



# WASTE IDENTIFICATION PART II

G h s d w p h q w # r i # H q y l u r q p h q w d c # r x d o l w | #



**NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF WASTE MANAGEMENT  
HAZARDOUS WASTE SECTION  
EASTERN COMPLIANCE BRANCH**

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## *What will be covered?*

- Hazardous Waste Counting
- Mixture Rule: Mixing HW with Solid Waste
- Recycling:
  - Use or Reuse
  - Reclamation
  - Hazardous Secondary Materials



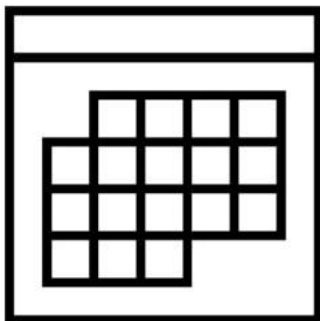


# *Hazardous Waste Counting*

# *Hazardous Waste Counting*

A waste generator must count all of the hazardous wastes generated during each calendar month which are managed in RCRA regulated units.

- Containers & Tanks are regulated units.
- Distillation units are **not** regulated units.



# *Hazardous Waste Counting*

Count hazardous waste that is:

- Accumulated onsite in tanks.
- Accumulated in satellite accumulation area containers.
- Accumulated in central accumulation area containers.
- Accumulated onsite prior to treatment, recycling, or disposal.
- Packaged and transported offsite
- Placed directly into an onsite RCRA-regulated treatment or disposal unit.

# *Hazardous Waste Counting*

Avoid double counting your waste.

Do not count,

- Hazardous waste that was transported offsite, if it was previously counted once.
- A full satellite area hazardous waste container later moved to a central accumulation within 72 hours if already counted once.
- Produced from onsite treatment of hazardous waste, as long as the hazardous waste was counted before treatment.
- Spent materials that are generated, reclaimed and reused onsite as long as the spent materials have been counted once in a calendar month.

# *Hazardous Waste Counting*

## ***What about Acutely Hazardous Wastes?***

- Count Acute Hazardous Wastes generated per month separately from the Non-acute Hazardous Wastes.
- Acute Hazardous waste generated at an amount greater than 1 kg (2.2 lbs.) in a month counts as a Large Quantity Generator Amount.





## *Hazardous Waste Counting – 40 CFR 262.13(c)*

*The Quantity of Wastes Generated in a Month Determines Category*

Quantity of <u>acute</u> hazardous waste generated in a calendar month	Quantity of <u>non-acute</u> hazardous waste generated in a calendar month	Quantity of <u>residues</u> from a cleanup of <u>acute</u> hazardous waste generated in a calendar month	Generator category
> 1 kg	Any amount	Any amount	LQG
Any amount	≥ 1,000 kg	Any amount	LQG
Any amount	Any amount	> 100 kg	LQG
≤ 1 kg	> 100 kg and < 1,000 kg	≤ 100 kg	SQG
≤ 1 kg	≤ 100 kg	≤ 100 kg	VSQG

*Hazardous Waste Counting*  
*40 CFR 262.13(c)*



Do NOT count hazardous waste that is exempt under 40 CFR 261.4(c)–(f)

- (c) Hazardous waste generated in a product or raw material storage tank, vessel, pipeline etc...until it exits the unit in which it was generated or 90-days after the unit ceases operating
- (d) Samples
- (e) Treatability Study Samples
- (f) Samples Undergoing Treatability Studies at Labs and Testing Facilities

# *Hazardous Waste Counting*

*40 CFR 262.13(c)*



Do NOT count hazardous waste that is:

- Managed ***immediately*** upon generation (260.10) only
  - On-site elementary neutralization units,
  - Wastewater treatment units,
  - Totally enclosed (closed-loop) treatment facilities

# *Hazardous Waste Counting*

40 CFR 262.13(c)



Do NOT count hazardous waste:



IF it is recycled material that is **not** accumulated on site prior to recycling.

# *Hazardous Waste Counting*

*40 CFR 262.13(c)*

- VSQG
- SQG
- LQG

**Do NOT count toward Hazardous Waste generation IF:**

**Used Oil**  
managed under 40 CFR 261.6(a)(4) and 40 CFR 279

**Lead-acid Batteries**  
managed under 40 CFR part 266, Subpart G

**Universal Waste**  
managed under 40 CFR 261.9 and 40 CFR 273

# *Hazardous Waste Counting*

40 CFR 262.13(c)



Do **not** count hazardous waste that is:



**An unused commercial chemical product,** generated solely as a result of a laboratory clean-out conducted at an **eligible academic entity** pursuant to §262.213. (Subpart K)

# *Hazardous Waste Counting*

*40 CFR 262.13(c) (Subpart L)*



Do NOT count hazardous waste that is:

- Managed in an **episodic event** in compliance with the conditions of 40 CFR 262 Subpart L.



# *Hazardous Waste Counting*

*40 CFR 262.13(e)*



Based on the generator category, the generator must meet the applicable independent requirements listed in §262.10.



A generator's category also determines which of the provisions of §§262.14, 262.15, 262.16 or 262.17 must be met to obtain an exemption from the storage facility permit, interim status, and operating requirements when accumulating hazardous waste.



*Condition for Exemption  
40 CFR 262.1*



- Any requirement in §§262.14, 262.15, 262.16, 262.17, 262.70, or subpart K or subpart L of 262
- That states an event, action, or standard that must occur or be met
- In order to **obtain an exemption** from any applicable requirement in parts 124, 264 through 268, and 270 of this chapter, or from any requirement for notification under section 3010 of RCRA.

*Independent Requirement*  
*40 CFR 262.1*



- A requirement of part 262
- That states an event, action, or standard that must occur or be met;
- And that applies ***without relation to, or irrespective of***, the purpose of obtaining a conditional exemption from storage facility permit, interim status, and operating requirements under §§262.14, 262.15, 262.16, 262.17, or subpart K or subpart L of this part.



# *Mixture Rule*

*Mixing HW with Solid Wastes*  
*40 CFR 262.13(f)(1)(i)*



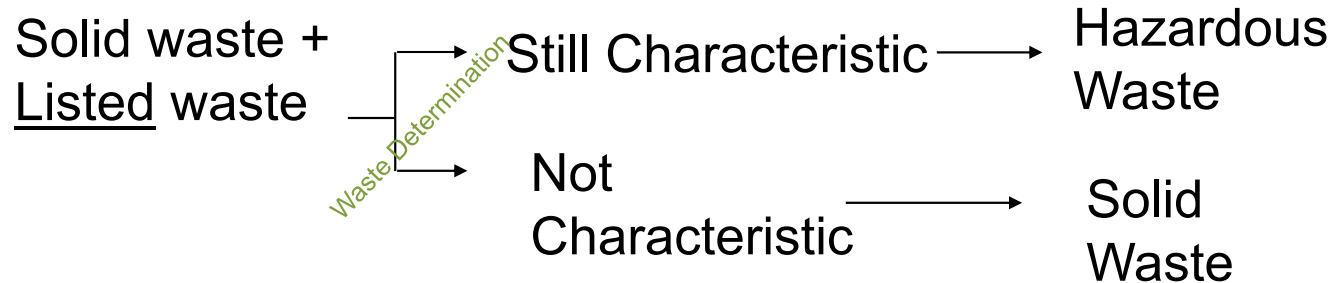
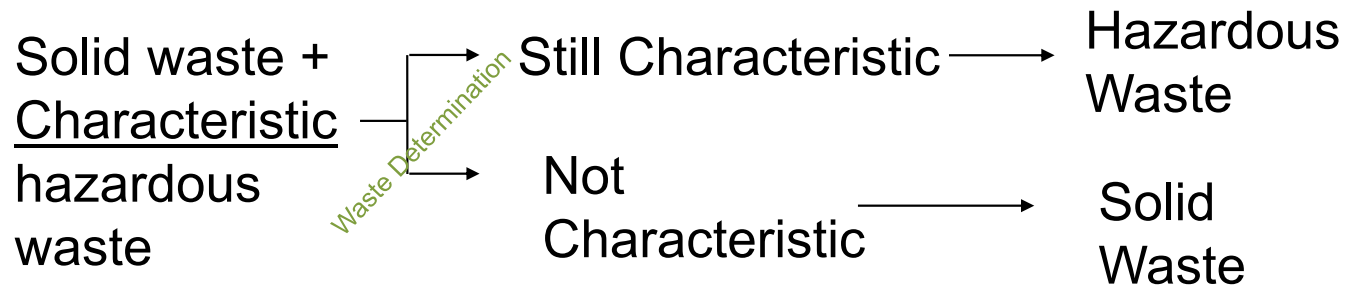
- HW generated by a **VSQG** may be mixed with solid wastes
- VSQG may mix a portion or all of its HW with solid waste and remain subject to 262.14 even though the resultant mixture exceeds the quantity limits identified in the definition of a VSQG in 260.10 unless the mixture exhibits one or more of the characteristics of HW identified in 261 subpart C.

*Mixing HW with Solid Wastes*  
*40 CFR 262.13(f)(1)(ii)*



- If the resulting mixture exhibits a characteristic of HW, this resultant mixture is a newly-generated HW.
- The VSQG must count both the resultant mixture amount plus the other HW generated in the calendar month to determine whether the total quantity exceeds the VSQG limit for the calendar month
  - *The VSQG must meet requirements for SQG or LQG if the VSQG HW amount is exceeded due to the resultant mixture*

# Hazardous Waste Mixture Rule VSQG



*Mixing HW with Solid Wastes*  
*40 CFR 262.13(f)(1)(iii)*



- If a VSQG's wastes are mixed with used oil, the mixture is subject to 40 CFR 279 (used oil management requirements)
- Any material produced from such a mixture by processing, blending, or other treatment is also regulated under 40 CFR 279

*Mixing HW with Solid Wastes*  
*40 CFR 262.13(f)(2)(i)*



- HW generated by a SQG or LQG may be mixed with solid waste  
Mixtures are subject to the following:
  - Mixture Rule: 40 CFR 261.3(a)(2)(iv), (b)(2) and (3), and (g)(2)(i);
  - Prohibition on Dilution Rule: 40 CFR 268.3(a);
  - Land Disposal Restriction Requirements: 40 CFR 268.40  
(Treatment Standards)
  - Hazardous Waste Determination: 40 CFR 262.11

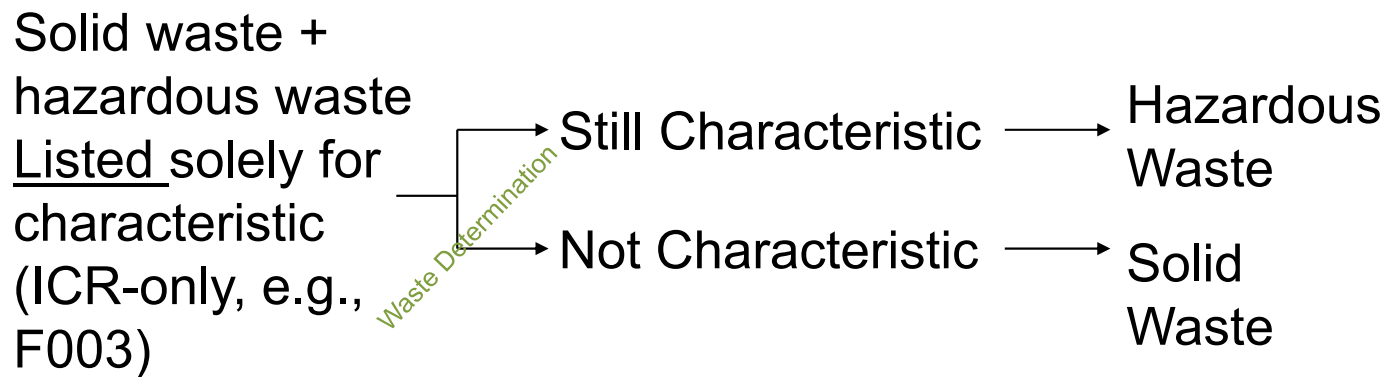
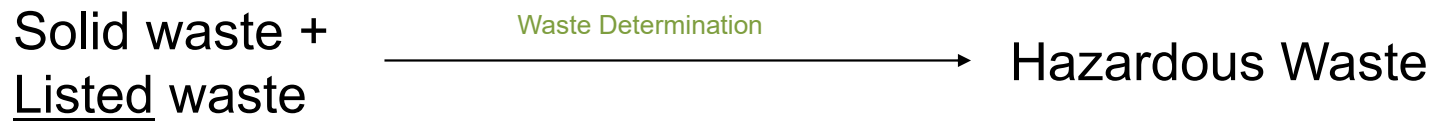
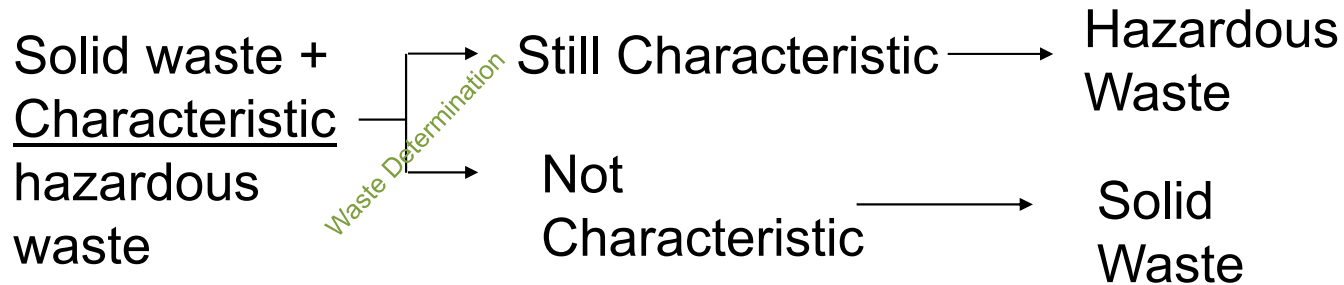


*Mixing HW with Solid Wastes*  
*40 CFR 262.13(f)(2)(ii)*



- If the resultant mixture is found to be a HW, this resultant mixture is a newly-generated HW.
- Must count both the resultant mixture amount plus the other HW generated in the calendar month to determine whether the total quantity exceeds the SQG limit for the calendar month
  - The SQG must meet requirements for LQG if the SQG HW amount is exceeded due to the resultant mixture

# Hazardous Waste Mixture Rule



## *Mixing, Diluting and Alteration of the Waste – Points to Remember*



- Hazardous wastes generated by a generator may be mixed with solid waste.
- If a hazardous waste is mixed or diluted with a solid waste as part of a legitimate treatment process, it is permissible, and may also address LDR requirements.

Example: adding acid to neutralize a corrosive waste.

- However, dilution of waste as a substitute for adequate treatment or to otherwise circumvent the waste treatment requirements is prohibited by the LDR regulations (see 268.3)

*Mixing, Diluting and Alteration of the Waste –  
Points to Remember*



- A hazardous waste determination must be made before mixing or alteration.
- Waste that is hazardous when generated but has been decharacterized may remain subject to the LDR waste treatment requirements (see 261.3(d)(1)).

## *Definition of Treatment*

### *40 CFR 260.10*

- Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste ***so as to*** neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

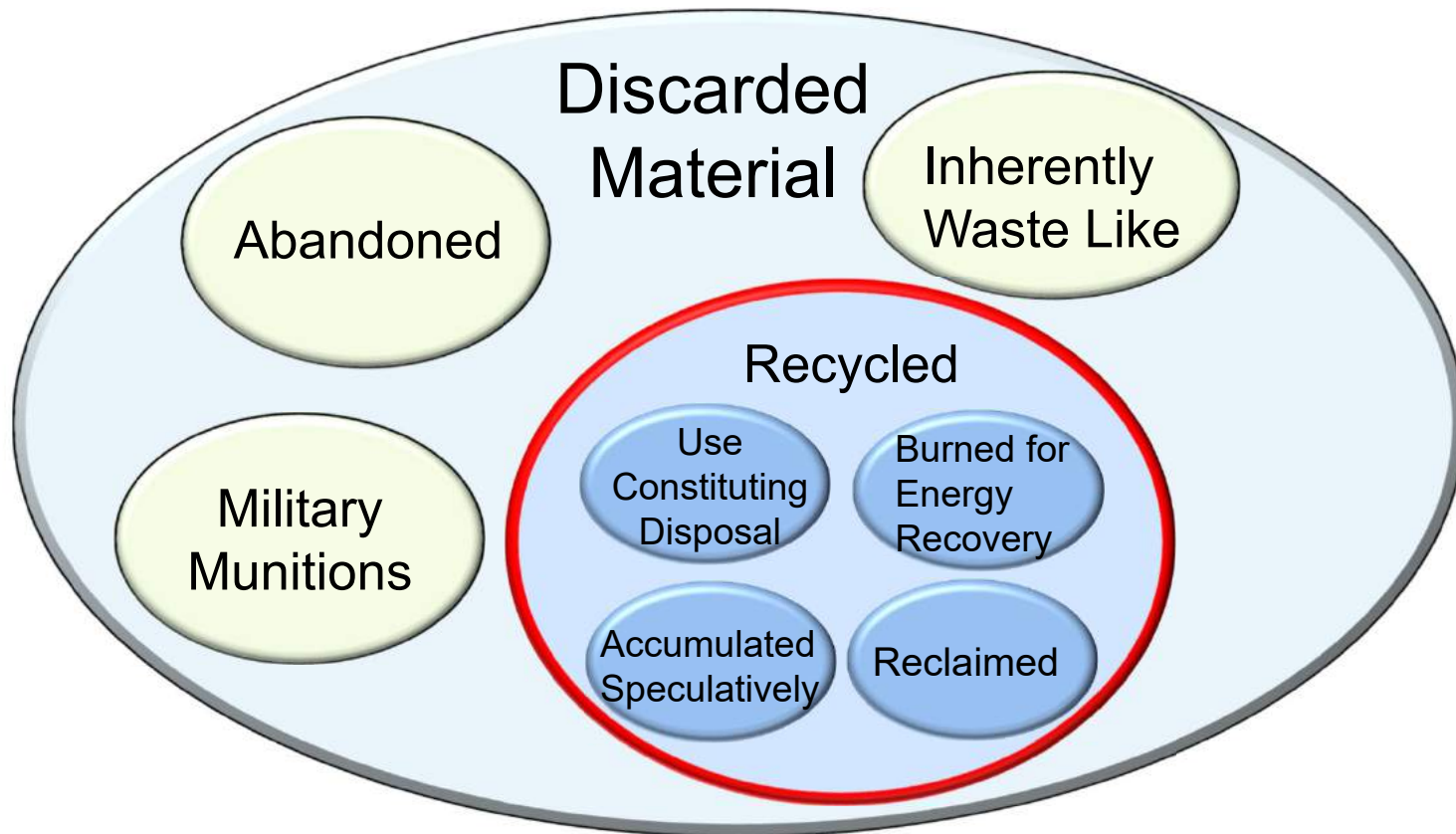
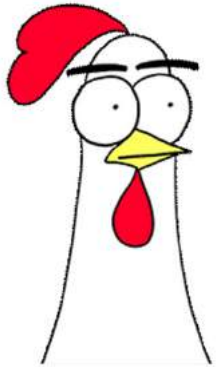


# *Recycling*

# Definition of Solid Waste

Recyclable Materials that are Solid Waste

- VSQG
- SQG
- LQG



# *RCRA Definition of Recycling*

*40 CFR 261.1(c)(7)*



A material is **Recycled** under RCRA if it is

- Used,
- Reused, or
- Reclaimed





*Definitions*  
*40 CFR 261.1(c)(4 & 5)*



- **Used or Reused** – a material is used or reused if it is either:
  - Employed as an ingredient in an industrial process to make a product; or
  - Employed as an effective substitute for a commercial product
- **Reclaimed** – a material is reclaimed if it is processed to produce a usable product or if it is regenerated.

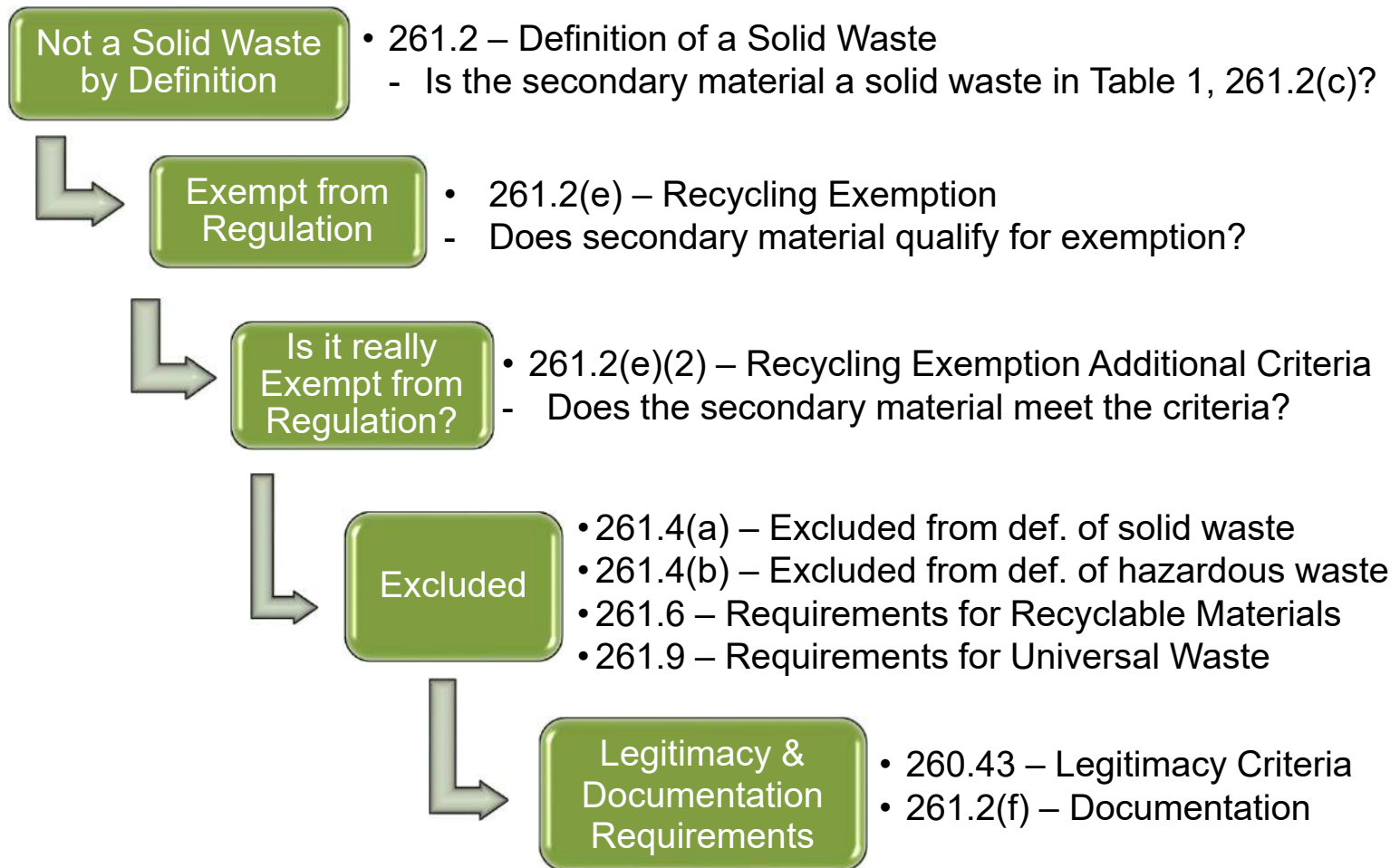
## *Secondary Material*



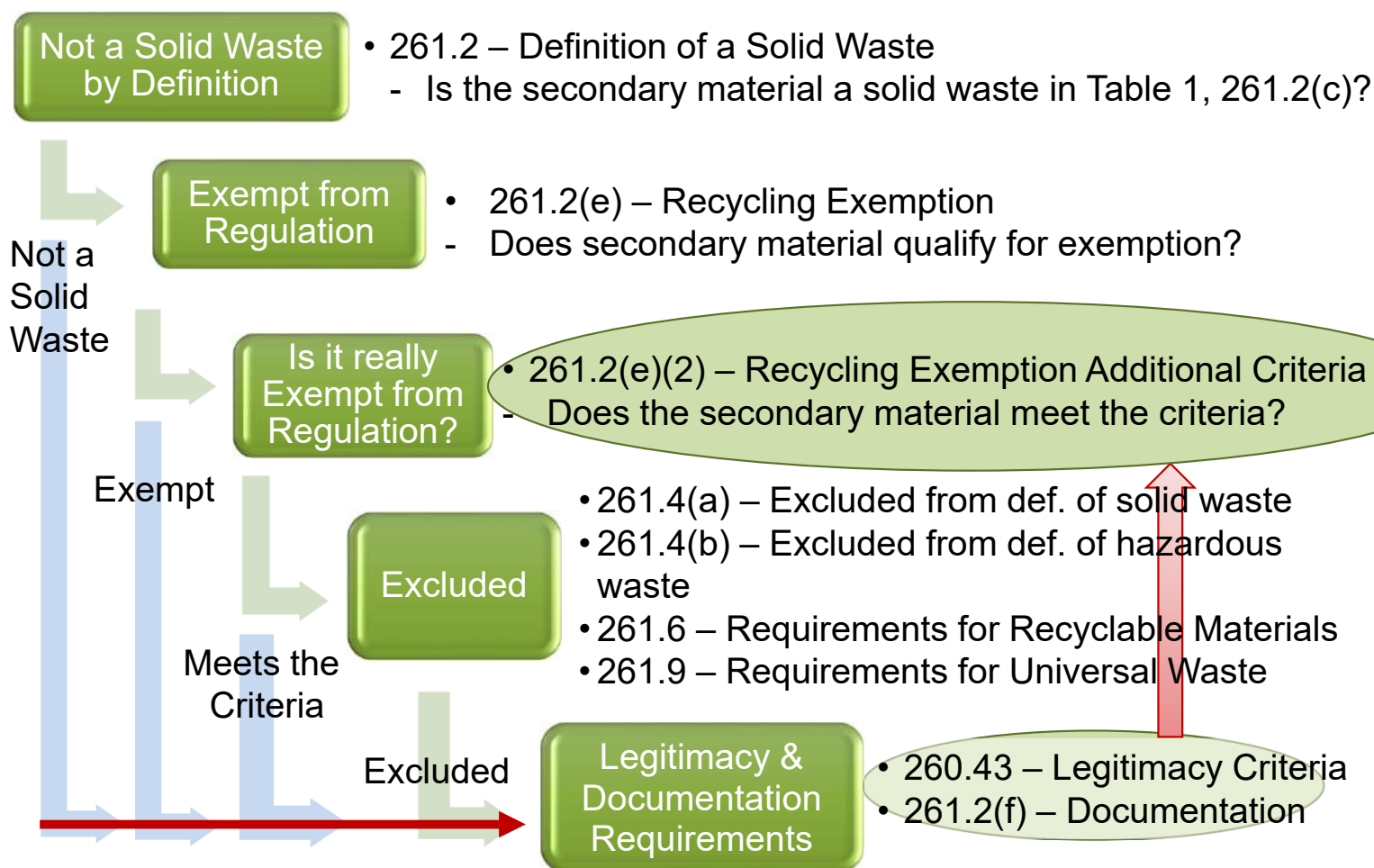
To recycle under RCRA you must start with a secondary material.

- A secondary material is a material that is potentially a solid and hazardous waste when recycled. (January 4, 1985; 50 FR 616)
- A hazardous secondary material (e.g., spent material, by-product or sludge) that, when discarded, would be a hazardous waste.
  - Hazardous Secondary Material = “HSM”

# Five Steps to Determine if you have a Solid Waste when RCRA Recycling



# Five Steps to Determine if you have a Solid Waste when RCRA Recycling



## *Five Steps to Determine if you have a Solid Waste when RCRA Recycling*

**Not a Solid Waste by Definition**

- **261.2 – Definition of a Solid Waste**

- Is the secondary material a solid waste in Table 1, 261.2(c)?



**Exempt from Regulation**

- 261.2(e) – Recycling Exemption

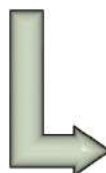
- Does secondary material qualify for exemption?



**Is it really Exempt from Regulation?**

- 261.2(e)(2) – Recycling Exemption Additional Criteria

- Does the secondary material meet the criteria?



**Excluded**

- 261.4(a) – Excluded from def. of solid waste

- 261.4(b) – Excluded from def. of hazardous waste

- 261.6 – Requirements for Recyclable Materials

- 261.9 – Requirements for Universal Waste



**Legitimacy & Documentation Requirements**

- 260.43 – Legitimacy Criteria

- 261.2(f) – Documentation

# *Step 1*

## *Is Secondary Material a Solid Waste When Recycled?*

- Table 1 in 261.2(c)
- Purpose of table solely to determine if material is a solid waste when recycled.
- The table is NOT to determine the applicable regulations for the recycling process.

*Table 1 – 40 CFR 261.2(c)  
Determining When Recycled Materials are Solid Wastes*

	Use Constituting Disposal (261.2(c)(1))	Energy Recovery/Fuel (261.2(c)(2))	Reclamation (261.2(c)(3)) 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)(27)	Speculative Accumulation (261.2(c)(4))
Spent Materials	Solid Waste (*)	Solid Waste (*)	Solid Waste (*)	Solid Waste (*)
Sludges (listed in 261.31 or 261.32)	Solid Waste (*)	Solid Waste (*)	Solid Waste (*)	Solid Waste (*)
Sludges exhibiting a characteristic of HW	Solid Waste (*)	Solid Waste (*)	<b>Not a Solid Waste</b> –	Solid Waste (*)
By-products (listed in 261.31 or 261.32)	Solid Waste (*)	Solid Waste (*)	Solid Waste (*)	Solid Waste (*)
By-product exhibiting a characteristic of HW	Solid Waste (*)	Solid Waste (*)	<b>Not a Solid Waste</b> –	Solid Waste (*)
Commercial Chemical Products listed in 261.33	Solid Waste (*)	Solid Waste (*)	<b>Not a Solid Waste</b> –	<b>Not a Solid Waste</b> –
Scrap metal that is not excluded under 261.4(a)(13)	Solid Waste (*)	Solid Waste (*)	Solid Waste (*)	Solid Waste (*)

## *Definitions*

### *40 CFR 261.1(c)(1)*

**Spent Material** – any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing.

Examples:

- Spent solvents
- Spent acids
- Wastewater



## *Definitions*

*40 CFR 261.1(c)(2) & N.C.G.S. 130A-290(a)(34)*

**Sludge** – Any solid, semi–solid, 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

- Can be listed or characteristic

## *Definitions*

### *40 CFR 261.1(c)(3)*

**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

- By-products - could be listed and/or characteristic
- Examples: process residues such as slags, distillation column bottoms
- The term does not include a Co-product.
  - Co-product: Like a by-product produced in the main process, but in a form and grade than can be sold as it is produced.

# *Definitions*

## *40 CFR 261.33(d)*

**Commercial Chemical Products** – A chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient

- Unused products listed in 261.33 (P and U listed materials). And,
- For recycling, all unused products such as circuit boards, batteries, gasoline, whether or not they are actually chemicals or listed in 261.33.
  - RCRA Online guidance Number: 11726 and 14012:

<https://rcrapublic.epa.gov/rcraonline/index.xhtml>



## *Definitions*

*40 CFR 261.1(c)(6)*

**Scrap Metal** – Bits and pieces of metal parts (e.g., bars, turnings, rods, sheets, wire) or metal pieces which may be combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled.

## *Definitions*

### *40 CFR 261.4(a)(13)*

**Excluded Scrap Metal** – Processed scrap metal, processed home scrap metal, and unprocessed prompt scrap metal being recycled.

Definitions 40 CFR 261.1(c)(10 – 12)

- Processed Scrap Metal
- Processed Home Scrap Metal
- Unprocessed Prompt Scrap Metal

## *Definitions*

*40 CFR 261.2(c)(1)*

**Use *in a Manner Constituting Disposal*** means the material is placed directly onto the land or is used to produce materials that are placed on the land.

## *Definitions*

### *40 CFR 261.2(c)(2)*

**Burning for Energy Recovery:** materials burned to recover energy are solid wastes when they are:

- Burned to recovery energy;
- Used to produce a fuel or are otherwise contained in fuels (in which case the fuel itself is a solid waste).

Commercial chemical products listed in 261.33 are *not* a solid waste if they themselves are fuels or a normal component of fuel.

## *Definitions*

*40 CFR 261.1(c)(4)*

**Reclaimed** – a material is reclaimed if it is processed to produce a usable product or if it is regenerated.

Examples:

- Regeneration (e.g., distillation) of spent solvents
- Regeneration of spent acids
- Recovery of metals from metal-bearing wastes



# Definitions

## 40 CFR 261.1(c)(4)

**Accumulated Speculatively** means a hazardous secondary material is accumulated before being recycled.

A material is **not** accumulated speculatively if:



➤ The person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled; and



➤ During the calendar year, January 1<sup>st</sup> - December 31<sup>st</sup>, the total amount of a material that is recycled, or transferred off site for recycling, must be 75 percent of the weight or volume of that material that was accumulated onsite on January 1st.

## *Example: Accumulated Speculatively* 40 CFR 261.1(c)(8)

- Hazardous Secondary Materials are generated and accumulated on site, waiting to be reclaimed.
- January 1, 2023
  - 20 pounds of a *characteristic* **sludge**
  - 100 pounds of a *characteristic* **by-product**

### *Question:*

How much do you have to recycle or transfer to a different facility for recycling during the calendar year?

## *Answer*

75% of each material of the same type (from the same process) that is recycled in the same way

- ❑ 15 pounds (of the 20 pounds) of the characteristic sludge
- ❑ 75 pounds (of the 100 pounds) of the characteristic by-product

# *Accumulated Speculatively*

## *40 CFR 261.1(c)(8)*

- Materials must be placed in a storage unit with a label indicating the first date.
- If placing a label on the storage unit is not practicable, the accumulation period must be documented through an inventory log or other appropriate method.
- Materials accumulating in units exempt from regulation under §261.4(c) not included in making the calculation.
- Materials that are already defined as solid wastes also are not to be included in making the calculation.

# *Accumulated Speculatively*

## *40 CFR 261.1(c)(8)*

How to get out of this category:

- Materials are no longer accumulated speculatively once they are removed from accumulation for recycling.

## *Example: Off-Spec Acetone*

A chemical manufacturer produces a batch of off-specification acetone that they want to reclaim by distillation to recover solvents.

Is the acetone a solid waste?

*Table 1 – 40 CFR 261.2(c)  
Determining when Recycled Materials are Solid Wastes*

	Use constituting disposal (§261.2(c)(1))	Energy recovery/fuel (§261.2(c)(2))	Reclamation (§261.2(c)(3)), except as provided in §§261.4(a)(17), 261.4(a)(23), 261.4(a)(24) or 261.4(a)(27)	Speculative accumulation (§261.2(c)(4))
Spent Materials	(*)	(*)	Solid Waste (*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	Solid Waste (*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
By-products (listed in 40 CFR 261.31 or 261.32)	(*)	(*)	Solid Waste (*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	Not a Solid Waste –	Not a Solid Waste –
Scrap metal that is not excluded under 40 CFR 261.4(a)(13)	(*)	(*)	Solid Waste (*)	(*)

*Answer:*

**Not A Solid Waste**

The acetone is a listed commercial chemical product, which, when reclaimed, is not a solid waste per 40 CFR 261.2(c)(3).



## Example: Dirty Acetone

Dirty Acetone from a parts cleaning operation is shipped off site for recycling.

Does the shipment require a hazardous waste manifest?

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number NCR000000000	2. Page 1 of 2	3. Emergency Response Phone 1-800-000-0000	4. Manifest Tracking Number 006903644	
5. Generator's Name and Mailing Address Facility 300 West 189th Street GREENVILLE NC 27834-0000 Generator's Phone: 252-555-8888			6. Generator's Site Address (if different than mailing address)			
8. Transporter 1 Waste Transporters INC			U.S. EPA ID Number TXR00000			
7. Transporter 2 Company Name Hazardous Waste Transport INC.			U.S. EPA ID Number MAD00000			
9. Designated Facility Name and Site Address Haz Waste Treater, Inc. SOUTH TEXAS WAY Somewhere, TX 70777 Designated Facility's Phone: 222-555-0000			U.S. EPA ID Number TXD00000			
10. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt/Vol	13. Waste	
	No.	Type			Code	Code
UN1760, WASTE TOXIC LIQUIDS, N.D.S., (ACETONE), 8, PG II	10	DF	3630	P	D005	D001
UN1760, WASTE CORROSIVE LIQUIDS, N.D.S., (PHOSPHORIC ACID), 8, PG II	03	DF	950	P	D002	D001
UN2014, WASTE HYDROGEN PEROXIDE, AQUEOUS SOLUTIONS, 5.1, (8), PG II	01	DF	400	P	D001	D002
N/A, NON DOT REGULATED MATERIAL, (ACIDIC DETERGENT), N/A	03	DF	1,200	P	D005	D001
14. Sending Instructions and Additional Information TSD:DE 80366468 UN48173 CSG:						
15. Agency Authority 15412)ERG#154*3)ERG#140; AGENCY#800-448-1116-Contract retained by generator confers agency authority						
16. RSOFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, labeled, placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the waste generator, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.						
17. Waste Manifestation Statement (identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.)						
18. Signature of Generator Printed/Typed Name: _____ Month: _____						
19. Signature of Transporter Printed/Typed Name: _____ Month: _____						
20. Signature of Receiver Printed/Typed Name: _____ Month: _____						
21. Manifest (Reference Number) _____ U.S. EPA ID Number _____						
22. Date of Receipt of Materials _____ Month: _____						
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99. Date of Receipt of Materials _____ Month: _____						
100. Date of Receipt of Materials _____ Month: _____						



*Table 1 – 40 CFR 261.2(c)  
Determining whether Recycled Materials are Solid Wastes*

	Use constituting disposal (§261.2(c)(1))	Energy recovery/fuel (§261.2(c)(2))	Reclamation (§261.2(c)(3)), except as provided in §§261.4(a)(17), 261.4(a)(23), 261.4(a)(24) or 261.4(a)(27)	Speculative accumulation (§261.2(c)(4))
Spent Materials	(*)	(*)	Solid Waste (*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	Solid Waste (*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
By-products (listed in 40 CFR 261.31 or 261.32)	(*)	(*)	Solid Waste (*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	Not a Solid Waste –	Not a Solid Waste –
Scrap metal that is not excluded under 40 CFR 261.4(a)(13)	(*)	(*)	Solid Waste (*)	(*)

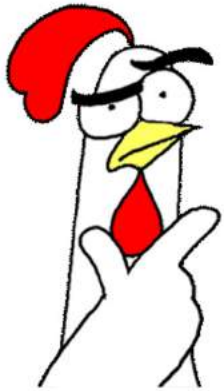
*Answer:*

Yes, spent materials are solid waste when reclaimed.

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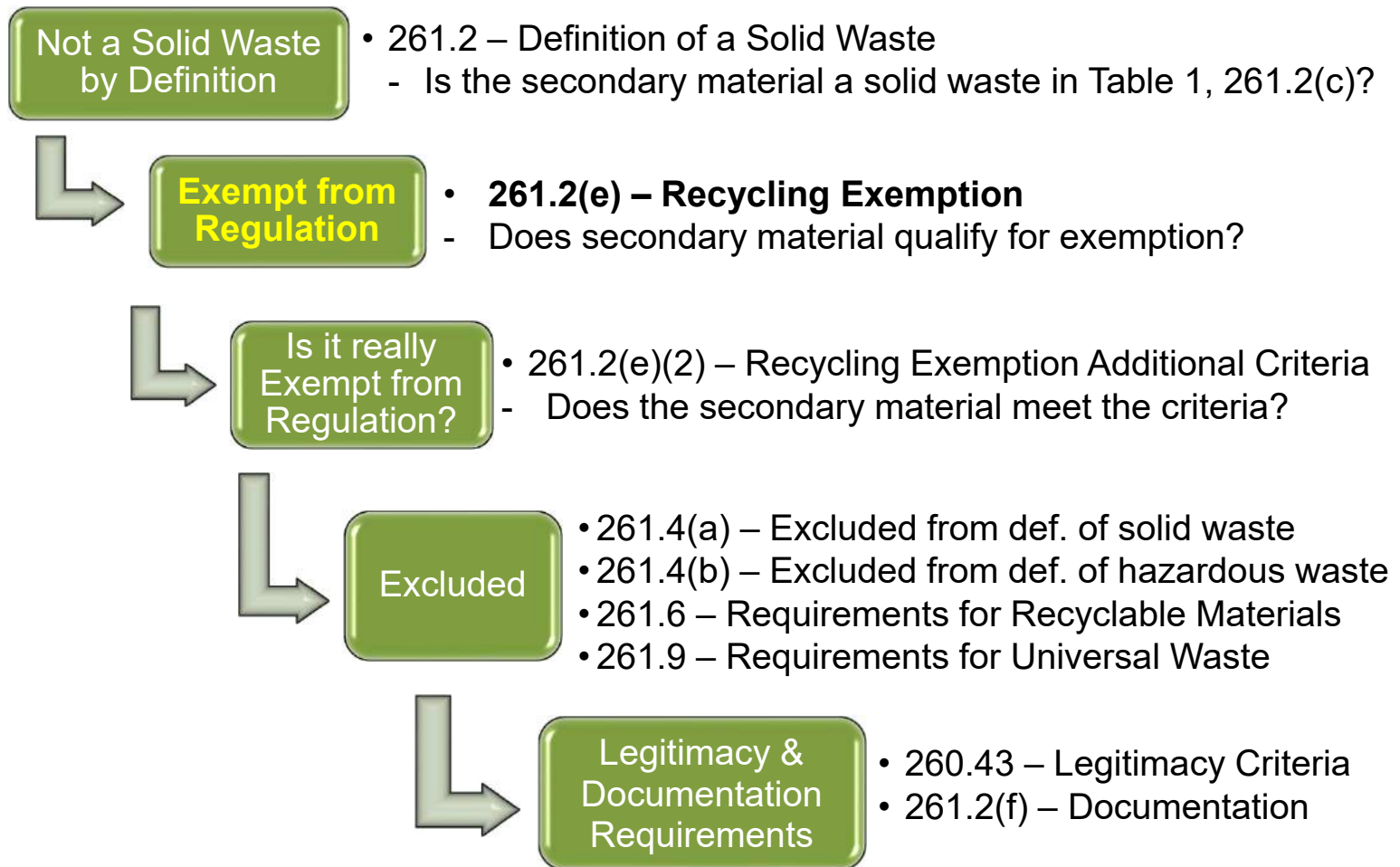


## *I Have a Solid Waste, So Now What?*



- Go on to Step 2 through 5.
  2. Qualify for one of the recycling exemptions?
  3. Additional requirements for exemptions met?
  4. Can it meet another exclusion?
  5. Prescribed documentation kept?
- Requires going through back and forth through the regulations. (260.10, 261.2, 261.4, 261.6, 266 and 279)

# Five Steps to Determine if you have a Solid Waste when RCRA Recycling



*Step 2*  
*Is the Material Exempt by Being Recycled?*  
*40 CFR 261.2(e)*

Materials are **not** solid waste if they are *recycled* by being:

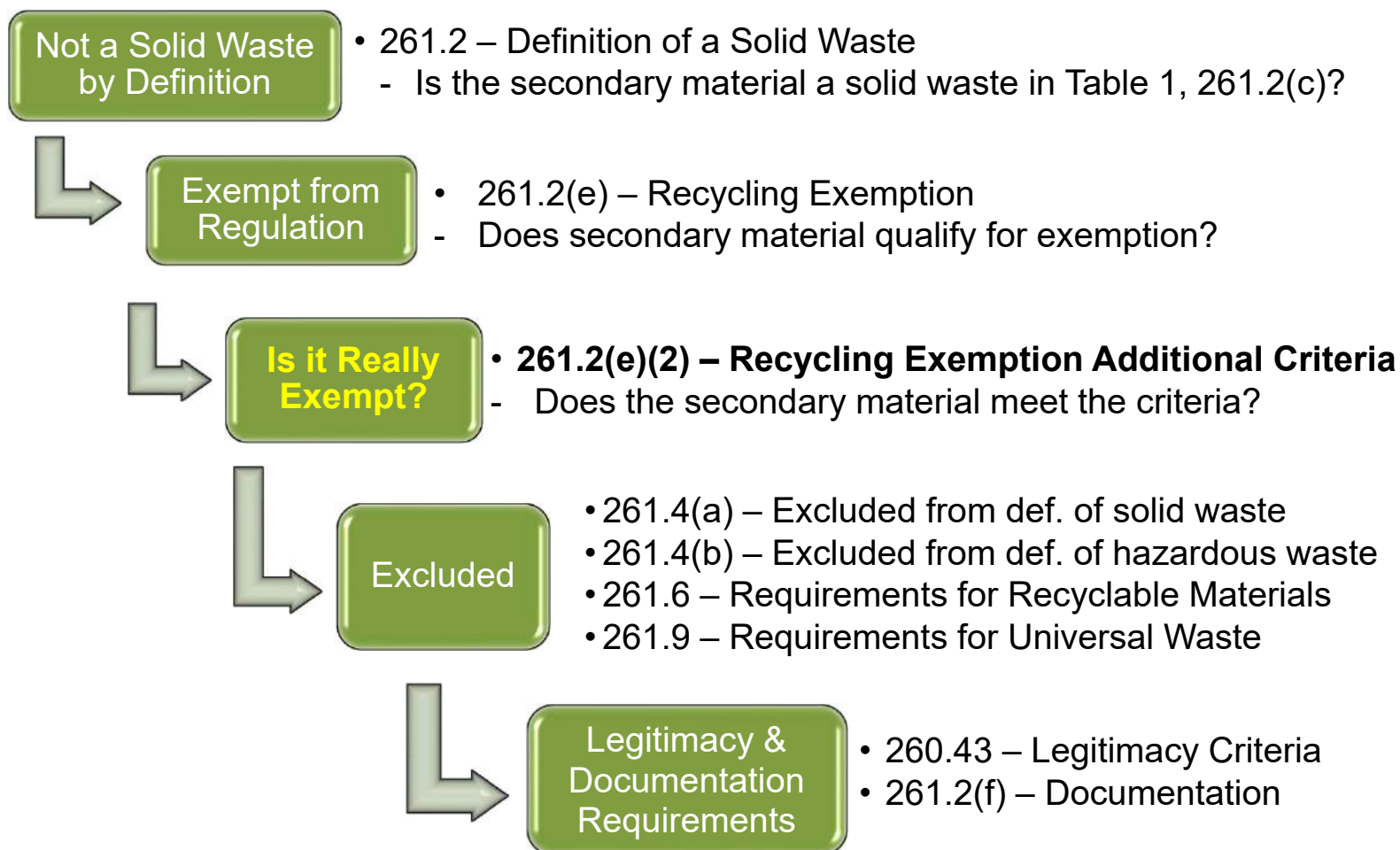
- Used or reused as ingredients in an industrial process to make a product, provided that the materials are **not** being reclaimed
- Used or reused as effective substitutes for commercial products

*Step 2 (continued)*  
*Is the Material Exempt by Being Recycled?*  
*40 CFR 261.2(e)*

Materials are **not** solid waste if they are *recycled* by being:

- Returned to the original process from which they are generated, without first being reclaimed or land disposed.
  - In cases where the original process to which the material is returned is a secondary process, the materials must be managed such that there is no placement on the land.

## *Five Steps to Determine if you have a Solid Waste when RCRA Recycling*



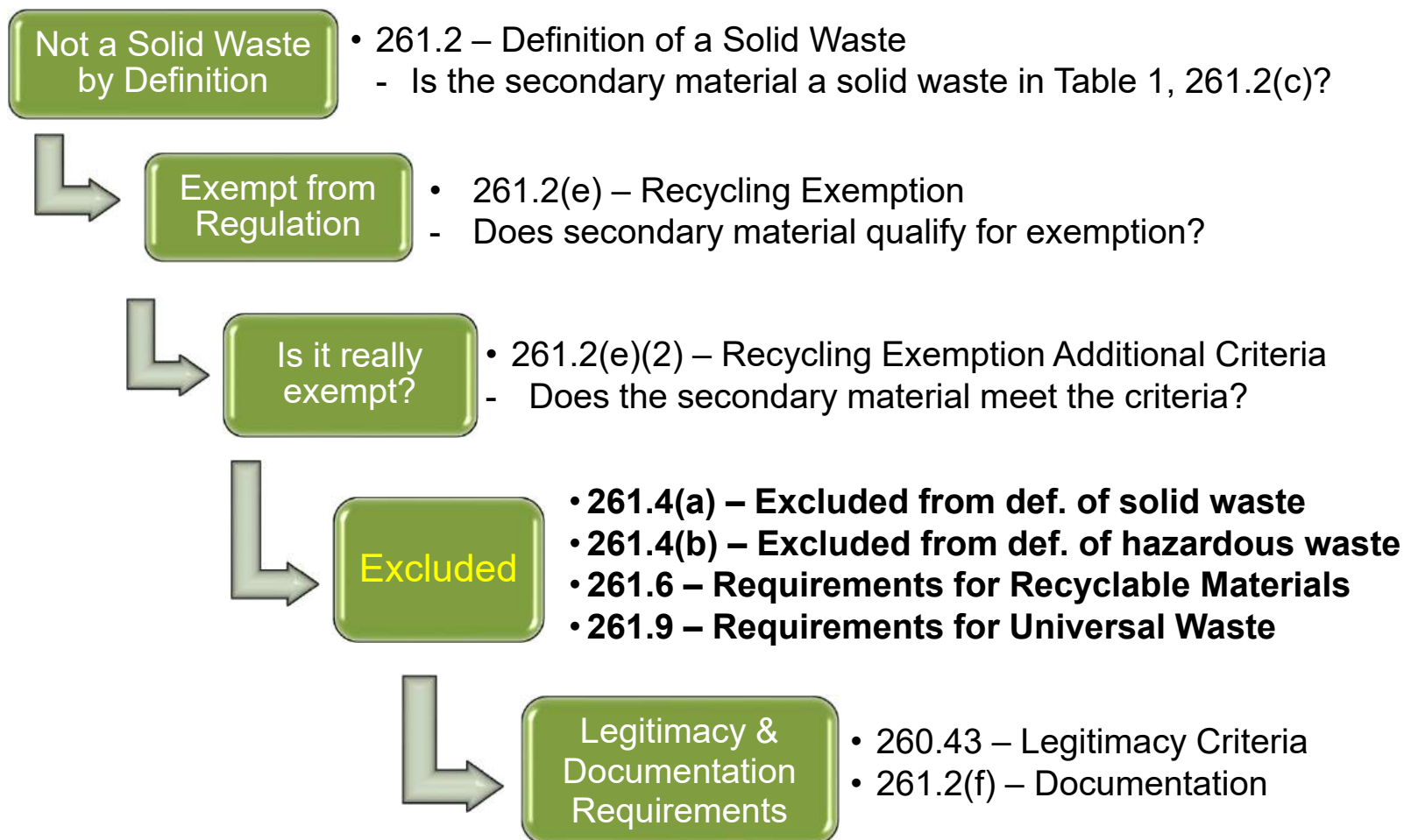


*Step 3*  
*Is the Material Exempt by Being Recycled?*  
*40 CFR 261.2(e)(2)*

Materials **remain** solid waste when *recycled* by being used, reused, or returned to original process if this recycling includes:

- Used in a manner constituting disposal, or used to produce products that are applied to the land
- Burned for energy recovery, used to produce a fuel, or contained in fuels
- Accumulated speculatively
- Inherently waste-like (40 CFR 261.2(d))

## *Five Steps to Determine if you have a Solid Waste when RCRA Recycling*



# *Closed Loop Recycling with Reclamation*

## *40 CFR 261.4(a)(8)*

Secondary materials that are reclaimed and returned to original process(es) where they were generated where they are reused in the production process are not a solid waste provided:

- Only tank storage
- The entire process is closed, entirely connected with pipes or other comparable enclosed means of conveyance; (no outlet)
- Reclamation does not involve controlled flame combustion
  - Such as boilers, industrial furnaces, or incinerators
- The secondary materials are never accumulated in such tanks for over twelve months without being reclaimed; and
- The secondary material is not used to produce a fuel or used to produce products that are used in a manner constituting disposal.

*Table 1 – 40 CFR 261.2(c)*  
*Determining whether Recycled Materials are Solid Wastes*

	Use constituting disposal (§261.2(c)(1))	Energy recovery/fuel (§261.2(c)(2))	Reclamation (§261.2(c)(3)), except as provided in §§261.4(a)(17), 261.4(a)(23), 261.4(a)(24) or 261.4(a)(27)	Speculative accumulation (§261.2(c)(4))
Spent Materials	(*)	(*)	Solid Waste (*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	Solid Waste (*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
By-products (listed in 40 CFR 261.31 or 261.32)	(*)	(*)	Solid Waste (*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	Not a Solid Waste –	Not a Solid Waste –
Scrap metal that is not excluded under 40 CFR 261.4(a)(13)	(*)	(*)	Solid Waste (*)	(*)

## *Reclamation Exclusions*

- When all conditions of the exclusion are met, HSM (specifically spent material, listed byproducts, and listed sludges) that are legitimately reclaimed are not solid waste.
- If any of the conditions of the exclusion are not met, the hazardous secondary material is considered a solid waste *and* discarded *and* the hazardous waste rules are again applicable.
- Does not include HSM that are burned for energy recovery or “use constituting disposal”.

## *Reclamation Exclusions*

### *40 CFR 261*

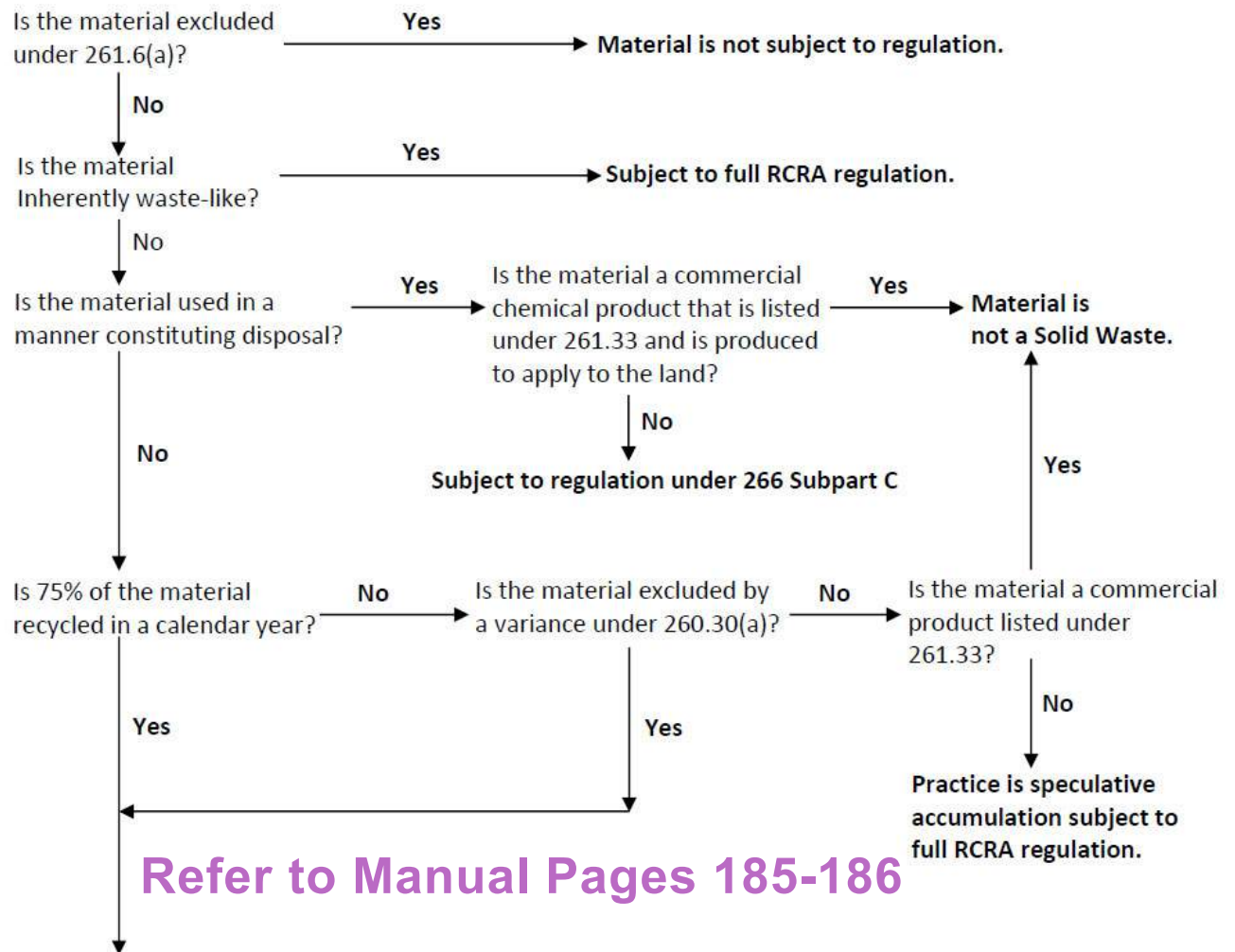
- Subpart H - Financial Assurance for Reclaimers and Intermediate Facilities (Transfer Based Exclusion)
- Subpart I – Use and Management of Containers for the Remanufacturing Exclusion
- Subpart J – Tank Systems for the Remanufacturing Exclusion
- Subpart M – Emergency Preparedness and Response for the Management of Excluded Hazardous Secondary materials where hazardous secondary materials are generated or accumulated on site. (Generator Controlled Exclusion and Transfer Based Exclusion)
- Remanufacturing Exclusion
  - Subpart AA – Air Emission Standards for Process Vents
  - Subpart BB – Air Emission Standards for Equipment Leaks
  - Subpart CC – Air Emission Standards for Tanks and Containers

*Step 4 (continued)*  
*Special Management Standards When Recycled*

- Precious metals recovery
  - 40 CFR 266 Subpart F
- Spent lead–acid batteries being reclaimed
  - 40 CFR 266 Subpart G
- Reclaimed industrial ethyl alcohol
  - 40 CFR 261.6(a)(3)(i)
- Scrap metal reclamation
  - 40 CFR 261.6(a)(3)(ii)
- Used Oil
  - 40 CFR 261.6(a)(4) and 40 CFR 279
- Universal Waste
  - 40 CFR 261.9 and 40 CFR 273

# Decision Diagram B from Manual

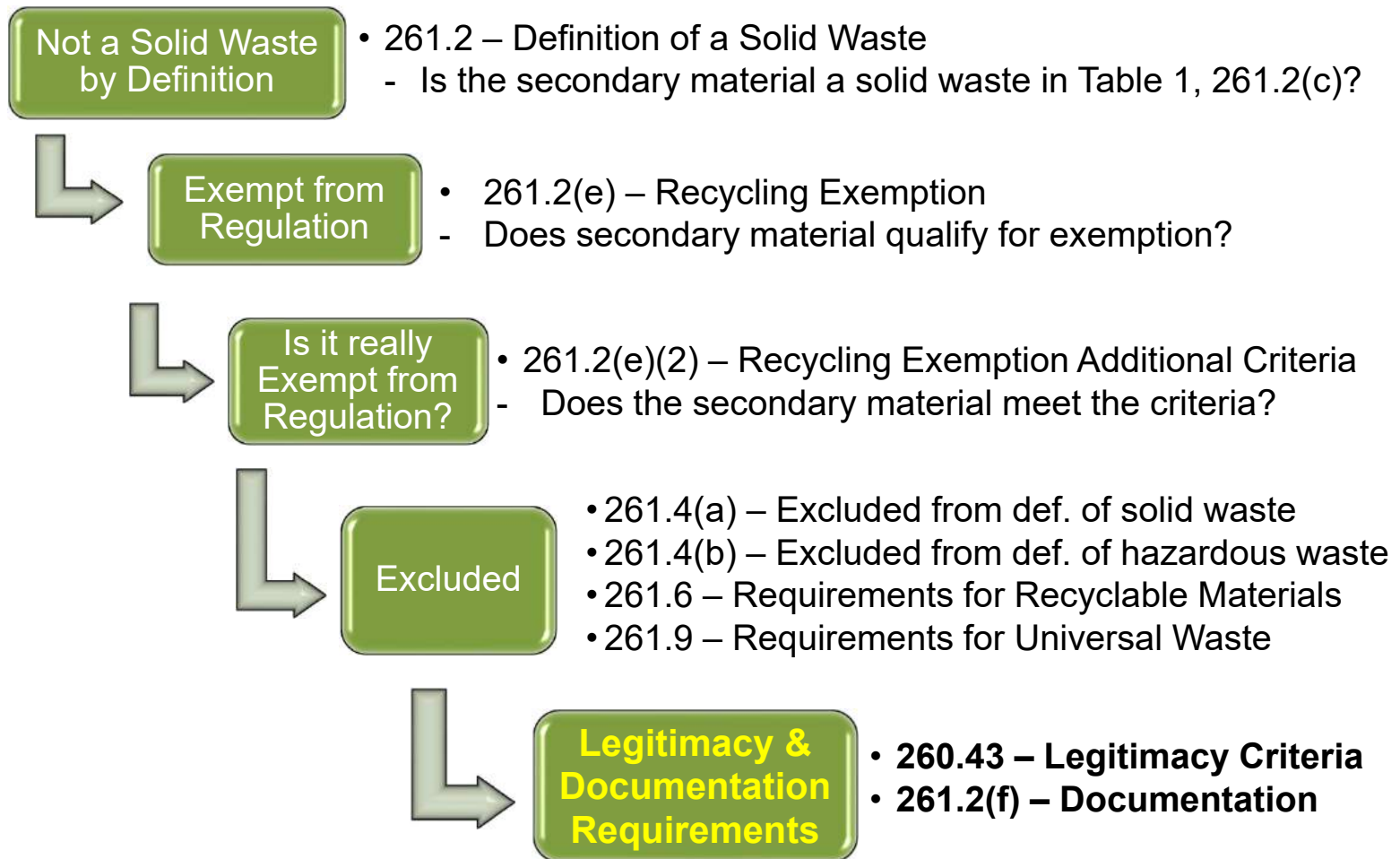
## Decision Diagram B - Hazardous Waste Recycling



Refer to Manual Pages 185-186



# Five Steps to Determine if you have a Solid Waste when RCRA Recycling



## *Step 5*

### *Legitimacy and Documentation*

Any Recycling Activity must meet the Legitimacy Factors of 260.43(a)

- (1) Provide a useful contribution to the recycling process or to a product or intermediate of the recycling process
- (2) Produce a valuable product or intermediate
- (3) Manage the hazardous secondary material as a valuable commodity when it is under their control.

*Step 5 (continued)*  
*Legitimacy and Documentation*

Any Recycling Activity must meet the Legitimacy Factors of 260.43(b) Must **evaluate** all factors and consider overall legitimacy of a specific recycling activity

- (1) The product of recycling does not:
- (i) Contain significant concentrations of any hazardous constituents from Appendix VIII not in analogous products
  - (i) Contain concentrations of hazardous constituents at levels significantly elevated from those found in analogous products
  - (i) Exhibit a hazardous characteristic that analogous products do not exhibit

## *Examples of “Sham” Recycling*

- Ineffective or only marginally effective for the claimed use
- Used in excess of the amount necessary
- Handled in a manner inconsistent with its use as a raw material or commercial product substitute
- Recycled product is not comparable to a product made from analogous raw materials

## *Step 5*

### *Legitimacy and Documentation*

- Documentation of claims that materials are not solid wastes 261.2(f)
  - Respondents must demonstrate that there is a known market or disposition for the material and meet the terms of the exclusion/exemption
  - Anyone who claims that a certain material is not a solid waste must keep appropriate documentation proving the claim

## *Question: Waste Acid*

**Spent sulfuric acid** from a chemical manufacturing process is used to produce fertilizer that is sold to the general public.

What is the status of the spent acid?

*Table 1 – 40 CFR 261.2(c)*  
*Table for Determining whether Recycled Materials are Solid Wastes*

	Use constituting disposal (§261.2(c)(1))	Energy recovery/fuel (§261.2(c)(2))	Reclamation (§261.2(c)(3)), except as provided in §§261.4(a)(17), 261.4(a)(23), 261.4(a)(24) or 261.4(a)(27)	Speculative accumulation (§261.2(c)(4))
Spent Materials	(*)	(*)	(*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
By-products (listed in 40 CFR 261.31 or 261.32)	(*)	(*)	(*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	Not a Solid Waste –	Not a Solid Waste –
Scrap metal that is not excluded under 40 CFR 261.4(a)(13)	(*)	(*)	(*)	(*)

## *Question: Scrap Metal*

Scrap metal exhibits the toxicity characteristic for lead (D008).

A facility sends the scrap metal to a reclamation facility.

How should this material be managed?



*Table 1 – 40 CFR 261.2(c)*  
*Table for Determining whether Recycled Materials are Solid Wastes*

	Use constituting disposal (§261.2(c)(1))	Energy recovery/fuel (§261.2(c)(2))	Reclamation (§261.2(c)(3)), except as provided in §§261.4(a)(17), 261.4(a)(23), 261.4(a)(24) or 261.4(a)(27)	Speculative accumulation (§261.2(c)(4))
Spent Materials	(*)	(*)	(*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
By-products (listed in 40 CFR 261.31 or 261.32)	(*)	(*)	(*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	Not a Solid Waste –	Not a Solid Waste –
Scrap metal that is not excluded under 40 CFR 261.4(a)(13)	(*)	(*)	(*)	(*)

■

## NOT A SOLID WASTE WHEN RECYCLED.

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If the scrap metal will be recycled, it is exempt from RCRA hazardous waste requirements per 261.6(a)(3)(ii).



# *Question: Laboratory Chemicals*

Unused reagents in their original containers are left over from a research project in a laboratory.

These are common reagents that could be used in other experiments in different laboratories at the same facility.

Are the reagents solid waste?



*Answer:*

Unused  
commercial  
chemical products  
do not become a  
solid waste until a  
determination is  
made that the  
material  
will be discarded.

*Question:  
Laboratory  
Chemicals*



A company was acquired and became a subsidiary. Their operation continues with only slight HR optimization. Your first task is to inventory the lab supplies. You find a cabinet with older looking dusty bottles.

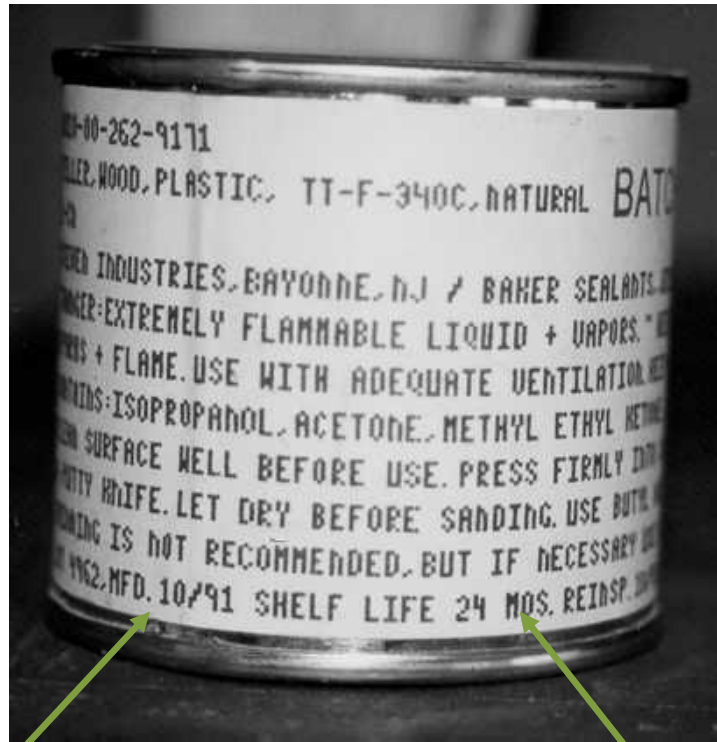
Dates on most containers indicate that they are 10 or more years old.

Are the reagents solid waste?

*Table 1 – 40 CFR 261.2(c)  
Determining whether Recycled Materials are Solid Wastes*

	Use constituting disposal (§261.2(c)(1))	Energy recovery/fuel (§261.2(c)(2))	Reclamation (§261.2(c)(3)), except as provided in §§261.4(a)(17), 261.4(a)(23), 261.4(a)(24) or 261.4(a)(27)	Speculative accumulation (§261.2(c)(4))
Spent Materials	(*)	(*)	Solid Waste (*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	Solid Waste (*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
By-products (listed in 40 CFR 261.31 or 261.32)	(*)	(*)	Solid Waste (*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	Not a Solid Waste –	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	Not a Solid Waste –	Not a Solid Waste –
Scrap metal that is not excluded under 40 CFR 261.4(a)(13)	(*)	(*)	Solid Waste (*)	(*)

*However;*



This one is 30 years past its shelf life. Most likely of no use in the optimized process now. Once determined it will be discarded, it becomes a solid waste.

Manufactured 10/91

Shelf Life 24 months



## *Question: Unknown Material*

- During the lab safety inspection you encounter unlabeled glass containers.
- All lab staff are aware of the containers, but have no idea what they contain.
- Are these materials solid waste?
- If so, are they hazardous waste?






THE MATERIALS ARE SOLID WASTE.

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**If the materials are unknown, then sampling and testing are required to determine if the solid waste is also a hazardous waste.**



*Questions?*

