

# Hazardous Secondary Materials (HSM) and Recycling

Presented by Jenna Brickner, CHMM  
Hazardous Waste Inspector



Clean Air, Safe Water,  
Healthy Land for Everyone



# Definition of Recycling, Reclamation, Reuse

- A material is “reused” if it is either:

1. Used as an ingredient  
in an *industrial process*  
to make a product

Or

2. Used as an effective  
substitute for a  
*commercial product*

Or

3. Returned to the  
production process

- A material is “reclaimed” if it is processed to recover usable product.
- A material is “recycled” if it reused or reclaimed.

Recycle  $\equiv$  Reused

Recycled  $\equiv$  Reclaimed

Reclaimed  $\equiv$  Recycled

Reclaimed  $\neq$  Reused

## HSM = Hazardous Secondary Material(s)

HSM that are **excluded** when directly recycled without reclamation

HSM that are **excluded** according to the Recycling Table

HSM that are **not excluded** and are stored before reclamation

HSM managed under specific standards when recycled

Hazardous Secondary Materials (HSM) Exclusion

1

What is the material?

2

What is being done  
with the material?

# Order of Operations – Is it excluded?

## Step 1

- Determine if the material is a solid waste using Table 1 of 40 CFR Part 261.2(c)

## Step 2

- Is your material excluded from the definition of solid waste under the four use/reuse/recycling exclusions listed in §261.2(e)(1)(i-iii) and §261.4(a)8?

## Step 3

- Check for waste-specific management standards in §266, §273, and §279

## Step 4

- §261.4 Exclusions – Materials which are not solid wastes

## Step 1

Find out if the waste can be excluded from the definition of solid waste through from the Recycling Table.

# Step 1: Start with the Recycling Table

	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 262.31 or 261.32)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic hazardous waste	(*)	(*)	-	(*)
By-products (listed in 40 CFR 261.21 or 261.32)	(*)	(*)	(*)	(*)
By-products exhibiting a characteristic hazardous waste	(*)	(*)	-	(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)	-	-
Scrap metal that is not excluded under 40 CFR 261.4(a)(13)	(*)	(*)	(*)	(*)

## Step 2

Is your waste directly reused in a process without first being reclaimed?



## Step 2: Four Use/Reuse/Recycling Exclusions

Used or Reused as an ingredient to make a product without reclamation?

Used or reused as a substitute for a commercial product without reclamation?

Returned to the original process without first being reclaimed?

Reclaimed in a closed tank system?

## Step 3

Is there a specific  
Management Standard for  
the waste in §266, §273, or  
§279?

# Specific Management Standards

<b>40 CFR Part 266</b>	
Subpart C	Recyclable materials used in a manner constituting disposal
Subpart F	Precious Metals Recovery
Subpart G	Lead acid batteries Reclamation
Subpart H	Hazardous Waste Burned in Boilers and Industrial Furnaces
Subpart M	Military Munitions
Subpart N	Conditional Exemption for Low-Level Mixed Waste
Subpart P	Hazardous Waste Pharmaceuticals

## §273

### Universal waste

- Lamps
- Batteries
- Mercury containing equipment
- Pesticides
- Aerosols

## §279

### Used oil

## Step 4

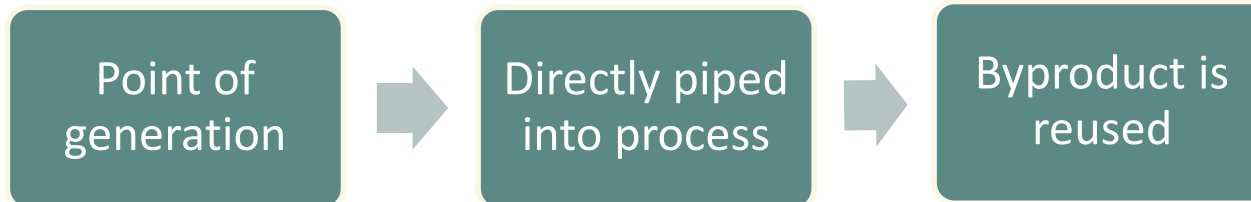
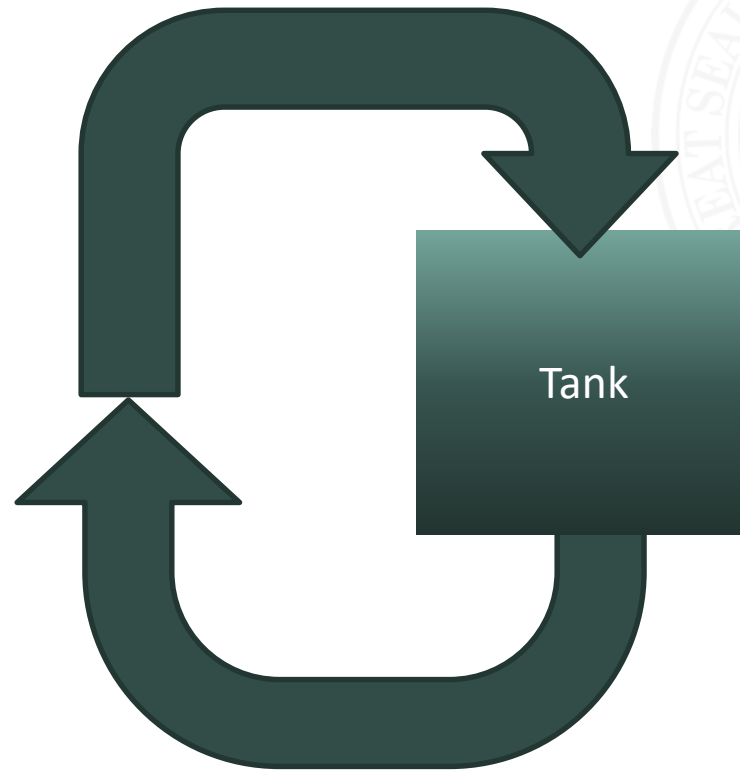
Is it excluded under §261.4?

# List of materials excluded under §261.4

- 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 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))
- Pulping condensates derived from Kraft mill steam strippers (261.4(a)(15))
- 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 (261.4(a)(23))
- Hazardous secondary materials transferred for the purpose of reclamation (261.4(a)(24)and (25))
- Solvent-contaminated wipes that are sent for cleaning and reuse. (261.4(a)(26))
- Higher-value solvents transferred for the purpose of remanufacturing (261.4(a)(27))

# Scenario: Direct Reuse of Waste

An acid rinse is washed over a product and collected below. The acid wash water is then directly pumped over top and back into the process.



# Step 1: The Recycling Table

	<b>Use Constituting disposal (§261.2(c)(1))</b>	<b>Energy recovery/fuel (§261.2(c)(2))</b>	<b>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)</b>	<b>Speculative accumulation (§261.2(c)(4))</b>
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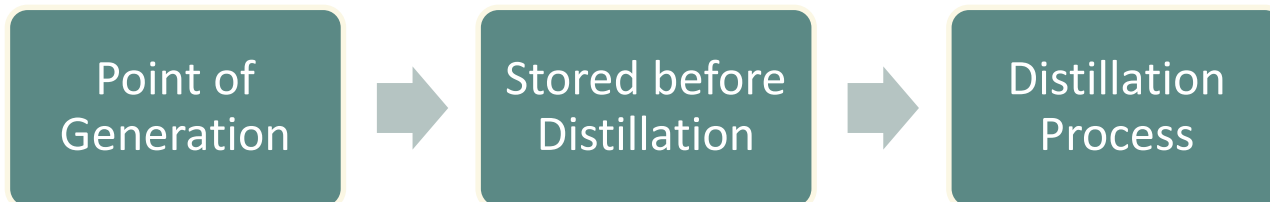


## Step 2: Four Use/Reuse/Recycling Exclusions

- Used or Reused as ingredients to make a product without reclamation
- Used or reused as substitutes for commercial products without reclamation
- Returned to the original process without first being reclaimed
- Reclaimed in a closed tank system\*

# Scenario: Stored before Distillation

Spent acetone collects under a parts washer into a container at the satellite accumulation area (SAA). The facility has a distillation unit nearby. The facility operator has to pour or pump the spent acetone from the SAA drum into the distillation unit for the acetone to be recycled.



# Step 1: Recycling Table

	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))
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If you are storing your waste before recycling it, are you subject to the hazardous waste regulations?

- Yes! If materials are solid wastes destined to be recycled, then they are subject to the hazardous waste regulations up until the recycling process.



# Moving through the Steps

## Step 1

- Determine if the material is a solid waste using Table 1 of 40 CFR Part 261.2(c)



## Step 2

- Is your material excluded from the definition of solid waste under the four use/reuse/recycling exclusions listed in §261.2(e)(1)(i-iii) and §261.4(a)8?



## Step 3

- Check for waste-specific management standards in §266, §273, and §279



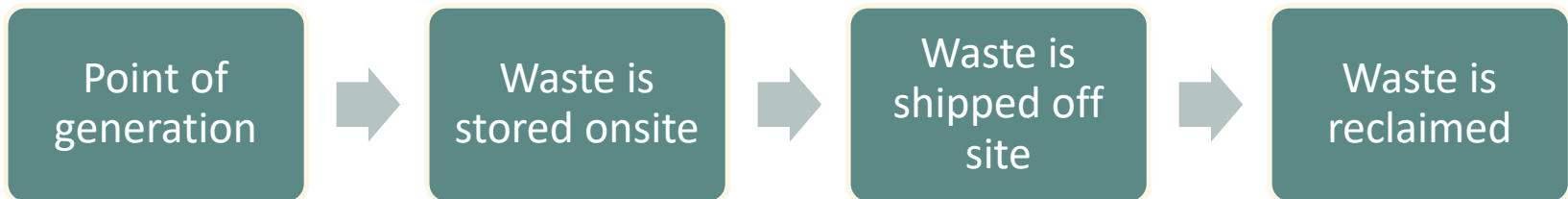
## Step 4

- §261.4 Exclusions – Materials which are not solid wastes



# Scenario: Shipped Off-Site for Recycling

An electroplating process generates corrosive wastewater that is treated at your on-site wastewater treatment facility, generating F019 filter sludge containing aluminum. The filter sludge is stored at the facility before it is shipped off-site to be recycled.



# Recycling Table – Step 1

	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))
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REMEMBER, for recyclable materials that have a (\*) in the Recycling Table are considered a solid waste when destined to be recycled and are subject to the hazardous waste regulations before the recycling process begins.

§261.2(c) Materials are solid waste if they are recycled (used, reused, reclaimed) – or accumulated, sorted, or treated BEFORE recycling.





# Moving through the Steps

## Step 1

- Determine if the material is a solid waste using Table 1 of 40 CFR Part 261.2(c)



## Step 2

- Is your material excluded from the definition of solid waste under the four use/reuse/recycling exclusions listed in §261.2(e)(1)(i-iii) and §261.4(a)8?



## Step 3

- Check for waste-specific management standards in §266, §273, and §279



## Step 4

- §261.4 Exclusions – Materials which are not solid wastes





# HSM EXCLUSIONS

- The HSM exclusions allow generators to manage hazardous secondary materials without being subject to the RCRA hazardous waste regulations as long as the HSM is destined to be reclaimed.



- “Hazardous Secondary Material” is a substance generated from an industrial process (e.g., spent material, by-product, or sludge) that, when discarded, would be identified as a hazardous waste.
  - When destined to be reclaimed, the HSM is not considered a solid waste nor a hazardous waste.
- HSM is “reclaimed” if it is processed to recover a usable or valuable product, or if it is regenerated. Wastes are regenerated when they are processed to remove contaminants in a way that restores them to their usable original condition.

- Recycling hazardous waste means it can be subject to HW storage & management regulations prior to the Recycling/Reclamation process.
- If claiming the HSM exclusion, the HSM is not considered a solid waste, therefore not subject to HW management regulations during storage prior to recycling. It is considered a material.

## What's the catch?

- There are several requirements to follow and document.



# CAN YOUR FACILITY CLAIM A HSM EXCLUSION?

## Step 1

- Determine if the material is a solid waste using Table 1 of 40 CFR Part 261.2(c)

## Step 2

- Is your material excluded from the definition of solid waste under the four use/reuse/recycling exclusions listed in §261.2(e)(1)(i-iii) and §261.4(a)8?

## Step 3

- Check for waste-specific management standards in §266, §273, and §279

## Step 4

- §261.4 Exclusions – Materials which are not solid wastes

# Three Main HSM Exclusions

40 CFR  
261.4(a)(23)  
Generator  
Controlled  
Exclusion: For  
materials  
generated and  
reclaimed at the  
generating  
facility

40 CFR  
261.4(a)(24)  
Transfer-Based  
Exclusion: For  
materials  
generated and  
reclaimed at  
different  
facilities

40 CFR  
261.4(a)(25)  
Exports  
Exclusion: For  
materials  
exported for  
reclamation



- The generator must thoroughly read the regulations for the exclusion for which they want to claim. Reading the applicable regulations is the best way to ensure the generator is complying with the conditions before claiming the exclusion.





**Question: Will you be managing any hazardous secondary material (HSM) for this place?**

Answer: Yes

- Evidence that the HSM is not speculatively accumulated before reclamation (i.e. At least **75%** of the material is recycled within **one year**)
  - Document how long the HSM has been stored at your facility



# Shipping Documents

- Uniform Hazardous Waste Manifest\*
- Non-Hazardous Manifest
- Bill of Lading
- Receipt



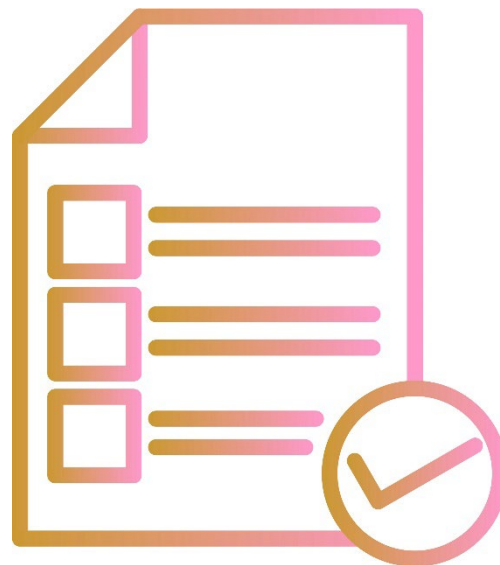
This is a Uniform Hazardous Waste Manifest form, Form 3100-020 (Rev. 12-17). The form is marked with a large, diagonal "VOID" watermark. It includes sections for Generator Information, Facility Name and Address, and a table for waste description with columns for containers, quantity, and codes. The bottom of the form contains a section for the Designated Facility to EPA's e-Manifest System.



This is a Non-Hazardous Waste Manifest form, Form 3100-C-6 (Rev. 9/09). The form is marked with a large, diagonal "SAMPLE" watermark. It includes sections for Generator Information, Facility Name and Address, and a table for waste description. The bottom of the form contains a section for the Designated Facility to Generator.

- Final signature on a non-hazardous waste manifest, **or**
  - A “received” signature on a Bill of Lading (BOL).
- If not all of the HSM is being reclaimed or recycled at the first destination, then provide records showing that the remaining HSM is received at the final recycling destination.

- Documentation and certification that due diligence was performed to affirmatively ensure that any intermediate facility and reclaimer involved in the reclamation of your HSM meet the legitimate recycling requirements of **§261.4(a)(24)(v)(C)**



- Facility emergency preparedness plan or contingency plan



- Documentation must be kept for three years and reasonable efforts to ensure legitimate recycling must be repeated at a minimum of every three years.







# LEGITIMATE RECYCLING

No matter which type of recycling, in order to be excluded or subject to reduced requirements, the recycling must be legitimate and not sham.



The generator must show that their HSM will be legitimately recycled by documenting that the HSM will:

Provide a useful  
contribution

Produce a valuable  
product or intermediate

Be managed as a  
valuable commodity

The product of the recycling process  
must be comparable to a similar product



- **A material provides a useful contribution to the recycling process or a product or intermediate if it:**
  - Contributes valuable ingredients;
  - Is a source of a valuable constituent recovered;
  - Is recovered or regenerated; **OR**
  - Is used as an effective substitute for a commercial product.

- **Recycling produces a valuable product or intermediate if it is:**
  - Sold to a third party; **OR**
  - Used by the recycler or generator as an effective substitute for a commercial product or as an ingredient or intermediate.
    - A product can be a valuable intermediate if it is used in the process even if it has no value on the open market. However, it must have a real use in the process.

- **Materials are managed as valuable commodities if:**
  - There is an analogous raw material, the material is managed consistently or in an equally protective manner; **OR**
  - There is no analogous raw material, the material is contained.



What does it mean for a product of recycling to be analogous to a legitimate product?

-It does not contain significant levels of hazardous constituents

- The answer depended on whether the product of the recycling process has an “analogous product” made from virgin materials.
- The goal is to ensure that hazardous constituents aren’t being discarded into products where they don’t belong (toxics along for the ride).

- Document which exclusion you are claiming
- Document how the recycling process is legitimate and meets all 4 factors
- Must be prepared to demonstrate that the conditions for the exclusion are being met.





- EPA's HSM Checklist:

[www.epa.gov/system/files/documents/2023-01/HSM Checklist January 2023 v3-4.pdf](http://www.epa.gov/system/files/documents/2023-01/HSM_Checklist_January_2023_v3-4.pdf)

- EPA's Documentation of Legitimate Recycling:

[https://www.epa.gov/system/files/documents/2022-12/Legitimacy Documentation Template Dec 2022.pdf](https://www.epa.gov/system/files/documents/2022-12/Legitimacy_Documentation_Template_Dec_2022.pdf)



For general  
Hazardous Waste  
Questions

[HazardousWasteICU@azdeq.gov](mailto:HazardousWasteICU@azdeq.gov)



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Clean Air, Safe Water,  
Healthy Land for Everyone

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