



“Waste 101”

What is a waste...

solid, hazardous, universal?

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Presentation Overview

What's Included

- Brief regulatory overview regarding waste
- Identification of a solid waste (SW)
- Identification of a hazardous waste (HW)
- Examples of exclusions & exemptions
- Identification of a universal waste



Presentation Overview

What's Not Included

- In-depth review of LDEQ's SW program
- How to manage the wastes
- What requires a permit
- All of the exemptions & exclusions



Regulatory Overview

Major Waste Laws & Regulations

- 1965 Solid Waste Disposal Act
- 1976 Resource Conservation and Recovery Act (RCRA)
- 1980 RCRA regulations
- 1984 RCRA Hazardous and Solid Waste Amendments (HSWA)



Regulatory Overview

RCRA's Two Main Waste Programs

SUBTITLE D
Solid
Waste
Program

SUBTITLE C
Hazardous
Waste
Program



Definition of Solid Waste

- RCRA Statutory definition - “any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities”
- SW definition not dependent on the waste’s physical form
 - solid, semisolid, liquid, or contained gaseous material
- HW regulations further define discarded material as:
 - abandoned; recycled*; inherently waste-like; military munition

**NOTE: EPA proposal to revise definition in HW regulations regarding recycling is under legal challenge.*



Regulatory Overview

Solid Waste

- Federal Regulatory Framework - 40 CFR Parts 239 through 259
 - Closed or upgraded all environmentally unsound “dumps” and fully regulates municipal SW landfills (i.e., residential & commercial)
 - States can determine management of nonhazardous industrial SW
 - Encourages states to promote recycling
 - The term "solid waste" refers almost exclusively to non-hazardous SW
 - Covers all wastes not regulated by Subtitle C (HW)
 - Covers certain HW which are excluded from Subtitle C
- State Regulatory Framework - Title 33, Part VII (LAC 33:VII)
 - Louisiana is an authorized state for SW with limited federal oversight
 - SW program is at least equal to & consistent with federal standards
 - SW program includes industrial SW
 - SW program further defines solid waste



Regulatory Overview Hazardous Waste

- Federal Regulatory Framework - 40 CFR Parts 260 through 279
 - “Cradle to grave” – HW management from generation, transportation, storage and disposal
 - Regs define HW & identify criteria to determine which SWs are hazardous
 - Ensures HW is handled in a manner that protects human health and the environment
 - Helps states develop and administer HW management programs
- State Regulatory Framework - Title 33, Part V (LAC 33:V)
 - Louisiana is an authorized state for HW with full federal oversight
 - LDEQ HW program is at least equal to and consistent with federal standards



Do you have a SW?

- Abandoned
 - Disposal
 - Burning/incineration
- Recycling activities could be subject to regulation
 - use constituting disposal (placing on ground), energy recovery, reclamation, speculative accumulation (> 1 yr)
- Recycled materials could be subject to regulation
 - spent materials, sludges, by-products, scrap
- Inherently waste-like materials when recycled
 - Normally abandoned (ex., secondary materials fed to a halogen acid furnace); or
 - Contain toxic constituents (ex., dioxin) not found in raw material
- Military munition



SW Exclusions

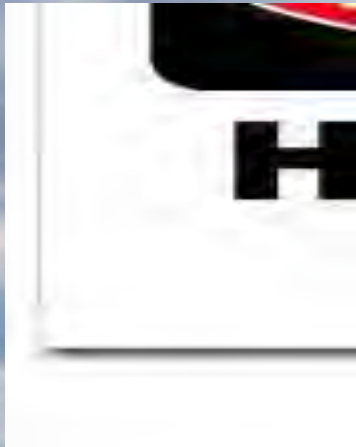
- Some materials are excluded from the SW definition if certain conditions are met
- Knowing these exclusions can be helpful in waste management programs





Do you have a HW?

In order to be a HW, the material must first be a SW





Do you have a HW?

- A generator of SW must determine if it is a HW
 - HW Determination (aka, characterization, profile)
- Generators have two options for making determination:
 - Use “process knowledge”
 - Apply knowledge of the raw materials and processes generating the waste
 - Material Safety Data Sheets (MSDSs) may have waste info
 - Conduct waste testing or analysis
- Most common HW violation:
 - Failure to determine which wastes are hazardous



HW Determination

- Two types of HW
 - Listed HW - one or more of the listings found in 40 CFR 261
 - F, K, U, P lists
 - Characteristic HW - exhibits any of the characteristics of a HW
 - Ignitability, Corrosivity, Reactivity, Toxicity
- HW can carry more than one listing and/or have more than one characteristic
- Even if a waste is listed, the generator must still determine if the waste exhibits a HW characteristic



Listed HW

- F - list: wastes from non specific manufacturing & industrial processes
 - Example: Spent Solvents (F001 - F005)
- K - list: common waste from specific industries
 - Example: Wood Preservation waste (K001)
- U - list*: unused off-spec chemical products
 - Example: Creosote (U051)
- P - list*: acutely toxic unused off-spec chemical products
 - Example: Endrin (P051)

**Note: P & U Lists: Solely the listed constituent or sole active ingredient*



Other Considerations Regarding Listed HW

- Mixture Rule
 - SW mixed with any listed HW must be managed as a listed HW
 - Exemption: ICR listed HW & characteristic removed, listing no longer applies (example: F003 + SW, if no longer ignitable)
- EPA “Contained-in” Policy & LDEQ Nonhazardous Environmental Medium (NHEM) Determination
 - Environmental media (e.g., soils) or debris (e.g., concrete) contaminated by a listed HW must be managed as a listed HW
 - HOWEVER, LDEQ may determine that the media or debris no longer contains HW or no longer poses a health threat
- “Derived from” Rule
 - Any material derived from the treatment, storage or disposal of a listed HW is still a listed HW unless recycled to make new products or processed to recover useable materials



Is There A Way Out of A Listing?

- ICR Listed Waste
 - 29 wastes listed solely because they exhibit one or more characteristics of Ignitability, Corrosivity, or Reactivity
 - Not a listed HW if it does not exhibit ICR when generated
 - Example: Spent solvent (F003) that is not ignitable
- HW Delisting
 - Relief for listed wastes with low concentrations of hazardous constituents
 - A site-specific process
 - Submit a Delisting Petition to demonstrate that the waste does not pose sufficient hazard to merit RCRA regulation



Characteristic HW

- Ignitability (D001)
 - can create fires under certain conditions;
 - are spontaneously combustible; or
 - have a flash point less than 60 °C (140 °F)
 - Example: used solvents
- Corrosivity (D002)
 - $\text{pH} \leq 2$; or
 - $\text{pH} \geq 12.5$
 - Example: battery acid



Characteristic HW (continued)

- Reactivity (D003) - unstable under "normal" conditions
 - Can cause explosions, toxic fumes, gases, or vapors when heated, compressed, or mixed with water
 - Examples: lithium-sulfur batteries and explosives
- Toxicity (D004-D043) - leaches concentrations of toxic chemicals
 - metals, organics, pesticides with threshold concentrations that are harmful or fatal
 - Toxicity Characteristic Leaching Procedure (TCLP)
 - Examples: arsenic ≥ 5.0 mg/L (D004); benzene ≥ 0.5 mg/L (D018)



What isn't a Solid Waste???

What isn't a Hazardous Waste???

Exclusions and Exemptions

- 40 CFR 261.4(a) gives exclusions from definition of SW
- 40 CFR 261.4(b) gives exclusions from definition of HW
- 40 CFR 261.4(c) – (g), and 261.5 - 9 gives exemptions from HW regs



NPDES Discharge Exclusion

- Water discharge excluded from SW under 261.4(a)(2)
- Even if process wastewater contained a listed HW, discharge would not be a HW
- “Point of Exclusion” is the NPDES outfall
- Does not apply upstream – the upstream wastewater is still HW



Oil & Gas Exploration & Production (E&P Wastes)

- SW excluded from HW under 40 CFR 261.4(b)(5)
- Category includes drilling fluids (mud), produced waters, other wastes “uniquely associated” with exploration and production of oil and gas
- “Uniquely associated” wastes are generally those that come from downhole, or from contact with the produced stream during production process
- Does NOT apply to wastes such as unused oil well cement, unused frac fluids, that do not come from downhole



Conditionally Exempt Small Quantity Generator (CESQG)

- Conditional exemption for generator in 40 CFR 261.5
- Applies if generator generates ≤ 100 kg HW per month (≤ 1 kg acute HW per month)
- Generator is exempt from notification, storage, manifesting, transportation, and disposal requirements
- CESQG-generated HW can legally go to SW landfill, if state regs and the landfill allow it



Household Hazardous Waste

- 40 CFR 261.4(b)(1) excludes household waste as HW
- Household waste is solid waste, not hazardous
- Includes wastes from households, apartments, and temporary residences (hotels, campgrounds, recreation areas)
- Applies to collection, transportation, recovery, disposal
- Applies to wastes in household hazardous material collection events (but...)
- Does not apply to commercial facilities, health care facilities, nursing homes, day care centers, restaurants
- (However, many of these facilities are exempt CESQGs under 261.5)



RCRA Subtitle C

Managing Hazardous Waste

- **Once the generator determines a HW has been generated, it must be managed accordingly**

Generation ⇒ Storage ⇒ Treatment ⇒ Transportation ⇒ Disposal

- **REMEMBER: RCRA Subtitle C is a “Cradle to Grave” Hazardous Waste Management System!**



Management of HW

- Notification requirements
- Generator requirements
- ID & separation of incompatible materials
- Storage requirements (containers, labeling, time limits)
- Manifesting requirements (“cradle to grave”)
- Transportation requirements
- Whether a permit is required
 - Unless excluded or exempt (treatment, storage, disposal)
- How the waste is disposed (“land disposal restrictions”)



Basic Rules & Management of Universal Waste in Louisiana



Universal Waste

- Commonly found HW that is low risk to human health and environment relative to other HWs
- Special handling requirements for generators (handlers), but not for treaters or disposers
- Simplifies the waste management requirements relative to other “standard” HWs
- Promotes collection and recycling of certain types of HW



Types of Universal Waste

- Federal Types
 - Batteries
 - Lamps (Fluorescent bulbs)
 - Mercury containing equipment (thermostats)
 - Pesticides
- LA Types
 - Antifreeze (auto)
 - Electronics



Batteries

- Nickel/Cadmium
- Most rechargeable (Hg)



Exceptions

- Lead Acid may be shipped to facilities for regeneration
- Common consumer batteries (no Hg)





Lamps

- Fluorescent light bulbs containing mercury
- Other types of lamps or bulbs may contain significant Hg levels
 - Mercury vapor
 - High Pressure Sodium
 - Metal Halide Lamps





Mercury Containing Equipment

- Thermostats
- Thermometers
- Switches
- Relays





Pesticides

- Universal Waste Regulations Limited to
 - Recalled pesticides (FIFRA-Federal Insecticide, Fungicide and Rodenticide Act)
 - Unused pesticide products managed as part of a collection program (e.g., for farmers)



Antifreeze

- Used antifreeze
- Antifreeze included as universal waste in Louisiana and New Hampshire
- Hazardous due to contamination by metals
- Free Liquids



Electronics

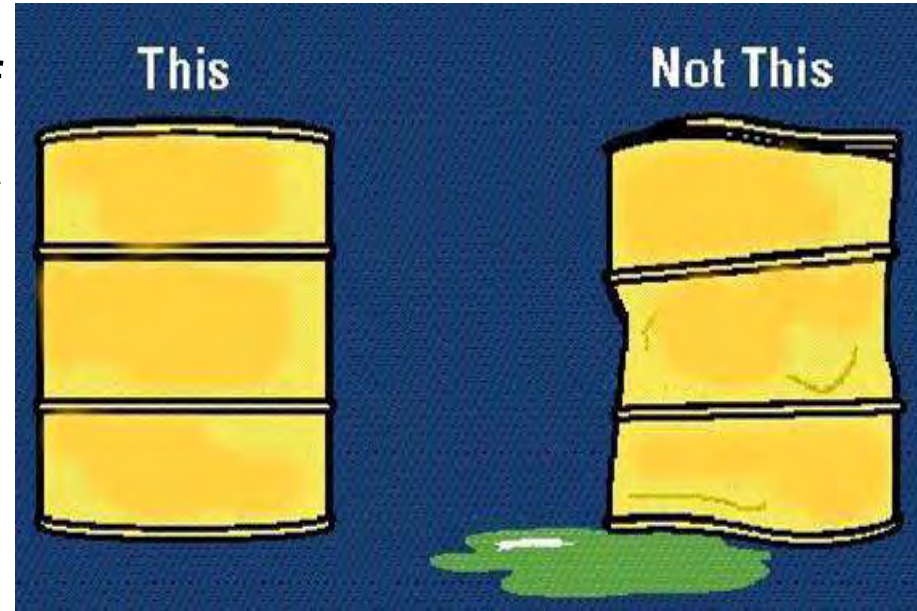
- Electronics - hazardous due to metals content





Universal Waste Management

- Placed in containers free of defects or design flaws that would result in breaking, crushing or spilling
- Labelling Requirements
 - Type of Waste (e.g., Lamps, Batteries, etc.)
 - Accumulation start date
- Storage up to one year
- Transportation does not require a manifest



UNIVERSAL WASTE	
CONTENTS	_____
ACCUMULATION START DATE	_____
SHIPPER	_____
ADDRESS	_____
CITY, STATE, ZIP	_____



Improper Storage & Disposal

- Universal waste (bulbs, batteries, CRTs) must not be broken or crushed prior to shipment to a recycler or permitted treatment facility
- Damaged universal waste must be managed as HW
- Universal wastes are prohibited from SW landfills (per regs and SW permits)



Any Questions?

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