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Managing Waste Batteries

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Waste Review

- Definition of Solid Waste
- Specific Waste Management Options

Managing Waste Batteries

- Full RCRA Subtitle C
- Universal Waste
- Hazardous Waste Specific Waste Stream

Waste, Waste– What's In a Name?

- Processes throughout the world generate wastes
  - This is unavoidable
  - Generators are responsible for classifying their waste so that it can be disposed of or recycled properly
- Remember that materials that are discarded or inherently waste-like become solid wastes
  - If it's a product that can still be used or has value to others, it is not a waste
- Once a solid waste, a generator must decide if it
  - Is excluded from regulation
  - Meets an exemption
  - Remains a solid waste or is a hazardous waste

Special Management Wastes

- Some wastes can be managed under different waste management programs, such as
  - Specific Waste Streams
    - Batteries
    - Munitions
    - Low-Level Mixed Waste
    - Precious Metals Recovery
    - Hazardous Waste Pharmaceuticals
    - Hazardous Waste Burned in Boilers and Industrial Furnaces
  - Used Oil
  - CRTs (old TVs and computer monitors)
  - Universal Wastes
    - Batteries
    - Recalled Pesticides
    - Mercury-Containing equipment
    - Lamps
    - Aerosol Cans
    - State-only Universal Wastes (e.g., paint cans in Texas)
  - Granular Mine Tailings in Concrete

Waste Management Options for Batteries

- Batteries that no longer perform effectively or be recharged are wastes and can be hazardous wastes
  - D001 ignitable (lithium ion)
  - D002 corrosive (lead acid)
  - D003 reactive (lithium ion)
  - D006 cadmium (nickel-cadmium)
  - D008 lead (lead acid)
- Waste batteries can be managed under one of three different regulatory programs
  - Full Subtitle C hazardous waste (40 CFR 260-265)
  - Universal waste (40 CFR 273)
  - Hazardous waste specific waste stream (40 CFR 266)

Batteries Managed as Full Subtitle C Hazardous Waste (40 CFR 260 265)

- This is the most restrictive option
- Follow hazardous waste management regulations
  - Count as part of your monthly hazardous waste generation pounds that determine your hazardous waste generator category (Very Small Quantity Generator, Small Quantity Generator, Large Quantity Generator)
  - EPA ID Number (include battery management as a hazardous waste)
  - Labels
  - Training
  - Manifests
  - Inspections
  - Time limit for removing waste for offsite disposal
  - Preparedness, prevention, and contingency plan
  - Biennial hazardous waste report

Batteries Managed as Universal Waste (40 CFR 273)

- This is the second-best option for most generators
- Universal waste regulations are streamlined hazardous waste management standards
  - Labels
  - Storage requirements
  - Training
  - Prevent releases
  - Limits on the time and quantity of wastes that can be stored (but more lenient than hazardous waste regulations)
  - Notification and tracking/recordkeeping for larger quantity handlers (>11,000 pounds)
- Universal waste batteries are destined for reclamation or recycling
- Don't forget that "materials generated from a leak or discharge becomes newly generated wastes and, as such, are subject to hazardous waste determination" (RO14039)

Batteries Managed as Universal Waste (40 CFR 273)

- Recent May 24, 2023 EPA memo regarding lithium-ion batteries
  - Lithium-ion batteries are used in computers, electric cars, lawnmowers, scooters, electric bicycles, and other electronics
  - These batteries can be hazardous wastes when discarded
    - D001 (ignitable) and D003 (reactive)
  - Recycling these batteries returns critical minerals to the economy
    - Lithium, nickel, cobalt, iron, copper, manganese, aluminum, graphite
  - Lithium-ion batteries can be managed as universal wastes

Batteries Managed as Universal Waste (40 CFR 273)

- Alabama specifically states that lamps that are broken, crushed, or otherwise no longer intact may not be handled as universal waste (335-14-11-.01(5)).
- Florida requires
  - Fragile or crushed mercury-containing lamps and mercury-containing devices showing evidence of leakage, spillage, or damage must be placed in closed containers that are structurally sound and would control leakage (FAC 62-737.400(5)(a)).
  - Mercury-containing devices or the containers in which they are stored must be labeled or marked (FAC 62-737.400(5)(b)(2)):
    - "Spent Mercury-Containing Devices for Recycling"; "Universal Waste Mercury Devices"; "Waste Mercury Devices"; or "Used Mercury Devices."

Batteries Managed as Universal Waste (40 CFR 273)

- Florida allows lamp crushing under certain conditions
  - Labeling is required – "Crushed Mercury Lamps" (FAC 62-737.400(5)(b)).
  - Crushing performed to reduce the volume of the stored lamps, provided that all of the requirements are met (FAC 62-737.400(6)(b)):
    - crushing is done in a final accumulation container;
    - lamps are crushed in a controlled manner that prevents the release of mercury vapor or other contaminants;
    - crushing operations and maintenance of the unit are performed in accordance with written procedures developed by the manufacturer of the equipment, including specific instructions for the frequency of filter changes; and
    - employees using this equipment are thoroughly familiar with written and emergency procedures if a malfunction occurs.

Batteries Managed as Hazardous Waste Specific Waste Stream (40 CFR 266)

- This is the best option for most generators
- Under this option, batteries are regenerated or reclaimed to recover materials
- Generators only need to meet requirements in:
  - 40 CFR 262.11 (waste determination)
  - 40 CFR 268 (Land Disposal Restrictions)
- The Land Disposal Restriction treatment standard is RLEAD (recovery of lead in a secondary lead smelter)
  - There is no official EPA guidance on Land Disposal Restriction notification
    - Generator should provide a one-time notification in accordance with 40 CFR 268.7(a)(2) to each treatment or storage facility that receives the batteries

Batteries Managed as Hazardous Waste Specific Waste Stream (40 CFR 266)

- Generators do not need to
  - Count the batteries in the monthly hazardous waste generation amount
  - Use a manifest or hazardous waste transporter
  - Store the batteries per 40 CFR 262.16-17
    - No 90-day clock, labeling, inspections
  - Consider speculative accumulation requirements for these batteries
- Don't forget that "materials generated from a leak or discharge becomes newly generated wastes and, as such, are subject to hazardous waste determination" (RO14039)

Battery Casings are Containers

- Battery casings meet the definition of container-like equipment (RO 14685)
  - As such, they not subject to the contained in policy (but are subject to being RCRA empty and then exempt from regulation)
- Empty containers are also not considered debris
  - As such, they not subject to the Land Disposal Restrictions

Wrap-Up

- Any questions or discussion?

- Contact Information:

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- Thank you for attending!

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