



Hazardous Waste Permitting and Compliance Practice Tips “Must Know”

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Introduction



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Chris Hurst has over 28 years of EHS experience and has worked as state regulator in the areas of air protection, waste water engineering, hazardous waste compliance, and federal (RCRA/CERCLA) site cleanup. In addition to providing environmental consulting services, Chris has served as the corporate EHS manager for a private specialty chemical manufacturer.

EDUCATION

Master of Engineering, Chemical Engineering,
University of Louisville, 1995

Bachelor of Science, Chemical Engineering,
University of Louisville, 1994

REGISTRATIONS

Professional Engineer:
Georgia, Alabama, Mississippi,
Florida, South Carolina

CERTIFICATIONS

40-Hour HAZWOPER
CSP – Certified Safety Professional

This presentation will cover:

➤ RCRA:

- Hazardous Waste Identification
- Hazardous Waste Characterization
- Generator Requirements
- Container Management
- Manifesting
- Universal Wastes

Resource Conservation and Recovery Act (RCRA)

- Enacted in 1976
- Provided a “cradle to grave” system of record keeping for hazardous wastes.
- Wastes are tracked from the time they are generated until their final disposition.
- Generator is responsible for waste until it is “destroyed”

“Cradle to Grave” Responsibility

Generator is responsible for the management of the hazardous waste from the moment it is generated through accumulation, storage, transport and final disposition.



RCRA Regulations: 40 CFR

- Part 260 – General requirements, definitions
- Part 261 – Waste Determination
- Part 262 – Generator Requirements
- Part 263 – Transporter Requirements
- Part 264/265 – Permitted hazardous waste facilities
- Part 268 – Land disposal restrictions
- Part 273 – Universal Waste
- Part 279 – Used Oil

Hierarchy for Conducting a Hazardous Waste Determination

1. Is it a Solid Waste?

Not limited to solids – can be liquid or gas

2. Is it Excluded/Exempt?

3. Is it a listed Hazardous Waste (261 Part D)?

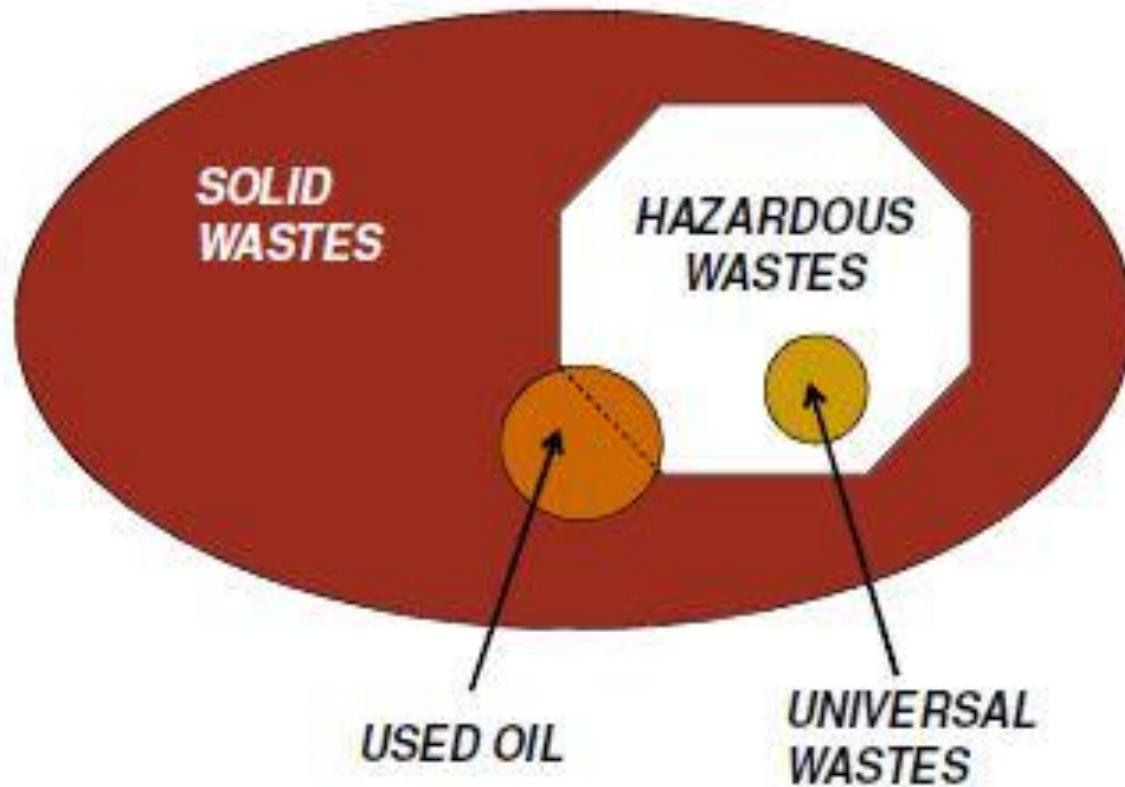
4. Exhibit a characteristic of HW (261 Part C)?

5. Is it subject to the Mixture Rule?

6. Is it subject to the Derived From Rule?

<https://www.epa.gov/sites/production/files/2015-09/documents/hwid05.pdf>

General Waste Principles



If it isn't a solid waste, it can't be a hazardous waste.

Definition of Solid Waste

40 CFR 261.2

A solid waste is any discarded material which is:

- Abandoned by being:
 - Disposed of
 - Burned or incinerated
 - Treated or stored prior to above
- Recycled in certain ways, such as burned for energy recovery, reclaimed (certain materials), or accumulated more than one year
- Inherently waste-like (e.g., dioxin wastes)

Exclusions – 40 CFR 261.4(a)

Some materials that are excluded from the definition of solid waste include:

- Domestic sewage
- Industrial wastewater discharges
- Radioactive waste
- Processed scrap metal
- Solvent-Contaminated Reusable Wipes (added July 2013)

These wastes are not hazardous because they are not considered solid waste.

Exclusions – 40 CFR 261.4(b)

These are solid wastes but are specifically excluded from definition of hazardous wastes:

- Household waste (pesticides, cleaners)
- Some agricultural wastes that are returned to the soils as fertilizers

Exemptions – 40 CFR 261.4(c)&(d)

Hazardous Wastes exempted from certain regulations include:

- Wastes generated in a product tank or pipeline
- Samples collected for lab analysis
- Residues in “empty” containers
- Used oil that exhibits hazardous characteristics can be excluded if recycled. It is regulated under 40 CFR 279
- Universal Wastes (including batteries, pesticides, mercury-containing thermostats, switches, and thermometers, and electric lamps) may also qualify for reduced regulation.

The list above is NOT comprehensive. If your waste is not on the list above, it may still be excluded from RCRA regulation. See 40 CFR 261.4 for a complete list of those wastes exempt from hazardous waste regulation.

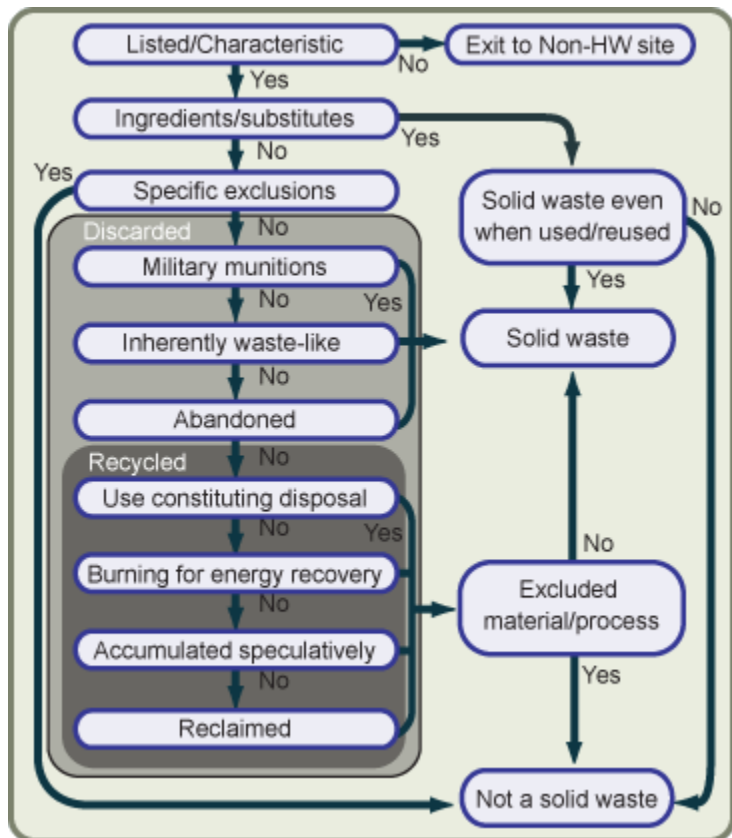
Solvent-Contaminated Wipes Exclusion

Final Rule July 2013

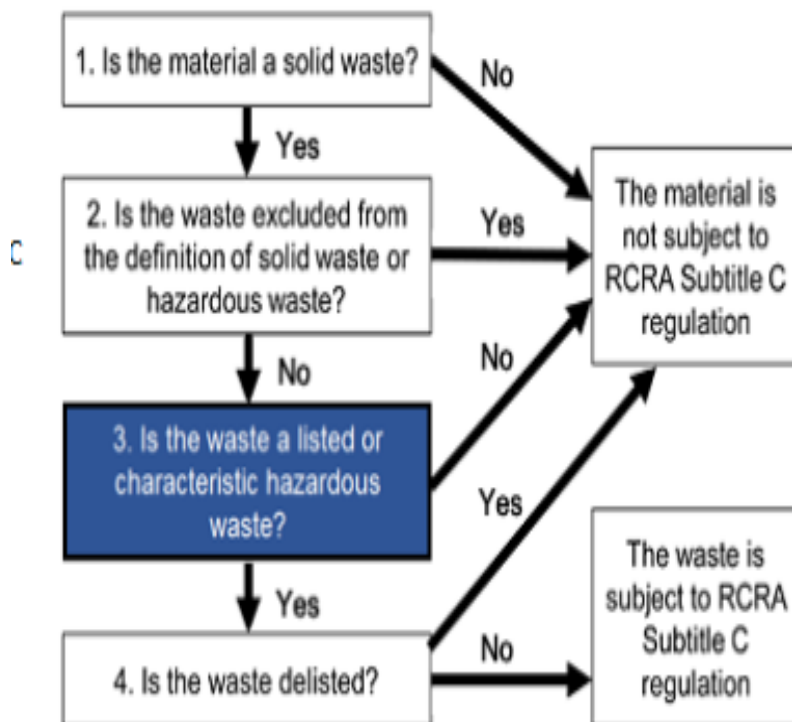
- Must be stored in non-leaking, closed containers
- Labeled “Excluded Solvent-Contaminated Wipes”
- Accumulation time of 180 days
- Must contain no free liquids prior to transport
 - Free liquids from wipes or storage container must be managed according to hazardous waste regulations
- Exclusion does not apply to disposable wipes containing trichloroethylene
- Recordkeeping requirements:
 1. Name & address of laundry, dry cleaner, landfill or combustor
 2. Documentation of 180-day accumulation time limit met

EPA's definition of solid waste tool

<http://www.epa.gov/osw/hazard/dsw/tool.htm>



The Hazardous Waste Identification Process



Hazardous Waste – Two Types

Listed Wastes: 40 CFR 261.31 - 33

Characteristic Wastes: 40 CFR 261.20 - 24

- Ignitable
- Corrosive
- Reactive
- Toxic

Listed Hazardous Wastes

F – Nonspecific Sources (40 CFR 261.31)

K – Specific Sources (40 CFR 261.32)

P – Acute Toxic Chemicals (40 CFR 261.33)

U – Toxic Chemicals (40 CFR 261.33)

State Lists

F Listed Wastes

40 CFR 261.31

Spent generic waste streams found in a variety of industrial processes.

Examples:

F001 - Spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride

F003 - Acetone

F005 - Methyl ethyl ketone

F007 - Spent cyanide plating bath solutions from electroplating operations

K Listed Wastes

40 CFR 261.32

Wastes from specific industrial processes. Examples:

K002 – Wastewater treatment sludge from the production of chrome yellow and orange pigments

K016 - Heavy ends or distillation residues from the production of carbon tetrachloride

K044 - Wastewater treatment sludges from the manufacturing and processing of explosives

P Listed Wastes

40 CFR 261.33

Discarded chemical products containing certain acute toxic chemicals. Examples:

P022 – Carbon Disulfide

P042 – Epinephrine

P056 – Fluorine

P075 – Nicotine

P098 – Potassium Cyanide



U Listed Wastes

40 CFR 261.33

Discarded chemical products containing certain toxic chemicals. Examples:

U019 – Benzene

U037 – Chlorobenzene

U115 – Ethylene Oxide

U122 – Formaldehyde

Characteristic Hazardous Wastes

Four characteristics determine waste to be hazardous

Ignitable	D001
Corrosive	D002
Reactive	D003
Toxic	D004-D043

Ignitable Wastes – D001

40 CFR 261.21

Liquid with a flash point $<140^{\circ}$ F (60° C). Also solids which will ignite by friction or spontaneous combustion (Sulfur, Road Flares) and ignitable compressed gas (Acetylene). Examples:

D001 – Spent Mineral Spirits

D001 – Spent Lacquers

D001 – Spent Stoddard Solvent



Corrosive – D002

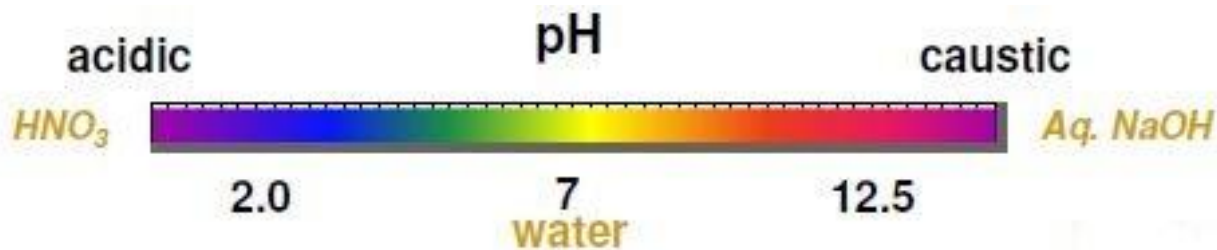
40 CFR 261.22

Has a pH of ≤ 2.0 or ≥ 12.5 or corrodes steel (acids and bases). Examples:

D002 – Sulfuric Acid

D002 – Muriatic Acid

D002 – Sodium Hydroxide



Reactive – D003

40 CFR 261.23

Unstable or undergoes rapid or violent chemical reaction on contact with water, air or other materials. Examples:

D003 – Hydrogen Cyanide

D003 – Hydrogen Sulfide

D003 – Sodium

D003 – Phosphorus



Toxicity – D004 to D043

40 CFR 261.24

Generators determine if their wastes exhibit the toxicity characteristics either by using their knowledge of the waste generating process, or by testing the wastes (Toxicity Characteristic Leaching Procedure – TCLP). Toxic codes for 8 Metals and 32 Organics.

D004 – Arsenic (5.0 mg/l)

D009 – Mercury (0.2 mg/l)

D018 – Benzene (0.5 mg/l)

D022 – Chloroform (6.0 mg/l)

RCRA Empty Container 40 CFR 261.7

- Containers:
 - All wastes removed by practical means and
 - ≤ 1 inch or
 $\leq 3\%$ weight (≤ 110 gal container) or
 $\leq 0.3\%$ weight (> 110 gal container)
- Containers of Acutely Hazardous Waste (P code & dioxin F):
 - Triple Rinsed
- Compressed Gas Cylinders (including aerosol cans):
 - Pressure in the container approaches atmospheric pressure

Hazardous Waste Determination 40 CFR 262.11

Generators are required to determine if waste is hazardous, using these steps:

1. Does it meet definition of Solid Waste?
2. Is it excluded?
3. Is it Listed in Subpart D of part 261?
4. Does it have a characteristic of hazardous waste, as identified in Subpart C of part 261?
 - By testing **or**
 - By applying generator's knowledge of materials/processes
5. Subject to Mixture or Derived-From Rules?

Document the Hazardous Waste
Determination!

General Waste Principles

You can't put it down the drain or in the normal trash unless you know it is non-hazardous! You must be prepared for a regulator to say "prove it."



Generator Status

A facility's generator status is determined by the quantity of hazardous wastes they generate in a calendar month

- The highest quantity generated in any one month determines your status
- Generation is not the same as offsite waste shipments
- Develop a method for tracking waste generation

Three Categories of Generators

- Very Small Quantity: **VSQG**
 - Generates ≤ 100 kg/month (220 lbs.)
 - ≤ 1 kg acute (2.2 lbs.)
- Small Quantity: **SQG (<180 days)**
 - Generates > 100 to $<1,000$ kg/mon (220 – 2,200 lbs)
 - ≤ 1 kg acute (2.2 lbs.)
- Large Quantity: **LQG (< 90 days)**
 - Generates $\geq 1,000$ kg/month (2,200 lbs.)
 - > 1 kg acute (2.2 lbs.)

Container Management, Cont....



- Keep containers securely closed at all times except when adding or removing waste
- Inspect containers in the storage area weekly (labeling, condition, etc.)
- Prepare for spills and leaks

Hazardous Waste Labeling

40 CFR 262.32

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST POLICE, OR
PUBLIC SAFETY AUTHORITY, OR THE
U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPER D.O.T.
SHIPPING NAME _____ UN OR NA# _____

GENERATOR INFORMATION:
NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____

EPA ID NO. _____ EPA WASTE NO. _____
ACCUMULATION START DATE _____ MANIFEST DOCUMENT NO. _____

HANDLE WITH CARE!
CONTAINS HAZARDOUS OR TOXIC WASTES

Before shipping, container must be marked with the “Federal Law” statement, generator information and manifest number



ULTRA-LINE 8000
MADE IN CANADA

Hazardous Waste Inspection Log

WEEKLY INSPECTION LOG

Complete and retain copies for a minimum of 3 years

Inspector: _____ Date: _____ Time: _____
Clearly Print Name

Accumulation Area Inspected: _____ Number of Containers: _____

Are all containers in good condition? Yes ___ No ___

Is there any evidence of leaks or spills? Yes ___ No ___

Are all containers labeled "Hazardous Waste"? Yes ___ No ___

Are all containers marked with an accumulation start date? Yes ___ No ___

Are all containers closed? Yes ___ No ___

Is there adequate aisle space between rows of drums? Yes ___ No ___

Is spill control equipment available? Yes ___ No ___

Observations: _____

(If containers in poor condition or leaks/spills were found, please note action taken in area below)

Repairs or Remedial Action _____ Date _____

What's the Advantage of Satellite Accumulation?

- Unlimited amount of time to accumulate a full container
- Date does not need to be marked on the container until the container is full
- Must be kept at or near the point of generation (process area) until full
- Excess of 55-gallons must be managed in accordance with hazardous waste storage standards within 3 days

Manifest Requirements

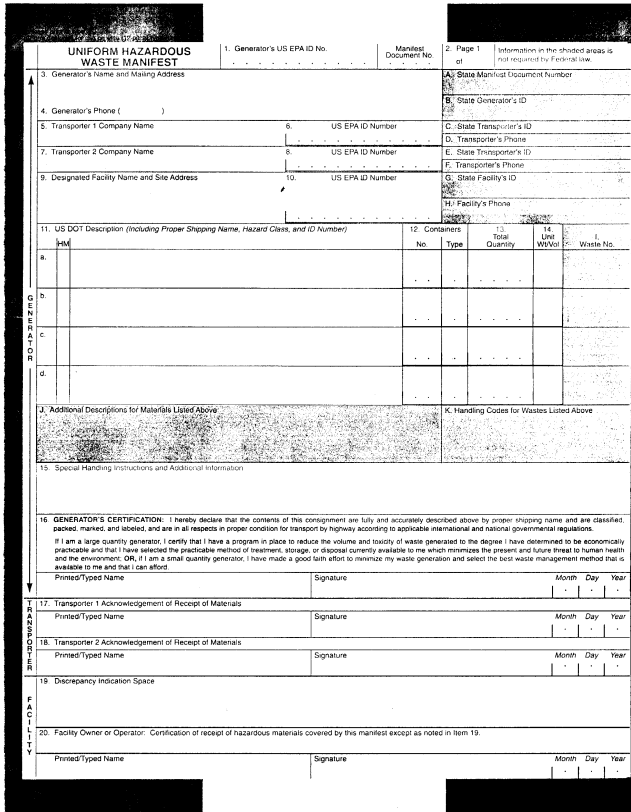
40 CFR 262.20 - 27

- A legal document under RCRA
- Signed only by a “trained” employee
- Required for SQG’s and LQG’s
 - Optional use by CESQG’s
- Retain confirmation copy 3 years (minimum)
- Exception Reports filed as needed (262.42):
 - Investigate: LQG within 35 days
 - Exception Report: LQG 45 days, SQG 60 days

Uniform Hazardous Waste Manifest

EPA Form 8700-22

- EPA ID #
- Generators name
- Transporters name
- DOT Description
- Emergency phone #
- Generator, transporter and TSD facility signature
- E-Manifest requires database registration



The image shows the EPA Form 8700-22, titled "UNIFORM HAZARDOUS WASTE MANIFEST". The form is divided into several sections:

- Section 1:** Generator's Name and Mailing Address, Generator's US EPA ID No., Manifest Document No., and Page 1 of 1.
- Section 2:** Information in the shaded areas is not required by Federal law.
- Section 3:** Generator's Name and Mailing Address, State Manifest Disposal Number, State Generator's ID, and Generator's Phone.
- Section 4:** Generator's Phone.
- Section 5:** Transporter 1 Company Name, US EPA ID Number, State Transporter's ID, and Transporter's Phone.
- Section 7:** Transporter 2 Company Name, US EPA ID Number, State Transporter's ID, and Transporter's Phone.
- Section 9:** Designated Facility Name and Site Address, US EPA ID Number, State Facility's ID, and Facility's Phone.
- Section 11:** US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number), Containers (No., Type), Total Quantity, Unit, Waste No., and Waste No.
- Section 12:** Containers.
- Section 13:** Total Quantity.
- Section 14:** Unit.
- Section 15:** Waste No.
- Section 16:** Additional Descriptions for Materials Listed Above and Handling Codes for Wastes Listed Above.
- Section 17:** Special Handling Instructions and Additional Information.
- Section 18:** GENERATOR'S CERTIFICATION: I hereby declare that the contents of this shipment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.
- Section 19:** Printed/Typed Name, Signature, Month, Day, Year.
- Section 20:** Transporter 1 Acknowledgement of Receipt of Materials, Printed/Typed Name, Signature, Month, Day, Year.
- Section 21:** Transporter 2 Acknowledgement of Receipt of Materials, Printed/Typed Name, Signature, Month, Day, Year.
- Section 22:** Discrepancy Indication Space.
- Section 23:** Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name, Signature, Month, Day, Year.

Hazardous Waste Generator Regulatory Summary

Summary Table

The table below provides a summary of requirements for each class of hazardous waste generator. This is not an exhaustive list of all of the requirements for generators and should be used as just a guide. Generators are responsible for all applicable requirements in 40 CFR part 262. Additionally, hazardous waste generators should check with their [state regulatory agency](#) because certain states have additional or more stringent requirements than the federal government.

↕ Requirement	Very Small ↕ Quantity Generators	Small Quantity ↕ Generators	Large Quantity ↕ Generators
Quantity Limits The amount of hazardous waste generated per month determines how a generator is categorized and what regulations must be complied with.	≤100 kg/month, and ≤1 kg/month of acute hazardous waste, and ≤100 kg/month of acute spill residue or soil §260.10	>100 and <1,000 kg/month §260.10	≥1,000 kg/month, or >1 kg/month of acute hazardous waste, or >100 kg/month of acute spill residue or soil §260.10
EPA ID Number Acquire a unique EPA identification number that identifies generators by site.	Not required	Required §262.18	Required §262.18
On-Site Accumulation Quantity Determine amount of hazardous waste generators are allowed to "accumulate" on site without a permit.	≤1,000 kg or ≤1 kg acute hazardous waste or ≤100 kg of acute spill residue or soil §§262.14(a)(3) and (4)	≤6,000 kg §262.16(b)(1)	No limit

<https://www.epa.gov/hwgenerators/hazardous-waste-generator-regulatory-summary>

Universal Wastes

40 CFR 273

➤ Establishes alternate requirements for managing:

- Batteries
- Pesticides
- Mercury-containing equipment
- Lamps (bulbs)
- Aerosol cans (40 CFR 273.6)



➤ Less restrictive requirements; intended to promote accumulation for recycling

➤ Do not count towards the amount of hazardous waste generated

➤ Up to one year on-site accumulation

Universal Waste Labeling

Each Universal Waste item or container of items should be labeled with one of the following phrases: Examples for lamps:

- “Universal Waste – lamps”
- “Waste lamps”
- “Used lamps”

Fluorescent Bulb Storage

- Structurally Sound Containers
- Adequate to Prevent Breakage
- Remain Closed
- Labeled



UNIVERSAL WASTE
Satellite Storage Location
CONTAINER CONTENTS
NiCad Cells

UNIVERSAL WASTE
Satellite Storage Location
CONTAINER CONTENTS
NiCad Cells



UNIVERSAL WASTE
Satellite Storage Location
CONTAINER CONTENTS
NiCad Cells



SCRAP CASES

