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RCRA, Superfund & EPCRA Hotline Training Module

Introduction to:

Definition of Solid Waste and Hazardous Waste Recycling
(40 CFR Parts 261.2 and 261.9)

Updated July 1997

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DEFINITION OF SOLID WASTE AND HAZARDOUS WASTE RECYCLING

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1. INTRODUCTION

As mandated by Subtitle C of the Resource Conservation and Recovery Act (RCRA), EPA promulgated hazardous waste regulations in 1980 to ensure that wastes which pose a threat to human health and the environment would be managed safely. In order to be regulated as a hazardous waste under RCRA, a material must first be classified as a solid waste. After confirming that a material is a solid waste, the generator of the solid waste must then determine if it is a hazardous waste. The important concept to remember is that hazardous wastes are a subset of solid wastes. In other words, a material cannot be classified as a hazardous waste if it is not within the universe of solid waste.

This module explains the statutory and regulatory definitions of solid waste, including the standards governing the recycling and management of specific types of waste.

When you have completed this module, you will be able to explain the definition of solid waste in 40 CFR §261.2, as well as its relationship to the definition of hazardous waste in §261.3. You will also become familiar with the regulations governing the recycling of hazardous wastes, found in §261.6 and Parts 266, 273, and 279.

Use the following list of objectives to check your knowledge of this topic after you complete the training session:

- Explain and cite the regulatory and statutory definitions of solid waste
- Cite and use the table in §261.2 and the preamble to the January 4, 1985, Federal Register (50 FR 614)
- List and cite three use/reuse scenarios where the materials are not solid wastes and state the requirement for documentation
- List the conditions under which hazardous waste-derived products may be excluded from regulation
- Discuss the special recycling standards for use constituting disposal, precious metal recovery, and spent lead-acid batteries
- Discuss potential regulatory developments affecting the definition of solid waste and hazardous waste recycling.

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2. REGULATORY SUMMARY

Under RCRA Subtitle C, Congress granted EPA the authority to regulate hazardous wastes. The principle objective of hazardous waste regulation is the protection of human health and the environment. RCRA regulation is also intended to encourage the conservation and recovery of valuable materials. The definition of solid waste under RCRA, which serves as the starting point for the hazardous waste management system, reflects EPA's effort to obtain the proper balance between these two underlying objectives.

According to RCRA regulations, a material must be defined as a solid waste before it can be considered a hazardous waste. The regulatory definition of solid waste, found in §261.2(a), encompasses: (1) materials that are abandoned; (2) materials that are recycled; (3) materials that are inherently waste-like; and (4) waste military munitions. Materials that do not fall within one of these categories are not subject to Subtitle C regulation.

Materials that are recycled are a special subset of the solid waste universe. When recycled, some materials may qualify for an exclusion from the definition of solid waste and fall out of RCRA regulation or be subject to less-stringent regulatory controls. Based on the material and the type of recycling, the generator of a recyclable solid waste must determine if it is subject to reduced requirements or full regulation.

This module discusses the criteria found in the §261.2 definition of solid waste. It also explains the range of RCRA Subtitle C management management standards for different types of hazardous waste recycling, as dictated by §261.6 and Parts 266, 273, and 279. This range of management — from no regulation to full regulation — is essentially based on the type of recycling activity involved and the hazards posed, and demonstrates EPA's intent to encourage recycling while still protecting human health and the environment.

2.1 SOLID WASTE DEFINITION

The statutory definition of a solid waste is not based on the physical form of the material, (i.e., whether or not it is a solid as opposed to a liquid or gas), but on the fact that the material is a waste. RCRA §1004(27) defines solid waste as:

> Any garbage, refuse, sludge from a wastewater 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.

The regulatory definition of solid waste, found in §261.2, is narrower than the statutory definition. Under §261.2(a), a solid waste is any discarded material that is not excluded by §261.4(a) or that is not excluded by a regulatory variance.

Section 261.4(a) specifically excludes certain materials from the definition of solid waste, such as domestic sewage and special nuclear material covered by the Atomic Energy Act (see the module entitled Solid and Hazardous Waste Exclusions). Materials listed in §261.4(a) are not solid wastes and so cannot be further classified as hazardous waste. Other materials which would normally be classified as solid wastes may qualify for exclusions from regulation if a generator petitions for a variance from classification as a solid waste.

If a discarded material is not excluded by §261.4 or by a variance, it meets the definition of a solid waste. The basis of the solid waste definition is set forth in §261.2, which defines a solid waste as a material that is discarded by being abandoned, inherently waste-like, or recycled.

ABANDONED

The term abandoned simply means thrown away. Under §261.2(b), a material is abandoned if it is disposed of, burned, or incinerated. In addition, a material that is stored prior to, or in lieu of, one of these activities, is also considered to be abandoned. In addition to obvious examples of abandonment, such as land disposal, EPA also includes activities such as incineration within the definition of the term (50 FR 627; January 4, 1985).

INHERENTLY WASTE-LIKE

Some materials are always considered solid wastes under §261.2(d), even if they are recycled in some manner (i.e., they are considered to be inherently waste-like). Because these materials may pose a threat to human health and the environment when they are recycled, they do not qualify for any recycling exemptions. Examples of inherently waste-like materials are the dioxin-containing listed wastes F020, F022, F023, F026 and F028. Hazardous waste meeting the F021 listing is also considered inherently waste-like unless it is used at the site of generation as an ingredient in a product.

In addition, any secondary materials that are characteristic or listed hazardous wastes are considered to be inherently waste-like when they are fed to a halogen acid furnace. This provision was added to ensure that halogen acid furnaces, which burn some of the most toxic wastes generated in this country, would be regulated when burning any type of hazardous waste (56 FR 7141; February 21, 1991).

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RECYCLING

A material is recycled if it is used, reused, or reclaimed (§261.1(c)(7)). These three terms have specific regulatory definitions. A material is reclaimed if it is processed to recover a usable product or if it is regenerated (e.g., regeneration of spent solvents) (§261.1(c)(4)). A material is used or reused if it is either employed as an ingredient in an industrial process to make a product (e.g., distillation bottoms from one process used as feedstock in another process) or if it is employed as an effective substitute for a commercial product (e.g., spent pickle liquor used as a sludge conditioner in wastewater treatment) (§261.1(c)(5)).

Some materials that are recycled are classified as solid wastes, while others are exempt from regulation. Section 261.2(c) designates as solid wastes certain materials that are recycled in particular manners (i.e., used in a manner constituting disposal, burned for energy recovery, reclaimed, and speculatively accumulated). Other materials that are recycled through use or reuse of the material may qualify for exemptions from the solid waste definition under §261.2(e).

2.2 CLASSIFICATION OF RECYCLED MATERIALS

As stated above, one way a material may meet the definition of a solid waste in §261.2 is if it is recycled in a certain manner. When a material is recycled, its regulatory classification (i.e., whether or not it is a solid waste, and potentially a regulated hazardous waste) depends on two factors: first, what type of secondary material is being recycled; and second, what type of recycling is occurring. The following discussion describes the three types of recycling regulated in §261.2(c), and notes the various exclusions associated with specific types of secondary materials when they are recycled in certain ways. Depending on these determinations, a waste destined for recycling may or may not be regulated.

SECONDARY MATERIALS

A secondary material is a material that potentially can be a solid and hazardous waste when recycled (50 FR 616; January 4, 1985). Used or residual waste-like materials are called secondary materials and are divided into five groups. Table 1 of §261.2(c) lists five types of secondary materials: spent materials, sludges, by-products, commercial chemical products, and scrap metal. All waste-like materials fit into one of these five secondary material categories, which are discussed below.

Spent Materials

Spent materials, as defined in §261.1(c)(1), are those used materials that can no longer serve the purpose for which they were produced without undergoing regeneration, reclamation, or reprocessing. Examples include spent solvents, spent activated carbon, spent catalysts, and spent acids (50 FR 624; January 4, 1985).

Sludges

A sludge is any solid, semisolid, or liquid waste generated from a wastewater treatment plant, water supply treatment plant, or air pollution control device (e.g., baghouse dust). Table 1 contains two sludge categories: those sludges listed on the F or K lists (e.g., F037 petroleum refinery oil/water/solids separation sludge), and those exhibiting a hazardous characteristic under Part 261, Subpart C.

By-products

A by-product as defined in §261.1(c)(3) is 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. An example is a distillation column bottom. A by-product is a catch-all term, and includes most wastes that are not spent materials or sludges (50 FR 618; January 4, 1985). There are two types of by-product categories in Table 1: those listed (e.g., wood preserving wastewaters), and those exhibiting a hazardous characteristic (K001).

Commercial Chemical Products

Commercial chemical products (CCPs) include unused chemical intermediates, off-specification variants, and spill or container residues, as defined in §261.33 (e.g., unused sodium cyanide). The definition of CCP, which is also part of the hazardous waste identification process for P- or U-listed wastes, is expanded for the purposes of defining a material as a solid waste. For this purpose, the term CCP also includes chemicals that are not listed in §261.33 but exhibit a hazardous characteristic (e.g., off-specification jet fuel) (50 FR 14219; April 11, 1985), as well as other unused commercial products that exhibit a characteristic of hazardous waste, even though they are not commonly considered chemicals (e.g. unused circuit boards, unused batteries).

Scrap Metal

Scrap metal is defined as bits and pieces of metal parts that are worn or superfluous (e.g., scrap turnings and wire) (§261.1(c)(6)). This term also includes products made of metal that become worn out such as scrap automobiles and radiators (50 FR 624; January 4, 1985).

TYPES OF RECYCLING

There are three types of recycling activities over which EPA currently asserts jurisdiction: use constituting disposal, burning waste fuels, and reclamation. As stated previously, to determine whether a material is a solid waste, you must determine what kind of material is being recycled. Once the type of secondary material (e.g., spent material, sludge, or scrap metal) is known, the

manner in which it is recycled will determine whether or not the material is a solid waste and therefore potentially regulated as a hazardous waste.

Use Constituting Disposal

Directly placing wastes or products containing wastes on the land is considered to be use constituting disposal (§261.2(c)(1) and 50 FR 627; January 4, 1985). If, however, direct placement of a CCP on the land is consistent with its normal use (e.g., pesticides), then the material is not regulated as a solid waste (§261.2(c)(1)(ii)). For example, heptachlor can potentially be a P-listed waste. This pesticide is not regulated as a solid waste, however, when it is used as a pesticide.

Burning Waste Fuels

Burning hazardous waste for energy recovery and using wastes to produce a fuel are both covered under burning waste fuels (§261.2(c)(2) and 50 FR 630; January 4, 1985). CCPs that are themselves fuels are not considered solid wastes when burned, however, since burning is consistent with the product's intended use (§261.2(c)(2)(ii)). For example, off-specification jet fuel is not a solid waste when it is burned for energy recovery because it is itself a fuel.

Reclamation

As discussed above, reclamation is the regeneration of wastes or recovery of usable materials from wastes (e.g., regenerating spent solvents in a solvent still). Wastes are regenerated when they are processed to remove contaminants in a way that restores them to their usable condition (50 FR 633; January 4, 1985).

Speculative Accumulation

Certain materials are exempt from the definition of solid waste in §261.2 when destined for recycling (see Table 1). In order to ensure these materials are actually recycled, EPA established a provision in §261.2 which penalizes facilities that recycle insufficient amounts of these materials. This provision designates as solid wastes certain materials that are accumulated speculatively. A material is accumulated speculatively if it has no viable market (50 FR 634; January 4, 1985) or if the person accumulating the material cannot demonstrate that 75 percent or more of the material is recycled in a calendar year, commencing on January 1 (§261.1(c)(8)). For example, on December 15, 1991, a facility generates 200 kg of D008 sludge; a characteristic sludge which is normally excluded from the definition of solid waste when reclaimed. The facility has this entire quantity of D008 sludge in storage on-site on January 1, 1992. If by the end of that calendar year (December 31, 1992), less than 75 percent (i.e., less than 150 kg) of the sludge has been reclaimed or sent off-site for reclamation, the sludge has been accumulated speculatively and no longer is excluded from the definition of solid waste. Once it is a solid waste, it must be

managed as a hazardous waste since it exhibits a characteristic. In other words, while providing incentives for recycling by excluding certain hazardous wastes from the definition of solid waste, EPA is ensuring that legitimate quantities of the waste are being recycled rather than simply being stored to avoid regulation.

Table 1

	Use Constituting Disposal §261.2(c)(1)	Energy Recovery/ Fuel §261.2(c)(2)	Reclamation §261.2(c)(3)	Speculative Accumulation §261.2(c)(4)
Spent Materials	YES	YES	YES	YES
Sludges listed in 40 CFR §§261.31 or 261.32	YES	YES	YES	YES
Sludges exhibiting a characteristic	YES	YES	NO	YES
By-products listed in 40 CFR §§261.31 or 261.32	YES	YES	YES	YES
By-products exhibiting a characteristic	YES	YES	NO	YES
Commercial Chemical Products listed in 40 CFR §261.33	YES*	YES**	NO	NO
Scrap Metal other than excluded scrap metal (see §261.1(c)(9))	YES	YES	YES	YES

Once the type of secondary material and the recycling method are known, you can determine whether the material will be a solid waste according to §261.2(c) and therefore possibly a hazardous waste. Materials that are solid wastes when recycled in a particular manner are marked with a "YES" in that column; materials that are not solid wastes when recycled in that manner are marked with a "NO."

* Commercial products are not solid wastes when applied to the land if that is their normal use.

** Commercial products are not solid wastes when burned for energy recovery if they are already fuels or normal constituents of fuels.

2.3 RECYCLING SOLID WASTE EXCLUSIONS IN §261.2(e)

Under the RCRA regulations, EPA defines recycling broadly. Use constituting disposal, burning for energy recovery, and reclamation are all forms of recycling. The direct use or reuse of a secondary material is also a form of recycling. Section 261.2(e)(1) provides exclusions from the definition of solid waste for materials that are used or reused in one of the following ways: used or reused as an ingredient, used or reused as a product substitute, or returned to the production process.

USED AS AN INGREDIENT

If a secondary material is directly used as an ingredient in a production process without first being reclaimed (e.g., carbon tetrachloride still bottoms used in producing tetrachloroethylene), then that material is not a solid waste (§261.2(e)(1)(i)).

USED AS A PRODUCT SUBSTITUTE

If a secondary material is used as an effective substitute for a commercial product without first being reclaimed (e.g., hydrochloric acid by-product from chemical manufacturing used by the steel industry for pickling steel), it is exempt from the definition of solid waste (§261.2(e)(1)(ii)).

RETURNED TO THE PRODUCTION PROCESS

When a material is returned to the original production process from which it was generated, it is not a solid waste (§261.2(e)(1)(iii)). When this exclusion was originally promulgated (50 FR 614; January 4, 1985), it applied only to materials returned to a primary production process. The September 19, 1994, Federal Register extended this exemption, however, to include materials returned to secondary processes (59 FR 47982; 48041). This exclusion only applies if the material is used as a raw material or feedstock in the production process and if it is not reclaimed prior to its reintroduction into the system (e.g., emission control dust returned directly to a primary zinc smelting furnace). The material does not have to be returned to the exact unit, but may be returned to any unit associated with the production of a particular product (50 FR 619, 640; January 4, 1985). In the case where the original process to which the material is returned is a secondary process, the material must be managed such that there is no placement on the land.

EXCEPTIONS

There are certain situations where use or reuse of a material without prior reclamation is still considered to be management of a solid waste. Section 261.2(e)(2) designates as solid wastes the following materials, even if they are used or reused directly: materials used in a manner constituting disposal; materials burned for

energy recovery, used to produce a fuel, or contained in fuels; materials accumulated speculatively; and dioxin-containing wastes considered inherently waste-like (F020, F021, F022, F023, F026, and F028). For example, an F002 spent solvent is used in the formulation of a pesticide, without prior reclamation. While this particular waste is recycled without reclamation (a condition of §261.2(e)(1)), it would not qualify for the exclusion because the manner in which it is recycled is one of the activities listed in §261.2(e)(2).

DOCUMENTATION OF CLAIMS

A person claiming that a waste is not a solid waste or that a waste is conditionally exempt from regulation (e.g., because it is recycled in accordance with §261.2(e)) must be prepared to demonstrate that the conditions for the exclusion are being met. In the case of an enforcement action, generators must provide documentation supporting their claim, such as proof the material is being reused in a production process or that there is a known market for the material (§261.2(f)).

SUMMARY OF SOLID WASTE DEFINITION

A solid waste is a material of any physical form (e.g., contained gas, solid, or liquid) that is being discarded by meeting any of the following conditions:

- The material is abandoned via disposal or incineration
- The material is inherently waste-like (e.g., dioxin-containing wastes)
- The material is recycled in specific ways that are considered waste management (i.e., burning for energy recovery, reclamation, use constituting disposal).

In summary, if a material has been classified as a solid waste (thus not meeting any of the solid waste exclusions or exemptions), the next step in the hazardous waste identification process is to determine if the solid waste meets the definition of a hazardous waste.

2.4 HAZARDOUS WASTE RECYCLING REQUIREMENTS

RCRA Subtitle C has jurisdiction over hazardous waste recycling. Hazardous wastes that are recycled are known as recyclable materials. When a material is classified as a solid waste because it is recycled (and does not qualify for any exemptions in §261.2(e)) and it meets the definition of a hazardous waste, §§261.6 and 261.9 are used to determine the level of regulation placed on the waste and the recycling activity. These standards range from no regulation to full regulation, with the amount of regulation depending on the type of material and manner of recycling (see Figure 1).

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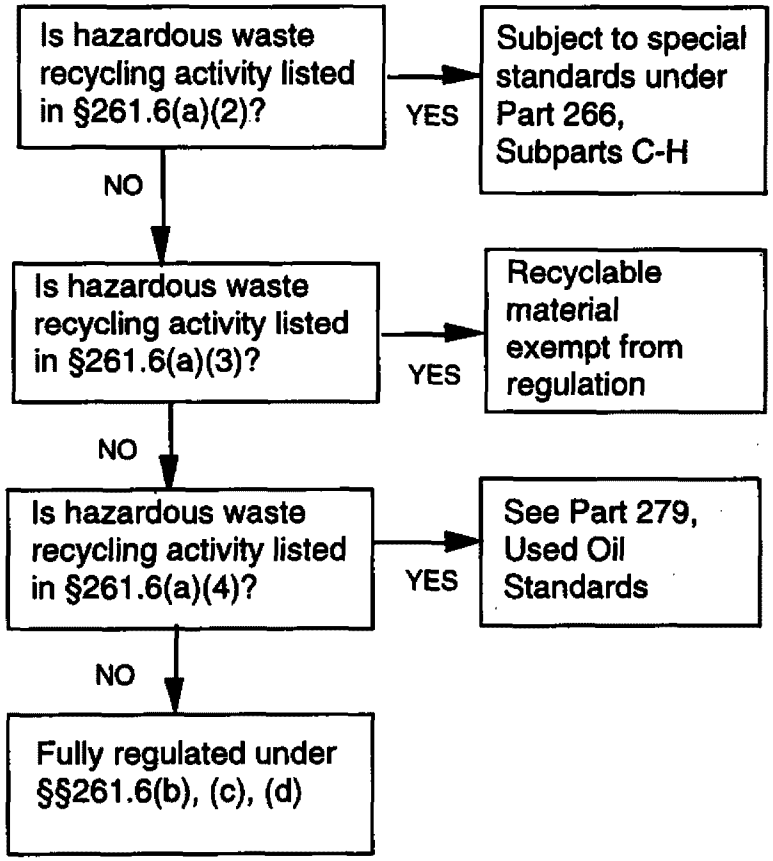
Figure 1
ANALYSIS OF HAZARDOUS WASTE RECYCLING REQUIREMENTS



SPECIAL RECYCLING STANDARDS IN §261.6(a)(2)

The recyclable materials listed in §261.6(a)(2) are subject to regulation under Part 266, which provides special standards for hazardous wastes recycled in certain ways. These materials include:

- Recyclable materials used in a manner constituting disposal (Subpart C)
- Recyclable materials from which precious metals are reclaimed (Subpart F)
- Spent lead-acid batteries that are being reclaimed (Subpart G)
- Hazardous waste burned for energy recovery (Subpart H).

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Use Constituting Disposal

Part 266, Subpart C, regulates recyclable materials that are placed on the land either directly or after mixing with other materials. This type of reuse of a recyclable material is regulated as land treatment or landfilling when the material being applied to the land is a hazardous waste or contains a hazardous waste. The Agency regulates the placement of hazardous secondary materials on the land due to the similarity of this practice to simple land disposal.

Under §266.20(b), commercial hazardous waste-derived products are not regulated when recycled by application to the land, provided the products: (1) are made for the general public's use; (2) have undergone a chemical reaction so as to be inseparable by physical means; and (3) meet applicable Part 268 land disposal restrictions treatment standards. Examples of such products may include asphalt and cement. Also, commercial fertilizers produced from mixing recyclable material containing nutrients or micronutrients with other ingredients are exempt from regulation if they meet the Part 268 land disposal treatment standards for each recyclable material they contain. Zinc-containing fertilizers produced from hazardous waste K061 for the general public's use, however, are not subject to regulation and thus are not required to meet Part 268 treatment standards. If a material does not meet the conditions in §266.20(b), it must be managed as a hazardous waste when applied to the land, a result which effectively prohibits placement on the land in anything but a hazardous waste landfill.

Under §266.21, the management of these recyclable materials prior to being used in a manner constituting disposal is fully regulated as hazardous waste management. Generators and transporters of these materials, therefore, are subject to Part 262 (generator) and Part 263 (transporter) regulations, and to RCRA §3010 notification procedures for obtaining EPA identification numbers. Under §266.22, facility owners and operators who are not the ultimate users of the materials are also subject to notification requirements and applicable Parts 264/265 facility standards.

Owners or operators of facilities that use recyclable materials in a manner constituting disposal are subject to RCRA §3010 notification and applicable Parts 264/265 facility standards. Products meeting the requirements under §266.20(b) as described above are the sole exception.

In addition to the above regulations on use constituting disposal, additional restrictions may apply to the placement of hazardous waste on the land. The Hazardous and Solid Waste Amendments of 1984 (HSWA) amended RCRA §3004(1) to prohibit use of waste oil, used oil, or other materials contaminated with hazardous waste (other than waste hazardous for ignitability only) for dust suppression or road treatment. This prohibition was effective November 8, 1984 (§§266.23(b) and 279.82).

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Precious Metal Reclamation

Subpart F of Part 266 applies to recyclable materials from which precious metals are recovered (i.e., gold, silver, platinum, palladium, iridium, osmium, rhodium, and ruthenium). Generators, transporters, and storers of recyclable materials intended for precious metal recovery are subject to notification under RCRA §3010 and manifest requirements under Part 262, Subpart B (for generators), §§263.20 and 263.21 (for transporters), and §§265.71 and 265.72 (for storers).

While hazardous wastes that will be reclaimed for their precious metal content are exempt from much of the Subtitle C regulations, these materials lose any applicable exemptions if they are accumulated speculatively, and become subject to all applicable requirements under Parts 262 and 264/265. The provisions barring speculative accumulation are set out in §266.70(c). To document that speculative accumulation is not occurring, generators must keep records showing the volume of materials on hand at the beginning of the calendar year, the amount of materials generated or received during the calendar year, and the amount of waste remaining at the end of the calendar year.

Although the storage of recyclable materials that will be reclaimed for their precious metal content is not normally subject to Subtitle C regulation, under §§260.40 and 260.41, the Regional Administrator may regulate storage of precious metal wastes on a case-by-case basis if the wastes are not being stored safely. This case-by-case regulation subjects the generator or storer/recycler to §§261.6(b) and (c) (full regulation) rather than Part 266, Subpart F.

In addition, if precious metal reclamation takes place in an industrial furnace, then Part 266, Subpart H, standards may apply to the unit. If, however, a series of conditions in §266.100(f) are met, the unit is exempt from full Subpart H regulation. This is discussed further in the module entitled Boilers and Industrial Furnaces.

Spent Lead-Acid Battery Reclamation

Part 266, Subpart G, covers spent lead-acid batteries that will be reclaimed. These provisions apply only to spent lead-acid batteries. Under Subpart G, the requirements focus on storage of the batteries by persons who reclaim the batteries. Persons who generate, transport, regenerate, collect, and/or store spent lead-acid batteries without reclaiming them are not subject to hazardous waste regulation.

According to §266.80(b), owners or operators of facilities that store spent batteries before recycling are subject to §§266.80(b)(1)-(4). Storers must comply with §3010 notification, and all applicable provisions in Parts 264/265, Subparts A through L. The exceptions are §264.13 (waste analysis plan) and §§264.71 and 264.72 (use of the manifest requirements). The permitting requirements of Parts 270 and 124 are also applicable.

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Burning Hazardous Waste

Part 266, Subpart H, governs hazardous waste burned for energy recovery in boilers and industrial furnaces as defined in §260.10. Originally, these units were considered to be exempt recycling units (50 FR 614, 631; January 4, 1985). EPA determined, however, that there was a need for regulatory action to control this type of burning. The Agency promulgated these regulations on February 21, 1991 (56 FR 7134). These requirements are presented in the module entitled Boilers and Industrial Furnaces.

EXEMPT RECYCLABLE MATERIALS IN §261.6(a)(3)

Certain recyclable materials are exempt from hazardous waste regulation under §261.6(a)(3) when recycled in specific ways. These materials are exempt from the notification requirements of RCRA §3010, 40 CFR Parts 262 through 266, and Parts 268, 270, and 124. All of these materials meet the definition of a solid waste and hazardous waste, but are not required to be managed as hazardous wastes if recycled according to the provisions in §261.6(a)(3).

Industrial Ethyl Alcohol

Industrial ethyl alcohol that is reclaimed is exempted from RCRA Subtitle C regulation because the Bureau of Alcohol, Tobacco and Firearms already regulates it from the point of generation to redistillation (§261.6(a)(3)(i) and 50 FR 649; January 4, 1985).

Scrap Metal

Scrap metal that is disposed of or reclaimed is a solid waste under the definition of hazardous waste (§261.2); however, it is exempted from Subtitle C regulation when it is reclaimed (§261.6(c)(3)(ii)). As was mentioned earlier, scrap metal is defined as products made of metal that become worn out (or are off-specification) or metal pieces that are generated from machining operations. Examples of scrap metal are scrap automobiles, machine turnings, pieces of wire, sheets of metal, and scrap radiators (50 FR 624; January 4, 1985). When these materials are recycled to recover their metal content, they are exempted from regulation.

Waste-Derived Fuels from Refining Processes

Fuels produced by refining oil-bearing hazardous wastes, along with normal process streams at a petroleum refining facility, are exempt under §261.6(a)(3)(iii) if such wastes resulted from normal petroleum refining, production, and transportation practices. For these wastes to be considered to be "refined," they must be inserted into a part of the process designed to remove contaminants; this would typically mean insertion prior to distillation. Consequently, if a facility takes an oil-bearing

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hazardous waste and processes it without distillation to produce a fuel, the resulting fuel is not covered by this exemption.

Waste-Derived Fuels and Oils That Are Not Refined

Fuels produced at a petroleum refinery from oil-bearing hazardous wastes that are introduced into the refining process after the distillation step, or that are reintroduced in a process that does not include distillation, may also be exempt under §§261.6(a)(3)(iv)(A) and (B). Since these hazardous waste do not undergo a distillation step that would ensure contaminant removal, the resulting fuel must meet the used oil specifications in §266.40(e) to fall within this exemption.

Oil that is reclaimed from oil-bearing hazardous wastes generated by petroleum refining, production, and transportation practices is exempted under §261.6(a)(3)(iv)(C). This exemption applies to oil that is burned as a fuel without reintroduction into the refining process, provided it meets the used oil specifications in §266.40(e).

Recovered Oils

Until July 28, 1994, §261.6(a)(3)(v) contained a recycling exemption for oil recovered from petroleum refining hazardous wastes that was subsequently reintroduced into the refining process. This exemption was deleted from the recycling regulations and superseded by a newly created exclusion in §261.4(a)(12) (59 FR 38537). Essentially, these wastes are still excluded from regulation. This exclusion is discussed further in the module Solid and Hazardous Waste Exclusions.

Petroleum Coke Fuels

Petroleum coke produced from petroleum refinery hazardous waste containing oil is exempted from Subtitle C regulation if (1) the coke is produced by the same person that generated the hazardous waste; and (2) the coke does not exhibit a characteristic of hazardous waste (§261.6(a)(3)(v) and 59 FR 38545; July 28, 1995). Note that recycled coke by-products are also exempt under §261.4(a)(10).

MANAGEMENT STANDARDS FOR RECYCLING IN §§261.6(b) AND (c)

Recyclable materials that do not meet an exemption or that are not subject to special requirements are regulated under §§261.6(b), (c), and (d). Generators and transporters of recyclable materials that are solid and hazardous wastes are subject to the same regulations as other generators and transporters of hazardous waste. Facilities that store these materials prior to recycling are subject to the applicable TSDF standards. As discussed below, however, the recycling process itself is not subject to regulation.

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Generators and Transporters

Generators of recyclable hazardous wastes are required to follow all the applicable requirements of Part 262 (§261.6(b)). Likewise, transporters of recyclable materials must comply with Part 263 standards.

Treatment, Storage, and Disposal Facilities

Owners or operators of facilities that store hazardous materials prior to recycling are subject to all of the requirements of treatment, storage, and disposal facilities (§261.6(c)). In other words, storage is fully regulated. Pursuant to §261.6(c)(2), however, if the recyclable material is not stored before reuse or recycling but put immediately into the reuse/recycling unit, a storage permit or interim status is not necessary. The facility must only obtain an EPA ID number and comply with the manifest requirements under §§265.71-265.72 and §265.76.

An important component to §261.6(c) is that while storage of a hazardous waste is regulated, the recycling process itself is generally exempt from RCRA regulation, including permitting requirements. (The one exception is that the unit may have to comply within some air emission regulations which are discussed below.) State hazardous waste regulations and other federal or state environmental laws or regulations may be applicable.

As mentioned above, the recycling units are potentially subject to air emission standards, if located at a permitted or interim status treatment, storage, or disposal facility (§261.6(d). Parts 264/265, Subparts AA and BB require air emission controls for specific units that manage waste with a minimum organic content. If recycling units meet these criteria, the units would need to comply with the appropriate regulations. The Subpart CC air emissions standards do not apply to recycling units.

MANAGEMENT STANDARDS FOR USED OIL AND UNIVERSAL WASTE

There are two additional categories of wastes that have special recycling regulations. The first category is used oil sent for recycling. When recycled, used oil is subject to the standards found in Part 279 (§261.6(a)(4)). Universal wastes comprise the second category of wastes subject to special standards. Hazardous waste batteries, hazardous waste pesticides that are recalled or sent to a collection program, and hazardous waste thermostats are subject to the standards of Part 273 (§261.9) when recycled and/or disposed.

Used Oil

Used oil represents a rather unusual case. Because EPA introduced a new used oil management program in 1992 to replace the existing standards, there are overlapping sets of regulations. Under the existing program, which EPA promulgated in 1985, used oil burned for energy recovery is subject to the standards

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of Part 266, Subpart E. Under the new program, used oil being recycled in any manner is subject to the standards of Part 279 (§261.6(a)(4)). The relationship between these two programs and the used oil management requirements are discussed in detail in the module entitled Used Oil.

Universal Waste

On May 11, 1995 (60 FR 25492), EPA promulgated regulations which streamline the collection of certain hazardous wastes. The rule, known as the "Universal Waste Rule," creates special management standards in Part 273 for hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, and hazardous waste thermostats. Section 261.9 requires that these wastes be managed under Part 273, regardless of whether they are sent for disposal or for recycling. The rule also contains provisions for adding other wastes to the universal waste system.

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3. SPECIAL ISSUES

Some areas of the solid and hazardous waste recycling regulations can be difficult to master. The topics discussed below are often misunderstood by callers and should be thoroughly understood by Information Specialists.

3.1 MILITARY MUNITIONS

Over the years, the applicability of RCRA to military munitions has been subject to some controversy. On February 12, 1997, EPA finalized a rule that specified when unused and used military munitions are considered discarded and become solid wastes (62 FR 6622). Unused military munitions become solid wastes when the munitions are removed from storage for disposal or treatment prior to disposal; when the munitions are leaking or deteriorated so that they cannot be recycled or reused; or when declared a solid waste by an authorized military official. Unused munitions that are repaired, recycled, or reclaimed, are not considered solid wastes, nor are they considered solid wastes while in storage in demilitarization accounts (e.g., scheduled for treatment or disposal). Only when these munitions are finally removed from storage for the purposes of disposal do they become solid wastes.

Used military munitions become solid wastes when they are buried or landfilled on-site, or when they are removed from their landing spot for subsequent management (storage, reclamation, treatment, or disposal) off-range. Note that munitions that have been used for their intended purpose (e.g., fired munitions or munitions used in training exercises) are not considered solid wastes when they land on a firing range, because landing on the ground is part of their intended use (rather than disposal). Once these military munitions are collected and sent off-site for further management, however, they become solid and potentially hazardous wastes.

3.2 REFINING VERSUS RECLAMATION

There is often uncertainty about when a reclamation process is complete and when the recycled material is a final product rather than a partially reclaimed material. Sometimes a product must be further purified to be sold or used, and this is viewed as refining or purification of the product, and not reclamation. When in doubt, the generator must consult the appropriate EPA Regional or authorized state personnel.

3.3 RECYCLING PROCESS NOT REGULATED

In general, the actual recycling activity and treatment prior to recycling are not regulated. Thus, only storage prior to such recycling is regulated. If the waste is not

stored prior to recycling, the recycler only needs to notify of the activity and comply with the use of the manifest when receiving shipments of recyclable materials from off-site (§261.6(c)(2)).

3.4 SHAM RECYCLING

For all recycling activities, the premise is that legitimate reclamation or reuse is taking place. To encourage recycling, EPA subjects these activities to reduced regulation. Some facilities, however, may claim that they are "recycling" a material in order to avoid being subject to RCRA regulation, when in fact the activity is not legitimate recycling. Therefore, EPA has established guidelines for what constitutes legitimate recycling and has described activities it considers to be "sham recycling." Considerations include whether the secondary material is effective for the claimed use, the secondary material is used in excess of the amount necessary, and whether or not the facility has maintained records of the recycling transactions.

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4. REGULATORY DEVELOPMENTS

The definition of solid waste has changed substantially since the promulgation of the original RCRA regulations in 1980, and continues to evolve as EPA gathers more information about solid waste management and recycling. Currently, EPA is considering amending several aspects of the solid waste regulatory scheme.

4.1 MERCURY-CONTAINING LAMPS

Data suggest that while mercury-containing lamps are highly energy efficient, they often fail the TCLP for mercury and thus must be managed as hazardous waste. In an effort to reduce the regulatory burden associated with the disposal of mercury-containing lamps, EPA proposed a rule for the management of these wastes on July 27, 1994 (59 FR 38288). The rule outlined two regulatory options: (1) a conditional exclusion from Subtitle C; or (2) inclusion in the universal waste system. As mentioned above, states also have the option of adding wastes, such as fluorescent lamps, to their universal waste programs, thus subjecting these wastes to the reduced regulations of Part 273. EPA is expecting to finalize a mercury lamp rule addressing some of these issues by early 1998.

4.2 USE CONSTITUTING DISPOSAL: AMENDMENTS

On August 24, 1994, EPA promulgated a final rule which amended §266.20 by prohibiting anti-skid/deicing uses of slag residues produced from the treatment of the listed wastes K061, K062, and F006 (59 FR 43496). Currently, these waste residues are conditionally exempt from hazardous waste regulation under §261.3(c)(2). On December 29, 1994, EPA proposed to further amend §266.20 with respect to these wastes (59 FR 67256). Specifically, these slags would be prohibited from any use constituting disposal unless they meet the conditions of the exemption under §261.3(c)(2). EPA is presently reevaluating the proposed rule due to significant issues raised by public comment.

In addition, EPA proposed on May 12, 1997, (62 FR 26041) to ban the use of prohibited hazardous waste as fill material unless the waste meets LDR treatment standards and either of two conditions are satisfied: (a) the placement occurs exclusively in a regulated unit (e.g., Subtitle C landfill); or (b) the user is able to make a demonstration to the implementing agency that placement will be protective of human health and the environment as set out in RCRA §3004(d)(1). Use as a fill material involves placement of hazardous waste on the land in a manner which fills in significant levels of depression in the land, such as gullies or ditches.

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