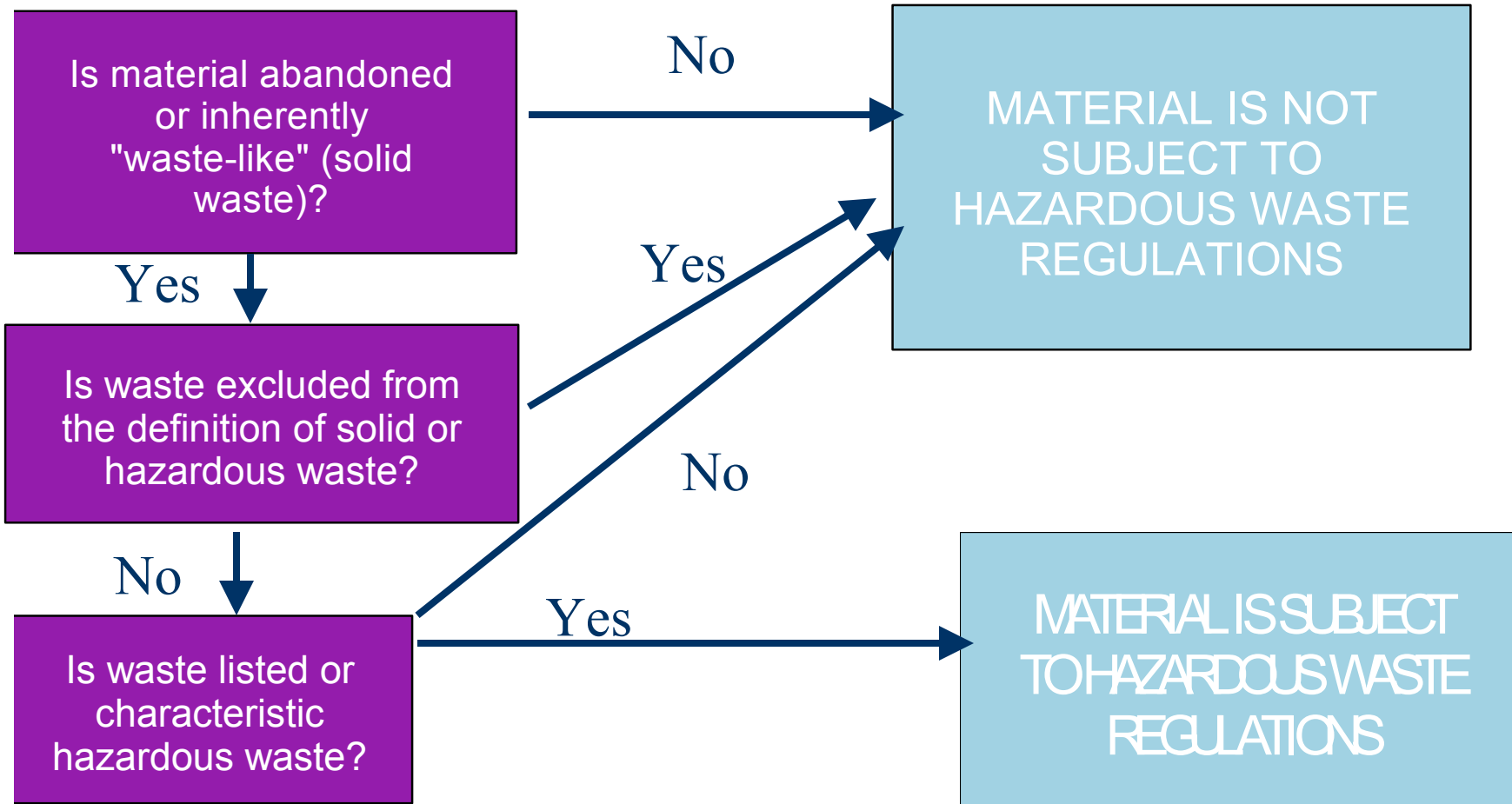
What Is Hazardous Waste?

- First determine if it is a solid waste
- Solid Waste: Any discarded solid, liquid, or contained gaseous material that is:

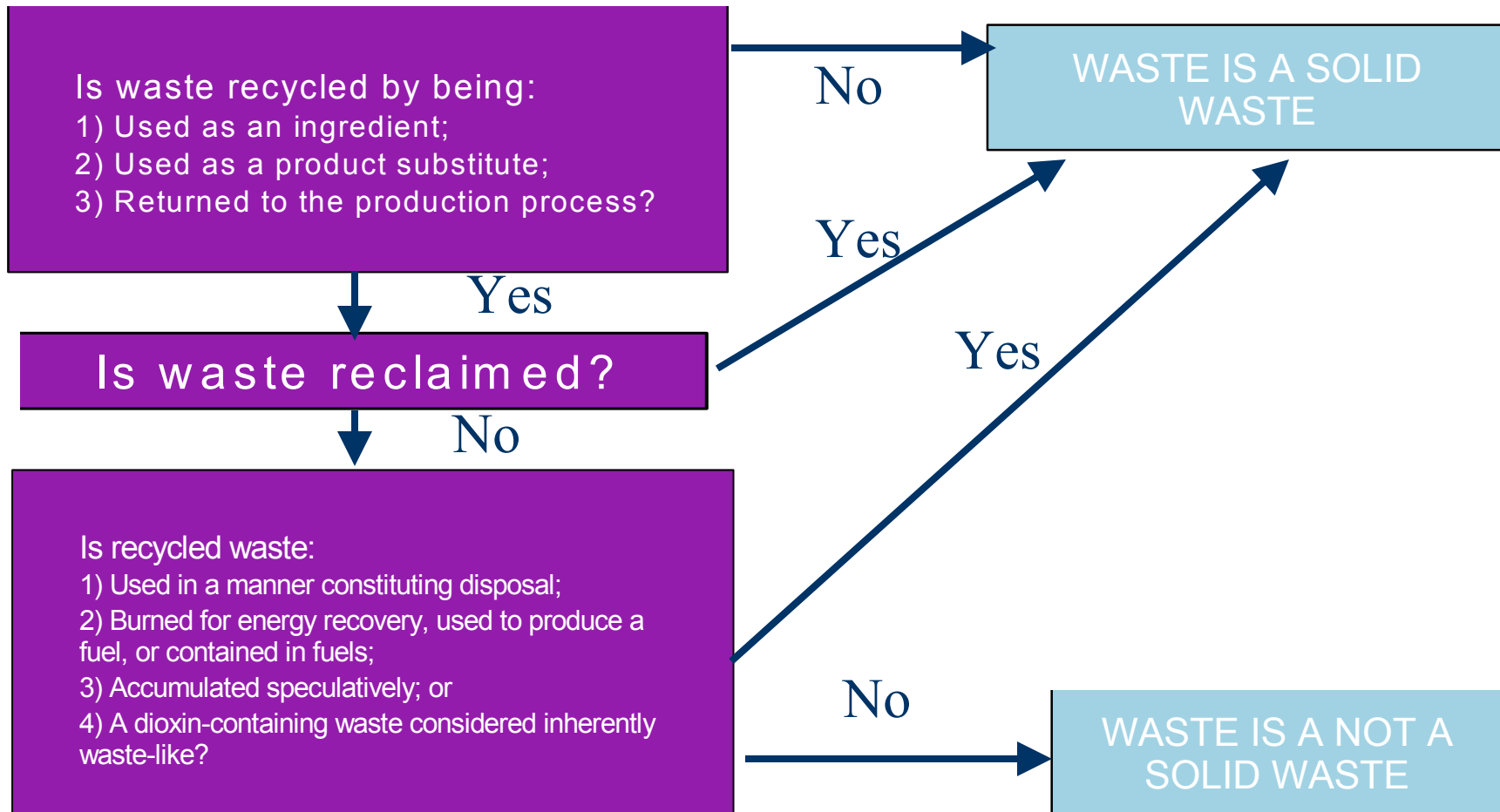
What Is Hazardous Waste?

- Abandoned
 - Disposed of
 - Burned
 - Incinerated
- Recycled (including burned for energy recovery)
- Inherently waste-like - 40 CFR Part 261.2(d)

What Is Hazardous Waste?

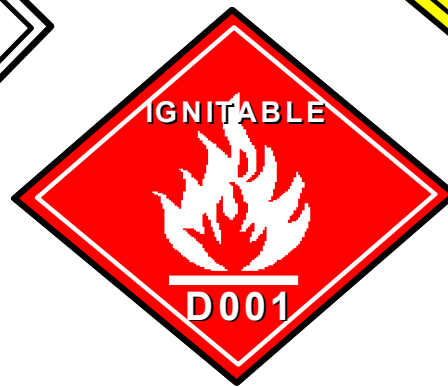
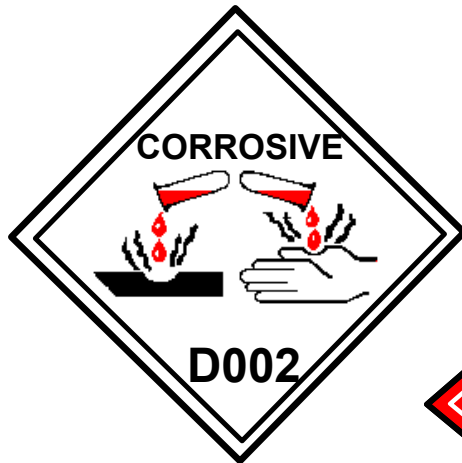


What Is Hazardous Waste?



What Is Hazardous Waste?

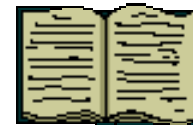
- If it is a solid waste, then is it a hazardous waste (40 CFR Part 261)?



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What Is Hazardous Waste?

- Characteristic hazardous wastes ("D" wastes)
 - Ignitable (i.e., burns readily): D001
 - Corrosive: D002
 - Reactive (e.g., explosive): D003
 - Toxic (D004 to 43)
- Listed hazardous wastes appear on one of four lists (currently, more than 400 wastes)

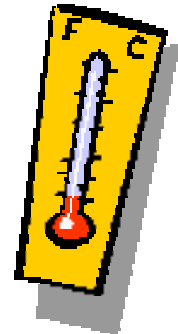


What Is Hazardous Waste?

- Listed sources ("F" and "K" wastes)
- Listed chemicals ("P" and "U" wastes)
- Note: many exemptions

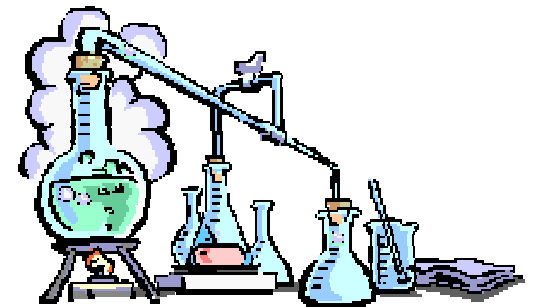
Typical Hospital Hazardous Waste

- Mercury and mercury-containing items
- Includes whole items and spill residues
- Photographic/X-Ray fixer solutions
- Silver recovered from fixer, if not recycled



Typical Hospital Hazardous Waste

- X-Ray Film containing silver or other metals
- Ethanol and formaldehyde/ethanol solutions
- Spent, off-spec, or excess laboratory chemicals (solvents, acids, bases, etc.)
- Chemotherapy drugs



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Typical Hospital Hazardous Waste (Continued)

- Waste, excess, and off-spec paints and cleaning products
- Fluorescent light bulbs, if not managed as Universal Wastes
- Other types include high-intensity discharge (HID), neon, mercury vapor, high pressure sodium, and metal halide lamps
- Batteries, if not managed as Universal Wastes

Typical Hospital Hazardous Waste (Continued)

- Computers/monitors, circuit boards, and other lead-bearing electronics
- Lead aprons and shielding
- Includes all cathode ray tube (CRT) screens
- Compressed gases (generally, any that are ignitable)
- Waste pesticides, fungicides, etc.



Specific Hospital Hazardous Wastes

Cerrobend

- X-ray shielding putty used to protect patients from damage to adjacent healthy tissue during irradiation of tumors and other confined areas
- Contains Lead and Cadmium
- Discarded material and shavings can be characteristic toxic HW when disposed

Specific Hospital Hazardous Wastes (Continued)

Chemotherapy Drugs

- Several chemotherapy drugs (antineoplastics) are listed in 40 CFR 261.33(f) (U-listed HW)
- Listing includes: discarded commercial chemical products, off-specification species, container residues, and spill residues

Specific Hospital Hazardous Wastes (Continued)

- Some Examples:
 - chlorambucil (U035)
 - cyclophosphamide (U058)
 - daunomycin (U059)
 - melphalan (U150)
 - mitomycin C (U010)
 - streptozotocin (U206)
 - uracil mustard (U237)

Specific Hospital Hazardous Wastes (Continued)

Mercury Containing Devices & Products In Patient Rooms

- Temperature Measurement
- Blood Pressure
- Nursing Incubators
- Room Temperature Controllers
- Batteries

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Specific Hospital Hazardous Wastes (Continued)

Mercury Containing Devices & Products In Storage & Maintenance Rooms

- Antifouling agents
- Cleaning Chemicals
- Degreasers

Specific Hospital Hazardous Wastes (Continued)

Mercury Containing Devices & Products In Storage & Maintenance Rooms

- Preservatives
- Solvents
- Outdated mercury-containing equipment
- Paints

Specific Hospital Hazardous Wastes (Continued)

Mercury Containing Devices & Products In Treatment & Surgery Rooms

- Merthiolate
- Mercury Nitrate
- Mercury Iodide
- Mercurochrome
- Thimerosal

Specific Hospital Hazardous Wastes (Continued)

Mercury Containing Devices & Products In Treatment & Surgery Rooms

- Esophageal Dilators
- Cantor Tubes
- Miller Abbot Tubes
- Feeding Tubes
- Dental Amalgam

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Specific Hospital Hazardous Wastes (Continued)

Sodium Azide – P105

- Also found in Enterococcus agars
- Listed in 40 CFR 261.33(e) (P-listed HW)
- Listing includes: discarded commercial chemical products, off-specification species, container residues, and spill residues

Specific Hospital Hazardous Wastes (Continued)

Picric Acid

- 2,4,6-trinitrophenol, picronic acid, melinite
- Sometimes used in histology labs
- A component of Bouin's Solution— tissue preservative
- Dry picric acid is explosive and disposal is very costly and disruptive

Specific Hospital Hazardous Wastes (Continued)

Picric Acid



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Typical Laboratory Hazardous Wastes

Which are hazardous?

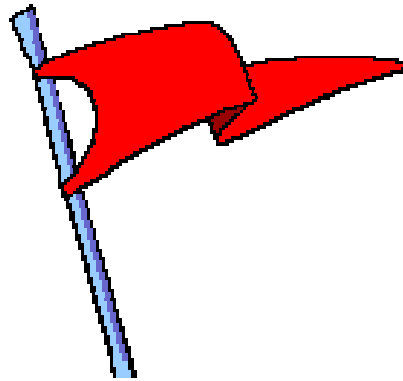


Requirements for CE-small Quantity Generators

- You are considered a CE-SQG if you generate no more than 220 lbs (100 kg) of hazardous waste and no more than 2.2 lbs (1 kg) of acutely hazardous waste in a calendar month. You are exempt from hazardous waste management regulations provided that you comply with the basic requirements.

Requirements for CE-small Quantity Generators

- **NOTE:** Your building/clinic may be part of a larger facility and subject to regulations based on total hazardous waste generation.



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Requirements for CE-SQG

Basic Requirements

- Identify your hazardous waste
- Comply with storage quantity limits
- No more than 220-lbs (100-kg)
- Ensure proper treatment and disposal of your waste

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Requirements for CE-SQG

Basic Requirements (Continued)

- Good housekeeping
- Minor mercury or lab chemical spills cleaned immediately
- Containers with volatile wastes kept closed

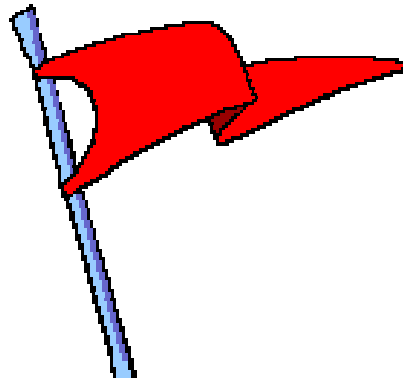
Requirements for CE-SQG

Basic Requirements (Continued)

- Deliver your hazardous waste to:
 - A state or federally regulated hazardous waste management treatment, storage, or disposal facility
 - A facility permitted, licensed, or registered by a state to manage municipal or industrial solid waste (potential liabilities)
 - A facility that uses, reuses, or legitimately recycles the waste (or treats the waste prior to use, reuse, or recycling)

Requirements for CE-SQG

Otherwise the facility is fully subject to regulation as a SQG



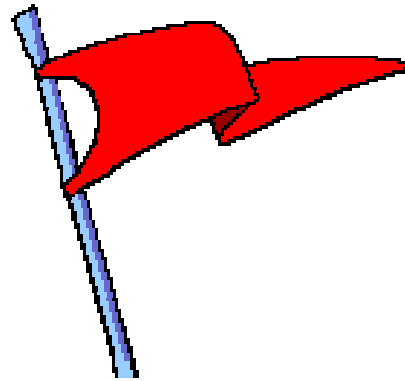
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Disposal Down the Drain

- Beware of septic system hook-ups and floor drains. Any hazardous waste disposed down the drain could be both a RCRA and SDWA (UIC) violation.
- Do not dispose of chemicals in sinks without prior approval from your publicly owned treatment works (POTW).

Disposal Down the Drain

- Be wary of RCRA hazardous wastes that may not reach treatment plants (e.g., volatilization or pipe leaks).



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RCRA Requirements

Requirements for Satellite Accumulation Areas

- 40 CFR 262.34(c) - Generators may accumulate HW in containers at or near any point of generation, which is under the control of the operator of the process generating the waste, without a permit or interim status provided:
- The container is in good condition;
- The waste is compatible with the container and only other compatible wastes will be added to the container;
- The container is always kept closed except when waste is being added or removed;

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Requirements for Satellite Accumulation Areas

- The container is marked either with the words "Hazardous Waste" or with other words that identify the contents of the container;
- Once the above volume limits are exceeded, you must remove the waste (to an accumulation point, permitted storage, or ship the waste off-site), within 3 days; and
- You must also comply with any additional state regulations, as applicable.

Requirements for Small Quantity Generators

- If your facility generates between 220 lbs (100 kg) and 2,200 lbs (1,000 kg) of hazardous waste and no more than 2.2 lbs (1 kg) of acutely hazardous waste in a calendar month, you are a SQG.

Requirements for SQGs

- Obtain and use an EPA Identification Number
- Correctly manage hazardous waste on site
- Correctly manifest and ship waste off site

Requirements for SQGs: Obtaining an EPA ID Number

- EPA and states use these 12-character numbers to monitor and track waste activities
- You will need the number when you send waste off site to be managed
- EPA ID numbers can be obtained from EPA Region 2 offices: call (212) 637-4106
- NJ also requires numbers for certain CE-SQGs

Requirements for SQGs: Correctly Manage HW on Site

- Meet hazardous waste accumulation and storage requirements
- Ensure that hazardous waste meets the Land Disposal Restrictions (LDR)
- Minimize risks from fires, spills, and other releases
- Be prepared for emergencies

Requirements for SQGs: Correctly Manage HW on Site

- Label each container with:
 - "Hazardous Waste"
 - Specific description of contents
 - Date the waste was generated (also see satellite accumulation.)

Requirements for SQGs: Correctly Manage HW on Site

- Keep containers sealed, except when adding or removing waste, and secured from failure
- Weekly inspections with log book entries
- Maintain in good condition
- Store waste no more than 180 days (270 days if TSDF is more than 200 miles away)
- Accumulate no more than 13,228-lbs (6,000-kg)

Requirements for SQGs: Correctly Manage HW on Site

- Ensure that hazardous waste meets the Land Disposal Restrictions (LDR) requirements
- Normally treated by the designated Treatment, Storage, & Disposal Facility (TSDF)
- Send the receiving TSDF a completed LDR form
- Meet the LDR requirements if treating on site

Requirements for SQGs: Correctly Manage HW on Site

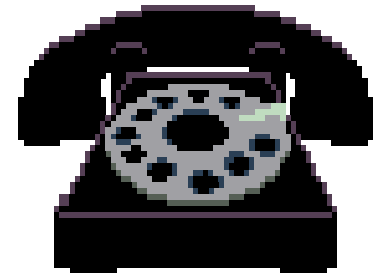
- Minimize risks from fires, spills, and other releases
- Ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures
- Internal communications or alarm system
- Voice is OK for small facilities

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Requirements for SQGs: Correctly Manage HW on Site

- Telephone at the site for calling emergency assistance
- Have available and maintain:
 - Fire extinguishers
 - Spill control material
 - Decontamination supplies



Requirements for SQGs: Correctly Manage HW on Site

- Adequate water for fire fighting
- Sufficient aisle space for emergencies
- Advance emergency arrangements with:
 - Fire department
 - Police department
 - Emergency response teams
 - Equipment suppliers & emergency contractors (often handled by transporter/TSDF)
 - Hospitals

Requirements for SQGs: Correctly Manage HW on Site

- Be prepared for emergencies
- Designate an Emergency Coordinator
- Must be on call or on the premises at all times to coordinate all emergency response measures
- Post emergency information next to the phone
- Name, office and home phone numbers, and address of the emergency coordinator

Requirements for SQGs: Correctly Manage HW on Site

- Location of emergency equipment
- Fire extinguishers
- Fire alarms
- Spill control materials
- Phone numbers of the fire department



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RCRA Requirements

Requirements for SQGs: Correctly Manifest and Ship Waste

- Select a TSDF and transporter
- Ensure that they have necessary permits
- Ensure that hazardous waste shipments are properly packaged, labeled, marked, and placarded to DOT regulations (usually done by transporter)

Requirements for SQGs: Correctly Manifest and Ship Waste

- Prepare hazardous waste manifest correctly
- Keep all copies for at least 3 years
- Track signed TSDF copies
- Send copies where required on form



Summary of Additional Requirements for LQG (Beyond SQG Requirements)

- If you are a Large Quantity Generator (LQG), i.e., generating more than 2,200 lbs (1,000 kg) of hazardous waste or more than 2.2 lbs (1 kg) of acutely hazardous waste in a calendar month, you must comply with the full set of hazardous waste regulations.

Summary of Additional Requirements for LQG (Cont.)

- May accumulate any amount of hazardous waste for 90 days or less, without a permit, provided that you:
- Meet the technical standards for the storage unit.
- Accumulate hazardous waste under the satellite accumulation requirements without a permit.
- Prepare a written contingency plan.
- Train employees on hazardous waste management and emergency response
- Meet documentation requirements.

Summary of Additional Requirements for LQG (Cont.)

- Submit a Biennial Report to your EPA Regional Office (annual in NY State). Reports submitted for off-site shipping must include:
 - Your EPA identification number;
 - Transporter and permitted TSD facility information;
 - Description and quantity of waste;
 - Actions taken to reduce the volume and toxicity of the waste, and the results of those actions.

Summary of Requirements for Treatment, Storage, And/or Disposal Facilities (TSDF)

- Treatment: Any method, technique, or process designed to change the physical, chemical, or biological character or composition of any hazardous waste.
- Storage: Holding hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed, or stored elsewhere.
- Disposal: The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid or hazardous waste on or in the land or water. A disposal facility is any site where hazardous waste is intentionally placed and at which the waste will remain after closure.

Summary of Requirements for TSDFs

- Must have a permit from EPA or an authorized state
- Must have technical capability and capacity to handle the waste

Summary of Requirements for TSDFs

- Must meet financial requirements (e.g., insurance)
- Must have a closure plan
- Must meet more stringent operating and training requirements

Finding Compliance Information

- To find out what information is publicly available for your facility, or to look up your TSD:
 - Envirofacts: <http://www.epa.gov/enviro/>
 - Enforcement & Compliance History Online: <http://www.epa.gov/echo/>

Finding Compliance Information

- To find information on the Region 2 Hospital Compliance Initiative:
 - <http://www.epa.gov/region02/healthcare/>
- To find P2 ideas and other references:
 - <http://www.epa.gov/Region2/p2/health.htm>

Universal Waste

- Final Rule published in May 1995
- Details are located at 40 CFR Part 273
- The rule is optional for states because it is less stringent than existing regulations, but is in effect in all of Region 2 (NJ, NY, PR & VI)

Universal Waste

- Before shipping across state lines, note:
- Universal Waste Rule may be used only if adopted by receiving state
- Hazardous waste requirements apply if not adopted in receiving state

Universal Waste (Cont.)

- Defines streamlined management regulations for "widely generated wastes"
 - Hazardous waste batteries
 - Hazardous waste pesticides that are recalled or sent to a collection program
 - Mercury-containing thermostats
 - Spent fluorescent lamps and other hazardous lamps (with mercury, and some lead)

Universal Waste (Cont.)

- Lessens regulatory burden on collection programs
- Eliminates concern for retailers that wastes may have been generated by RCRA-regulated generator

Universal Waste (Cont.)

- Ensures that waste goes to proper treatment, recycling, or disposal facility
- Has labeling and storage requirements, but less stringent than for hazardous waste

Universal Waste (Cont.)

- Small Quantity Handler of Universal Waste
 - Accumulates less than 5,000kg
- Large Quantity Handler of Universal Waste
 - Accumulates more than 5,000kg

Universal Waste (Cont.)

- Notify EPA, if no hazardous waste ID already obtained
- Universal Waste Transporter
- Must meet DOT requirements
- Destination Facility
- Must meet all requirements that would otherwise apply

RCRA Inspection Authority

42 USC Section 6927 (SWDA 3007)

- "(a) Access entry: ...any person who generates, stores, treats, transports, disposes of, or otherwise handles or has handled hazardous wastes shall, upon request of any officer, employee or representative of the Environmental Protection Agency...or...of a State having an authorized hazardous waste program, furnish information relating to such wastes and permit such person at all reasonable times to have access to, and to copy all records relating to such wastes."

RCRA Inspection Authority

42 USC Sec. 6927 (SWDA 3007)

(Continued)

- "...such officers, employees or representatives are authorized -
- (1) to enter at reasonable times any establishment or other place where hazardous wastes are or have been generated, stored, treated, disposed of, or transported from;
- (2) to inspect and obtain samples from any person of any such wastes and samples of any containers or labeling for such wastes."

RCRA Inspection Basics

- RCRA inspections are unannounced in nearly all cases
- Team may include one or two inspectors...or may be as big as 4-6 for a large facility (or even more for a "multi-media inspection.")
- "Credentials" will be presented by the inspector upon entry/introduction. (Note that they must remain in the inspector's possession and may not be photocopied.)

RCRA Inspection Basics (Continued)

- Inbriefing - introductions, explanation of procedures, schedule for the day(s).
- Review of storage areas, satellite accumulation areas, waste-generating activities, loading docks, dumpsters, material/product storage, etc.
- Will include the areas that you consider HW areas and others you may not think of as such.
- Review of paperwork (manifests, waste ID, training records, MSDS forms, etc.).

RCRA Inspection Basics (Continued)

- Outbriefing - preliminary findings, planned follow-up.
- Follow-up through phone calls or "information request letters" is common.
- Feel free to ask questions throughout the process.

RCRA Enforcement (If There Are Violations...)

- Enforcement decisions are not made on-site.
- Enforcement, if necessary, may include:
 - ** NOV - w/o penalty (may precede one of the following and/or may accompany an information request letter).
 - ** Administrative Complaint (Admin. Order) - w/penalty.

RCRA Enforcement (If There Are Violations...)

- Enforcement, if necessary, may include:
 - Civil Judicial Referral to DOJ.
 - 7003 Order for imminent/substantial endangerment.
 - Referral to another EPA/state program.
 - Criminal referral.

Closing Comments

- Most small to mid-sized hospitals should be operating as at least SQGs. However, the proper category can only be confirmed through a full chemical and waste inventory from cradle to grave.
- Waste identification is important for all areas of the hospital -- train all technicians in waste determination and satellite storage.

Closing Comments

- Use the Universal Waste Rule, where applicable.
- Check web pages and ask questions of regulatory agencies, trade groups, and professional societies.
- Always anticipate inspections -- perform self-audits, and keep records.

Hazardous Waste Contacts (EPA Region2)

- For more information about hazardous waste requirements for hospitals and healthcare:
- EPA Region 2 RCRA Compliance Branch
 - Steven Petrucelli, (212) 637-3129
 - General number, (212) 637-4145

Hazardous Waste Contacts (EPA Region2)

- EPA Region 2 Compliance Assistance Program
 - Diane Buxbaum, (212) 637-3919
- EPA Region 2 Solid Waste Program
 - Lorraine Graves, (212) 637-4099

Hazardous Waste Contacts (EPA National & States)

- EPA RCRA Hotline (800) 424-9346
- New York State DEC Hazardous Waste Generator Hotline (800) 462-6553
- New Jersey State DEP Bureau of Solid and Hazardous Waste Enforcement (609) 584-4250
- Caribbean Environmental Protection Division (787) 729-6951