

# Definition of Solid Waste and Recycling



# Outline for the Definition of Solid Waste and Recycling Presentation

- Statutory Definition of Solid Waste
- Regulatory Definition of Solid Waste
- Solid Waste Exclusions
- Four Categories of Discarded Materials
- Classes of Secondary Materials
- Determining if Materials are Solid Wastes, When Recycled
- Mechanisms to Ensure Proper Recycling
- Specific Hazardous Waste Recycling Requirements

# Statutory Definition of Solid Waste

RCRA Section 1004(27)

“The term “solid waste” means 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, but does not include...”

# Regulatory Definition of Solid Waste

40 CFR 261.2

- Any discarded material\* that is:
  - 1) Abandoned,
  - 2) Inherently-waste-like,
  - 3) Military munitions, or
  - 4) Recycled.
- Does not include material that is:
  - Excluded under §261.4(a).
  - Granted a variance under §§260.30 and 260.31.
- To determine if a material is a solid waste when recycled, you need to know the type of material and how it is being recycled (explained in more detail further on in this presentation).
- Note, this definition is solely for the purposes of defining wastes that are hazardous for the purposes of implementing RCRA Subtitle C regulations (40 CFR 261.1(b)(1)).

\* The term “material” refers to hazardous secondary material throughout this presentation.

# Solid Waste Exclusions

## 40 CFR 261.4(a)

- Domestic sewage and mixtures of domestic sewage (261.4(a)(1))
- Industrial point source discharges (261.4(a)(2))
- Irrigation return flows (261.4(a)(3))
- Certain radioactive secondary materials (261.4(a)(4))
- In-situ mining materials (261.4(a)(5))
- Pulping liquors (261.4(a)(6))
- Spent sulfuric acid (261.4(a)(7))
- Secondary materials reclaimed in a closed-loop process in tanks (261.4(a)(8))
- Spent wood preservatives (261.4(a)(9))
- Coke by-product wastes (261.4(a)(10))
- Splash condenser dross residues (261.4(a)(11))
- Oil-bearing hazardous secondary materials generated and recycled within the petroleum refining industry (261.4(a)(12))
- Excluded scrap metal (261.4(a)(13))
- Shredded circuit boards (261.4(a)(14))

# Solid Waste Exclusions (continued)

## 40 CFR 261.4(a)

- Pulping condensates derived from Kraft mill steam strippers (261.4(a)(15))
- Comparable fuels or syngas fuels (261.4(a)(16))
- Mineral processing spent materials being recycled (261.4(a)(17))
- Petrochemical recovered oil (261.4(a)(18))
- Spent caustic solutions from petroleum refining (261.4(a)(19))
- Hazardous secondary materials used to make zinc fertilizers (261.4(a)(20))
- Zinc fertilizers made from hazardous secondary materials (261.4(a)(21))
- Used cathode ray tubes (CRTs) (261.4(a)(22))
- Hazardous secondary materials generated and reclaimed under the control of the generator (261.2(a)(2)(ii) and 261.4(a)(23))
- Hazardous secondary materials transferred to another person for the purpose of reclamation (261.4(a)(24))
- Hazardous secondary material exported and reclaimed in a foreign country (261.4(a)(25))

# Four Categories of Discarded Materials

- 1) Abandoned Materials
- 2) Inherently Waste-like Materials
- 3) Military Munitions
- 4) Recycled Materials

# 1) Abandoned

40 CFR 261.2(a)(2)(i)

- Disposed of.
- Burned or Incinerated.
- Accumulated, stored, or treated before or in lieu of being abandoned by being disposed of, burned, or incinerated.





## 2) Inherently Waste-Like

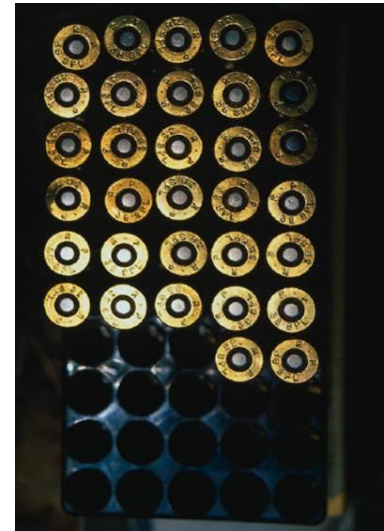
40 CFR 261.2(d)

- Dioxin-containing listed wastes F020, F022, F023, F026, and F028.
- Secondary materials that are characteristic or listed hazardous waste and fed to a halogen acid furnace.
- Criteria for listing as “inherently waste-like”
  - Disposed of, burned or incinerated.
  - Contains hazardous constituents (App.VIII) not normally found in the raw material and not used/reused during recycling.
  - May pose a substantial hazard to human health and the environment when recycled.

# 3) Military Munitions

40 CFR 266.202

- Military munitions are not solid wastes when:
  - Used for their intended purpose (e.g., lead shot).
  - Recycled (e.g., reused, repaired).
- Military munitions are solid wastes when:
  - Unused munitions
    - Disposed of, removed from storage, deteriorated, declared a solid waste.
  - Used munitions
    - Retrieved & disposed of on-site or sent off-site for treatment or disposal.



# 4) Recycled Materials

40 CFR 261.2(c)

- Used in a manner constituting disposal.
- Burned for energy recovery or used as a fuel.
- Reclaimed.
- Used/reused.



# Use Constituting Disposal (UCD)

40 CFR 261.2(c)(1)

- Applying a material directly to the land.
- Using a material as an ingredient in a product that will be applied to the land.
- All materials that are UCD **are solid wastes**, except commercial chemical products that are ordinarily applied to the land.



# Burning For Energy Recovery

40 CFR 261.2(c)(2)

- Burning a material directly as a fuel.
- Using a material as an ingredient in producing a fuel.
- The material is contained in a fuel.
- All materials burned for energy recovery **are solid wastes**, except commercial chemical products that are ordinarily fuels.



# Reclamation

40 CFR 261.2(c)(3)

- Processing to recover a usable product.
  - Wastes are processed to recover usable products when distinct components of the material that are of value are recovered.
- Regeneration
  - Wastes are regenerated when they are processed to remove contaminants in a way that restores them to their usable original condition.

# Reclamation (continued)

- Some materials being reclaimed are solid wastes, some aren't
  - Spent materials, listed sludges, & listed by-products **are solid wastes** when reclaimed.\*
  - Characteristic sludges, characteristic by-products, and commercial chemical products being reclaimed **are not solid wastes**.
  - Scrap metal (other than excluded scrap metal – see §261.1(c)(9)) when reclaimed **is a solid waste**.

\* Note, these materials may be excluded under §§261.2(a)(2)(ii), 261.4(a)(23), 261.4(a)(24), or 261.4(a)(25) if the state has adopted these solid waste exclusions.

# Use/Reuse Exclusions

40 CFR 261.2(e)

- Directly using or reusing a material:
  - As an ingredient in an industrial process,
  - As an effective substitute for a commercial chemical product,
  - In the original process from which it was generated.
- Materials must be used, reused, or returned to original process directly without first being reclaimed to qualify for this exclusion from being a solid waste.
- These exclusions do not apply to materials used in a manner constituting disposal or burned for energy recovery.



# Classes of Secondary Materials

- Spent Materials
- Sludges
- By-products
- Commercial Chemical Products
- Scrap Metal



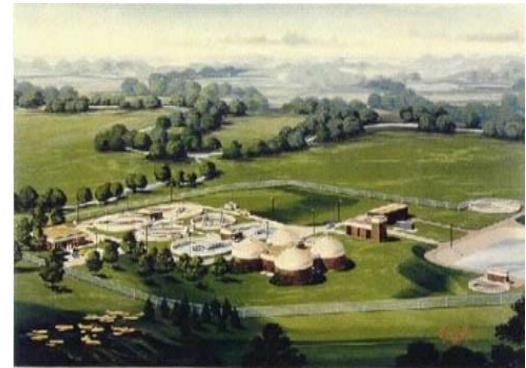
# Spent Material

- Any material that has been used and, as a result of contamination, can no longer serve its intended purpose without undergoing regeneration, reclamation or reprocessing.
  - Spent solvents
  - Spent catalysts
  - Spent pickle liquor
  - Spent plating bath solutions

# Sludge

“any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant”

- Wastewater treatment plant sludges
- Electric arc furnace dust (K061)
- Baghouse dusts



# By-Product

“a material that is not one of the primary products of a production process and is not solely or separately produced by the production process.”

- Distillation column bottoms
- Heavy ends
- Slag



# Co-Product

- A material intentionally produced by the manufacturing process and ordinarily used in its existing state as a commodity in trade by the general public.
- Co-products must have a recognized use, and must be usable without reprocessing.

# By-Products differ from Co-Products

## By-Product:

- Residual in nature.
- Not intentionally produced
- Not separately produced
- Needs further processing

## Co-Product:

- Highly processed
- Intentionally produced
- Ordinarily used as a commodity
- No further processing necessary

## Example from a Metal Refining Process:

Copper	Product
Lead	Co-product
Slag	By-product

# Commercial Chemical Product

- Unused product (e.g., off-specification chemical)
- Hazardous if 1) listed in §261.33 (P and U wastes), or 2) exhibit a hazardous waste characteristic



# Scrap Metal

“bits and pieces of metal parts ...or metal pieces that may be combined together with bolts or soldering ... which when worn or superfluous can be recycled.”

- Sheet metal
- Wire
- Metal tanks and containers
- Scrap automobiles
- Machine shop turnings





# Determining if Materials are Solid Wastes, When Recycled

Table 1 of 40 CFR 261.2(c)

	UCD	BFE	Reclamation*	Speculative Accumulation
Spent Material	SW	SW	SW	SW
Listed Sludge	SW	SW	SW	SW
Characteristic Sludge	SW	SW	---	SW
Listed By-product	SW	SW	SW	SW
Characteristic By-product	SW	SW	---	SW
Commercial Chemical Product	SW	SW	---	---
Scrap Metal	SW	SW	SW	SW

\*Except as provided in §§261.2(a)(2)(ii), 261.4(a)(17), 261.4(a)(23), 261.4(a)(24), or 261.4(a)(25).

# Mechanisms to Ensure Proper Recycling

- Documentation of claims that materials are not solid wastes (§261.2(f)).
  - Demonstrate the presence of a known market.
  - Demonstrate the material is not a waste or is exempt from regulation (i.e., they meet the conditions of the exclusion or exemption).
  - Must show appropriate documentation (e.g., contracts) to demonstrate the material is not a solid waste
  - Recyclers/reclaimers must show they have the necessary equipment to recycle the material.

# Mechanisms to Ensure Proper Recycling

- Speculative accumulation (§261.1(c)(8))
  - Materials are not solid waste if:
    - Recycling must be feasible.
    - 75% of material stored at the beginning of the year must actually be recycled or sent for recycling by the end of the year.
  - If materials are speculatively accumulated, they **are solid wastes**.
  - Speculative accumulation does not apply to commercial chemical products.

# Mechanisms to Ensure Proper Recycling

## Factors for Demonstrating Legitimate Recycling vs. Sham Recycling\*

- Legitimate recycling must involve a material that provides a useful contribution to the recycling process or product
- Legitimate recycling must produce a product or intermediate that is valuable
- The generator and recycler should manage the material as a valuable commodity
- The product of recycling should not contain significant concentrations of hazardous constituents that are not found in analogous products (i.e., Toxics-Along-for-the-Ride or TARs)

\*Codified at 40 CFR 260.43 for specific exclusions but substantially the same as existing policy for defining legitimate recycling.

# Specific Hazardous Waste Recycling Requirements

40 CFR 261.6(a)(2)

- Recyclable materials used in a manner constituting disposal: 40 CFR Part 266, Subpart C
- Hazardous wastes burned for energy recovery in boilers and industrial furnaces: 40 CFR Part 266, Subpart H
- Recyclable materials from which precious metals are reclaimed: 40 CFR Part 266, Subpart F
- Spent lead-acid batteries that are reclaimed: 40 CFR Part 266, Subpart G

# Specific Hazardous Waste Recycling Requirements

40 CFR 261.6(a)(3)

## Other Materials Not Subject to Regulation When Recycled

- Industrial ethyl alcohol that is reclaimed
- Scrap metal (not already excluded)
- A variety of reclaimed oils and oil-derived fuels associated with oil refining
- Coke and coal tars containing hazardous wastes from the iron and steel production process (K087)



# Specific Hazardous Waste Recycling Requirements

40 CFR 261.6(a)(4)

- Used Oil: Special Management Standards in 40 CFR Part 279
  - Includes used oil that is reused, re-refined, reclaimed, burned for energy recovery, or reprocessed



# Specific Hazardous Waste Recycling Requirements

40 CFR 261.6(b)&(c)

- Generators and transporters of recyclable materials (not already excluded or subject to other requirements) are fully regulated under 40 CFR Parts 262 and 263.
- Owners/operators of facilities that store recyclable materials before they are recycled are subject to all applicable provisions of 40 CFR 264/265 including subparts AA, BB, and CC.
- Note, the recycling process itself is exempt from regulation (except as provided in §261.6(d)).