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Guidance for Selecting Legitimate Recycling Products and Processes

U.S. DEPARTMENT OF THE NAVY
CARDEROCK DIVISION,
NAVAL SURFACE WARFARE CENTER

in cooperation with
National Steel and Shipbuilding Company
San Diego, California

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GUIDANCE FOR SELECTING LEGITIMATE RECYCLING PRODUCTS AND PROCESSES

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Glossary

BIF	Boiler and industrial furnace
Btu	British thermal units
CCP	Commercial chemical product
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	U.S. Environmental Protection Agency
HTMR	High temperature metals recovery
LDR	Land disposal restrictions
MTR	Minimum technology requirement
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
SPCC	Spill Prevention Control and Countermeasures
Subtitle C	RCRA Subtitle C
SWMU	Solid waste management unit
TAR	Toxics-along-for-the-ride
TSD	Treatment, storage, or disposal facility

CHAPTER 1
INTRODUCTION

1.1 Purpose of the Project

More and more shipyards are seeking means to recycle hazardous waste materials either to meet waste minimization goals or reduce disposal costs and liability. Some of this recycling occurs onsite. In other cases, materials are sent to offsite recycling facilities. In addition, some shipyards are being asked to purchase products made from recycled secondary materials, including abrasive blast, recycled solvents, and waste derived fuels. For regulatory purposes, recycling hazardous wastes is not as simple as identifying an appropriate wastestream, purchasing the necessary equipment, and then simply initiating the process. Depending upon the type of material and the recycling technique, a shipyard's decision to engage in hazardous waste recycling can trigger a host of regulatory requirements and change the regulatory status of the facility.

Under Subtitle C of the Resource Conservation and Recovery Act ("RCRA") and similar state laws, regulatory authority attaches to hazardous materials that are solid wastes. "Solid wastes" are defined generally to include "discarded" materials that are not otherwise excluded from regulation. A material is discarded if it is "abandoned," "recycled" in certain ways, or considered "inherently waste-like." Some hazardous materials that are recycled are solid wastes and regulated, while others are not. In fact, the same material may be a solid waste when recycled in one manner, but not a solid waste when recycled in another.

Numerous general and specific exemptions apply to certain materials and recycling techniques that would otherwise fall under the broad scope of RCRA regulatory authority under the "definition of solid waste." The goal of most recyclers, especially generators that recycle their own secondary materials onsite, is to avail themselves of a RCRA recycling exclusion. Excluded materials are not

regulated at all under RCRA Subtitle C, whereas the recycling of hazardous wastes, as well as using materials produced from certain recycling activities, could subject a facility to the full panoply of Subtitle C requirements, including management standards, permits, financial assurance, and facility-wide corrective action.

Companies that mistakenly recycle or use hazardous secondary materials, or manage processes or products not properly subject to a recycling exclusion could find themselves ensnared in the RCRA process and subject to permits, enforcement, and/or penalties for their waste management activities. Thus, it is increasingly important for shipyard environmental managers to have a clear and concise reference which explains the complex universe of recycling definitions, exemptions, conditional exclusions, and variances, as well as an understanding of the questions that need to be asked of perspective vendors of recycling technologies, processes, and products.

The objectives of this Guidance are to set forth a clear overview of the current regulatory status of RCRA hazardous wastes that are recycled, to provide shipyards with guidance for reviewing, evaluating, and selecting products and processes that meet federal requirements for legitimate recycling, and to describe the U.S. Environmental Protection Agency's ("EPA's") efforts to amend the current RCRA regulatory definition of solid waste.

1.2 Scope and Use of this Guidance

Hazardous waste management, including recycling, is regulated on the federal, state, and local levels. Although RCRA grants EPA the authority to regulate nationally RCRA solid and hazardous wastes, it also provides EPA with the authority to delegate control to state and local agencies, provided that such state and local programs are as stringent as the federal program. To date, EPA has delegated RCRA authority to 47 states. States, as well as municipal governments, also have authority above and beyond RCRA to regulate solid and hazardous wastes more stringently than

EPA, in addition to regulating wastes that are not regulated under RCRA at all.

A full statutory and regulatory analysis for every state where a shipyard, ship builder, or ship repairer is located is beyond the scope of this document. Rather, this Guidance addresses federal requirements and policies that pertain to the recycling of RCRA hazardous wastes. Although most state programs closely follow the federal model, each state is entitled to adopt requirements that may differ in some respects from (and, again, may be more stringent than) the federal regime. Shipyards therefore should review and evaluate this Guidance against individual state and local laws, regulations, and policies before undertaking the kinds of analyses described herein. It should also be remembered that environmental regulation is dynamic and constantly evolving. An analysis that applies today may not apply in the relatively near future. Accordingly, shipyard hazardous waste recycling activities should be coordinated and periodically reviewed with the advice and assistance of regulatory specialists and environmental counsel.

Nor is it possible for this Guidance to review in detail the regulatory status of the numerous shipyard wastes that are or may be recycled or recycled products that may be purchased by shipyards. With respect to the latter, this Guidance recognizes that shipyards often have little, if any, control over the materials to be used to construct or repair a ship and that they may be contractually obligated to adhere to precise military or purchaser specifications. Thus, this Guidance provides a general overview and analysis of federal law as it pertains to RCRA solid wastes that are potentially regulated as hazardous wastes and a paradigm that individual shipyards can use when evaluating specific recycling activities or products.

CHAPTER 2
OVERVIEW OF THE
RESOURCE CONSERVATION AND RECOVERY ACT

2.1 Introduction

To evaluate fully and effectively the regulatory status of hazardous recyclable materials, recognize and avoid potential regulatory pit falls, and understand the potentially significant consequences associated with undertaking on- or off-site recycling activities or purchasing recycled products, shipyard environmental managers must have a good understanding of RCRA and EPA's implementing regulations. For example, incorrectly concluding that a hazardous material that is recycled or a recycled product is excluded from regulation, when, in fact, it is not, could subject a shipyard to the full gamut of RCRA requirements, as well as potential civil and criminal liability. In other words, although only a few RCRA provisions deal specifically with hazardous material recycling, all of RCRA's provisions can be triggered depending on the type of material and the manner in which it is recycled. Conversely, shipyards that can identify recycling opportunities that are exempt from regulation can benefit by reducing the amount of "virgin" materials that must be purchased as well as avoiding, or at least reducing, the compliance costs associated with RCRA's hazardous waste management standards.

The goal of this Chapter is to provide the reader with a general understanding of RCRA, EPA's current recycling program, RCRA's recycling parlance, and with the tools necessary to better comprehend the chapters that follow.

2.2 RCRA Statutory Overview

RCRA is a comprehensive environmental statute under which the EPA is granted authority to regulate "solid" and "hazardous" wastes from "cradle-to-grave." 42 U.S.C. § 6901, et seq. Congress originally enacted RCRA in 1976, but has modified it on several occasions, including most

recently in 1984, when it passed the Hazardous and Solid Waste Amendments, which significantly expanded the size, complexity, and detail of RCRA's authority over "hazardous" wastes. RCRA regulates the entire life of hazardous wastes from the day they are "generated" until the day they are ultimately "discarded" by imposing requirements on hazardous waste generators, transporters, and facilities that treat, store, or dispose of hazardous wastes (including certain hazardous waste recyclers).

RCRA is divided into 10 subtitles, four of which deal with specific wastestreams. Subtitle D, a largely non-regulatory program, focuses on assisting states in the management of nonhazardous wastes such as household waste and other municipal garbage. Subtitle I addresses and regulates underground storage tanks, and Subtitle J governs the management and disposal of medical wastes. RCRA's primarily subtitle, Subtitle C, regulates hazardous wastes.

Hazardous wastes are a distinct subset of solid wastes. To be regulated under Subtitle C, a substance must first meet the definition of a "solid waste." Solid waste is statutorily defined as "any garbage, refuse, sludge . . . and other discarded material. . . ." Id. § 6903(27) (emphasis added).1 Thus, the element of "discard" is the jurisdictional key to RCRA. If a material has not been discarded, EPA has no RCRA jurisdiction over it, regardless of how it is managed (including how it is recycled).

1 Excluded from the definition of solid waste are domestic sewage, industrial wastewater discharges that are subject to regulations under the Clean Water Act, irrigation return flows, mining waste not removed from the ground, and certain nuclear materials covered under the Atomic Energy Act. See 40 C.F.R. ' 261.4.

There are several ways for a solid waste to be regulated as hazardous. First, EPA can specifically list the waste as being hazardous (i.e., listed wastes). Id. § 6921. Second, solid wastes are hazardous if they exhibit one or more of the following hazardous waste characteristics: ignitability, corrosivity, reactivity, and toxicity (i.e., characteristic wastes).2 Id. Waste can also be hazardous through application of EPA's "mixture" and "derived-from" rules. Under these rules, mixtures of listed wastes and other solid wastes and wastes derived from the treatment, storage, and disposal of listed wastes are also regulated as listed hazardous wastes. Mixtures of characteristic wastes and wastes derived from the management of characteristic wastes are only hazardous if they themselves exhibit a hazardous characteristic.

RCRA mandates EPA to establish regulations governing waste generators, transporters, and treatment, storage and disposal ("TSD") facilities. Id. §§ 6922-24. Waste generators are required to classify their wastes, record and report on the quantity generated and how the waste was disposed, and to comply with storage, labeling, and shipping requirements. Transporter requirements are similar to those for generators. The statute requires transporters to comply with recordkeeping requirements, packaging and labeling, and hazardous waste shipping and manifest regulations. Id. § 6923.

RCRA's most stringent requirements are reserved for RCRA TSD facilities. Id. § 6924. In addition to reporting and recordkeeping requirements similar to those for generators/transporters, these facilities must also, among other things, comply with minimum technology requirements

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2 Ignitable wastes are liquid wastes with a flash point less than 60 degrees centigrade or nonliquid wastes that are capable of ignition at standard temperature and pressure. 40 C.F.R. ' 261.21 (1997). Corrosive wastes are liquid or aqueous wastes with a pH of less than two or greater than 12.5 or that can corrode steel at a rate faster than specified by EPA regulation. Id. at ' 261.22 Reactive wastes are those wastes that could explode or release toxic gas under normal conditions. Id. at ' 261.23. A solid waste exhibits the characteristic of toxicity if, using the Toxic

("MTRs"), siting requirements, and obtain a RCRA permit, which sets forth requirements for design, construction, closure, financial assurance, contingency planning, corrective action, and operating conditions. Id.

As part of RCRA's program to prevent the release of hazardous wastes into the environment, the statute includes provisions establishing land disposal restrictions ("LDRs"). LDRs prohibit the land disposal of hazardous wastes (e.g., in a landfill) unless and until the wastes have been treated to meet applicable LDR treatment standards or unless the party intending to discard the wastes first demonstrates to EPA that there will be "no migration" of the discarded hazardous material from the disposal unit. Id.

RCRA also contains enforcement provisions authorizing EPA to seek administrative, civil, or criminal penalties against violators. Under these provisions, EPA is authorized to seek administrative and/or judicial penalties of up to $25,000.00 per day of violation. Id. § 6928. A "knowing" violation of the statute is a felony and may result in monetary penalties of up to $50,000.00 for each day of violation or imprisonment for up to five years or both. Id. Also, violators who fail to take corrective action within the time specified by a RCRA compliance order also may suffer a penalty of up to $25,000.00 for each day of continued non-compliance and risk suspension of their hazardous waste permit. Moreover, any person who transports, treats, stores, or disposes of hazardous waste and knowingly and imminently endangers another person is guilty of a felony and may be subject to a penalty of up to $250,000.00 or 15 years of imprisonment, or both. Id.

2.3 RCRA Subtitle C Regulatory Regime

Pursuant to RCRA Subtitle C's mandate, in 1980 (and continuing ever since), EPA promulgated hazardous waste regulations to ensure that wastes that might pose a threat to human

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Characteristic Leaching Procedure, the substance will leach toxic contaminants above enumerated

health and the environment would be safely and effectively managed. EPA's hazardous waste regulations are codified at 40 C.F.R. Parts 260-282. For the most part, each individual part of the 40 C.F.R. series addresses a particular aspect of a waste's "journey" from generation through disposal. For example, Part 261 addresses if and when a material first becomes subject to regulation as a solid and hazardous waste; Parts 262 and 263 address waste "generators" and "transporters," respectively; Parts 264 and 265 govern hazardous waste TSD facilities; Part 266 governs the recycling of wastes in particular manners; Part 268 provides specific treatment standards that wastes must meet before they can be disposed of; Part 270 sets forth federal permitting requirements for facilities that are deemed to be TSD facilities; and Part 279 governs used oil recycling

2.3.1 Solid Waste Definition

Because the jurisdictional key to RCRA and its implementing regulations is the definition of "solid waste," determining whether a material meets the definition of solid waste is always the starting point for RCRA analyses, including those addressing the regulatory status of recyclable materials.

The statutory definition of a solid waste is not based on the physical form of the material, i.e., whether it is a solid, liquid, or gas. Rather, RCRA section 1004(7) defines "solid waste" as:

> Any garbage, refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility, or other discarded material, including solid, liquid, semisolid, or contained gaseous material, resulting from industrial, commercial, mining, and agricultural operations and from community activities.

42 U.S.C. § 6903(27) (emphasis added).

The regulatory definition focuses more specifically on the element of "discard" and is more narrow than the statutory definition. EPA's RCRA regulations define a "solid waste" as "any

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thresholds. Id. at ' 261.24.

discarded material that is not excluded by § 261.4(a) or that is not excluded by a variance granted under §§ 260.30 and 260.31." 40 C.F.R. § 261.2(a)(1) (emphasis added). A "discarded material" is defined as one that is "abandoned," "inherently waste-like," or "recycled" in specifically enumerated ways. Id. § 261.2(a)(2).

Each one of these three terms has a specific regulatory definition. Materials are "abandoned" if they are disposed of, burned or incinerated, or accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned. Id. § 261.2(b). In essence, a material is considered abandoned, and thus discarded, if it is thrown away.

"Inherently waste-like" materials are hazardous regardless of how they are managed. Id. § 261.2(d). These materials include listed hazardous wastes F020, F021 (unless used as an ingredient to make a product at the site of generation), F022, F023, F026, and F028; hazardous materials that are fed to a halogen acid furnace (except for certain brominated material); and any other material specifically listed by EPA using the criteria set forth at section 261.2(d)(3).3

Materials that are recycled can also be deemed discarded. A material is "recycled" if it is used, reused, or reclaimed. Id. § 261.1(c)(7). A material is "used or reused" if it is either:

> (i) Employed as an ingredient (including use as an intermediate) in an industrial process to make a product (for example, distillation bottoms from one process used as a feedstock in another process). However, a material will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal-containing secondary materials); or
>
> (ii) Employed in a particular function or application as an effective substitute for a commercial product (for example, spent pickle liquor used as phosphorous precipitant and sludge conditioner in wastewater treatment).

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3 Listed wastes F020, F021, F022, F023, F026, and F028 are considered inherently waste-like because they contain elevated levels of dioxins.

Id. § 261.1(c)(5). A material is "reclaimed" if it is "processed to recover a usable product, or if it is regenerated (e.g., recovery of lead values from spent batteries and regeneration of spent solvents). Id. § 261.1(c)(4).

Some materials that are recycled are classified as solid wastes, while others are exempt from regulation. Whether or not a material is considered to be a solid waste when recycled depends upon two criteria: (1) what type of secondary material is being recycled; and (2) the manner in which the material is recycled. Section 261.2(c) sets forth seven types of secondary materials: (1) spent materials; (2) sludges that are specifically listed as a hazardous waste; (3) sludges that exhibit a hazardous characteristic; (4) by-products that are listed hazardous wastes; (5) by-products that are characteristically hazardous; (6) commercial chemical products that are listed hazardous wastes; and (7) scrap metal that is not excluded from regulation. It also sets forth four recycling techniques: (1) use constituting disposal; (2) burning for energy recovery; (3) reclamation; and (5) speculative accumulation. Materials noted with a "(*)" in Table 1 below are defined as solid wastes.

Table 1

Secondary Materials	Use Constituting Disposal	Energy Recover	Reclamation	Speculative Accumulation
Spent material	(*)	(*)	(*)	(*)
Sludges (listed)	(*)	(*)	(*)	(*)
Sludges (characteristic)	(*)	(*)	.....	(*)
By-products (listed)	(*)	(*)	(*)	(*)
By-products (characteristic)	(*)	(*)	.....	(*)
Commercial chemical products	(*)	(*)	.....	.....
Scrap metal other than excluded scrap metal *	(*)	(*)	(*)	(*)

Table 1 lists secondary materials and various forms of recycling. Once a facility knows what type of secondary material it is managing and how it is being recycled, the Table can be used to identify whether the material meets the definition of solid waste. Secondary materials marked with a "(*)" in a particular column are solid wastes when recycled in that manner. See 40 C.F.R. § 261.2, Table 1.

* Note that EPA modified the definition of solid waste to exclude certain types of scrap metal on May 12, 1997 (62 Fed. Reg. 25,998). Currently, only non-excluded scrap metal is considered a secondary material, and hence potentially a solid and hazardous waste.

2.3.2 Classification of Recycled Materials

As discussed above, the regulatory status of a recycled material depends upon the type of material and how it is recycled. This section of the Guidance discusses the various types of secondary materials and recycling techniques that are potentially subject to regulation.

2.3.2.1 Secondary Materials

The term "secondary material" is used primarily within the context of RCRA recycling. It is not defined in the federal regulations, but generally means "any materials that potentially can be solid and hazardous wastes when recycled." See 50 Fed. Reg. 616 (January 4, 1985). All secondary materials fit into one of the seven categories listed in Table 1.

Spent Materials: A "spent" material is defined as any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without reprocessing. 40 C.F.R. § 261.1(c)(1). Examples of spent materials include, spent solvents, spent blast abrasive, spent acids, and spent lubricating oils. See 50 Fed Reg. at 624.

Sludges: A "sludge" is 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. 40 C.F.R. § 260.10. An example is emission control dust collected in a baghouse hopper. Table 1 includes sludges that have been listed as hazardous wastes, as well as those sludges that exhibit one of the four hazardous waste characteristics.

By-products: According to section 261.1(c)(3), a "by-product" 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. Examples include process residuals such as slags and distillation column bottoms. The term does not include co-products that are produced for the general public's use and are ordinarily used in the form that is produced by the process. The term "by-products" is intended to capture wastes that do not meet the definition of spent materials or sludges. See 50 Fed. Reg. at 618. Table 1 also separately lists characteristically hazardous and listed by-products.

Commercial Chemical Products: "Commercial chemical products" ("CCPs") include discarded chemical products, off-specification species, container residues, and spill residues of commercial chemical products specifically listed at 40 C.F.R. § 261.33. CCPs make up the P- and U-listed wastes. An example of a CCP is unused or off-specification methyl ethyl ketone.

Scrap Metal other than Excluded Scrap Metal: All scrap metal used to be considered a

secondary material and regulated as a solid waste when reclaimed, but was excluded from the definition of a RCRA hazardous waste when recycled. On May 12, 1997, however, EPA promulgated a final rule excluding from RCRA Subtitle C jurisdiction certain types of scrap metal and shredded circuit boards. See 62 Fed. Reg. 25,998-26,040. Specifically, section 261.1(c) now exempts from RCRA "excluded scrap metal," which is defined as "processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal."

"Scrap metal" is generally defined to include bits and pieces of metal parts (e.g., bars, turnings, rods, sheets, and wire) or metal pieces that can be combined together with bolts or soldering, which when worn and superfluous can be recycled. 40 C.F.R. § 261.1(c)(6). "Processed scrap metal" is "scrap metal which has been manually or physically altered either to separate it into distinct materials to enhance economic value or to improve the handling of materials. Processed scrap metal includes, but is not limited to, scrap metal which has been baled, shredded, sheared, chopped, crushed, flattened, cut, melted, or separated by metal type (i.e., sorted), and fines, drosses and related materials which have been agglomerated." Id. § 261.1(c)(10).

"Home scrap metal" is "scrap metal as generated by steel mills, foundries, and refineries such as turnings, cuttings, punchings, and borings." Id. § 261.1(c)(11). "Prompt scrap metal" is defined as "scrap metal as generated by metal working/fabrication industries and includes such scrap as turnings, cuttings, punchings, and borings. Prompt scrap metal is also known as industrial or new scrap metal." Id. § 261.1(c)(12).

Thus, for purposes of the definition of solid waste (and thus Table 1), only scrap metal that does not meet the definition of "processed," "home scrap," or "prompt scrap" is regulated as a solid waste.4

2.3.2.2 Recycling Techniques

Once the type of material being recycled is known, the manner is which it is recycled is determinative of whether it is regulated as a solid waste and, thus, potentially as a hazardous waste. EPA currently asserts RCRA jurisdiction over four general categories of recycling: (1) use constituting disposal; (2) burning for energy recovery; (3) reclamation; and (4) speculative accumulation. Each of these recycling activities is briefly described below.

Use Constituting Disposal: A product is said to be "used in a manner constituting disposal" if it, or a product derived from the material, is used or placed directly on the land. See 50 Fed. Reg. at 627. An exception to this general rule is commercial chemical products that are placed on the land, provided that such land use is consistent with the product's normal use (e.g., pesticides). With this one exception, secondary materials that are used in a manner constituting disposal are regulated as solid and potentially hazardous wastes. See 40 C.F.R. § 261.2(c)(1). However, as is discussed below at Chapter 4, section 4.1.2, certain hazardous recyclable materials that are produced for the general public's use are not currently subject to regulation as hazardous wastes. See id. § 266.

4 Although non-excluded scrap metal remains as solid waste, it is still exempt from regulation as a hazardous waste when recycled.

Burning for Energy Recovery: Secondary materials that are directly used as a fuel or to produce a fuel product are considered to be burned for energy recovery.5 Table 1 specifically provides that all secondary materials that are burned for energy recovery are solid wastes, and hence potentially hazardous wastes. However, similar to commercial chemical products used in a manner constituting disposal, chemical products that themselves are fuels (e.g., jet fuel) are not regulated as a solid waste when burned. See Chapter 4, section 4.1.1.2.

Reclamation: As stated above, a secondary material is reclaimed if it is processed to recover a usable product (e.g., recovery of lead values from batteries) or regenerated (e.g., regeneration of spent solvents). Id. § 261.1(c)(4); 50 Fed. Reg. at 630. Characteristically hazardous sludges, by-products, and commercial chemical products are not solid wastes when reclaimed. Other secondary materials that are reclaimed, however, are solid wastes. 40 C.F.R. § 261.2(c)(3).

Speculative Accumulation: All secondary materials, except commercial chemical products, that are speculatively accumulated prior to recycling are solid wastes. "Speculative accumulation" is defined by what it is not. A material is not "speculatively accumulated" if the person accumulating the material can show: (1) that the material is potentially recyclable; (2) there is a feasible means of recycling the material; and (3) that during the calendar year (commencing on January 1), the amount of material that is recycled, or transferred to a different site for recycling, equals at least 75 percent by weight or volume of the amount of that material accumulated at the beginning of the period. Id. § 261.1(c)(8). The 75 percent requirement is applied to each material of the same type that is recycled in the same way.

2.3.3 Secondary Materials that Are Not Solid Waste When Recycled -- the 40 C.F.R. § 261.2(e) Exclusions

5 EPA generally considers materials with a heating value over 5,000 Btu/lb as being burned for energy recovery. See 50 Fed. Reg. 49,164, 49,171 (November 29, 1985).

In addition to characteristic sludges and by-products and commercial chemical products that are reclaimed, secondary materials that can be used as ingredients to produce another product or that can effectively replace another product are excluded from regulation provided that certain conditions are met. Wastes recycled in this manner are not considered to be discarded, and are thus not subject to regulation as a hazardous waste.

Specifically, section 261.2(e)(1) excludes from the definition of solid waste materials that can be shown to be recycled by being:

> (i) used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;
>
> (ii) used or reused as effective substitutes for commercial products; or
>
> (iii) returned to the original process from which they are generated, without first being reclaimed or land disposed. The material must be returned as a substitute for feedstock materials. 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.

Id. § 261.2(e) (emphasis added).

To qualify for one of the above exemptions, the recycler must demonstrate that conditions of the particular exclusion are met (e.g., the material is an ingredient, an effective substitute, or returned to the original process from which it was generated, without first being reclaimed). The recycler must also satisfy an implied criterion, namely, that the recycling activity is "legitimate" and not a form of waste treatment or "sham" recycling. EPA has established criteria for evaluating whether a particular recycling activity is legitimate and not a sham. Not one factor is determinative, but rather all of the criteria are balanced. The issue of legitimacy is discussed in detail in Chapter 3, section 3.3.2.

Those claiming that a secondary material qualifies for one of the above three exemptions, or

is otherwise conditionally excluded from the definition of solid waste, must be able to demonstrate, in the event of an enforcement action, that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption. To make such a demonstration, a recycler must provide appropriate documentation (such as contracts showing that the manufacturer uses the material as an ingredient in an industrial process) that demonstrates that the material is not a waste. Facilities that claim to be actually recycling the material must also show that they have the necessary equipment to do so. Id. § 261.2(f).

2.3.4 Other Exclusions from the Definition of Solid Wastes

In addition to the regulatory exclusion for secondary materials under section 261.2(e)(1) (use or reuse without first being reclaimed), 12 other categories of materials are also specifically exempt from the definition of solid waste under section 261.4. Of these, only three are of any potential importance to the shipyard industry. The other exempted materials are specific to other industry sectors. See id. § 261.4(a).

The three categories of exempt materials that are potentially relevant to shipyards are:

(1) Industrial wastewater discharges that are point source discharges subject to regulation under section 402 of the Clean Water Act, as amended;

(2) Spent sulfuric acid used to produce virgin sulfuric acid, unless it is accumulated speculatively; and

(3) Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided: (I) only tank storage is involved and the entire process is closed by being entirely connected by pipes or other comparable means of conveyance; (ii) reclamation does not involve controlled flame combustion; (iii) the secondary materials are never accumulated in such tanks for more than 12 months without being reclaimed; and (iv) the reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal.

Id. § 261.4(a)(2), (7), and (8). The last exemption cited above is known as the "closed-loop"

exemption and is widely used by industry.

2.3.5 Case-by-Case Variances

Secondary materials that are not specifically excluded from regulation under section 261.4 may be excluded from regulation by a variance pursuant to sections 260.31 and 260.32. Under those sections, the EPA Administrator may determine on a case-by-case basis that the following recycled materials are not solid wastes: (1) materials that are accumulated speculatively without sufficient amounts being recycled over the calendar year; (2) materials that are reclaimed then reused within the original production process in which they were generated; and (3) materials that have been reclaimed, but must be further reclaimed before the materials are completely recovered. Id. § 260.30(a)-(c).

Facilities must petition EPA to obtain a variance in accordance with the procedures set forth at section 260.31. Variances for speculatively accumulated materials are based on the following five criteria:

> (1) the manner in which the material is expected to be recycled, when the material is expected to be recycled, and whether the recycling is expected to occur in light of the cause of the original delay in recycling the material;
>
> (2) the reason that the applicant speculatively accumulated the material;
>
> (3) the quantity of the material already accumulated and the quantity expected to be generated and accumulated before the material is recycled;
>
> (4) the extent to which the material is handled to minimize loss; and
>
> (5) other relevant factors.

Id. § 260.31(a).

EPA has the authority to grant variances from classifying as a solid waste those materials that are reclaimed and then reused as feedstock within the original production process in which the

materials were generated if the reclamation operation is an essential part of the production process. Variances for these situations are based on the following criteria:

(1) how economically viable the production process would be if it were to use virgin material, rather than reclaimed materials;

(2) the prevalence of the practice on an industry-wide basis;

(3) the extent to which the material is handled before reclamation to minimize loss;

(4) the time periods between generating the material and its reclamation, and between reclamation and return to the original primary production process;

(5) the location of the reclamation operation in relation to the production process;

(6) whether the reclaimed material is used for the purpose for which it was originally produced when it was returned to the original process, and whether it is returned to the process in substantially its original form;

(7) whether the person who generates the material also reclaims it; and

(8) other relevant factors.

Id. § 260.31(b).

Partially reclaimed materials are also eligible for a variance. A "partially reclaimed" material is one that has been reclaimed, but requires further reclamation before the recovery of the commodity-like product is complete. EPA uses the following criteria to evaluate partially reclaimed variances from the definition of solid wastes:

(1) the degree of processing that the material has undergone and the degree of further processing that is required;

(2) the value of the material after it has been reclaimed;

(3) the degree to which the reclaimed material is like an analogous raw material;

(4) the extent to which an end market for the reclaimed material is guaranteed;

(5) the extent to which the reclaimed material is handled to minimize loss; and

(6) other relevant factors.

Id. § 260.31(c).

Variance requests are usually a time consuming and potentially costly undertaking. However, when they are granted, all concerns or ambiguities over whether and, if so, how a material is regulated are eliminated. Materials excluded via a variance are not hazardous wastes provided they are recycled pursuant to the conditions set forth in the variance. Variances are a good idea for those materials that are indeed commodity-like, but for some reason do not qualify for an exclusion or exemption from the definition of solid waste.

2.4 Summary of Solid Waste Definition

A RCRA "solid" waste is any material, regardless of physical form (i.e., solid, semi-solid, liquid, or gas), that is not specifically excluded from the definition of solid waste and that is discarded by being abandoned (i.e., disposed of or incinerated), inherently-waste-like (e.g., dioxin containing waste), or recycled in a manner that is considered to be waste management (i.e., used in a manner constituting disposal, burned for energy recovery, reclaimed, or speculatively accumulated). Not included within the definition of solid waste are materials that are recycled by being used or reused as a feedstock in an industrial production process or as a substitute for a commercial chemical product, provided that the materials are not first reclaimed and otherwise meet the requirements of 40 C.F.R. § 261.2(e).

Because a secondary material must be deemed a solid waste before it can be "hazardous," and hence before EPA can assert RCRA Subtitle C jurisdiction over it, shipyards should always first determine whether the material meets the definition of a solid waste when evaluating the RCRA consequences of a particular recycling activity. To do this, a shipyard must identify which category of secondary materials the material falls into (i.e., spent material, sludge, by-product, commercial chemical product, or scrap metal) and how the material will be recycled. If the secondary material

is going to be recycled in one of the four ways described in Table 1 above at page 11, then Table 1 can be used to determine whether the material is a solid waste, and potentially a hazardous waste subject to regulation. If the secondary material is going to be directly used or reused without first being reclaimed, the shipyard must analyze whether the material is eligible for the "use/reuse" exemption. (See Chapter 3 for a detailed analysis of the "use/reuse" exemption.) If the material meets the conditions of the use/reuse exemption, it is not a solid waste and not subject to RCRA Subtitle C regulation. Otherwise, the facility must next determine whether the material qualifies for one of the 12 solid waste exclusions set forth at section 261.4(a).

If the secondary material is excluded or exempt for the definition of solid waste, the RCRA recycling analysis is over, and the material can be recycled without limitation. If a secondary material is deemed to be a solid waste, the next step in the process is to determine if the waste meets the definition of hazardous waste. See Figures 1 and 2.

FIGURE 1

DEFINITION OF A SOLID WASTE

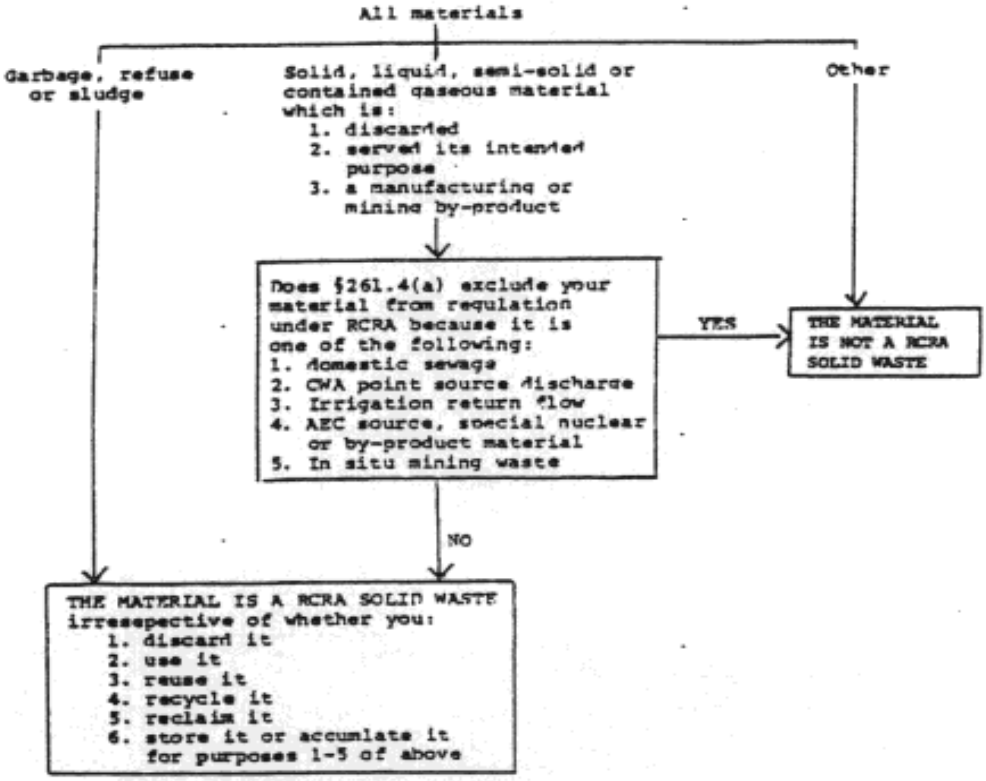
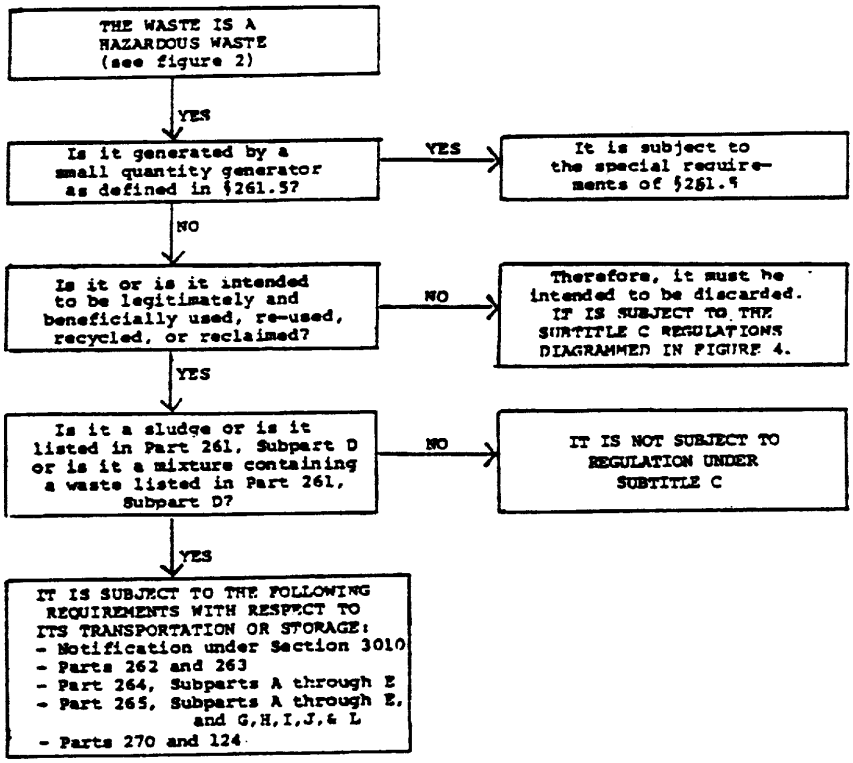


Figure 2

SPECIAL PROVISIONS FOR CERTAIN HAZARDOUS WASTE



2.5 RCRA Hazardous Wastes

2.5.1 Identification of Hazardous Wastes

RCRA section 1004(5) defines "hazardous waste" as:

> A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may
>
> > (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
> >
> > (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

42 U.S.C. § 6903(5).

Under EPA's regulatory definition, which is set forth at 40 C.F.R. § 261.3, unless specifically exempted or excluded, a solid waste is hazardous if: (1) it is specifically listed as a hazardous waste (i.e., F-, K-, P-, and U-listed wastes (see § 261.33)); or (2) it exhibits one or more of the following hazardous characteristics: ignitability, corrosivity, reactivity, or toxicity(see § 261.21-24). Included in the definition of hazardous wastes are mixtures of a listed waste and a solid waste, and mixtures of characteristic wastes and solid wastes that exhibit a hazardous characteristic after being mixed. 40 C.F.R. § 261.3(a)(2)(ii) and (iii). Also included are solid wastes derived from the treatment, storage, and disposal of listed wastes and characteristically hazardous wastes derived from the treatment, storage, and disposal of characteristically hazardous wastes and mixtures. Id. § 261.3(c)(2)(I).

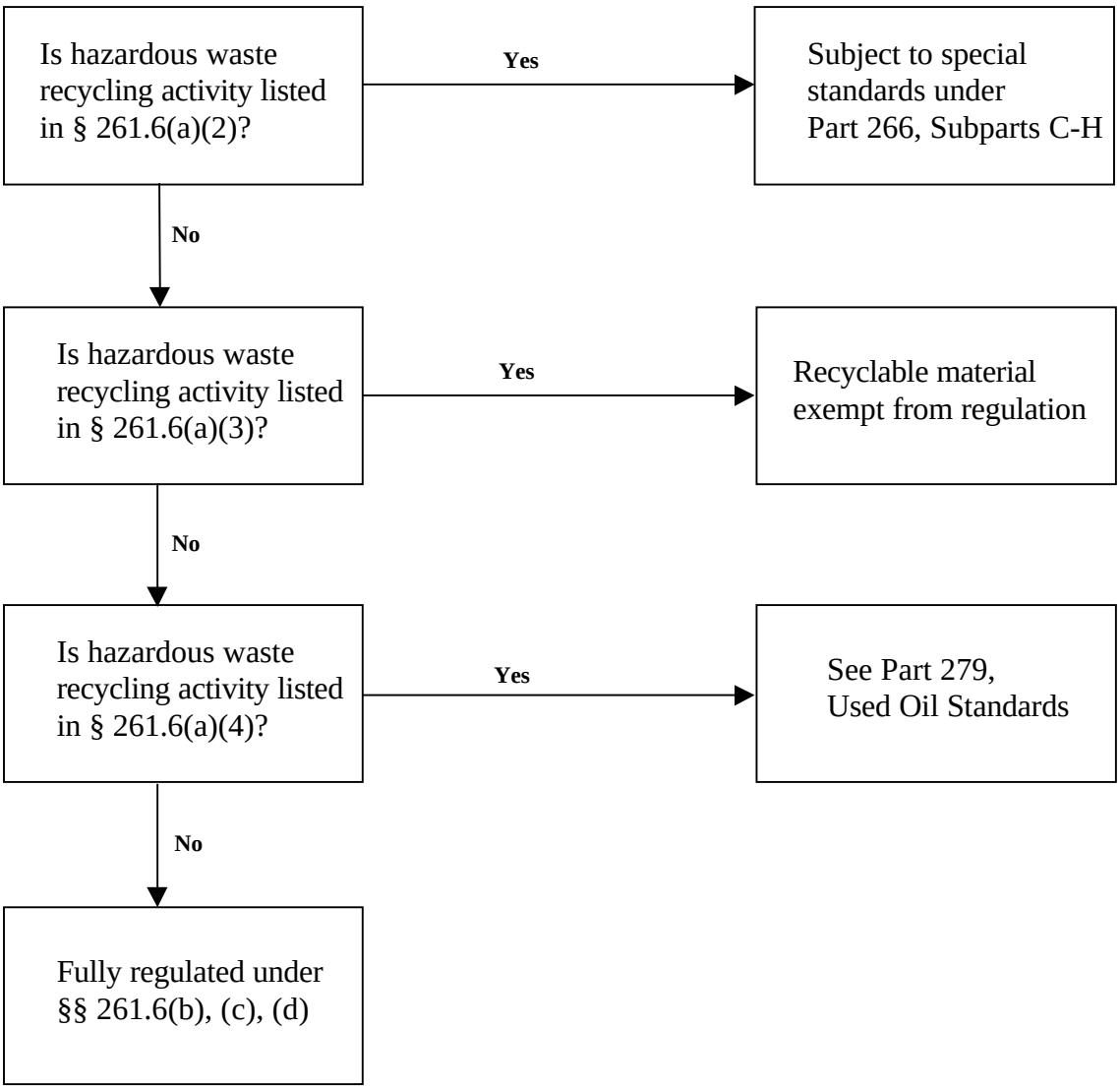
2.5.2 Regulation of Hazardous Wastes

Solid wastes that are neither specifically listed as a hazardous waste nor exhibit a hazardous characteristic are not regulated under RCRA Subtitle C. Solid wastes that are hazardous are subject to varying degrees to Subtitle C, unless specifically excluded or exempted from regulation.

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 a use/reuse exclusion under section 261.2(e)) and it meets the definition of hazardous waste, sections 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, depending on the type and manner of recycling. See Figure 3. The recycling unit itself is not subject to regulation; nor necessarily is the product of the recycling activity. RCRA's hazardous waste recycling standards are discussed in more detail in Chapter 4.

FIGURE 3

Analysis Of Hazardous Waste Recycling Requirements



CHAPTER 3
SOLID WASTE RECYCLING EXCLUSION ANALYSIS

3.1 Introduction

Chapter 2 provides a general overview of RCRA and its regulatory regime and if and how secondary materials are regulated. This Chapter builds on the issues discussed in Chapter 2, with a special emphasis on materials that are recycled by being used or reused as ingredients to produce a product or as substitutes for commercial products. Chapter 3 is designed to provide shipyard environment managers with the necessary tools to undertake their own site-specific regulatory analyses of secondary materials generated at their facilities. Chapter 4 walks step-by-step through shipyard-specific examples.

3.2 Materials that Are Recycled in a Manner Other than by Being Used or Reused Without First Being Reclaimed

Evaluating the regulatory status of materials that are recycled in a manner other than by being used or reused without first being reclaimed (i.e., materials potentially excluded by section 261.2(e)) is relatively straight forward. As discussed in Chapter 2, the first step in evaluating whether a secondary material is subject to RCRA Subtitle C regulation always is to determine whether the material is a RCRA solid waste. To be a solid waste, a material must be "discarded." If it has not, the analysis is over: the material is not a solid waste and hence not subject to Subtitle C. For example, blast abrasive or cleaning solvents that have been used once or more, but are still capable of performing the function for which they were purchased (i.e., blasting, cleaning), are not solid wastes and can continue to be used for those purposes without limitation.

A material is "discarded" if it: (1) can no longer perform the function for which it was purchased (i.e., spent) without some form of reclamation or regeneration; (2) is a waste by-product

generated by a primary production process; (3) is an emission control sludge; (4) meets a hazardous waste listing; or (5) is any other material that a shipyard intends to dispose of for any reason. Examples include blast abrasive, cleaning solvents, metal working fluids, used oil, antifreeze, etc. that through use have become spent; paints, paint chips, and coating residues that have been removed from ship structures; electroplating or metal finishing sludge; and off-specification or residue commercial chemical products (e.g., methyl ethyl ketone) intended for disposal.

Once its has been determined that a material has been, or is intended to be, discarded, Step 2 is to determine whether the material is specifically excluded pursuant to 40 C.F.R. § 261.4(a). As discussed in Chapter 2, section 2.3, none of the section 261.4(a) exemptions are specific to the shipyard industry and only a few are potentially applicable. If, as usually will be the case for most shipyards, the material is not excluded by section 261.4(a) or a site-specific variance, then Step 3 is to classify the material into the appropriate secondary material category, i.e., spent, sludge (listed or characteristic), by-product (listed or characteristic), commercial chemical product, or unprocessed scrap metal. Each of these terms are defined in Chapter 2.

Step 4 is to identify the manner is which the secondary material will be recycled. Once the type and means or recycling have been identified, Step 5 is to use Table 1 to determine whether the material is regulated as a solid waste. See 40 C.F.R. § 261.2, Table 1; see also Table 1 at page 11.6

If the secondary material is excluded from the definition of solid waste when recycled in a specific manner (e.g., characteristic sludge or a by-product that is reclaimed), then the RCRA Subtitle C analysis is complete. The material is not subject to RCRA Subtitle C regulation. However, the converse is not necessarily true.

Once a waste has been properly characterized as a solid waste, Step 6 is to determine whether the waste is hazardous. Secondary materials are hazardous if they are specifically listed or exhibit one of the four hazardous characteristics. It is the generator's legal responsibility to characterize accurately whether the material is hazardous either through the use of an EPA reference test method or generator knowledge of the material. 40 C.F.R. § 262.11. Shipyards that incorrectly characterize hazardous wastes are potentially subject to civil and/or criminal liability regardless of whether the mistake was unintentional.

The last step is to determine whether the recyclable material is eligible for an exclusion from the definition of hazardous waste set forth at sections 261.4(b) or 261.6(a)(2) and (3). If it is not, then it is subject to Subtitle C regulation unless the shipyard applies for and is granted a site-specific variance. See discussion at Chapter 2, section 2.3.5. The generator shipyard and the ultimate recycler (if they are different) of the material must comply with all applicable requirements set forth at 40 C.F.R. Parts 262 and 264/265. The recycling unit itself, however, is not subject to regulation. 40 C.F.R. § 261.6(c)(1); see Figure 4.

As discussed in Chapter 4, Section 4.1.3, even if a hazardous recyclable material is subject to RCRA Subtitle C regulation, shipyards can recycle the material on-site without obtaining a RCRA TSD permit, provided that the recyclable material is recycled within 90 days of the date it is first generated and the recycling occurs within a RCRA tank, container, or containment building. See 51 Fed. Reg. 10,146, 10,168 (March 24, 1986). The product of the recycling activity would not be considered a waste provided that it is not used directly on the land or burned for energy recovery.

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6 Step 5 ensures that the secondary materials or products made from the secondary materials are not used on the land, burned for energy recovery, or speculatively accumulated.

Residues generated from the recycling would continue to be regulated as a hazardous waste if they are derived from a listed waste or exhibit a hazardous characteristic.

3.3 Materials that Are Recycled by Being Used or Reused Without Being Reclaimed

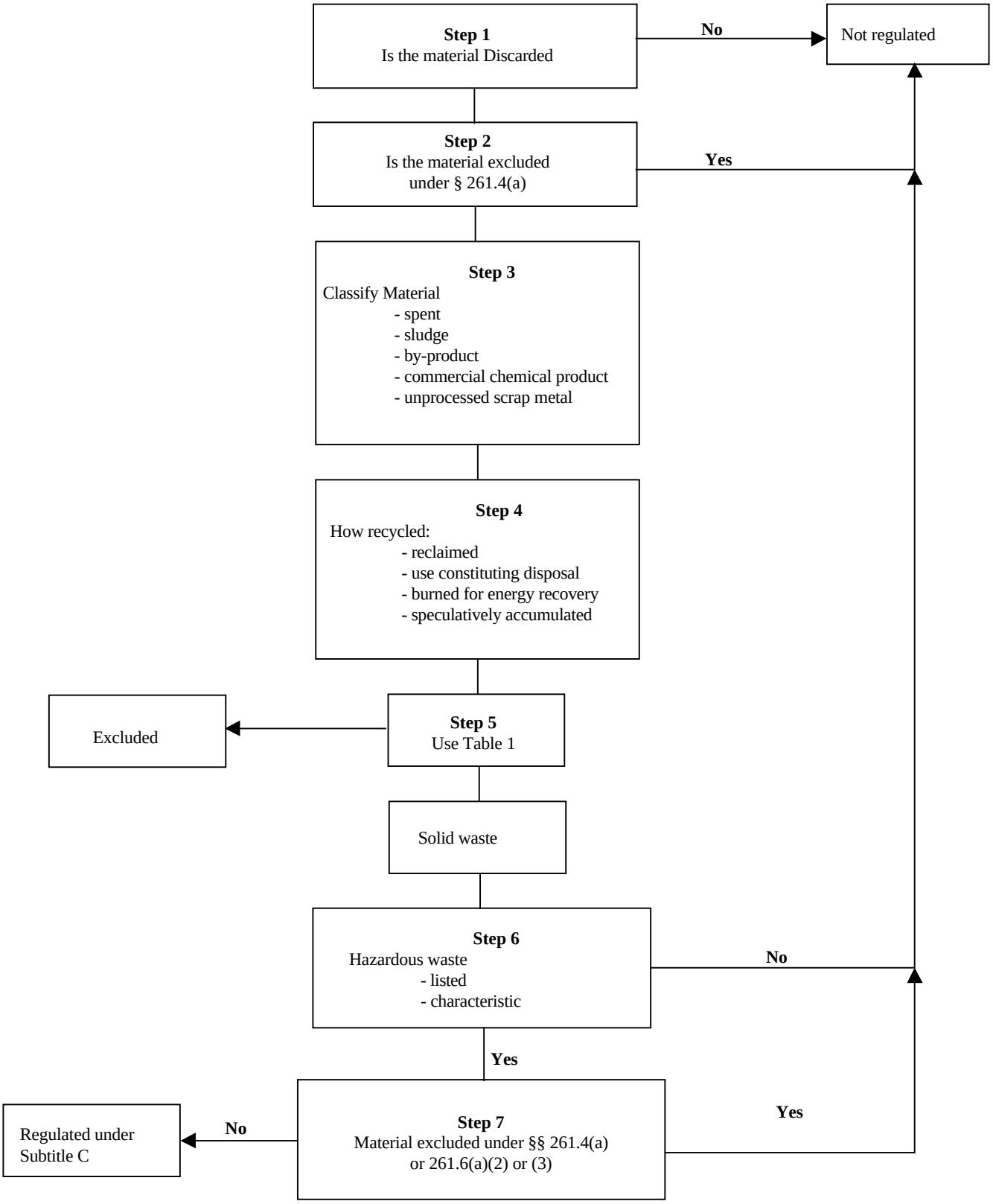
The majority of recycling determinations involve one of the three section 261.2(e) "use/reuse" exclusions. The reason for this is that the use/reuse exemptions provide facilities with more flexibility than other exclusions and materials that qualify for one of the exclusions need not be managed as a hazardous waste. In part because of its wide spread use, the use/reuse exemption is also the RCRA exclusion that EPA views most closely, and often contentiously. Consequently, understanding and being able to perform at least a preliminary analysis is critical.

Evaluating whether a particular material qualifies for a use/reuse exclusion is more complicated than the analysis required for other exclusions and exemptions. A recycler claiming an exclusion must be prepared to make two demonstrations. First, a recycler must demonstrate that each condition of the particular section 261.2(e) exclusion relied on as the basis for the exclusion is met. Second, and usually more difficult, the recycler must demonstrate that the recycling activity is "legitimate," and not a form of "sham" recycling engaged in merely to avoid Subtitle C regulation. Making this latter demonstration is often difficult because of the absence of objective, formally codified "legitimacy" criteria. Shipyards, like other recyclers, must evaluate the legitimacy of a particular recycling activity using informal and highly subjective criteria set forth in internal EPA memoranda and numerous, and often inconsistent, EPA letters and policies interpreting those informal criteria.

Discussed below are each of the three use/reuse exclusions and the criteria EPA uses to determine whether recycling activities are legitimate.

Materials Being Recycled In A Manner Other Than By Being Used Or Reused

Figure 4



3.3.1 Section 261.2(e) Exclusions

Section 261.2(e) excludes from the definition of solid waste, and hence Subtitle C regulation, materials that are legitimately recycled by being:

> (1) used or reused as ingredients in an industrial process to make a product, provided that the materials are not being reclaimed;
>
> (2) used or reused as effective substitutes for commercial products; or
>
> (2) returned to the original process from which they are generated, without first being reclaimed or land disposed. The material must be returned as a substitute for feedstock materials. 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 ground.

40 C.F.R. § 261.2(e)(1). Regardless of whether they otherwise meet the conditions of one or more of the above three exclusions, materials that are used or reused by being: (1) used in a manner constituting disposal, or used to make a product that is used in a manner constituting disposal; (2) burned for energy recovery, or to produce a product that is burned for energy recovery; (3) inherently waste-like; or (4) speculatively accumulated, are not eligible for a use/reuse exclusion and are regulated as hazardous wastes. Id. § 261.2(e)(2). Also not included are materials deemed not to be legitimately recycled.

3.3.1.1 Use as an Ingredient Exclusion

The first of the three exclusions is known as the "use as an ingredient" exclusion. For a material to qualify for this exemption, a recycler must be prepared to demonstrate that the secondary material is a necessary "ingredient" to produce a "legitimate" product and that the secondary material is not being "reclaimed" as part of the process. To be an ingredient the material must contribute to some element of the product and meet manufacturing feedstock specifications. If a material is ineffective or only marginally effective for the claimed use, or if it is used in excess of the amount necessary to operate a process, it is not a "necessary" ingredient.

The recycled product itself also has to be legitimate. For example, a facility that accepts any and all wastestreams as feedstock to produce an "aggregate" would not be considered a legitimate manufacturer. See, e.g., U.S. v. Marine Shale Processors, Inc., 81 F.3d 1361 (5th Cir. 1996). Finally, the secondary material cannot be reclaimed into distinctive end products. Examples of materials that are reclaimed include the regeneration of spent solvents and recovery of specific metal values from metal-bearing material.

An example of a process that qualifies for this exclusion is metal-bearing emission control dust that is smelted in an electric arc furnace along with scrap metal to produce steel. The dust is analogous to the raw material that it is replacing (i.e., has similar constituents and concentrations) and is being used to produce a legitimate product, steel. The dust is not being recycled to recover a distinct constituent (i.e., reclaimed), but rather it is used as steelmaking ingredient. See Attachment 1. Another example is metal-bearing emission control dust used to produce blast abrasive and ceramic tiles. See Attachment 2.

3.3.1.2 Use/Reuse as a Commercial Substitute

The second section 261.2(e) exclusion is known as the "use as a commercial substitute" exclusion. This exclusion is relatively straight forward. Secondary materials that can be used directly as replacements for a "virgin" commercial product are not solid wastes. Examples include waste acid being used as a drinking water fluoridating agent, use of spent pickle liquor as a wastewater conditioner, and solvents that are no longer effective for particular uses, but are still effective for other uses (e.g., ones that require a lower-grade solvent). See 50 Fed. Reg. 614, 637 (January 4, 1985).

3.3.1.3 Materials Returned to the Production Process

The third section 261.2(e) exclusion excludes from the definition of solid waste materials that are "returned" to the "original process" that "generated" the material as a "substitute" for feedstock material without "first being reclaimed." This exclusion is similar to the "use as an ingredient" exclusion. There are, however, two differences. First, the material must be returned to the process that generated it. Second, although the material cannot be reclaimed prior to being recycled back into the unit, it can be reclaimed during the process. See id. at 639.

By "returned to the original process," EPA means that the unreclaimed material must be returned to the same part of the process from which it was generated. The material need not be returned to the same unit operation; it is sufficient if it is returned to any of the unit operations associated with production of a particular product, provided the material was generated from one of the unit operations. Id. For example, an emission control dust from a primary copper smelter could be returned to any part of the process associated with copper production.

The material also cannot be reclaimed prior to being reinserted into the production process. Processing steps that do not themselves regenerate or recover material values and are not necessary to material recovery are not reclamation. Examples of incidental processing include the watering of dry wastes to prevent or reduce wind dispersion or the briquetting of metal-bearing material to facilitate smelting. Conversely, processing that does regenerate or recover materials to make them available for further use are deemed to be reclamation. Examples include the dewatering of sludges or recovery of copper values from dry wastes prior to resmelting. Id. at 640.

An example of materials that would not qualify for this exclusion are spent solvents which are distilled and returned to the same degreasing operation in which it was generated. The spent solvent

would be a solid waste because it is reclaimed prior to reuse and it is not reused as an ingredient in a production process. Id. The reclaimed solvent itself, however, is a product and no longer a waste.

3.3.1.4 Use of the Material

Section 261.2(e) does not exclude secondary materials that are inherently waste-like, speculatively accumulated, used in a manner constituting disposal, or burned for energy recovery. Assessing whether a material falls into one of the first two categories is easy. Inherently waste-like materials are specifically listed as hazardous wastes. Secondary materials that generally are not recycled within one year of the date they were generated are speculatively accumulated. Determining whether a recycled material is used in a manner constituting disposal or burned for energy recovery can be more difficult.

Whether a product is "used in a manner constituting disposal" or "burned for energy recovery" is fact-specific.7 Some determinations are obvious. Materials that are to be used directly on the land, such as aggregate, fill material, and road base, are clearly used in a manner constituting disposal. Similarly, high Btu waste fuels and spent solvents that are fired directly to a boiler or furnace are burned for energy recovery.

Not so obvious, however, are products such as blast abrasive that, through use, may inadvertently accumulate on the ground, ceramic tiles used to construct in-ground pools, high-lead value paints and reflectors used on roadways, cement structures that make partial contact with the ground, and materials with relatively high Btu values, just to name a few. In these situations, whether or not a material is used in a manner constituting disposal or burned for energy recovery is subject to the discretion of regulatory authorities (i.e., EPA, state, or local agency). Consequently,

7 These issues are discussed in greater detail in Chapter 4.

determinations on similar products and uses are not always consistent from state-to-state and from region-to-region. Often, the decision rests on how effectively a recycler makes its case to the authorities. Shipyards considering using a recyclable material in a manner that could be interpreted as land placement or energy use should consider seeking advance concurrence from the appropriate authority before initiating the recycling activity, so as to avoid potential future liability in the event that the regulatory authority were to disagree with the shipyard's assessment.

3.3.2 Legitimate Recycling

An implied requirement of all the RCRA recycling exclusions is that the recycling activity be "legitimate," and not a "sham" (i.e., recycling undertaken merely to avoid RCRA regulation). Sham recycling is subject to full Subtitle C regulation. Consequently, it is important for shipyards to understand the criteria used by EPA and other regulatory authorities to assess whether a particular recycling activity is legitimate.

Evaluating legitimacy of recycling is complex, and the results of such evaluations are not necessarily intuitive. Indeed, according to EPA, determining whether a particular activity is legitimate or a sham:

> involves assessing the intent of the owner or operator by evaluating circumstantial evidence, always a difficult task. Basically, the determination rests on whether the secondary material is "commodity-like." The main environmental considerations are (1) whether the secondary material truly has value as a raw material/product (i.e., is it likely to be abandoned or mismanaged prior to reclamation rather than being reclaimed?) and (2) whether the recycling process (including ancillary storage) is likely to release hazardous constituents (or otherwise pose risks to human health and the environment) that are different from or greater than the processing of an analogous raw material/product.8

8 Memorandum from Sylvia Lowrance, former-Director, EPA Office of Solid Waste, to Hazardous Waste Management, Division Directors, EPA Regions I-X (April 26, 1989).

The criteria EPA uses to assess whether a material is "commodity-like" or legitimately recycled are not codified under EPA's existing regulations. Rather they are contained in EPA memoranda, policies, and letters interpreting RCRA's recycling regulations. The criteria are subjective and have been inconsistently interpreted and applied. Activities judged to be legitimate in one EPA region or state have been deemed a sham in others.

EPA's legitimacy criteria are most clearly set forth in an April 26, 1989 memorandum from Sylvia Lowrance, then-Director, EPA Office of Solid Waste, to Hazardous Waste Management, Division Directors, EPA Regions I-X.9 Hence, the criteria are widely referred to as the "Sylvia Lowrance"criteria. See Attachment 3. The legitimacy criteria themselves are expressed in the form of six questions, the answer to which, "taken as a whole," are intended to guide EPA regional offices through the difficult task of distinguishing between legitimate and sham recycling. The six questions are as follows:

(1) Is the secondary material similar to an analogous raw material or product? Does it contain Appendix VIII constituents not found in the analogous raw material/products (or at higher levels)?

Does it exhibit hazardous characteristics that the analogous raw material/product would not?

Does it contain levels of recoverable material similar to the analogous raw material/product?

Is much more of the secondary material used as compared with the analogous raw material/product it replaces? Is only a nominal amount of it used?

Is the secondary material as effective as the raw material or product it replaces?

---

9 The Sylvia Lowrance memorandum itself dealt specifically with whether a particular hazardous waste, F006 (electroplating sludge), is excluded from the definition of solid waste when recycled by being used as: (1) an ingredient in the manufacture of aggregate; (2) an ingredient in the manufacture of cement; and (3) feedstock for a metals recovery smelter.

(2) What degree of processing is required to produce a finished product?
Can the secondary material be fed directly into the process (i.e., direct use) or is reclamation (or pretreatment) required?

How much value does final reclamation add?

(3) Is it listed in industry news letters, trade journals, etc.?

Does the secondary material have economic value comparable to the raw material that normally enters the process?

(4) Is there a guaranteed market for the end product?

Is there a contract in place to purchase the "product" ostensibly produced from the hazardous secondary materials?

If the type of recycling is reclamation, is the product used by the reclaimer? The generator? Is there a batch tolling agreement?

Is the reclaimed product a recognized commodity? Are there industry-recognized quality specifications for the product?

(5) Is the secondary material handled in a manner consistent with the raw material/product it replaces?

Is the secondary material stored on the land?

Is the secondary material stored in a similar manner as the analogous raw material (i.e., to prevent loss)?
Are adequate records regarding the recycling transaction kept?

Do the companies involved have a history of mismanagement of hazardous wastes?

(6) Other relevant factors.

What are the economics of the recycling process? Does most of the revenue come from charging generators for managing their wastes or the sale of the product?
Are the toxic constituents actually necessary (or in sufficient use) to the product or are they just "along for the ride."

All of the above criteria are supposed to be weighed equally. However, in reality, some factors are given more weight than others. EPA tends to focus on: (1) the similarity between the

secondary material and an analogous raw material; (2) the "value" of the secondary material; (3) how the material is managed prior to recycling; and (4) whether a market exists for the end-product of the recycling activity.

The first, and probably most important, criterion is the similarity between the secondary material and an analogous "virgin" feedstock (i.e., the feedstock that the recyclable material is replacing). Similarity is evaluated on two levels. On a basic level, EPA assesses "similarity" by evaluating how effective a secondary material is for its intended use. Where secondary materials are ineffective or only marginally effective, EPA considers the activity to be surrogate disposal, not legitimate recycling. An example of this is the use of heavy-metal sludges as an ingredient to produce concrete, when the sludges do not contribute to the properties of the concrete. See 50 Fed. Reg. at 638; see also Attachment 4.

Similarly, EPA considers the use of secondary materials in excess of the amount necessary as sham recycling. An example is when a secondary material containing lead is used in a process that requires small lead values, but are recycled in excess of what is required. There is also a presumption of sham recycling when a secondary material contains only trace amounts of a useful constituent, such that the material contributes little, if anything, to the process. This presumption can be overcome if the recycler can show that the secondary material meets process specifications and the specifications are in accord with general industry specifications for the same or similar product.

The more complicated "similarity" assessment entails a hazardous constituent-by-constituent comparison of the secondary material and an analogous raw material. This analysis is known as a "toxics-along-for-the-ride" ("TAR") review. If a recyclable material has toxic constituents (i.e., those contained in Appendix VIII to 40 C.F.R Part 261) not contained in or in concentrations significantly

greater than the analogous virgin material, the secondary material is said to have toxics-along-for-the-ride. EPA views the recycling of secondary materials with TAR to be more disposal-like than manufacturing-like, and thus a form of treatment. See Attachment 4.

By way of example, suppose Company A wanted to use spent blast abrasive that exhibits a hazardous waste characteristic as an ingredient to produce Product B. To demonstrate that the blast abrasive would be legitimately recycled, a shipyard would have to make a constituent-by-constituent comparison of the abrasive with an analogous virgin feedstock for Product B and show that the abrasive does not contain hazardous constituents not found in or in concentrations significantly higher than those found in virgin feedstock used to manufacture Product B. Suppose further that the virgin feedstock used to produce Product B is typically composed of 90 percent inert material, five percent iron, four percent copper, and less than one percent lead (and the lead adds little, if anything, to the Product B). If the lead concentration of the spent blast abrasive is significantly higher (e.g., 10, 15, 20 percent) and/or the copper concentrations were significantly lower (0.1 to 1.0 percent), the shipyard would have a difficult time demonstrating that use of this material is legitimate recycling. Rather, there would be a presumption of illegitimacy.

The second major criterion addresses the value of the recyclable material. "Value" is measured economically. A material has positive value if a recycler pays a generator for the material, and has a negative economic value if the generator must pay the recycler to take the material. The higher a material's positive value, the more likely EPA is to view it as "commodity-like," and vice versa. Thus, when a generator must pay a recycler to recycle the material, or if the cost of recycling the material is greater than the material's value, EPA would be inclined to consider the recyclable material to be more waste-like than commodity-like.

The third criterion is how a material is managed. EPA views with skepticism recyclable materials that are not handled in a manner consistent with their use as raw materials or commercial product substitutes. EPA's believes that this is indicative of the materials' low value and waste-like status. EPA also views with skepticism the absence of records of the recycling activity and related transactions. Manufacturers usually maintain records of feedstock and product use and sales. Consequently, there is a presumption of sham recycling when the generator or recycler is unable to document how, where, and in what volume a material is being used or reused. 50 Fed. Reg. at 638.

The last criterion is whether there is a known and defined market for the end-product of the recycling activity and whether the product complies with industry specifications. This last criterion is fairly self-explanatory. Basically, it is intended to prevent the "recycling" of materials to produce products that have no end use, but rather are stockpiled for some undefined future use. For example, a facility cannot claim to be recycling secondary material into blast abrasive, if the recycled product does not meet industry specifications for such material.

3.3.3 Determinations that an Activity is Excluded From Regulation

The section 261.2(e) exclusions are self-implementing, which means that advance approval from EPA is not required. However, facilities proceed at their own risk. In the event of a legal challenge to a claim that a material is not a solid waste, facilities have the burden of proof to demonstrate that the conditions of the section 261.2(e) exclusions have been met, including that the recycling activity is legitimate. Facilities that cannot overcome this burden may be subject to liability retroactive to the time they first started managing the material as non-solid wastes.

Potential liability can be avoided by seeking advance approval/concurrence from the appropriate authority that a secondary material is excluded when recycled in a particular manner.

Advanced approval is recommended in "close-call" situations and when other regions or states have determined that such recycling is subject to regulation. In should be noted that decisions made in one jurisdiction may not be followed in others. This is especially important for generators that transport secondary materials for recycling across state lines or into other EPA regions. Even if the recycler is not required to manage the material as a waste, the generator state may require the material to be managed as a hazardous waste, including storage and manifesting requirements. This can also become an issue if a recyclable material is temporarily stored in a third state during transit between the generator and the recycler.

3.4 Step-by-Step Recap of Use/Reuse Analysis

Figure 5 provides a step-by-step summary of the process that shipyards should follow to determine whether a material qualifies for a section 261.2(e) use/reuse exclusion. Figure 6 provides a comprehensive recap of the definition of solid waste.

FIGURE 5

261.2(e) Exclusion Flowchart

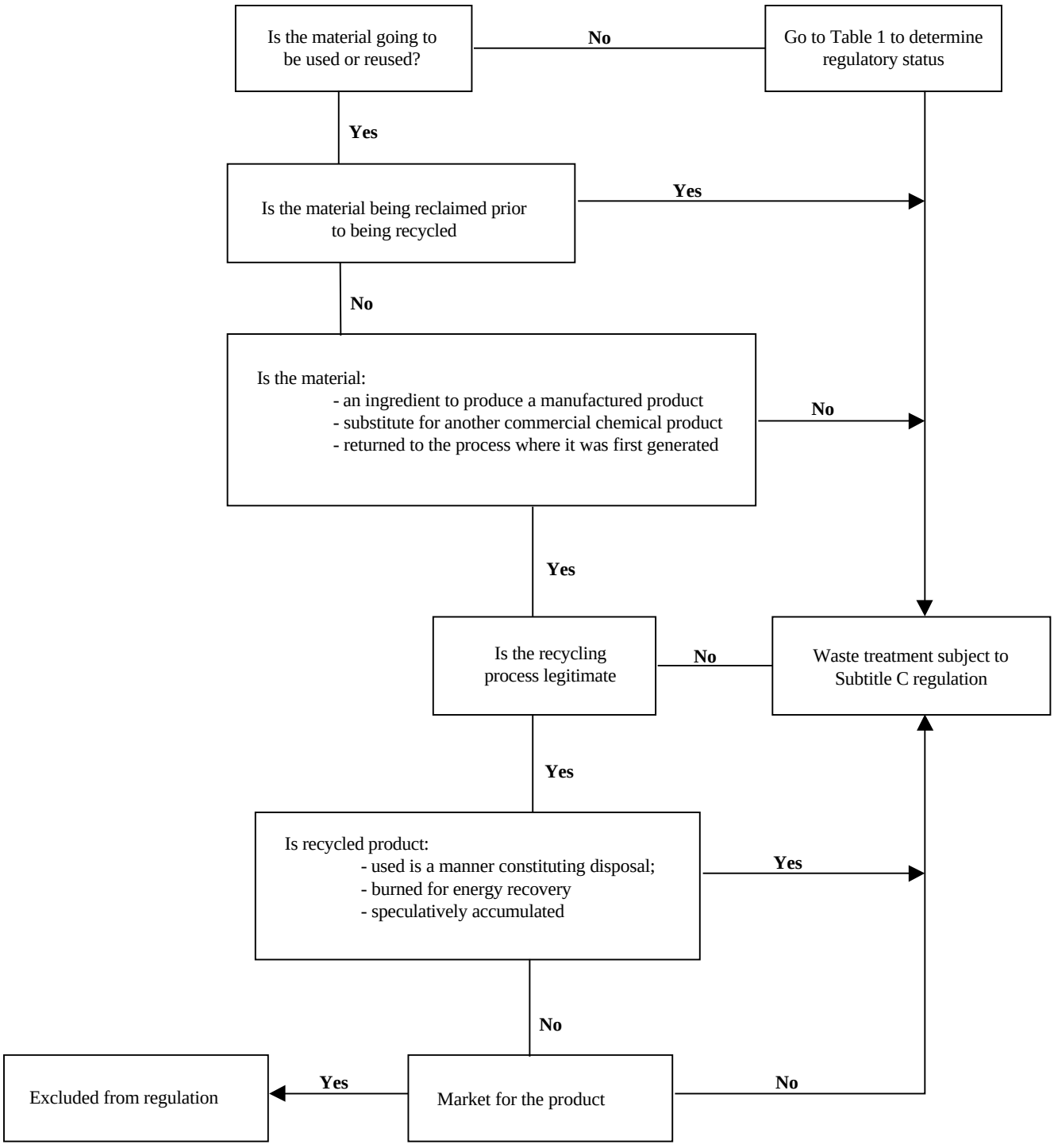
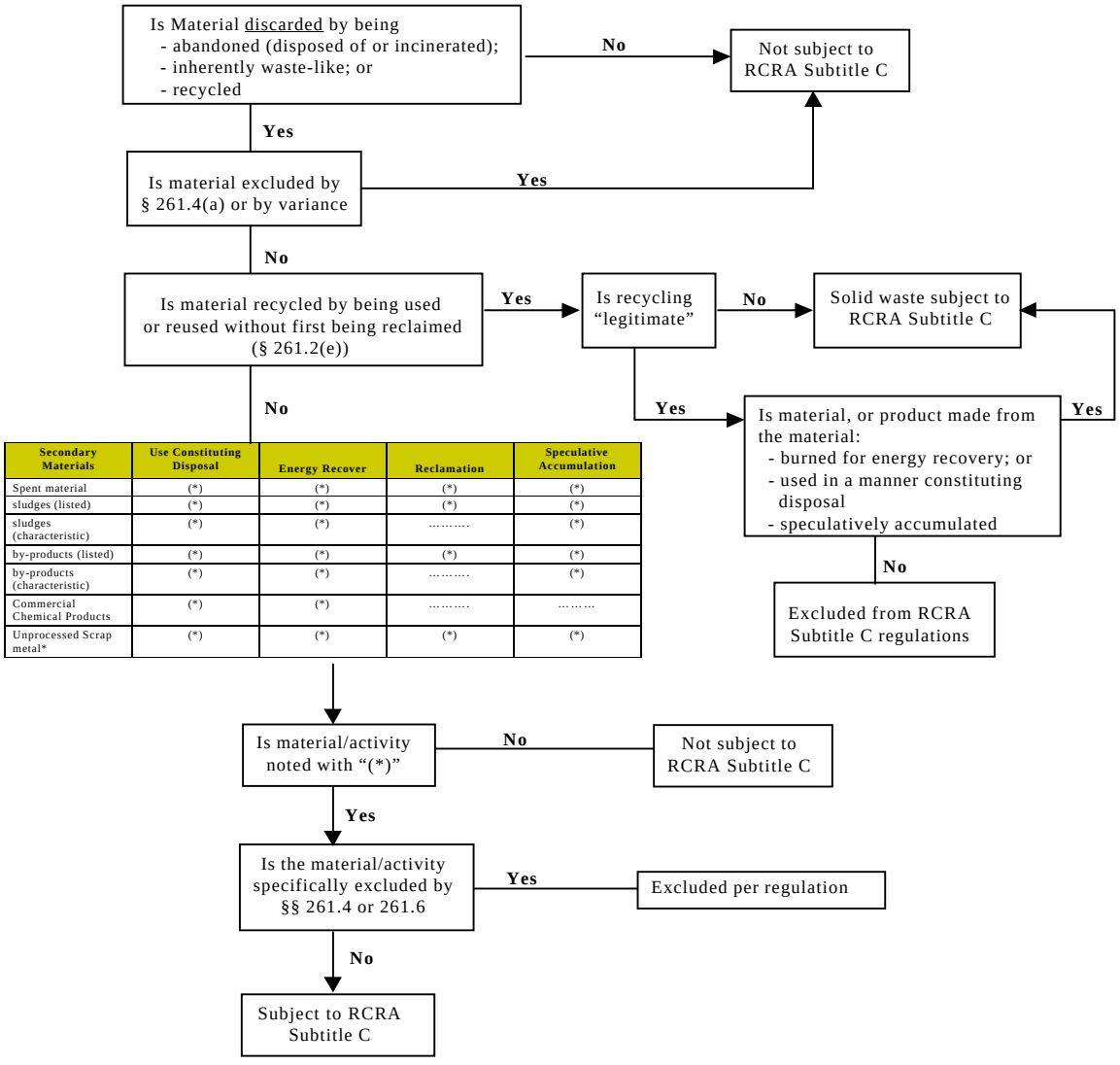


FIGURE 6

Solid Waste Determination Step-by-Step Flow Chart



Secondary Materials	Use Constituting Disposal	Energy Recover	Reclamation	Speculative Accumulation
Spent material	(*)	(*)	(*)	(*)
sludges (listed)	(*)	(*)	(*)	(*)
sludges (characteristic)	(*)	(*)	…….	(*)
by-products (listed)	(*)	(*)	(*)	(*)
by-products (characteristic)	(*)	(*)	…….	(*)
Commercial Chemical Products	(*)	(*)	…….	…….
Unprocessed Scrap metal*	(*)	(*)	(*)	(*)

CHAPTER 4
RECYCLING OF RCRA HAZARDOUS WASTES

The focus of the above discussion, and of this Guidance in general, is on when and how materials that are legitimately recycled are excluded from the definition of solid waste, and hence Subtitle C regulation. Legally avoiding RCRA jurisdiction should be the goal of every shipyard. However, this Guidance should not be read to imply that solid wastes that are not excluded from regulation cannot be recycled. They can and often are. They are just subject to Subtitle C regulation. This also does not mean that the recycling of a particular hazardous wastestream should not be encouraged or cannot be made profitable. Indeed, many facilities are finding it profitable and environmentally beneficial to recycle their hazardous wastes.

4.1 Hazardous Waste Recycling Requirements

Hazardous wastes that are recycled are subject to RCRA Subtitle C regulation. These materials are known as "recyclable materials." See 40 C.F.R. § 261.6(a)(1). Section 261.6 dictates the level of regulation placed on the recyclable material and the recycling activity. Such management standards range from no regulation to full regulation, depending on the type of recyclable material and the manner of recycling.

4.1.1 Section 261.6(a)(2) Standards

Pursuant to 40 C.F.R.§ 261.6(a)(2), the following recyclable materials are subject to special regulation under 40 C.F.R. Part 266: (1) recyclable materials used in a manner constituting disposal (Part 266, subpart C); (2) hazardous wastes burned for energy recovery in boilers and industrial furnaces (subpart H); (3) precious metals (subpart F); and (4) spent lead-acid batteries that are

reclaimed (subpart G). The first two categories are potentially relevant to shipyard onsite recycling activities.

4.1.1.1 Use in a Manner Constituting Disposal

Part 266, subpart C regulates recyclable materials that are used in a manner constituting disposal, i.e., used directly on or to make a product used on the land. An example of this would be hazardous spent abrasive blast used as aggregate or fill material, or as feedstock to produce portland cement that is used directly on the ground. The use of recyclable material in such a manner is regulated as simple land disposal and is prohibited in all but a few instances.

An exception to this general rule is when the recyclable material is recycled into a product that: (1) is made for the general public's use; (2) has undergone a chemical reaction so as to be inseparable by physical means; and (3) meets the applicable LDR treatment standards prior to land use. 40 C.F.R. § 266.20(b). Asphalt and cement are potential examples such products. Materials that do not meet section 266.20(b)'s requirement must be managed as a hazardous waste, and are thus prohibited from being used on the land.

Section 266.21 requires that all recyclable materials that are to be used in a manner constituting disposal be managed as a hazardous waste prior to use. Generators of recyclable materials that are recycled in this manner (e.g., generators of hazardous blast abrasive that is sent offsite for recycling in a manner constituting disposal) are required to comply with RCRA's "generator" requirements set forth at 40 C.F.R. Part 262 (storage, manifesting, etc.) and RCRA section 3010 notification procedures for obtaining a EPA identification number. This is important for shipyards that send secondary materials offsite for recycling. If the offsite recycler is recycling the material in a manner constituting disposal, the shipyard is required to manage the waste pursuant

to Part 262 until the waste is sent offsite. Failure to do so is a RCRA violation and could subject the generator shipyard to civil or criminal penalties. Thus, it is critical for shipyards to thoroughly investigate where and how their wastes are being recycled offsite.

Facilities that use recyclable materials in a manner constituting disposal are also subject to RCRA section 3010 notification requirements and applicable Parts 264/265 management standards (TSD management standards). Products complying with section 266.20(b) are not regulated. This is critical for facilities that purchase or are considering purchasing hazardous recycled materials for land application. If the purchased product complies with section 266.20(b), it may lawfully be used on the land. If it does not meet the requirements of section 266.20(b), use of the material in land application would subject the shipyard to the full panoply of RCRA Subtitle C requirements, including TSD management standards and permitting. Before purchasing or using such recycled material, shipyards should confirm how the material was manufactured, its regulatory status, whether the material complies with section 266.20(b), and whether the appropriate regulatory authority would consider the particular use of the material to be "use in a manner constituting disposal."

In addition to the above, RCRA section 3004(l) also prohibits the use of waste oil, used oil, or other materials contaminated with hazardous wastes for dust suppression or road treatment. See 42 U.S.C. § 6924(l). Federal used oil regulations are discussed in more detail in section 4.3.

4.1.1.2 Burning Hazardous Wastes

Materials that are burned for energy recovery in a boiler or industrial furnace are not eligible for an exclusion from RCRA Subtitle C and are specifically regulated under subpart H of 40 C.F.R. Part 266. These regulations are discussed at Section 4.2.

4.1.2 Section 261.6(a)(3) Exemptions

Recyclable materials that are specifically listed under section 261.6(a)(3) are exempt from hazardous waste regulation. Although these materials meet the definitions of solid and hazardous wastes, they are not required to be managed as hazardous wastes provided that they are recycled in the manner set forth in section 261.6(a)(3). The following materials are included on the list: (1) industrial ethyl alcohol; (2) unprocessed scrap metal; (3) waste-derived fuels from refining processes; (4) waste-derived fuels and oils that are not refined; (5) recovered petroleum refining wastes; and (6) petroleum coke fuels.

4.1.3 Sections 261.6(b), (c), and (d) Recycling Management Standards

Recyclable materials that are not exempt or excluded from regulation as a hazardous waste are subject to the management standards set forth under sections 261.6(b),(c), and (d). Section 261.6(b) provides that generators and transporters of hazardous wastes are subject to applicable "generator" and "transporter" requirements set forth at 40 C.F.R. Parts 262 and 263 and RCRA section 3010 notification requirements.

Offsite facilities that store recyclable materials prior to recycling are regulated in the same manner as hazardous waste TSD facilities. Such facilities must comply with TSD management standards, minimum technology requirements ("MTRs"), RCRA permitting requirements, and corrective action. Section 261.6(d) also requires recycling units located at a RCRA permitted facility to comply with applicable RCRA air emission standards. However, if recyclable materials are not stored prior to recycling, but rather placed immediately into the recycling unit, then the recycler would not be deemed a TSD facility or required to obtain a RCRA permit.

It is important to note that regardless of whether the recyclable material is regulated as a hazardous waste or whether the recycling facility is subject to RCRA TSD standards, the recycling unit itself is not subject to RCRA regulation. 40 C.F.R. § 261.6(c)(1) (emphasis added). Nor is the product produced from the recycling activity subject to RCRA, provided that the recycled product is not used in a manner constituting disposal or burned for energy recovery.

4.1.4 Recycling of Hazardous Wastes During the 90-Day Generator Accumulation Period

RCRA regulations provide that generators of hazardous waste may accumulate hazardous waste on-site without a RCRA TSD permit for 90 days or less provided that the waste is placed in RCRA tanks, containers, or containment buildings. Id. § 262.34. Moreover, it is EPA's policy to allow generators of hazardous waste to treat their waste on-site without a permit, provided that the treatment occurs during the 90-day accumulation period and that the waste is treated and stored in appropriate RCRA tanks, containers, or containment buildings. This exemption is not specifically provided for in the regulations, but rather is an EPA interpretation. In the preamble to EPA's final hazardous waste regulations, EPA stated that: "[o]f course, no permitting would be required if a generator chooses to treat their hazardous waste in the generator's accumulation tanks or containers in conformance with the requirements of § 262.34 and Subparts J or I of Part 265." 51 Fed. Reg. 10,146, 10,168 (March 24, 1986). EPA has recently expanded the scope of this RCRA permit exemption also to allow generators to accumulate and treat waste in containment buildings that meet the requirements of subpart DD of 40 C.F.R. § 265. 40 C.F.R. § 262.34.

EPA defines "treatment" as any method or process designed to change the chemical character of any hazardous waste so as to render such waste non-hazardous. Id. § 260.10. Non-exempt recycling is considered a form of waste treatment.

4.2 Boilers and Industrial Furnaces

Hazardous wastes that are burned or processed, regardless of the reason, in a boiler or industrial furnace are subject to stringent regulation under 40 C.F.R. Part 266, subpart H, unless specifically exempted under that subpart. Collectively these regulations are known as the Boiler and Industrial Furnace or "BIF" rule. See id. ' § 266.100-112.

For purposes of the BIF rule, "burn" means "burning for energy recovery or destruction, or processing for materials recovery, or as an ingredient. Id. § 266.100(a). "Boilers" are defined as enclosed devices using controlled flame and having the following characteristics: (1) it must have the physical provisions for recovering and exporting thermal energy in the form of steam, heated fluid, or heated gases; (2) the unit's combustion chamber must be of integral design; (3) the unit must maintain a thermal energy recovery efficiency of at least 60 percent; and (4) the unit must export and utilize at least 75 percent of the recovered energy. Id. § 260.10.

An industrial furnace is a unit that is an integral part of a manufacturing process and uses thermal treatment to recover materials or energy. Id. Currently, there are 12 categories of industrial furnaces: cement kilns, aggregate kilns, lime kilns, phosphate kilns, coke ovens, smelting, melting and refining furnaces, methane reforming furnaces, pulping liquor recovery furnaces, blast furnaces, titanium dioxide chloride process oxidation reactors, halogen acid furnaces, and combustion devices used in the recovery of sulfur values from spent sulfuric acid. Id.

Not all furnaces are regulated under the BIF rule. EPA exempted five types of furnaces from regulation, including, in pertinent part: (1) units burning used oil for energy recovery under 40 C.F.R. Part 279; (2) units burning hazardous wastes excluded from regulation under sections 261.4 and 261.6(a)(3); and (3) units burning hazardous wastes from small quantity generators. Id. § 266.100(b). In addition, three types of furnaces are conditionally exempt from regulations: metal recovery furnaces, precious metal recovery units, and certain other special industrial units. In order to claim these exemptions, operators must provide a one-time written notice to EPA claiming the exemption, conduct sampling and analysis, and maintain records to demonstrate compliance with all applicable requirements. Id. § 266.100(c).

Smelting, melting, and refining furnaces that process hazardous waste solely for metal recovery are conditionally exempt from regulation under the BIF rule. Not included under this exemption, however, are cement kilns, aggregate kilns, or halogen acid furnaces burning hazardous wastes. Id. To demonstrate that the hazardous waste is being burned solely for metals recovery, the operator must show: (1) the heating value of the waste does not exceed 5,000 Btu/lb (if so, the waste is considered burned for energy recovery); (2) the material does not contain Appendix VIII organic constituents in concentrations exceeding 500 parts per million by weight (if so, the waste is considered burned for destruction); and (3) the hazardous wastes contain recoverable amounts of metals.

Hazardous wastes managed prior to being processed in one of these conditionally exempt units, including a smelting or refining furnace, and any wastes generated during the process, are subject to Subtitle C regulation. Thus, generators of hazardous wastes that transport their wastes to a BIF facility must comply with the applicable RCRA generator standards.

BIFs that are not exempt or excluded from regulation are subject to extensive regulation, including RCRA TSD facility standards and permitting; stringent emission control standards for organics, particulate matter, metals, and hydrogen chloride and chlorine; standards for the direct transfer of waste from a transportation vehicle to a unit; and regulation of residues. The BIF standards for regulated units are highly technical and beyond the scope of this guidance. For a detailed discussion of the BIF requirements, see 56 Fed. Reg. 7,134 (February 21, 1991).

The regulatory status of certain shipyard hazardous wastes (e.g., spent solvents, paint wastes, or abrasives) could be impacted were it to be sent off-site for recycling at a regulated BIF unit (e.g., cement kiln or aggregate kiln). Hazardous wastes used as an ingredient in a BIF unit must be managed as a hazardous waste prior to being placed in the unit. Thus, depending upon how a particular material is recycled, a shipyard could be required to comply with RCRA's generator requirements, which prohibit, inter alia, hazardous materials from being stored on-site for more than 90 days and in anything other than a RCRA tank, container, or containment building. Used oil burned for energy recovery is not subject to BIF regulation. However, used oil that has been mixed with a listed waste (e.g., certain spent solvents) does not meet the definition of used oil and is subject to regulation. Shipyards should avoid burning non-BIF exempt wastes onsite.

4.3 Recycling of Used Oil

EPA regulates the recycling of used oil separate and apart from other hazardous waste streams. See 40 C.F.R. Part 279. "Used oil" is defined as any synthetic or refined crude oil that has been "used" so that it contains "physical contaminants or other chemical impurities." Id. § 279.1. This definition includes those oils used as lubricants, hydraulic fluids, heat transfer fluids, bouyants, and for other similar purposes. Not regulated as used oil, however, are: (1) mixtures of used oil with

listed hazardous wastes; (2) mixtures of used oil and other hazardous wastes when the resultant mixture exhibits a hazardous characteristic; and (3) mixtures of used oil containing more than 1,000 parts per million ("ppm") total halogens.10 See id. § 279.10(b). These mixtures are hazardous wastes and are subject to RCRA Subtitle C's hazardous waste program.

Used oil generators are subject to EPA's used oil management standards, codified at Part 279, subpart C. A "used oil generator" is any person or business whose act or process produces used oil. Id. § 279.20. Generators must comply with a variety of storage restrictions, including the requirement that they store used oil only in tanks, containers, or in units subject to regulation under Parts 264 and 265 that are in good operating condition (i.e., free from any visible spills, leaks, structural damage or deterioration). Id. § 279.22(a) and (b). Generators are required to label used oil storage units with the words "used oil," and also must comply with the spill response measures set forth in section 279.22(d).11 A generator also has an obligation to test its used oil to determine whether the total halogen content of the used oil is above or below 1,000 ppm. Id. § 279.21(b). As discussed above, used oil containing halogens above this threshold is presumed to be a hazardous waste and must be managed as such.

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10 A used oil mixture that contains more than 1000 ppm total halogens is presumed to be a hazardous waste because it has been mixed with a halogenated hazardous waste listed in subpart D of Part 261. 40 C.F.R. ' 279.10(b)(ii). EPA refers to this presumption as "the rebuttable presumption." Used oil handlers are required to apply the rebuttable presumption to all used oil managed at the facility prior to recycling it. Id. Facilities may rebut the presumption by demonstrating that the used oil does not contain a listed hazardous waste. Id.

11 Section 279.22(d) requires generators to: stop or contain the release, properly manage any used oil or contaminated materials, and repair or replace the leaking unit.

The composition of the used oil dictates the extent to which recycling is regulated. The regulations distinguish between "on-specification" and "off-specification" used oil. Used oil is off-specification if it contains arsenic, cadmium, chromium, lead, or halogens in concentrations greater than those specified at section 279.11 or if it has a flash point below 100°F.12 Id. § 279.11. On-specification used oil does not exceed these allowable levels.

On-specification used oil that is recycled by being burned for energy recovery in a boiler or furnace is not subject to regulation, with the exception that generators must comply with limited recordkeeping and notification requirements. See id. The regulations require generators to retain for three years the records indicating that the used oil meets the specifications and the records of all used oil shipments sent to on-specification used oil burners. Id. ' § 279.72 and 279.74. Generators must also comply with RCRA's section 3010 notification requirements and obtain an identification number from EPA when shipping used oil off-site. Id. § 279.73.

The recycling of off-specification used oil is regulated more stringently. Off-specification oil may only be burned in the following devices: (1) industrial furnaces; (2) utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids for sale; (3) industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes; (4) used oil-fired space heaters provided that the burner meets the requirements of section 279.23; and (5) hazardous waste incinerators regulated under Parts 264 and 265. Id. § 279.61. Generators who are burning off-specification used oil must comply with the management standards

12 To be considered on-specification used oil, the oil must not contain more than: (1) five ppm of arsenic; (2) two ppm of cadmium; (3) 10 ppm of chromium; (4) 100 ppm of lead; (5) 4,000 ppm total halogens; or (6) a flash point of 100°F. Id. ' 279.11.

for burners of used oil set forth in Part 279, subpart G. Id. § 279.60. Under subpart G, burners of off-specification used oil are subject to on-site storage standards, a variety of recordkeeping and reporting requirements, standards addressing the management of residues, and the notification requirements of RCRA section 3010. Id.

4.4 Universal Waste Recycling

Specific management standards for waste batteries, pesticides, and thermostats are provided for under EPA's "Universal Waste Management" program, which is set forth at 40 C.F.R. Part 273. According to an industry survey, the only universal waste routinely generated at shipyards is spent automotive batteries, and they are sent off-site for recycling. However, any shipyard that engages in the on-site regeneration or recycling of spent batteries, other than lead-acid batteries, should refer to Part 273 for the appropriate management standards.13 Shipyards engaged in the regeneration of lead-acid batteries are subject to 40 C.F.R. Part 266, subpart G.

13 It should be noted that EPA's universal waste management standards apply to universal waste generators even if they are not actively engaged in recycling the material. These regulations set forth specific storage, labeling, marking, notification, tracking, training, and accumulation standards. Thus, shipyards that handle batteries and thermostats should thoroughly review 40 C.F.R. Part 273.

CHAPTER 5
SPECIFIC SHIPYARD WASTE ANALYSIS

Shipyards generate a variety of wastestreams. The results of several shipyard surveys are summarized in Figure 7. However, in order to provide focus to a complex regulatory issue, this Chapter applies the legal analyses discussed in the previous chapters to four wastestreams common to most shipbuilding and ship repair facilities: blast abrasive, solvents, used oil, and scrap metal.14 These four wastestreams were selected because they are generated in relatively large quantities and because they are illustrative of the more common recycling activities and analyses that a shipyard may encounter, including use/reuse as an ingredient, reclamation, burning for energy recovery, use in a manner constituting disposal, and totally exempt materials. Evaluating the regulatory status of other shipyard hazardous wastes may require slightly different factual inputs, but all will fall under and follow one of the analyses described below.

5.1 Blast Abrasive

Blast abrasive is used for a variety of surface preparation purposes, including the removal of paints, coatings, marine growth, and other debris, and the preparation of metal surfaces for the application of new coatings and paints. Spent blast abrasive is generated in large volumes. The most common forms of blast media are coal slag, copper slag, steel shot, and silica sand.

In its virgin form, blast abrasive is not hazardous. However, spent blast abrasive that through use has been contaminated with hazardous paint chips and other material and debris removed from a ship's surface may exhibit a hazardous characteristic. If it does, it is subject to regulation under RCRA Subtitle C. Spent blast abrasive that does not exhibit a hazardous waste may or may not be

14 For purposes of the examples contained in this Chapter, it is assumed that all these materials would be hazardous wastes if disposed. Obviously, this will not always be the case.

a regulated waste depending upon state and local regulations. Several states, including for example California and Virginia, regulate spent abrasive, or at least certain forms of spent abrasive as "special" or hazardous wastes and set forth specific management and disposal requirements, as well as requirements for the recycling of the material.15

Several recycling options exist for spent blast abrasives. For a thorough review of available recycling techniques, the reader is referred to "Spent Abrasive Management Options," NSRP N1-93-1. This Guidance does not discuss the technological or economical feasibility of any particular option. Rather, it briefly describes existing recycling options and discusses the RCRA regulatory status of spent blast abrasive when recycled pursuant to those options.

Direct reuse: Some forms of abrasive (e.g., steel shot) can be reused many times over before breaking down and becoming ineffective (i.e., spent). Blast abrasive that is still capable of and is indeed intended to be reused is not a solid waste and may continue to be recycled without limitation. However, most abrasives have limited life-spans.

Reuse after reclamation: Depending upon the volume of spent abrasive routinely generated, some shipyards have found it economical to reclaim and reuse their blast abrasive.16 For regulatory purposes, "reclamation" is a very broad term and covers any activity that entails regeneration, recovery of specific components, or processing that must be accomplished before a material can be reused or otherwise recycled. Previous NSRP guidance documents have discussed the viability of reclaiming spent blast abrasive, including processes that are currently being employed by some shipyards (e.g., screening and sorting of abrasive) and those that are under research and development.

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15 Shipyards should thoroughly review state and local regulations applicable to blast abrasive before initiating any recycling activities.

One practice currently utilized by some shipyards is the screening and sorting of spent abrasive to recover reusable abrasive. The process involves the filtering of spent abrasive through various size screens to collect correctly-sized particles. Air sorters are also used to remove smaller, useless particles and miscellaneous contaminants.17 The recovered abrasive is then directly reused and the unusable residues are disposed of. Other methods for reclaiming blast abrasive to produce specification abrasive are being investigated. One such method is the processing of spent abrasive in rotary calciners, incinerators, or some other commercial system to produce mil-spec abrasive. The process involves high temperature metals recovery ("HTMR") of the blast medium and the destruction or removal of contaminants.

The specifics of both approaches (i.e., screening/sorting and HTMR-like recovery process) are relatively unimportant for regulatory purposes. Both are forms of regulated recycling: the reclamation of spent materials. See 40 C.F.R. § 261.2. Blast abrasive is "spent" when it can no longer serve the purpose for which it is produced (i.e., blasting). The fact that blast abrasive has to be sorted or processed through a furnace before it can be reused dictates that it is spent. In addition, the screening of spent abrasive and the processing of abrasive through a HTMR furnace to recover a specific blasting media are forms of reclamation. Thus, under existing federal law, hazardous spent abrasive recycled via one of these reclamation activities is regulated as a RCRA hazardous waste and must be managed accordingly.

This means that prior to being sorted or fed into a HTMR furnace the spent abrasive must be stored in RCRA tanks, containers, or containment buildings. If recycling occurs offsite, the material must be manifested and shipped in accordance with Department of Transportation hazardous waste

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16 See "Hazardous Waste Minimization Guide for Shipyards," NSRP 0418 (January 1994).

shipping requirements. Assuming the offsite recycler stores the material for any period prior to recycling, the offsite recycler must be a TSD permitted facility. A shipyard that reclaims the material onsite would also have to apply for and obtain a RCRA treatment and storage permit, unless they comply with the 90-day generator permit exemption.

Once reclaimed, the blast abrasive itself would be a product and not a regulated waste, provided it is not used in a manner constituting disposal. Using reclaimed abrasive as a blasting agent would most likely not be considered a land-applied product. At least one state and EPA region that evaluated the use of blast abrasive definitively concluded that it was not a land-applied product. See Attachment 2. Wastes generated during the reclamation process would continue to be subject to regulation as a hazardous waste if the waste residue exhibits a hazardous characteristic. Regardless of whether it remains hazardous, any waste residue must also be treated to applicable LDR treatment standards prior to land disposal.

In addition, depending upon the process, furnaces used to reclaim spent abrasive may be subject to EPA's boiler and industrial furnace ("BIF") regulations, which require, inter alia, owners and operators of BIFs to obtain a RCRA permit and comply with stringent emission control standards. Furnaces that process (e.g., reclaim) hazardous wastes (e.g., hazardous spent abrasive) solely for metal recovery (e.g., recovery of metallic blast medium) are conditionally exempt from the BIF regulations. Owners/operators of BIF-exempt units must still comply with notification, recordkeeping, and sampling requirements. See 40 C.F.R. § 266.100(c). Industrial incinerators are not eligible for the exemption and are fully regulated under the BIF rule. Thus, if an incinerator is

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17 See "Solid Waste Segregation & Recycling Project," NSRP NI-94-5.

used to reclaim blast abrasive, the unit would definitely have to be permitted. Having to obtain a RCRA permit would most likely eliminate any cost savings associated with onsite reclamation.

Use as an ingredient: Another recycling option for spent blast abrasive is use of the material as an ingredient in the manufacturing processes. In particular, spent blast abrasive has been used as an ingredient in the production of cement, asphalt, and asphalt concrete.18 Although this option may be viable, shipyards must be aware of the regulatory consequences of using hazardous, spent abrasive in this manner.

Pursuant to 40 C.F.R. § 261.2(e)(1)(I) and (e), materials that are recycled by being used or reused as ingredients in an industrial process to make a product are not RCRA solid wastes, and hence not RCRA hazardous wastes, provided the material is not being reclaimed and the product of the recycling activity is not used in a manner constituting disposal. Shipyards claiming this exemption have the burden of proving that the conditions of the exemption are met. 40 C.F.R. § 261.2(f).

To make this demonstration, shipyards must demonstrate that spent blast abrasive is a legitimate ingredient for the product, that the material is not being reclaimed, and that the product is not being used in a land-applied manner. The fact that blast abrasive can be used in the cement, concrete, and asphalt production process without detriment to the final product is not sufficient to demonstrate that abrasive is legitimately being used as a substitute for virgin feedstock. Rather, the shipyard must demonstrate how and why the abrasive blast contributes to the characteristic of the end product. Such a demonstration is dependent upon the specific type of abrasive at issue and the manufacturing specifications for virgin feedstock typically used in the production process.

18 See infra, footnote 17.

Paramount to this demonstration is the fate of the constituents contained in the spent abrasive as it is processed. In other words, do the constituents, especially the hazardous constituents (e.g., lead), actually play a significant role in the manufacture of cement, concrete, or asphalt (i.e., are they legitimately being incorporated into the products), or are they merely being treated or disposed of by being incorporated into the product? In evaluating the fate of hazardous constituents, the fate of constituents found in analogous raw materials are used as the baseline. Insofar as the constituents and their concentrations are similar, there would be a presumption of legitimacy.

However, if the constituents contained in spent blast abrasive are not typically found in the analogous raw material, or in much lower concentrations, that serve no legitimate purpose in the manufacture of the product, the recycling may be presumed to be a form of waste treatment/disposal and not legitimate recycling. This presumption of illegitimacy would be even stronger if use of spent abrasive actually reduces the quality of the end product. Moreover, if only certain components of the blast abrasive are incorporated into the product, the recycling activity could be viewed as reclamation as opposed to use of the material as an ingredient, which would disqualify the material for the section 261.2(e)(1) exclusion. The more constituents that are incorporated into the final product, the more likely the blast abrasive would be viewed as an manufacturing ingredient. Also factored into this legitimacy "equation," is how the material is managed prior to being used/reused in the process and the value of the material (i.e., do shipyards have to pay the offsite manufacturer to take the material). Again, all of these considerations are fact-specific and require a thorough evaluation by any shipyard claiming an exemption.

Assuming that a shipyard is able to demonstrate that blast abrasive is a necessary ingredient for a particular production process, it would still have to demonstrate that the product produced from

the abrasive is not used in a manner constituting disposal. Such a showing is difficult for the products made from spent blast abrasive.19 Indeed, EPA has established a rebuttable presumption that cement, concrete, and asphalt are land-applied products. To overcome this presumption a shipyard would have to demonstrate that the particular batch of product will not be used on or come into contact with the ground.

If a shipyard can successfully make all of the above demonstrations then the spent blast abrasive would not be regulated as a solid or hazardous waste.20 The shipyard would not have to manage this material in compliance with RCRA's generator requirements, including storage, recordkeeping, and manifesting the material as a hazardous waste. Such a result would greatly increase the benefits associated with recycling spent blast abrasive.

Conversely, spent blast abrasive that does not qualify for the section 261.2(e)(1) "use as an ingredient" exclusion must be managed as a hazardous waste prior to being recycled. Moreover, if a shipyard sends its spent blast abrasive to an offsite recycler, who in turn uses it as an ingredient to produce a land applied product, the shipyard could be held liable for the illegal disposal of hazardous wastes. The shipyard could also be liable under other statutes (e.g., the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA" or "Superfund")) in the event that such illegal disposal results in environmental contamination.

5.2 Spent Solvents

19 RCRA would apply only if the spent abrasive being recycled is hazardous.

20 However, it should be noted that blast abrasive is excluded from regulation only as long as all of the conditions of the exclusion are met. Thus, if at some point after determining that the material was excluded from regulation, the recycled product (e.g., cement, asphalt) started to be used in a land-applied manner, the exclusion would be lost, and a shipyard could be retroactively held liable for failure to manage the material as a hazardous waste and potentially for illegal disposal.

Shipyards routinely generate spent solvents from a variety of cleaning and degreasing operations, including parts cleaning, process equipment cleaning, and surface preparations for coating applications. Shipyards use different solvents, including mineral spirits, aromatic hydrocarbons, aliphatic hydrocarbons, ketones, esters, alcohols, glycol ethers, phenols, turpentine and various halogenated solvents depending upon the part being cleaned and the type of contaminants to be removed. Due to the volume of solvents generated and the cost of purchasing virgin solvents and disposing of spent solvents, many shipyards have found it cost effective to recycle their spent solvents onsite or enter into tolling agreements with offsite recyclers.

Certain halogenated and non-halogenated solvents are specifically listed as the hazardous wastes F001, F002, F003, F004, or F005. The following spent halogenated solvents used in degreasing operations meet the F001 listing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures used in degreasing containing, before use, a total of 10 percent or more of one of the above halogenated solvents or those listed in F002, F004, and F005; and all still bottoms from the recovery of these spent solvents.

F002 wastes include the following spent solvents regardless of how used: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, and F005; and all still bottoms from the recovery of these spent solvents.

The following spent non-halogenated solvents are regulated as F003: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F002, F004, and F005; and all still bottoms from the recovery of these spent solvents.

F004 includes the following non-halogenated solvents: cresols and cresulic acid, and nitrobenzene; and all spent solvent mixtures containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F002, and F005; and all still bottoms from the recovery of these spent solvents. Finally, the listed hazardous waste F005 includes the following non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; and all spent solvent mixtures containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F002, and F004; and all still bottoms from the recovery of these spent solvents.

Other spent solvents, while not specifically included under the F001-F005 hazardous waste listings, may exhibit one of the four hazardous waste characteristics, especially ignitability.

There are several onsite recycling options for solvents: distillation, evaporation, sedimentation, centrifugation, filtration, and direct reuse in other applications. Distillation (solvent recovery stills) is the most common form of solvent recycling. It entails using heat to raise the temperature of the solvent to its boiling point and the resulting vapor is removed and condensed. The process generates a still bottom that may be regulated as a hazardous waste.

Evaporation relies on the same principle as distillation, but is used primarily for solvent wastes with high contaminant concentrations (e.g., sludges and still bottoms). Sedimentation relies on gravity. Spent solvent is placed in a settling tank (or multiple tanks) to allow solids to gravitate to the bottom of the tank. After a sufficient amount of time, the "clean" solvent is drawn from the top of the tank. Centrifugation is a process that separates solids from the spent solvent using centrifugal force and a filtering device. As liquids are forced through the filter, contaminants are removed and the remaining solvents are collected. As the name implies, filtration is a technique that separates suspended particles from a liquid via a porous filter medium/membrane. Unlike centrifugation, filtration relies on gravity or other pressure.

Another recycling option, albeit more limited, is the direct reuse of solvents that are no longer effective for a particular application in other applications that do not require high-purity solvents (e.g., spray gun cleaning). Solvents recycled by being directly used or reused are exempt from regulation. See 40 C.F.R. § 261.2(e)(1)(ii). Directly reusing solvents also reduces the volume of solvent acid that must be routinely purchased, which in turn reduces the volume that must be recycled or sent offsite for treatment. For a more detailed discussion on existing solvent recycling options. See "Hazardous Waste Minimization Guide for Shipyards," NSRP 0418 (January 1994).

The regulatory status of recycled (i.e., reclaimed) solvents is frequently misunderstood. Indeed, many onsite recyclers believe that spent solvents that are recycled are not RCRA wastes subject to regulation. This notion is largely untrue. Unless specifically excluded, spent solvents that are recycled by being reclaimed are RCRA solid wastes, and hazardous wastes if they meet the listing description for F001, F002, F003, F004, or F005, or if they exhibit a hazardous characteristic. Thus, hazardous solvents recycled using any of the recycling techniques described above, with the exception

of those directly used or reused, are regulated as "recyclable materials," and must be managed as such prior to and during recycling. See 40 C.F.R. § 261.6.

Although reclamation of spent solvents is a form of "treatment," shipyards are not required to obtain a RCRA storage or treatment permit provided that they comply with RCRA's generator requirements. See 40 C.F.R. Part 262. In particular, prior to being recycled, spent solvents must be stored in RCRA tanks or containers and must be recycled or sent offsite for treatment or disposal within 90 days of the date they were generated.21 As discussed above at Chapter 4, section 4.1.4, EPA interprets section 262.34 (generator accumulation provision) as exempting from RCRA permitting requirements generators that treat their own wastes during the generator 90-day accumulation period in RCRA tanks or containers.22 Shipyards that fail to adhere to these requirements are, by operation of law, potentially subject to regulation as RCRA TSD facilities.

Although spent solvents being reclaimed are regulated as hazardous wastes, the actual recycling unit itself and the reclaimed solvent are not subject to regulation.23 Once reclaimed, the solvent can be used and stored in the same manner as other virgin solvents. Residues generated from the reclamation activity remain subject to regulation. If the solvent being reclaimed is a listed waste (F001-F005), the waste residue must continue to be regulated as a listed waste. If the reclaimed solvent was characteristically hazardous, the residue must be managed as hazardous only if it exhibits

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21 A "small quantity generator," defined as "a generator who generates less than 1000 kilograms of hazardous waste in a calendar month," may store the material for 180 days. 40 C.F.R. ' 261.10.

22 This exemption does not apply to generators that accept wastes generated offsite for reclamation.

23 This statement assumes that the reclaimed solvent is not used in a manner constituting disposal or burned for energy recovery.

a hazardous characteristic. The recycling unit is a distinct point of generation. Thus, for generator accumulation purposes, the 90-day clock does not start ticking until the waste residues exit the recycling unit (not the date that the spent solvent was first generated).

Another potential onsite recycling option for spent solvents is to recover their Btu values by using them as boiler fuel. Burning hazardous wastes, other than "used oil," in industrial furnaces or boilers is considered waste treatment and is subject to stringent regulation under 40 C.F.R. Part 266, subpart H. Consequently, most shipyards should avoid this form of recycling. Shipyards may, however, send their waste solvents for offsite recycling at fuel blending facilities, provided that the shipyards manage the solvents as hazardous wastes and the offsite facility is fully permitted.

Many shipyards send their spent solvents offsite for legitimate recycling. Generally, offsite recyclers are regulated more stringently than onsite recyclers. Facilities that store hazardous waste prior to recycling must obtain a RCRA storage permit. Id. § 261.6(c). "Storage" in these situations is defined as anything other than direct placement in the recycling unit. Under this definition, even those offsite recyclers that store recyclable materials for only a few hours must be fully permitted. Thus, it is important for shipyards that send solvents for offsite recycling to ensure that their offsite recycler is fully permitted, or, if not, that they have confirmation from the appropriate authorities that no permit is required. Otherwise, the shipyard could open itself up to potential environmental liability.

5.3 Used Oil

Used oil is another common shipyard waste. Used oil is generated from a variety of processes, including repair and maintenance of shipyard rolling stock (cars, trucks, cranes, forklifts,

etc.), machining operations that use cutting and cooling oils, and oil recovered from bilge or ballast tanks. Because of its value and restrictions on disposal, most used oil is recycled and reused.

As discussed above at Chapter 4, section 4.3, specific standards have been established for "used oil" recycling. See 40 C.F.R. Part 279. "Used oil" is any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities. Id. § 279.1. Not included within this definition are mixtures of used oil and listed wastes (e.g., listed solvents) and mixtures of used oil and characteristic wastes that exhibit a hazardous characteristic. These materials are regulated as hazardous wastes. There is also a rebuttable presumption that used oil containing more than 1,000 ppm total halogens is hazardous. To overcome the burden, the used oil generator must demonstrate that the oil does not contain hazardous wastes. This "rebuttable presumption" does not apply to metalworking oils and fluids containing chlorinated paraffins, provided that they are processed through a tolling agreement, but does apply to metalworking oils/fluids that are recycled in other manners or disposed.

Shipyards essentially have three viable recycling options for used oil. They can: (1) filter, separate, or otherwise recondition used oil before returning it to reuse; (2) burn it for energy recovery; and/or (3) ship it to an offsite recycler. Regardless of which option is employed, shipyards must comply with the "used oil generator" requirements set forth in Part 279. In particular, used oil generators must comply with the Clean Water Act's Spill Prevention Control and Countermeasures ("SPCC") Plan requirements and RCRA's Underground Storage Tank requirements, store used oil in RCRA tanks and containers, and clearly label such tanks with the words "Used Oil." Other Part 279 requirements are dependent on the chemical composition of the used oil and the manner in which it is recycled.24

Filtering/Reconditioning: Filtering/reconditioning is the process that removes contaminants from oils in order to extend the oil's useful life. Not all oil is amenable to this recycling technique. However, when this is viable, such recycling is legally permissible and is not considered to be used oil "processing." See id. § 279.20(b)(2)(ii) (used oil processors are subject to a series of stringent requirements). Prior to being filtered and returned to service, the oil must be stored and labeled as used oil.

Burned for Energy Recovery: Burning used oil for energy recovery in boilers and furnaces is widely-practiced recycling technique. As discussed in Chapter 4, section 4.3, RCRA differentiates between "on-specification" and "off-specification" oil. Once used oil that is to be burned for energy recovery is shown to meet EPA's used oil specifications, the used oil is no longer subject to RCRA regulation. Id. ' 279.11. Burners of on-specification oil must still comply with RCRA section 3010

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24 Materials reclaimed from used oil are no longer regulated as used oil or as RCRA solid wastes, provided that they are not burned for energy recovery or used on the land. 40 C.F.R. ' 279.10(e).

notification requirements, implement a used-oil sampling protocol, and keep records of each shipments of on-specification oil. Id. '§ 279.11, 279.72, 279.73, and 279.74(b). Sampling and shipment records must be maintained for three years.

Off-specification oil is regulated more stringently than on-specification used oil and may only be burned in certain units. Burners of off-specification used oil must comply with the management standards set forth at Part 279, subpart G. These standards include restrictions on the types of devices that may be used to burn used oil, storage restrictions, notification requirements, and a variety of recordkeeping and reporting requirements. See id. § 279.60. Shipyards found to be burning off-specification used oil or used oil that has been mixed with hazardous wastes in non-qualified units could face substantial civil and criminal penalties.

To avoid potential liability, shipyards that burn their waste oil should establish a used oil management protocol that ensures that oil is not improperly stored, inadvertently mixed with hazardous wastes, and that used oil is sampled prior to being burned to ensure that it does not exceed EPA's burning specifications.

Off-Site Recycling: Most shipyards send their used oil to off-site recyclers. Legitimate offsite recycling is legally permissible. However, shipyard compliance officers should note that, to do this, the facility must properly store the material in accordance with EPA's used oil generator requirements. When done properly, the recycling of used oil can result in cost savings. However, failure to manage properly used oil prior to recycling may result in RCRA penalties. Moreover, shipyards can be held responsible for environmental damage caused by their offsite recycler. Thus, shipyards should initially, and thereafter periodically, confirm that their offsite recycler is in full compliance with applicable requirements.

5.4 Scrap Metal

The primary raw material for ship construction is metal, including steel plate, bars, sheet, wire, and other components. Carbon and various grades of specialty steels are used. Most larger shipyards have metal fabrication departments that cut, shape, bend, and machine these materials into properly sized plates, structural parts, piping, ventilation ducts, electrical components, and numerous other miscellaneous parts. An inevitable by-product of these operations is scrap metal.

Unlike other secondary materials, scrap metal undoubtedly has an inherent positive economic value and is almost always recycled. The value of scrap metal fluctuates with the scrap metal market and varies depending upon the type and grade of steel (also aluminum, copper, etc.) being recycled. Carbon steel is less valuable than specialty steel, which, in turn, is less valuable than high-alloy steels. Thus, most industrial generators of scrap metal carefully segregate their scrap metal before selling it to a broker, dealer, or scrap yard.

As discussed in Chapter 2, the regulatory status of scrap metal has recently changed. Prior to these amendments, scrap metal was specifically defined as a RCRA solid waste, but was excluded from regulation as a hazardous waste when recycled. In May 1997, EPA amended its RCRA regulations to exclude "excluded scrap metal" from RCRA jurisdiction altogether. See 62 Fed. Reg. 25,998 (May 12, 1997). Although this amendment may not have any practical impacts on shipyards, it does have legal consequences. EPA no longer can assert RCRA jurisdiction over the material regardless of how it is managed. In the past, EPA has asserted jurisdiction over scrap metal piles as "solid waste management units" ("SWMUs") and required remediation of any resulting soil contamination. Now that excluded scrap metal is no longer regulated as a solid waste, scrap piles cannot be considered a SWMU.

The definition of "excluded scrap" includes processed and unprocessed "prompt" or "industrial" scrap metal. Industrial scrap metal is generated by metal working and fabrication industries and includes such things as turnings, cuttings, punchings, and borings. Scrap metal generated at shipyards falls under this definition and is no longer a solid waste. Thus, RCRA requirements (including recordkeeping and reporting) are no longer applicable to shipyard scrap metal.

Figure 7
Common Shipyard Wastes

WASTE STREAMS	RECYCLED/DISPOSED
Vehicle Maintenance	
Antifreeze	Recycled on and offsite
Batteries	Recycled offsite
Waste Oil	Sold for offsite recycling/used onsite as boiler fuel
Transmission Fluid	Recycled/sold with waste oil
Tires	Recycled offsite/disposed
Freon	Recycled onsite
Building Maintenance	
Paint Waste	Recycled offsite/disposed
Ballasts	Landfill
Fluorescent Lights	Recycled offsite
Equipment Maintenance	
Lubricants	Recycled on and offsite
Refrigerants	Recycled onsite
Paint Wastes	Recycled offsite/disposed
Metals Preparation and Treatment	
Cleaning Solutions	Recycled on and offsite
Contaminated Rags	Recycled offsite/offsite disposal
Scrap Metal	
Non-ferrous Metals	Sold for offsite recycling
Ferrous Metals	Sold for offsite recycling
Burn Table	
Table Coolants	Oily water separator
Burn Slag	Landfilled

WASTE STREAMS	RECYCLED/DISPOSED
Machine Operations	
Cutting Fluids	Reused and recycled onsite
Fines	Recycled with scrap metal
Plating Operations	
None Identified	
Marine Cleaning Operations	
Cleaning Solutions	Boiler fuel
Tank Bottoms	Offsite disposal
Waste Oil	Recycled offsite/onsite boiler fuel
Bilge Water	Onsite treatment
Oily Waste	Recovered oil recycled offsite/boiler fuel
Electroplating Operations	
	Recycled offsite/disposal
Wood Finishing and Fabrication	
Stains	Landfilled
Varnish	Solid to landfill
Abrasive Blasting Operations	
Coal Slag	Recycled offsite (asphalt)
Garnet	Recycled offsite (asphalt)
Steel Shot	Recycled on and offsite
Aluminum Oxide	Recycled offsite
Walnut Shells	Offsite landfill
Silica Sand	Recycled onsite
Baghouse Waste	Recycled offsite (asphalt)
Waste Stream	Recycled
Painting and Surface Coating	
Paint Solids	Recycled offsite/landfill

WASTE STREAMS	RECYCLED/DISPOSED
Paint Liquids	Recycled offsite
Paint Sludge	Recycled offsite
Spent Solvents	Recycled offsite
Disposables	Recycled offsite/landfill

Source: Shipyard survey conducted pursuant to "Solid Waste Segregation & Recycling Project," NSRP N1-94-5.

CHAPTER 6
RECYCLED PRODUCT QUESTIONNAIRE

Under RCRA and CERCLA, potential environmental liability attaches to a waste from the moment it is generated until it is ultimately disposed of. Potentially liable parties include waste generators, transporters, treatment, storage, and disposal facilities, which includes hazardous waste recyclers. Generators' liability does not terminate at the moment they transport their wastes offsite for recycling, treatment, or disposal. Rather, it continues until the waste is ultimately disposed of under RCRA, and indefinitely under CERCLA. Users of products produced from recyclable materials can also potentially be held liable. For example, certain recycled products continue to be regulated as hazardous wastes when used directly on the land or burned for energy recovery.

Thus, with respect to secondary materials that are sent offsite for recycling (pursuant to an exclusion or otherwise), it is critical for shipyards to know exactly when, where, and how materials are being managed, recycled, and ultimately used and the regulatory status of the recycling facility. The answers to these questions will directly impact the RCRA status of the materials while in the possession of a shipyard and the shipyard's potential legal exposure. For example, if a shipyard sends hazardous blast abrasive offsite for use as an ingredient to produce a non-land applied product, and it turns out that the abrasive is not a legitimate ingredient or that the recycled product is being used on the land, the shipyard could be in violation of RCRA if it failed to manage, store, and transport the material as a hazardous waste. It could also be held liable for the "land disposal" of the material (i.e., the use of the material on the land).25 Similarly, a shipyard could be held

25 Because: (1) land use is deemed to be a form of disposal; (2) RCRA prohibits the land disposal of products that do not meet applicable LDR treatment standards; and (3) generators are

liable if it were to purchase a recycled product and use it in a manner that, unknown to the shipyard, is expressly prohibited.

Set forth below are the types of questions that shipyards should ask when evaluating or auditing an offsite recycler and potential purchase of a recycled product. These questions should be asked in conjunction with an onsite audit/walk through of potential or existing offsite recyclers (as well as offsite treatment and disposal facilities).

Offsite Recyclers

- Is the recycler an established and recognized facility? How long has it been in existence? Is it well capitalized? Is it affiliated with other entities?

- Is the facility fully permitted? If so, is it in full compliance with its permits? Are there pending, or have there been, environmental enforcement actions against the company or its affiliates? What are/were the nature of those enforcement actions? Is there a contact within the appropriate regulatory authority that can confirm information?

- If the facility is not permitted, why not? What are the bases of that determination? Does the facility have documented concurrence from the appropriate authorities?

- What does the recycler manufacture? If the secondary material is used as an ingredient to produce a product, why is the material a necessary ingredient for the process? What is the virgin feedstock that it is replacing? What characteristics does the secondary material impart to the recycled product? Are there written feedstock specifications? Does the facility have concurrence from the regulatory authority that the secondary material is an "ingredient" and the process is "legitimate"?

- How is the secondary material managed and stored? How long is it stored? What other materials are stored at the facility? What other facilities send secondary materials to the facility?

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responsible for their wastes from generation through disposal, EPA could make an argument that the original generator is liable for the illegal disposal of the material.

- Does the recycling process generate waste residues? How are the residues managed and disposed? Are these wastes hazardous?

- How is the product from the recycling process used? Does the facility have documentation that such use is permissible? Is the product used on the land or burned for energy recovery? Does the facility have written confirmation from the appropriate regulatory authorities?

- Are there specific uses that are prohibited? Who purchases and uses the end product? Are there documentation or contracts demonstrating the market for the product? If the material is used on the land, does the facility have a determination under 40 C.F.R. Part 266 that such use is permissible?

- Will the recycler indemnify the generator for potential liability arising after the material arrives at the recycling facility?

Recycled Products

- How is the product manufactured? Are hazardous materials used as ingredients? Are the secondary materials listed or characteristic wastes? Who generates the secondary materials? What qualities do the secondary materials impart to the product?

- Have the appropriate regulatory authorities evaluated the process? Did they conclude that the process is legitimate? Are there limitations on the use of the product that if not complied with would render the product a hazardous waste? Is use of the material in the manner for which it is purchased deemed to be use constituting disposal? Does the facility have written confirmation from the appropriate regulatory authority?

- Is the material accompanied by a Material Safety Data Sheet?

CHAPTER 7
EPA EFFORTS TO REVISE DEFINITION OF SOLID WASTE

7.1 Definition of Solid Waste Task Force

Since their enactment, RCRA and its implementing regulations have been considered one of the most complex and expensive regulatory programs in the United States. Industry has long argued that EPA's current "definition of solid waste" is overly complex and burdensome and creates disincentives for the safe and beneficial recycling of hazardous wastes. In response to these and other concerns, beginning in 1990, EPA undertook a thorough review of RCRA's recycling paradigm to determine whether and, if so, how the definition of solid waste could be modified.

In October 1992, EPA formed a small internal Agency task force, known as the "Definition of Solid Waste Task Force," in an effort to improve EPA's recycling program. The Task Force reported directly to EPA's Office of Solid Waste and was charged with three primary goals: (1) eliminate disincentives for the safe recycling of hazardous wastes; (2) correct over- and under-regulation in the existing regulations to ensure protection of human health and the environment; and (3) clarify and, if possible, simplify EPA's recycling regulations.

To that end, the Task force organized a "Definition of Solid Waste Roundtable" comprised of representatives from all affected stakeholders, including EPA, the states, industry, and environmental groups. The Roundtable process, which lasted for two years, was designed to solicit comments from experts in the field of hazardous waste management.

At the conclusion of its review, the Task Force published a report in 1994, entitled "Reengineering RCRA for Recycling." The report concluded that EPA's current recycling system is in need of repair and the current system is indeed too complex, over- and under-regulates certain

recyclable materials, and serves as a roadblock to environmentally- sound recycling. The Task Force recommended the adoption of a multi-tiered regulatory system based upon the following principles:

> use of equipment designed to prevent releases to the environment, especially groundwater;
>
> quick and effective response to releases that occur despite preventative measures;
>
> sufficient knowledge by government regulators about recycling facilities to enforce compliance with the management standards;
>
> safe transportation and tracking of recyclable materials;
>
> waste derived products that pose no more threat to human health and the environment than the virgin products they replace or compete with should not necessarily be subject to more stringent regulation.

Unfortunately, the proposed multi-tiered regulatory system did not satisfy these principles. The Task Force's report and conclusions were roundly criticized, albeit for different reasons, by all the stakeholder groups. In particular, industry believed that the proposal failed to meet the three goals of the Task Force, and, in fact, would create an even more complex and burdensome regulatory system. Shortly after its release, EPA abandoned the Task Force's recommendations.

7.2 EPA's Latest Regulatory Efforts

From 1995 through 1997, EPA embarked on yet another effort to develop a revised definition of solid waste. EPA worked with and solicited recommendations from the states and other stakeholders on how the regulatory system should be modified. Industry was extremely active in this effort.

On November 19, 1996, EPA publicly released and solicited comments on two regulatory options that it was considering for amending the existing definition of solid waste. The two options being considered were the so called "Transfer-Based" option and the "In-Commerce" option. Each

of these two options are briefly discussed below. A copy of EPA's Background Paper for these two options is attached as Attachment 5.

7.3 Overview of the Two Options

Both options were designed to simplify RCRA's existing hazardous waste recycling regulations by making it easier for regulators and the regulated community to know exactly which secondary materials are regulated under RCRA and which are outside of EPA's RCRA jurisdiction. However, the jurisdiction approach of each option differed substantially. As the name implies, the Transfer-Based option was based primarily on where a secondary material is recycled. Secondary materials legitimately recycled on-site or at another site owned and operated by the generating facility would be presumptively excluded from regulation, whereas, secondary materials legitimately recycled off-site would presumptively be regulated under Subtitle C, unless the materials were granted a "commodity-like" variance.

Secondary materials recycled offsite that did not qualify for a commodity-like variance would be subject to RCRA regulation, but would be eligible for a "streamlined" permit. The streamlined permit would replace site-specific permits with generic, national permits. However, the so-called streamlined permit would not eliminate a facility's obligation to comply with RCRA's other permitting requirements, including financial assurance, corrective action, or closure plans, nor would it relieve a facility from complying with RCRA's other onerous requirements. Secondary materials that were deemed not to be legitimately recycled would continue to be subject to all RCRA permitting requirements.

Instead of focusing on where, the In-Commerce option focused on how a material was recycled. Regardless of whether a material is recycled on- or offsite, it would be eligible for an

exclusion from the definition of solid waste provided that certain conditions were met or the material was granted a commodity-like variance. Unlike the Transfer-Based option, the In-Commerce option was an all or nothing approach. Secondary materials would either be exempt from regulation or subject to full Subtitle C regulation. No streamlined permitting was included under this option.

Although conceptually different, the two options shared many common elements. In particular, both options proposed to eliminate the distinctions made between the various types of secondary materials and recycling techniques. EPA's current regulatory regime distinguishes between spent materials, sludges, and by-products and materials that are used, reused, or reclaimed. For example, listed sludges that are reclaimed are solid wastes, but the same material, if used or reused as an ingredient to produce a product (section 261.2(e) exclusion), could be excluded from the definition of solid waste. EPA has taken the position that such distinctions are no longer justifiable and that all materials should be regulated similarly. Eliminating these distinctions would have the effect of regulating certain materials that are currently excluded, including materials that currently qualify for the use/reuse exclusion and characteristically hazardous by-products and sludges that are reclaimed.

Both options also included specific "legitimacy" criteria. To be legitimately recycled, the secondary material must: (1) significantly contribute to the product or the process; (2) be used to produce a product that is sold in commerce; (3) be managed to minimize loss in the same manner that virgin material is managed; and (4) cannot contain "toxics-along-for-the-ride." The recycling of materials that do not meet the above criteria would be considered sham recycling and subject to the full panoply of RCRA regulation.

The "significantly contribute" criteria would not establish a numerical contribution threshold for the material nor establish a quantifiable level of recyclable constituents that must be contained in the material. Rather, it is designed to disallow recycling activities where the contribution of the product is so "minimal as to be inconsequential" and the activity is being conducted merely to treat or dispose of the material. An example is an metal-bearing wastestream with a metal content so low that it adds nothing to the smelting process. Such recycling would not be excluded from regulation.

To satisfy the second requirement, facilities would have to demonstrate that there is a market for the end product. This could be accomplished by providing inventory and sales records, sales contracts, or other similar records. The recycler would also have to demonstrate that the material is managed to minimize loss. The rationale of this requirement is twofold. First, if the secondary material truly has value, the facility should have the incentive to ensure that none of it is released or lost. Clearly, facilities have this incentive for virgin feedstocks. Second, loss of the material could pose a risk to human health and the environment.

The term "managed to minimize loss" is not specifically defined. However, EPA envisions RCRA-like management requirements, such as secondary containment of the material, the use of containers and containment buildings, routine inspections, and immediate response to any inadvertent releases.

The last legitimacy criterion, i.e., no TARs, is very controversial. Under this condition, recyclable materials that contain toxic constituents not found in or in significantly higher concentrations than in comparable virgin feedstock would not be eligible for an exclusion. For example, if emission control dust that contains iron could not be used as replacement for iron ore if

the emission control dust also contains hazardous contaminants not found in iron ore. The use of such material would be deemed sham recycling.

Exclusions under both options would also be conditional on five factors that exist under the current regime. Specifically, to be excluded from RCRA regulation, the material cannot be: (1) burned for energy recovery or used to produce a product for energy recovery (a material with an energy value equal to or grater than 5,000 BTU/lb is considered to be burned for its energy value); (2) stored or otherwise managed directly on the land or managed in a manner that does not prevent releases; (3) speculatively accumulated, which would be modified to allow 18 months of storage provided that 100 percent of the material is recycled in this time frame; (4) used in a manner constituting disposal or to produce a product that would be used in such a manner; and (5) inherently waste-like (i.e., contain elevated levels of dioxins). Materials not meeting any of these conditions would be subject to full regulation, unless they qualified for a "commodity-like" variance.

Materials that are deemed to be "commodity-like" would also be excluded from regulation under both options. Two variance mechanisms were envisioned under both the Transfer-Based and In-Commerce options. First, EPA would establish a list of commodity-like materials which are eligible for a generic variance. Included on such a list would be some materials that are currently excluded from regulation, but that would otherwise be brought under RCRA jurisdiction under a revised regulatory program. For example, spent pickle liquor that is used as a wastewater conditioner is currently exempt from regulation, but would be regulated under the Transfer-Based option. Spent pickle liquor used in this manner could be included on a generic commodity-like list and excluded from regulation.

The second mechanism would be a case-specific variance process for those materials that are deemed more commodity-like than waste-like when recycled. Seven factors would be used to evaluate commodity-like variance requests: (1) economic value of the secondary material; (2) the degree to which the secondary material replaces or serves as an effective substitute for nonwaste material; (3) the degree or assurance that the material will be recycled; (4) the economic value of the end product and the extent to which a market for the product is guaranteed; (5) the extent to which the material is managed to minimize loss or release of hazardous constituents; (6) the extent to which management practices demonstrate a close stewardship of the material by the original manufacturer or other entity form the point of generation through final recycling; or (7) other relevant factors.

Recyclable materials for which such a demonstration could be made would be excluded from the definitions of solid and hazardous wastes. However, in light of the first criterion, such a demonstration would be difficult for all but a few wastestreams.

7.4 Potential Benefits of Options

The Transfer-Based option would provide potentially significant benefits to on-site recyclers that could meet the conditions of the exclusion. Materials recycled on-site would be completely exempt from RCRA. Off-site recyclers, however, would receive very little relief. Materials recycled off-site would still be subject to regulation, unless they could qualify for a commodity-like variance. EPA's "streamlined" permitting process would be a partial benefit, but it would not outweigh the loss of existing exclusions (e.g., reclaimed sludges and by-products, and materials that are used/reused) or the burdens of complying with RCRA's hazardous waste recycling regulations.

The In-Commerce option could provide significant relief for those engaged in the legitimate recycling of secondary materials. This option would exclude a much broader universe of materials,

including many secondary materials that are currently subject to regulation. However, like the Transfer-Based option, this option would also eliminate existing exclusions upon which many recyclers currently rely, thereby bringing currently exempt materials within RCRA's domain.

See Figure 8 for a flow diagram of the two options.

7.5 Status of EPA's Definition of Solid Waste Efforts

EPA's proposed options were universally criticized by the states, industry, and environmental groups. Despite the resources that EPA has devoted to its effort to restructure comprehensively the regulatory definition of solid waste, in the wake of this heavy criticism and the belief that a compromise could not be reached in the near future, EPA announced in October 1997 that it was placing the definition of solid waste rulemaking into a indefinite "holding pattern." See EPA letter from Elizabeth Cotsworth attached as Attachment 6. Instead of moving forward with one or both of its proposed options, EPA initiated an internal review effort, under which the Agency will continue to collect data and evaluate the hazardous waste recycling universe. In the meantime, EPA has committed itself to smaller, less contentious modifications to the existing recycling system. In particular, EPA is now working on developing a "streamlined," general RCRA permit and on a rule that would exclude from the definition of solid waste materials that are managed under product stewardship programs.

Nevertheless, the Transfer-Based and In-Commerce options are still important and useful for those considering to undertake or invest in a particular recycling activity. Although EPA has pulled back from its comprehensive rulemaking effort, the issue will return sooner rather than later. And when it does, the Transfer-Based and In-Commerce options will be the starting point. The Agency has devoted too many resources and there are too many problems associated with the current system

for EPA not to make another effort to overhaul the RCRA recycling program. Indeed, EPA has indicated that it will revive this issue in a couple of years when its expects to be finished with its internal data collection and review efforts.

FIGURE 8

FIGURE 1

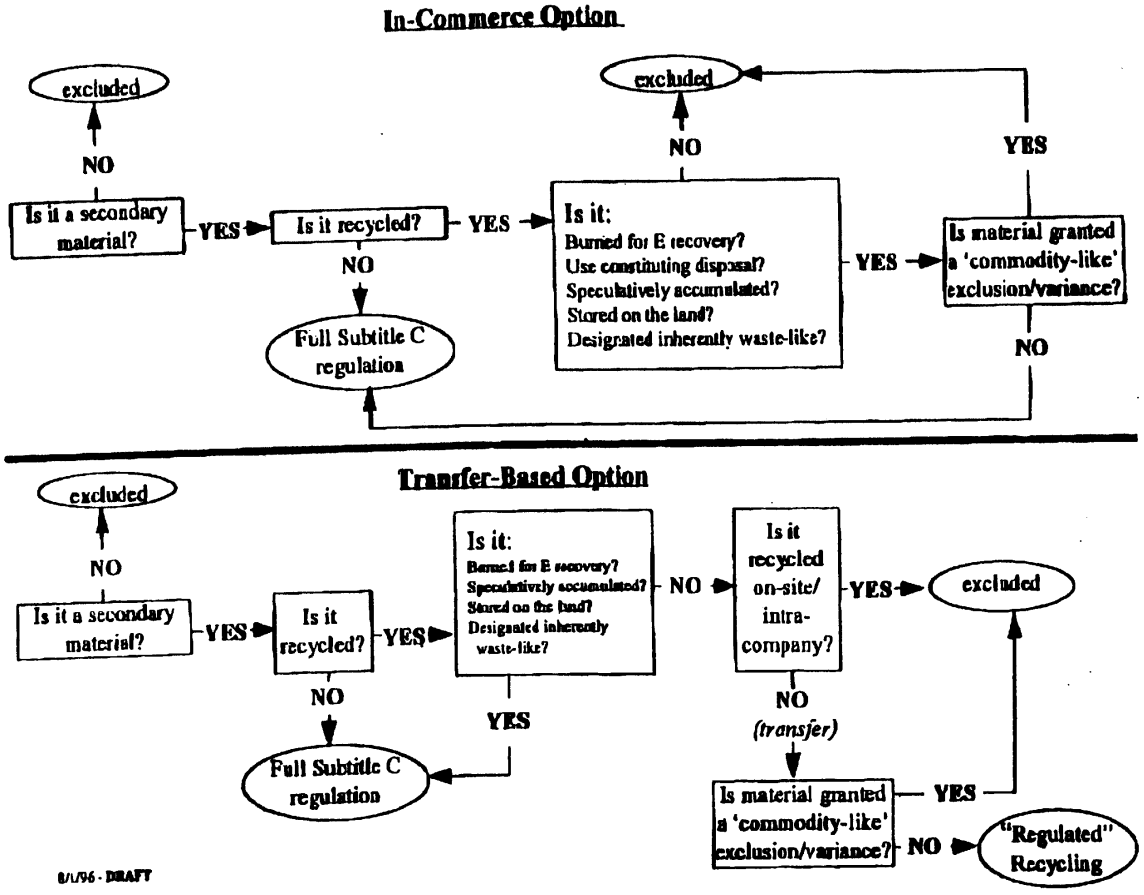

Figure 8

ATTACHMENTS

Attachment 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 31 1987

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Regulatory Interpretation Regarding Briquetting of Flue Dust

FROM: Marcia E. Williams, Director
Office of Solid Waste

TO: Judith Kertcher, Acting Chief
Solid Waste Branch, Region V (5HS-13)

This is in response to your June 25, 1987, memorandum in which you asked for a regulatory interpretation regarding flue dust (K061) that is mixed with sodium silicate binder and pressed into briquettes for use in steel production by the original waste generators. The regulatory provision that covers this situation is 40 CFR § 261.2(e)(1)(i), which provides that a material is not a solid waste when it is used or reused as an ingredient in an industrial process to make a product, without first being reclaimed. (See 50 CFR 638-639; January 4, 1985.) In the Dehli Industrial Products, Inc. case, you have indicated that the briquettes made from the flue dust are returned to the original generators (under batch toiling agreements) who use them in steel production. As explained below, our conclusion is that the flue dust is not a solid waste.[1] The answers to your specific questions are as follows:

1. The fact that the flue dust is generated, removed from the site of generation, and later returned the generator does not alter the regulatory status of the recycled material. The storage of the flue dust is not regulated either at the generator's or the recycler's site provided that the flue dust is not speculatively accumulated.

[1] In taking this position, we assume that the flue dust is actually providing materials useful to steel production. See the discussion at 50 FR 638-639, January 4, 1985, for guidance on identifying "sham recycling" operations.

2. The fact that batch tolling agreements are in place also does not affect the regulatory status of the recycled material.[2] Such agreements would probably help a generator satisfy the burden of proof (§ 261.2(f)) to document that the generator's material is not solid waste.

3. The addition of sodium silicate binder to the flue dust does not change the regulatory status of the recycled material. EPA has said that briquetting of dry wastes to facilitate resmelting (and this would include the addition of a binding material) is not reclamation. (See 50 FR 639; January 4, 1985.)

4. The process in question is probably not a closed loop system. The issue here is not whether the waste is recycled on or off site, because nothing in § 261.2(e)(1)(iii) limits the closed-loop exemption to on-site recycling. Rather, information available to EPA indicates that facilities such as Dehli (i.e., electric arc furnaces) typically use scrap steel as feedstock. As such, the operation does not meet the condition in § 261.2(e)(1)(iii) that the recycled material be returned as a substitute for raw material feedstock, and that the process must use raw materials as principal feedstocks. In this case (scrap steel) the flue dust substitutes for a secondary material, not a raw material.

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[2] On April 4, 1983, EPA proposed a conditional exemption for hazardous waste recycled under batch tolling agreements. (See 48 FR 14494-14495.) EPA rejected this exemption in the final rule. (See 50 FR 643; January 4, 1985.)

Attachment 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Office of
Solid Waste and Emergency Response

DEC 1 1992

Mr. William M. Guerry, Jr.
Collier, Shannon, Rill & Scott
3050 K Street, N.W.
Suite 400
Washington, D.C. 20007

Dear Mr. Guerry:

As a followup to our meeting with you and representatives of Glassification International Limited (GIL) on September 22, 1992, EPA has considered the information you have provided on the GIL glassification process for electric arc furnace (EAF) dust or K061 when the EAF dust is a hazardous waste. Based on the information that you have provided us, EPA understands that GIL utilizes EAF dust from steel mills to produce a glass frit which is then sold for use as abrasive blast, and as an ingredient in making roofing granules, glass ceramic and ceramic glaze. Throughout our discussions, the main issue regarding the regulatory status of the GIL process and glass frit product has been whether EAF dust incorporated into GIL glass frit meets the definition of a solid waste (and therefore also a hazardous waste, i.e., K061) under the Resource Conservation and Recovery Act (RCRA).

You specifically sought EPA Headquarters' concurrence that these uses are excluded from the definition of solid waste under Section 260.2(e). The focus of this determination is the ultimate end use of the secondary material or the product containing the secondary material. When secondary materials or products containing secondary materials are applied to or placed on the land in a manner that constitutes disposal, the material or the product containing it is a solid waste and also a hazardous waste (see 40 CFR Sections 261.2(c)(1) and 261.2(e)(2)(i)). Products used in a manner constituting disposal are not eligible for the exclusion.

As mentioned above, GIL intends to sell its glass frit for use as abrasive blast, and as an ingredient in producing roofing granules, glass ceramic and ceramic glaze. Regarding abrasive blast, EPA believes that in general this end use is not applied to or placed on the land in a manner constituting disposal. The other end uses (roofing granules, glass ceramics, ceramic glaze) are also not typically applied to or placed on the land in a manner constituting disposal.

So, when EAF dust is legitimately used as an ingredient to make a product that is not used in a manner constituting disposal (e.g., glass frit used to produce abrasives, roofing granules, glass ceramics or ceramic glaze), it is not a solid waste under RCRA. Therefore, when producing glass frit for the end uses mentioned above, the GIL process would not be subject to RCRA permitting requirements.

Please be aware that under Section 3006 of RCRA (42 U.S.C. Section 6926) individual states can be authorized to administer and enforce their own hazardous waste programs in lieu of the federal program. When states are not authorized to administer their own program, the appropriate EPA Region administers the program and is the appropriate contact for any case-specific determinations. Please also note that under Section 3009 of RCRA (42 U.S.C. Section 6929) states retain authority to promulgate regulatory requirements that are more stringent than federal regulatory requirements.

Thank you again for your interest in this matter. If you have further questions, please contact Mike Petruska of my staff at (202) 260-8551.

Sincerely,

Jeffrey D. Denit
Deputy Director
Office of Solid Waste

Attachment 3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

U.S. EPA, REGION V
WASTE MANAGEMENT DIVISION
OFFICE OF THE DIRECTOR

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

APR 26 1989

MEMORANDUM

SUBJECT: F006 Recycling

FROM: Sylvia K. Lowrance, Director
Office of Solid Waste (OS-300)

TO: Hazardous Waste Management Division Directors
Regions I-X

It has come to the attention of EPA Headquarters that many of the Regions and authorized States are being requested to make determinations on the regulatory status of various recycling schemes for F006 electroplating sludges. In particular, companies have claimed that F006 waste is being recycled by being used as: (1) an ingredient in the manufacture of aggregate, (2) an ingredient in the manufacture of cement, and (3) feedstock for a metals recovery smelter. The same company may make such requests of more than one Region and/or State. Given the complexities of the regulations governing recycling vs. treatment and the definition of solid waste, and the possible ramifications of determinations made in one Region affecting another Region's determination, it is extremely important that such determinations are consistent and, where possible, coordinated.

Two issues are presented. The first issue is whether these activities are legitimate recycling, or rather just some form of treatment called "recycling" in an attempt to evade regulation. Second, assuming the activity is not sham recycling, the issue is whether the activity is a type of recycling that is subject to regulation under sections 261.2 and 261.6 or is it excluded from our authority.

With respect to the issue of whether the activity is sham recycling, this question involves assessing the intent of the owner or operator by evaluating circumstantial evidence, always a difficult task. Basically, the determination rests on whether the secondary material is

"commodity-like." The main environmental considerations are (1) whether the secondary material truly has value as a raw material-product (i.e., is it likely to be abandoned or mismanaged prior to reclamation rather than being reclaimed?) and (2) whether the recycling process (including ancillary storage) is likely to release hazardous constituents (or otherwise pose risks to human health and the environment) that are different from or greater than the processing of an analogous raw material/product. The attachment to this memorandum sets out relevant factors in more detail.

If the activity is not a sham, then the question is whether it is regulated. If F006 waste is used as an ingredient to produce aggregate, then such aggregate would remain a solid waste if used in a manner constituting disposal (e.g., road-base material) under sections 261.2(c)(1) and 261.2(e)(2)(i) or if it is accumulated speculatively under section 261.2(e)(2)(iii). Likewise, the F006 "ingredient" is subject to regulation from the point of generation to the point of recycling. The aggregate product is, however, entitled to the exemption under 40 CFR 266.20(b), as amended by the August 17, 1988, Land Disposal Restrictions for First Third Scheduled Wastes final rule (see 53 FR 31197 for further discussion). However, if the aggregate is not used on the land, then the materials used to produce it would not be solid wastes at all, and therefore neither those materials nor the aggregate would be regulated (see section 261.2(e)(1)(i)).

Likewise, cement manufacturing using F006 waste as an ingredient would yield a product that remains a solid waste if it is used in a manner constituting disposal, also subject to section 266.20(b). There is an additional question of whether the cement kiln dust remains subject to the Bevill exclusion. In order for the cement kiln dust to remain excluded from regulation, the owner or operator must demonstrate that the use of F006 waste has not significantly affected the character of the cement kiln dust (e.g., demonstrate that the use of F006 waste has not significantly increased the levels of Appendix VIII constituents in the cement kiln dust leachate). [NOTE: This issue will be addressed more fully in the upcoming supplemental proposal of the Boiler and Industrial Furnace rule, which is pending Federal Register publication.]

For F006 waste used as a feedstock in a metals recovery smelter, the Agency views this as a recovery process rather than use as an ingredient in an industrial process and, therefore, considers this to be a form of treatment that is not currently regulated (see sections 261.2(c) and 261.6(c)(1)). Furthermore, because this is a recovery process rather than a production process, the F006 waste remains a hazardous waste (and must be managed as such prior to introduction to the process), and the slag from this process would normally be considered a "derived from" F006 waste. However, for primary smelters, the slag may be considered subject to the Bevill exclusion provided that the owner or operator can demonstrate that the use of F006 waste has not significantly affected the hazardous constituent content of the slag (i.e., make a demonstration similar to the one discussed above for the cement kiln dust). [NOTE: In the supplemental proposal of the Boiler and Industrial Furnace rule noted above, the Agency will be proposing a definition of "indigenous waste" based on a comparison of the constituents found in the waste to the constituents found in an analogous raw material. Should the F006 waste meet the definition of an "indigenous waste," the waste would cease to be a waste when introduced the process and the slag would not be derived from a hazardous waste.]

Also, you should be aware that OSW is currently reevaluating the regulations concerning recycling activities, in conjunction with finalizing the January 8, 1988 proposal to amend the Definition of Solid Waste. While any major changes may depend on RCRA authorization, we are considering regulatory amendments or changes in regulatory interpretations that will encourage on-site recycling, while ensuring the protection of human health and the environment.

Headquarters is able to serve as a clearinghouse to help coordinate determinations on whether a specific case is "recycling" or "treatment" and will provide additional guidance and information, as requested. Ultimately, however, these determinations are made by the Regions and authorized States. Attached to this memorandum is a list of criteria that should be considered in evaluating the recycling scheme. Should you receive a request for such a determination, or should you have questions regarding the criteria used to evaluate a specific case, please contact Mitch Kidwell, of my staff, at FTS 475-8551.

Attachment

CRITERIA FOR EVALUATING WHETHER A WASTE IS BEING RECYCLED

The difference between recycling and treatment is sometimes difficult to distinguish. In some cases, one is trying to interpret intent from circumstantial evidence showing mixed motivation, always a difficult proposition. The potential for abuse is such that great care must be used when making a determination that a particular recycling activity is to go unregulated (i.e., it is one of those activities which is beyond the scope of our jurisdiction). In certain cases, there may be few clear-cut answers to the question of whether a specific activity is this type of excluded recycling (and, by extension, that a secondary material is not a waste, but rather a raw material or effective substitute); however, the following list of criteria may be useful in focusing the consideration of a specific activity. Here too, there may be no clear-cut answers, but, taken as a whole, the answers to these questions should help draw the distinction between recycling and sham recycling or treatment.

(1) Is the secondary material similar to an analogous raw material or product?

- Does it contain Appendix VIII constituents not found in the analogous raw material/product (or at higher levels)?
- Does it exhibit hazardous characteristics that the analogous raw material/product would not?
- Does it contain levels of recoverable material similar to the analogous raw material/product?
- Is much more of the secondary material used as compared with the analogous raw material/product it replaces? Is only a nominal amount of it used?
- Is the secondary material as effective as the raw material or product is replaces?

(2) What degree of processing is required to produce a finished product?

- Can the secondary material be fed directly into the process (i.e., direct use) or is reclamation (or pretreatment) required?
- How much value does final reclamation add?

(3) What is the value of the secondary material?

- Is it listed in industry news letters, trade journals, etc.?
- Does the secondary material have economic value comparable to the raw material that normally enters the process?

(4) Is there a guaranteed market for the end product?

- Is there a contract in place to purchase the "product" ostensibly produced from the hazardous secondary materials?
- If the type of recycling is reclamation, is the product used by the reclaimer? The generator? Is there a batch tolling agreement? (Note that since reclaimers are normally TSDFs, assuming they store before reclaiming, reclamation facilities present fewer possibilities of systemic abuse).

- Is the reclaimed product a recognized commodity? Are there industry-recognized quality specifications for the product?

(5) Is the secondary material handled in a manner consistent with the raw material/product it replaces?

- Is the secondary material stored on the land?

- Is the secondary material stored in a similar manner as the analogous raw material (i.e., to prevent loss?)

- Are adequate records regarding the recycling transactions kept?

- Do the companies involved have a history of mismanagement of hazardous wastes?

(6) Other relevant factors.

- What are the economics of the recycling process? Does most of the revenue come from charging generators for managing their wastes or from the sale of the product?

- Are the toxic constituents actually necessary (or of sufficient use) to the product or are they just "along for the ride."

These criteria are drawn from 53 FR at 522 (January 8, 1988); 52 FR at 17013 (May 6, 1987); and 50 FR at 638 (January 4, 1985).

Attachment 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 13 1990

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Recycling of Electric Arc Furnace Dust (K061) as an Ingredient in the Manufacture of Cement

FROM: Sylvia K. Lowrance, Director
Office of Solid Waste

TO: Robert L. Duprey, Director
Hazardous Waste Management Division
Region VIII

This responds to your December 6, 1989, memorandum requesting a regulatory determination regarding the use of K061 electric arc furnace (EAF) dust as an ingredient in the manufacture of cement. Included with your memorandum was a November 17, 1989, letter from Mr. Stephen Wistar of Ferrous American Company, which claims that the EAF dust used in such a manner is excluded from the definition of solid waste (and, therefore, not subject to RCRA) under 40 CFR 261.2(e). In your memorandum you do not specifically address the status of the EAF dust, but rather state that such use of K061 waste may be legitimate recycling subject to regulation under 40 CFR 261.6(a) and 266.20(b) and you seek our approval of this view. Several members of my staff also met with Mr. Wistar on December 21, 1989 to discuss his plans to "recycle" K061 wastes. The following is our evaluation of the pertinent issues you should consider in making the case-specific determination.

Mr. Wistar's claim that the K061 waste is not subject to RCRA under the exclusion at 40 CFR 261.2(e) is not supported by any information we have seen. Cement is considered to be a product that is typically applied to the land (although this is a rebuttable presumption), and therefore the EAF dust is a solid waste (and a hazardous waste -- K061) under 40 CFR 261.2(e)(2)(i). This determination does not, however, address the legitimacy of the use of K061 waste as an ingredient to produce cement.

To determine whether the processing of a specific waste is legitimate recycling or treatment, one must consider, among other things, the fate of the constituents in the waste as they are processed. In other words, do the constituents actually play a part in the manufacture of the

cement (i.e., are they legitimately being used), or are they being treated/disposed by incorporation into a product? Particular focus should be given to the fate of hazardous constituents in the waste that are incorporated into a product (it would be contrary to the intent of RCRA regulation if regulatory determinations are made solely on the use/reuse of nonhazardous constituents also contained in a hazardous waste).

In evaluating the fate of the (hazardous) constituents in the waste, one should use the fate of constituents in an analogous raw material as a baseline. Insofar as the constituents (and their concentrations) in the waste and the raw material are similar, the processing may be legitimate recycling. However, if the waste contains hazardous constituents not present in the analogous raw material (or hazardous constituents at significantly higher concentrations than in the analogous raw material) that serve no purpose in the manufacture of the product, the process would appear to constitute treatment/disposal rather than legitimate recycling. Also, where incorporation of the waste results in detriment to the quality of the end product, the procedure would appear to constitute treatment/disposal. Finally, it should be noted that the fact that a material can be inserted into a production process without detriment to the quality of the end product does not mean that the waste is actually being used as an ingredient.

There are several points that deserve particular focus. For example, in the data that Mr. Wistar supplied to us in our meeting, the levels of hazardous constituents contained in the K061 waste were several orders of magnitude greater than the levels found in the analogous raw material. Because of this, we would then question the role in the manufacture of cement of the volatile hazardous metals (such as lead) that are typically found in K061 wastes.

An additional concern is that the mixing of K061 waste with millscale (a nonhazardous solid waste) could constitute dilution of the hazardous constituents. Mr. Wistar states in his letter that such blending is done "… specifically to ameliorate its handling characteristics, and to make the iron content more even." Such necessary adjustments to the hazardous waste could indicate that the K061 waste is, in fact, not an effective substitute for an analogous raw material. Furthermore, when questioned on the possibility of using only the mill scale as an ingredient in the manufacturing of cement, Mr. Wistar stated that while the mill scale could certainly be used as an ingredient, substituting for the iron ore currently used, it would be uneconomical to transport the mill scale to the cement kiln unless additional revenues provided by fees charged to generators for the management of their K061 wastes were also received.

We reiterate that even if it should prove that the K061 waste is being recycled legitimately, the waste-derived cement applied to the land remains a hazardous waste, and in addition must meet the land disposal restrictions treatment standard for waste K061, as per 40 CFR 266.20(b). Presently, this treatment standard (see 40 CFR 268.43(a)) is based on the performance of stabilization, but on August 8, 1990, the treatment standard for high zinc (15% or greater) K061 requires metal recovery (see 53 FR 31162-4; August 17, 1988). Thus, as of August 8, 1990, high zinc K061 could not be used as an ingredient to produce cement in any case without an amendment of current rules.

By way of further guidance, I am attaching a copy of an April 26, 1989, memorandum from me to the Regional Hazardous Waste Management Division Directors concerning the recycling of F006 electroplating sludges. Several aspects of the memorandum are relevant in this case, especially the criteria to be used to evaluate whether a recycling activity is legitimate or requires a treatment permit. If you need further information or have any more questions concerning the recycling of hazardous waste, your staff should contact Mitch Kidwell, of my staff, at FTS 475-8551.

Attachment

cc: Hazardous Waste Management Division Directors
EPA Regions I-VII, IX and X

Attachment 5

Attachment 5

BACKGROUND PAPER

OPTIONS FOR REDEFINING RCRA JURISDICTION

PUBLIC MEETING

NOVEMBER 19, 1996

OPTIONS FOR REDEFINING RCRA JURISDICTION

I. INTRODUCTION

This paper presents two options the U.S. EPA is currently evaluating for a proposal to amend the Definition of Solid Waste regulations which govern Subtitle C jurisdiction over hazardous secondary materials that are recycled. The objectives of these options are to simplify and clarify the definition of solid waste (particularly regarding the recycling of secondary materials) a, rid to remove unnecessary regulatory impediments to environmentally sound hazardous waste recycling. These options were developed by the Agency in consultation with State regulatory agencies and are based on years of experience in implementing the RCRA program.

The two options under consideration are the Transfer-Based option and the In-Commerce option. Although this paper discusses the two options separately, it is possible that the proposed and final rule will combine various aspects of.both options. Also, at the end of this paper are additional sections dealing with substantive issues still under investigation' other options,we considered in the course of deriving the two options under evaluation, and a few examples of how various recycling scenarios would be affected by each option.

II. THE TRANSFER-BASED OPTION

A. Summary of Option

The Transfer-Based Option focuses on three major factors for determining whether a secondary material is subject to RCRA jurisdiction: (1) where the secondary material[1] is recycled, (2) how the material is recycled, and (3) whether the secondary material is classified as a commodity-like material. Figure 1 (at end of package) provides an overview of this option. This option would maintain RCRA regulatory jurisdiction over secondary materials that are recycled off-site, unless such recycling is done by the company that generated the material (intracompany). Therefore, on-site and intra-company recycling would be excluded from regulation under Subtitle C as long as certain conditions were met. The conditions that would apply are that the secondary material must not (1) be burned for energy recovery or used to produce a product burned for energy recovery, (2) stored on the land prior to recycling, (3) speculatively accumulated, (4) used in a manner constituting disposal, or (5) designated by the Agency as inherently waste-like.

The conditions that apply to the general exclusion for secondary materials that are recycled on-site or by the generating company are designed to ensure that such secondary materials do not become *past* of the waste management problem (and thus warrant Subtitle C controls). For instance, conditions such as no land placement, no bunting for energy recovery

[1]Although still under development, the proposed definition of secondary material would incorporate the current definitions of sludge, byproduct and spent material set out at 40 CFR 261.1, with some modifications to clarify those definitions.

and no speculative accumulation ensure that recycling with significant elements of discard will be regulated.

The exclusion also is conditioned on certain basic recordkeeping and notification requirements. The requirement to maintain normal business records to support legitimate recycling operations is used to indicate the material is handled as other feedstocks and manufacturing processes. Normal business records might involve maintaining records on the - volume of materials generated (or received, if generated by a separate facility within the same company), the volumes of material recycled, the volumes of product produced by recycling the material, and the volumes of product marketed. This requirement should not increase paperwork burdens since they are not specific, but are the "normal" records a business would be expected to keep. Similarly, a facility would be required to notify the appropriate regulatory agency if the excluded material was previously regulated as a solid waste.[2]

Secondary materials destined for recycling that do not meet the terms of the general exclusion, but that do not warrant regulation could be excluded pursuant to a "commodity-like" variance mechanism under this option. (See discussion on page 5.) In addition, facilities recycling regulated secondary materials would be able to take advantage of a proposed streamlined permitting process. (See discussion on page 6.) Under this option, as well as the In-Commerce option, the Agency would modify the current definition of speculative accumulation to allow for an 18-month accumulation period in which all of the material must be recycled. This change is in response to industry comments about secondary materials that can be used as feedstocks in recycling processes that are only operated periodically. Finally, if the Agency has designated a material to be inherently waste-like, the material is a solid and hazardous waste regardless of how it is recycled.

Under this option, as well as the In-Commerce option, the regulatory distinctions that currently exist between most types of secondary materials (e.g., by-products, spent materials and sludges) and most forms of recycling (e.g., use/reuse as ingredients/feedstocks and reclamation) would be removed. Overall, the Agency believes this option would simplify the Definition of Solid Waste and would lower the burden on recyclers that are regulated.

The change in regulatory approach from the current system was developed based on years of comments from industry that the current regulations applicable to hazardous waste recycling are too burdensome and that one unintended effect of RCRA regulation has been to act as a disincentive to the most efficient (both economically and technologically) recycling of secondary materials, namely the recycling of secondary materials on-site or within the control of the generating company.

[2] The Agency also is examining the possibility of requiring notification for generators or facilities that continue to remain excluded from the definition of solid waste.

B. Major Components Option

1. Definition of Recycling

A major goal of this rule is to promote the safe recycling of hazardous waste. Therefore, a major component of this option, as well as the In-Commerce option, is the need to define legitimate recycling, particularly when both options would exclude certain recycled secondary materials from regulation. The Agency does not wish to encourage inefficient recycling or recycling where the main purpose is simply to avoid a hazardous waste listing or to discard a hazardous secondary material (e.g., situations where a recycling process recovers only a minimal percentage of the amount of recoverable constituent contained in a secondary material, allowing the rest to pass through into a newly-generated and nonlisted wastestream, or recycling scenarios that use a secondary material as an ingredient where such use is unnecessary or inconsequential to the production of the end product).

Therefore, for a material to be considered legitimately recycled, the secondary material must (1) significantly contribute to the product or the process, (2) a product that is sold in commerce must result from the recycling process, (a) the material must be managed to minimize losses, and (4) no significant increases in the levels of toxic constituents can result (either in the feedstock or product). "Significantly contribute" does not necessarily mean that a majority of the secondary material must be incorporated into the product, nor does it necessarily mean that the contribution the secondary material makes to the product or process is so substantial that the product could not be produced otherwise (although both examples would certainly indicate a significant contribution). The intent of "significantly contribute" is not to set a quantifiable level of recyclable constituents in the secondary material (some constituents are valuable enough that very low concentrations would be considered recoverable). The intent of "significantly contribute" is to disallow certain "recycling" practices where there really is no recycling occumug, or where the contribution to the product or process is so minimal as to be inconsequential and the secondary material is being processed simply to discard it.

For example, a characteristic sludge processed by a copper smelter, where there is no recoverable level of copper in the sludge and the sludge serves no other purpose in the smelting process would not be legitimate recycling, but rather regulated treatment.

To meet the requirement that a product that is sold in commerce must result from the recycling process, the Agency will rely on routine recordkeeping (e.g., customer sales) and inventory control records. No new requirements that will increase paperwork burdens are anticipated. Secondly materials being legitimately recycled also must meet the requirement of being managed to minimize losses to the environment The Agency is examining such criteria as secondary containment for tanks, containers and containment buildings, or in lieu of secondary containment, periodic inspections as part of a facility operating plan to ensure against releases, or timely response in case a release should occur.

With respect to "toxics along for the ride," the Agency, at a minimum, will continue to rely on its current case-by-case approach but plans to reevaluate current caters and put the most useful ones in the regulation to inform generators and recycling facilities of the criteria that should be used in their determinations of exemption. The Agency continues to investigate other viable alternatives to addressing "toxics along for the ride" and will seek public comment on this issue.

As part of this proposal, the Agency would publish in the Code of Federal Regulations those criteria that would apply to determine the legitimacy of a recycling process.

2. Use/Reuse and Reclamation

As stated earlier, the Transfer-Based and the In-Commerce options would both dispense with the distinctions that exist the current rules between use, reuse and reclamation. With respect to these types of recycling, the Agency now believes there may be little reason to regulate these types of recycling differently. For instance, changes in technology have resulted in hazardous waste reclaimed in the past now being used as feedstocks in normal production. Similarly, the ability to differentiate whether the recycling process is actually "reclaiming" a secondary material rather than "used as an ingredient" sometimes involves analyzing and evaluating multiple complex chemical reactions.

This option would do away with regulatory distinctions between most types of secondary materials. Some secondary materials that are currently excluded may be brought under RCRA jurisdiction (i.e., characteristic by-products and sludges being reclaimed, as well as listed wastes and spent materials being used as ingredients). Both options would include a commodity-like list and a variance process for adding to that list those secondary materials being recycled in a manner that does not warrant RCRA regulation.

3. Conditions for Exclusion

For a hazardous secondary material to be excluded from the definition of solid waste (assuming the material is not identified as a commodity-like material) under this option, the material must be recycled on-site, or intra-company, and must meet certain other conditions. Specifically, the material must not be:

1) burned for energy recovery or used to produce a product that is burned for energy recovery (which will be defined as burning any secondary material with an energy value of 5000 BTU/lb or greater),

2) stored or otherwise managed on the land[1] -- and note that placement on a drip pad that meets the requirements of Part 264 Subpart W is not considered land placement) or otherwise managed in a manner that does not minimize loss,

3) speculatively accumulated (note that the definition of speculative accumulation found at 261.1(c)(8) would be modified to allow for 18 months of accumulation wherein 100% of the material must be recycled), or

4) used in a manner constituting disposal, or used to produce a product that is used in a roamer constituting disposal, or

5) designated as inherently waste-like (pursuant to 261.2(d)).

Any hazardous secondary material that does not meet the above-listed conditions would be subject to either streamlined or full Subtitle C regulation and permitting requirements. (See Figure 1.)

4. Commodity-Like and Other Definition of Solid Waste Exclusions

Under the Transfer-Based option (as well as the In-Commerce option), a list of "commodity-like" secondary materials would be promulgated that excludes from the definition olsolid waste materials that are recycled in a manner consistent with normal production. This list would include secondary materials that are currently excluded when recycled in specific ways and would be part of rest the regulations to make them more user-friendly. For example, several secondary materials currently excluded under section 261.4 may be included as commodity-like materials (e.g., pulping liquors reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, and nonwastewater splash condenser dross residue from the treatment of K061 in high temperature recovery units provided it is shipped in drums). The list also may include materials for which we have existing data regarding analogous materials and management practices. (The Agency plans to solicit comment on these and other secondary materials that could be generically excluded.)

Also, to allow greater flexibility in implementing the regulations, a case-specific variance procedure would be provided to exclude those secondary materials that, when recycled (even in a manner indicative of discard), are more commodity-like than waste-like. The variance would rely

[1] For purposes of this proposal, we are using the definition of land disposal found at 40 CFR 268.2 to determine when a secondary material would be stored on the land. Land disposal therefore means placement on the land, except in a corrective action management unit, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault, or bunker intended for disposal purposes.

on consideration of factors relative to whether regulatory oversight is necessary to ensure against mismanagement of the materials. For example, factors could include: 1) economic value of the secondary material, 2) the degree to which the secondary material replaces or serves as effective substitute for nonwaste material, (3) the degree of assurance that the material will be recycled material, 4) the economic value of the end product and the extent to which a market for the product is guaranteed, 5) the extent to which the material is managed to minimize loss or release of hazardous constituents, (6) the extent to which management practices demonstrate a close stewardship of the material by the original manufacturer or other entity from the point of generation through final recycling, or (7) other relevant factors.

Part 261.4 Exclusions

The current exclusions for secondary materials found under 40 CFR 261.4 would be maintained under both options. However, the Agency intends to examine each of these exclusions in the future to determine if these exclusions should continue.

5. Streamlined Permitting for Recycling

Under the transfer-based option, secondary materials that are not exempt from the definition of solid waste when recycled, and that are stored prior to being recycled, would still be subject to RCRA permitting requirements. However, EPA is proposing a streamlined permitting process for this situation, using a nationally issued general permit rather than individual permits. The general permit is intended to reduce the administrative burden or time constraints typically associated with an individual Subtitle C TSDF permit, while maintaining oversight by the regulating agency and requirements designed to ensure protection of human health and the environment.

Under the general permit approach, as under an individual permit approach, all hazardous waste recyclers would require an ID number. A recycling facility that stores prior to recycling would be required to obtain coverage under the general permit for storing hazardous wastes. As part of the process for obtaining coverage, the facility owner or operator would be required to provide notice of and hold an informal meeting with the community. This meeting is basically the same as the pre-application meeting required for individual (Part B) permits; its purpose to explain anticipated facility operations, discuss issues of concern with community members, etc.

In order to obtain coverage under the genera permit, the facility owner or operator would need to submit several pieces of information: 1) a Notice of Intent to be covered by the general permit; 2) the Part A information required under 40 CFR 270. 13; 3) a summary of the meeting with the public; and 4) certain certifications (e.g., that the applicable technical standards have been met, that supporting documents are available for review at the facility, etc.). The Agency is developing management and technical standards that will apply to facilities covered by the general permit. The standards will be similar to those now applicable to treatment, storage, and disposal facilities, but will be revised to be appropriate for a facility that will be covered by a general permit. In particular, EPA intends that the standards will not require the facility owner or operator to submit extensive information for review by the permitting agency. The Agency is - also developing a streamlined process for corrective action for these facilities.

The proposed RCRA general permit process would follow the steps laid out briefly below:

- The facility owner or operator conducts a meeting with the community to discuss potential operations.

- The facility owner or operator submits to the permitting agency a Notice of Intent to be covered by the general permit; the notice must be accompanied by a summary of the meeting with the community, by certain certifications required under proposed §270.67, and by the Part A information required under §270.13.

- The permitting agency Director makes a tentative determination on whether or not to allow the facility to operate under the general permit (e.g., the facility fits in the intended class of facilities to be covered by the general permit), and provides public notice of the tentative determination. The Director may also impose facility-specific conditions, beyond those of the general permit requirements, that may be necessary to ensure protection of human health and the environment.

- The public notice initiates a 45-day public comment period; any requests for a public hearing must also be made during this time.

- Following the public comment period (and public hearing, if any), the permitting agency Director will make a final determination to allow or not allow coverage under the general permit, and will issue a response to comments.

- The final determination will become effective 30 days after the public notice. Interested parties may appeal the final determination. Of course, facilities that are denied coverage under the general permit could choose to pursue an individual permit.

Changes to the General Permit

Changes to the general permit also would be expedited under this new process for certain types of facility changes. For routine changes, no prior regulatory agency oversight or approval would be required. The facility owner or operator would just have to submit the information to the permitting agency and proceed with the modifications to the facility. Routine changes under evaluation could include the management of new wastes in tanks, containers and continent buildings not previously identified in the Part A, increases in design capacity of processes used at a facility, and changes in processes for the management of hazardous waste or for the addition of processes.

For non-routine changes, however, owners or operators would be required to obtain prior approval from the permitting agency. The permitting agency would also hold a public hearing, if requested. Non-routine changes under evaluation could include major reconstruction changes (i.e., changes exceeding S0 percent of the original cost of construction) and changes to site-specific conditions that may have been added to the general permit for a facility.

6. Streamlined Permitting for On-Site Waste Management

As part of the revisions to the recycling regulations, the Agency is proposing the general permit for off-site, third-party recyclers in the Transfer-Based Option as discussed above. In this rule the Agency is also proposing to allow some generators who require a permit for on-site management of waste that is not recycled to utilize the same general permit. Under this proposal, the general permit will be available to generators who accumulate their own hazardous waste in tanks, containers, and containment buildings for longer than 90 days (or 180/270 days for Small Quantity Generators). The general permit concept for RCRA facilities was originally developed by the Agency's Permits Improvement Team, whose draft recommendation was to develop the general permit for generators' on-site waste management The Agency is thus proposing the general permit for this class of facilities as a first step in obtaining comment on and implementing the PIT's recommendations.

III. IN-COMMERCE OPTION

Under the In-Commerce option the major jurisdictional determinant is "how" the secondary material is being recycled. An overview of this option also is presented in Figure 1. Whereas the Transfer-Based option would generally exclude on-site and intra-company recycling, the In-Commerce option would broaden this approach to exclude most, except management practices that the Agency believes resemble or constitute waste management. As with the Transfer-Based option, the universe of materials that are potentially defined as solid waste would be limited to secondary materials.

The conditions for exclusion are basically the same as those in the Transfer-Based option. Thus secondary materials that are recycled would be excluded from the definition of solid waste provided that they are not:

1) burned for energy recovery or used to produce a product that is burned for energy recovery (which will be defined as burning any secondary material with an energy value of 5000 BTU/lb or greater),

2) stored or otherwise managed on the land (i.e., land disposal as defined as part of the land disposal restrictions at 40 CFR 268.2(c) -- and note that placement on a drip pad that meets the requirements of Part 264 Subpart W is not considered land placement) or otherwise managed in a manner that does not minimize loss,

3) used in a manner constituting disposal, or used to produce a product that is used. in a manner constituting disposal,

4) speculatively accumulated (note that the definition of speculative accumulation found at 261.1(c)(8) will be modified to allow for 18 months of accumulation wherein 100% of the material must be recycled), or

5) designated as inherently wavelike (pursuant to 261.2(d)).

As in the Transfer-Based option, the exclusion is also conditioned on certain recordkeeping and notification requirements, as well as meeting the criteria for the definition of recycling. Similarly, the distinctions between most types of secondary materials and between use, reuse and reclamation would be eliminated. The fundamental jurisdictional approach is similar to the Transfer-Based option; the only key difference being that the exclusion for recycling is applicable to secondary materials regardless of where or by whom (i.e., secondary materials recycled off-site and by a different company are still excluded).

IV. ISSUES STILL UNDER INVESTIGATION

The Agency continues to refine and finalize the basic options previously described. Any changes being considered are means to improve the protectiveness and implementability of the options. A few of the key issues we continue to investigate include:

1) What specific criteria, if any, should be used to define managed to "minimize material losses," under both options and whether or not secondary containment should be one of those criteria.

2) How to improve the Agency's approach to legitimacy

3) What materials the Agency should consider as an initial list of commodity-like materials.

V. OTHER OPTIONS CONSIDERED

The Agency also examined other options to amend the definition of solid waste and hazardous waste recycling regulations. One option. the Agency considered was the use of an . economic test to differentiate products (excluded from RCRA jurisdiction) from secondary materials (potentially subject to RCRA jurisdiction). While this test could work conceptually through the use of generally accepted accounting principles, problems with implementation: i.e., changing market forces creating a positive economic value one day and a negative economic value the next, would create such uncertainties in the regulated community that this option was dismissed as unworkable.

A variation on the Transfer-Based option that was considered involved excluding from RCRA jurisdiction materials sent off-site to a recycling facility within the same industry (intra-industry). This option also was dismissed for implementation reasons because it is very difficult to define intra-industry effectively.

Another option considered was to maintain the current regulatory structure, but make improvements in those areas viewed as causing the biggest problems. These problems included clarifying key definitions, adding new language to address identified "problem areas", and possibly redrafting the current rules to make more user-friendly. This option was dismissed because it did not do enough to encourage recycling and reduce complexity:

Figure 1: Transfer-Based Option

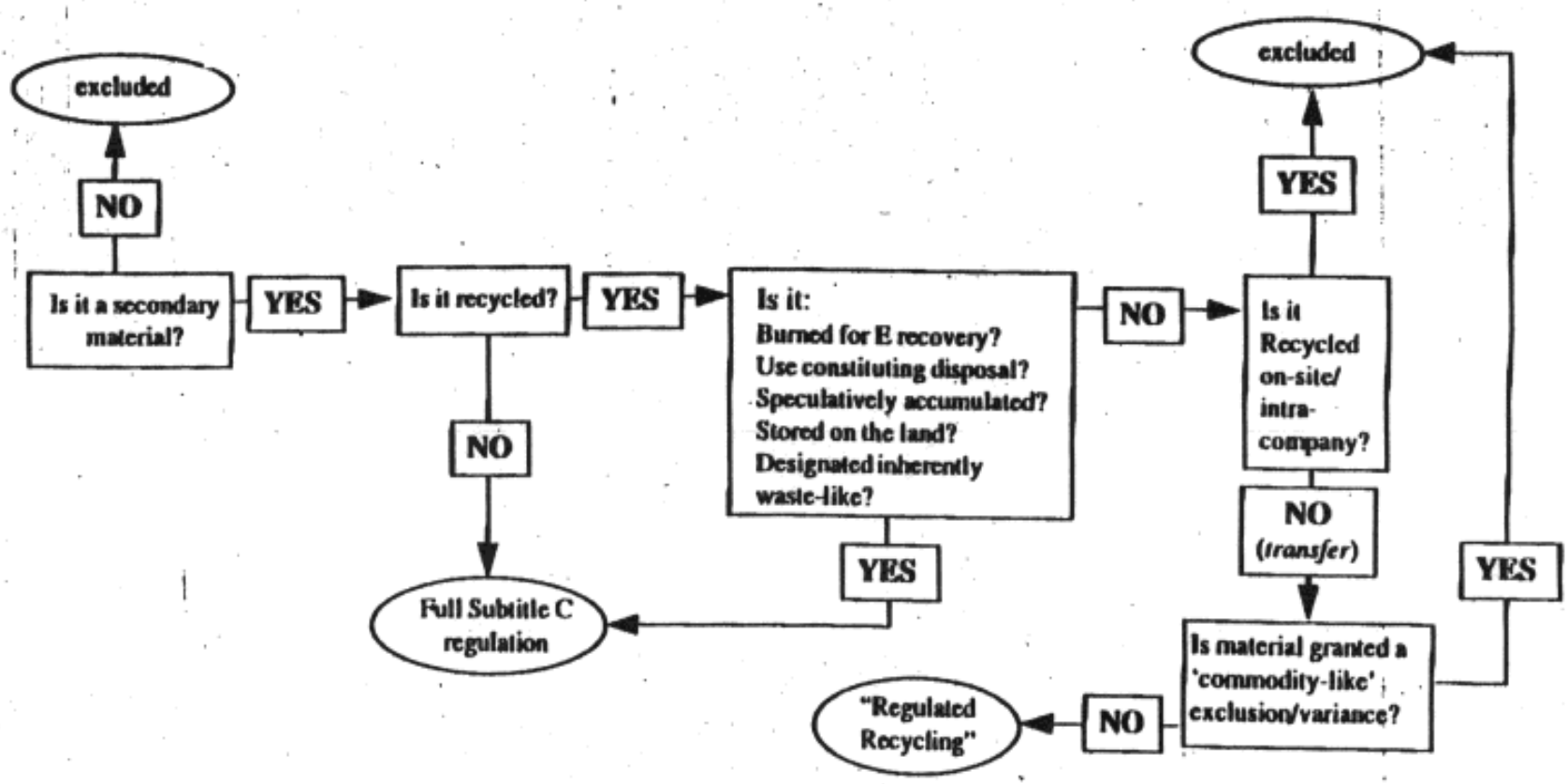
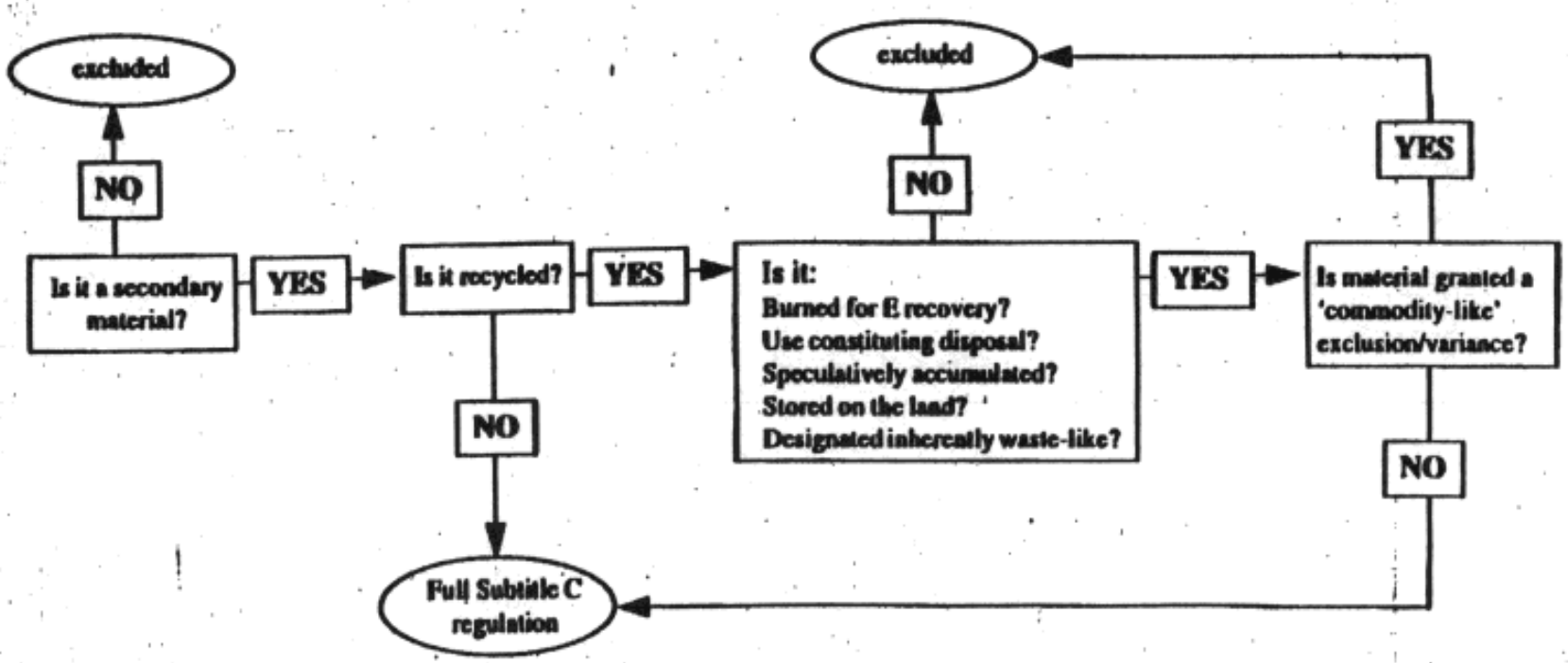


Figure 2: In-Commerce Option



EXAMPLES OF HOW OPTIONS WOULD WORK

EXAMPLE	CURRENT STATUS	IN-COMMERCE	TRANSFER-BASED (ON-SITE)	TRANSFER-BASED (OFF-SITE)
FACILITY RECYCLES SPENT SOLVENT ON-SITE	SPENT SOLVENT A HAZARDOUS WASTE; GENERATOR CAN STORE UP TO 90 DAYS W/O PERMIT; RECYCLYING UNIT EXEMPT	SPENT SOLVENT EXCLUDED FROM DEFINITION OF SOLID WASTE SO LONG AS GENERATOR MEETS CONDITIONS	SAME AS IN-COMMERCE OPTION	NOT APPLICABLE
FACILITY RECYCLES SPENT SOLVENT OFF-SITE AT DIFFERENT COMPANY	SPENT SOLVENT A HAZARDOUS WASTE; GENERATOR CAN STORE UP TO 90 DAYS W/O PERMIT; RECYCLING UNIT EXEMPT	SPENT SOLVENT EXCLUDED FROM DEFINITION OF SOLID WASTE SO LONG AS GENERATOR MEETS CONDITIONS	GENERATING FACILITY MUST MEET 90 DAY GENERATOR REQUIREMENTS FOR STORING MATERIALS	STORAGE UNIT(S) AT RECYCLING FACILITY SUBJECT TO NEW STREAMLINED PERMIT SYSTEM; RECYCLING UNIT SUBJECT TO ADDITIONAL (TO BE DETERMINED) CONDITIONS

EXAMPLES OF HOW OPTIONS WOULD WORK

EXAMPLE	CURRENT STATUS	IN-COMMERCE	TRANSFER-BASED (ON-SITE)	TRANSFER-BASED (OFF-SITE)
FACILITY GENERATES CHARACTERISTIC SLUDGE FROM SMELTING PROCESS THAT IS RECYCLED OFF-SITE AT DIFFERENT COMPANY	CHARACTERISTIC SLUDGE IS NOT A HAZARDOUS WASTE AS LONG AS NOT SPECULATIVELY ACCUMULATED, BURNED FOR ENERGY RECOVERY, PLACED ON THE LAND, USED IN A MANNER CONSTITUTING DISPOSAL, OR DESIGNATED AS INHERENTLY WASTE-LIKE	CHARACTERISTIC SLUDGE IS EXCLUDED FROM DEFINITION OF SOLID WASTE SO LONG AS NOT SPECULATIVELY ACCUMULATED, BURNED FOR ENERGY RECOVERY, PLACED ON THE LAND, USED IN A MANNER CONSTITUTING DISPOSAL, OR DESIGNATED AS INHERENTLY WASTE-LIKE	CHARACTERISTIC SLUDGE IS NOT EXCLUDED FROM THE DEFINITION OF SOLID WASTE; GENERATING FACILITY MUST MEET 90 DAY GENERATOR REQUIREMENTS FOR STORING MATERIALS	STORAGE UNIT(S) AT RECYCLING FACILITY SUBJECT TO NEW STREAMLINED PERMIT SYSTEM; RECYCLING UNIT SUBJECT TO ADDITIONAL CONDITIONS (TO BE DETERMINED)

EXAMPLES OF HOW OPTIONS WOULD WORK

EXAMPLE	CURRENT STATUS	IN-COMMERCE	TRANSFER-BASED (ON-SITE)	TRANSFER-BASED (OFF-SITE)
FACILITY GENERATES CHARACTERISTIC SLUDGE FROM SMELTING PROCESS THAT IS RECYCLED OFF-SITE AT ANOTHER PLANT OWNED BY GENERATOR	CHARACTERISTIC SLUDGE IS NOT A HAZARDOUS WASTE AS LONG AS NOT SPECULATIVELY ACCUMULATED, BURNED FOR ENERGY RECOVERY, PLACED ON THE LAND, USED IN A MANNER CONSTITUTING DISPOSAL, OR DESIGNATED AS INHERENTLY WASTE-LIKE	CHARACTERISTIC SLUDGE IS EXCLUDED FROM DEFINITION OF SOLID WASTE SO LONG AS NOT SPECULATIVELY ACCUMULATED, BURNED FOR ENERGY RECOVERY, PLACED ON THE LAND, USED IN A MANNER CONSTITUTING DISPOSAL, OR DESIGNATED AS INHERENTLY WASTE-LIKE	CHARACTERISTIC SLUDGE EXCLUDED FROM DEFINITION OF SOLID WASTE SO LONG AS GENERATOR MEETS CONDITIONS	CHARACTERISTIC SLUDGE EXCLUDED FROM DEFINITION OF SOLID WASTE SO LONG AS FACILITY MEETS CONDITIONS; NO STORAGE REQUIREMENTS OR PERMIT

Attachment 6

— Attachment 6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 7 1997

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

John Wittenborn
Metals Industry Recycling Coalition
c/o Collier, Shannon, Rill & Scott
3050 K St., NW - Suite 400
Washington, DC 20007

Dear Mr. Wittenborn:

As you know, the EPA has been evaluating two options for modifying the definition of solid waste: the In-Commerce option, and the Transfer-Based option. Instead of moving forward with the above options, we intend to pursue a three-part strategy. First, we intend to propose the standardized permit that was part of the Transfer-Based option. Second, we are working to develop a data collection strategy that will enable us to better estimate the types and quantities of currently exempt recyclable materials, as well as better understand their management practices. Third, we intend to propose some incremental improvements to the current framework. Among these improvements are product stewardship arrangements and the identification of commodity-like materials. As our plans for the above activities become more refined, we will provide you with a schedule for these activities. We also will be evaluating how the SBREFA process relates to the new strategy.

Our decision not to propose the two broad options at this time is based on strong stakeholder concerns and our conclusion that we needed a better understanding of the environmental and economic consequences of such options. With respect to the In-Commerce option, concern was expressed by the States and environmental community that EPA would be losing jurisdiction over secondary materials that should continue to subject to RCRA Subtitle C (hazardous waste) regulatory controls. Conversely, many in industry were concerned that the Transfer-Based option would increase compliance costs significantly by subjecting currently exempt secondary materials to RCRA jurisdiction for the first time, only because these materials were sent off-site for recycling.

Thank you for your continued interest in the definition of solid waste. At the appropriate time, we will inform you of our future course in more detail.

Sincerely yours,

Elizabeth A. Cotsworth, Acting Director
Office of Solid Waste

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