Solid Waste and Recycled Materials under RCRA: Separating Chaff from Wheat

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INTRODUCTION

The Resource Conservation and Recovery Act (RCRA)[1] is the primary federal statute regulating the management of "hazardous wastes." Although frequently characterized as regulating wastes from "cradle to grave,"[2] this expression obscures a critical aspect of the statute. RCRA is not a comprehensive statute that covers all hazardous substances. Rather, the Subtitle C regulatory system applies only to hazardous "solid wastes," and under the crucial language of the statute, its regulatory reach extends only to materials that have been "discarded."[3] In fact, RCRA is a "deathbed to grave" statute, and one of the most difficult issues is determining when death has occurred.

The limitation of RCRA's coverage to "solid wastes" that have been "discarded" raises difficult questions concerning the scope of the statute. Some materials that might otherwise be "discarded" as wastes may be reused in a variety of ways that have commercial value. Are these recyclable materials subject to regulation as "wastes" under RCRA?[4] If so, how stringently should they be regulated?

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1. 42 U.S.C. §§ 6901-6991i (1982 & Supp. IV 1986).

2. H.R. REP. NO. 1491, 94th Cong., 2d Sess. 5, *reprinted in* 1976 U.S. CODE CONG. & ADMIN. NEWS 6238, 6242. According to the report, RCRA would "eliminate the last remaining loophole in environmental law, that of unregulated land disposal of discarded materials and hazardous waste" by regulating these materials "from the point of generation, through transportation, storage, treatment and disposal." *Id.* at 4-5.

3. *Id.* at 2-3.

4. This Article generally refers to recyclable rather than recycled materials. EPA does not in most cases regulate final "recycled" products made from wastes. *See* 40 C.F.R. § 261.3(c)(2)(i) (1988). The issue is generally limited to whether "recyclable" materials, those materials that may be reused or recycled, are wastes. *See infra* text accompanying notes 106-07.

These questions highlight a basic conflict that makes regulating recyclable materials particularly difficult. On the one hand, recycling and resource conservation are clear objectives of RCRA.[5] Putting materials that otherwise would be discarded to commercial use decreases the problems associated with their final disposal. Diminishing landfill capacity and rising disposal costs increase the importance of recycling.[6] Recycling processes, however, create many of the same environmental hazards posed by improper disposal. Indeed, some types of so-called recycling, such as burning wastes for fuel or applying waste as a dust suppressant, may be disguised forms of incineration and land disposal—means of disposal strictly regulated under RCRA.[7] Excluding such "recycling" from regulation would create a potentially enormous and environmentally dangerous loophole in RCRA's coverage.

The Environmental Protection Agency (EPA), the agency responsible for implementing RCRA, has attempted to resolve these conflicting objectives through its definition of "solid waste" under RCRA. In January 1985, EPA adopted an extremely complicated and confusing definition of "solid waste"[8] that draws the finest of distinctions between types of materials and the means used to recycle them. The definition, one suspects, leaves virtually everyone involved with recycling confused over the scope and logic of RCRA's regulatory framework.

To add to the confusion, in 1987 the U.S. Court of Appeals for the District of Columbia Circuit invalidated EPA's definition of solid waste. The court's holding in *American Mining Congress v. EPA*[9] was based on the simplistic and singularly unhelpful conclusion that Congress intended RCRA to apply to materials that really have been "discarded" according to the common meaning of the word.[10]

This Article analyzes RCRA's applicability to recyclable materials and EPA's regulatory approach to the issue. Part I describes the special problems that regulation of recyclable materials presents under RCRA. These problems arise not only from the complexity and variety of recycling but also from the basic structure of RCRA. Part II describes EPA's definition of solid waste and the regulatory provisions applicable to recyclable materials. Part III evaluates the court's treatment of the problem in *American Mining Congress* and EPA's response. Part IV of-

5. 42 U.S.C. § 6902(7) (1982).

6. *See* Halgren, *Recycling and Resource Recovery: State and Municipal Legal Impediments*, 7 COLUM. J. ENVTL. L. 1 (1980); Note, *Legal Incentives for Reduction, Reuse, and Recycling: A New Approach to Hazardous Waste Management*, 95 YALE L.J. 810 (1986).

7. 42 U.S.C. § 6924(q)(1) (1982 & Supp. IV 1986).

8. Hazardous Waste Management System; Definition of Solid Waste, 50 Fed. Reg. 614 (1985) (final rule) [hereinafter Original Definition].

9. 824 F.2d 1177 (D.C. Cir. 1987).

10. *Id.*

fers some suggestions on how EPA should treat recyclable materials under RCRA.

The Article concludes that, despite the complexity of its regulations, EPA's basic approach is a sound, thoughtful response to an extremely difficult problem. The Article argues, however, that EPA can improve its existing regulations in three ways. First, EPA must articulate more clearly the rationale underlying its definition of solid waste. Second, the Agency should reconsider its regulation of certain types of recycling in light of controls that are available under other environmental statutes. Finally, EPA should redraft its regulations to clarify and simplify them.

I
THE SPECIAL PROBLEM OF RECYCLABLE MATERIALS UNDER RCRA

Subtitle C of the Resource Conservation and Recovery Act is a comprehensive program for managing the disposal of hazardous solid waste.[11] The key to determining the applicability of these provisions is RCRA's definition of solid waste. Under RCRA, hazardous wastes are a subset of solid wastes,[12] and only materials that are classified first as solid wastes are subject to regulation.[13] RCRA defines solid waste as

> any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid or contained gaseous material, resulting from industrial, commercial, mining, and agricultural operations and from community activities . . . .[14]

Solid waste that either exhibits a hazardous "characteristic," such as ignitability or toxicity, or has been "listed" as hazardous by EPA is classified as a hazardous waste.[15] The consequences of being classified as a

11. 42 U.S.C. §§ 6921-6939b (1982 & Supp. IV 1986).

12. *Id.* § 6903.

13. *Id.* § 6921. Unfortunately, even this seemingly simple point is not straightforward when dealing with EPA's definition of solid waste. Under the EPA regulations governing the identification and listing of hazardous waste, the definition of solid waste applies only to materials defined as hazardous. *See infra* note 63.

14. 42 U.S.C. § 6903(27) (1982).

15. *Id.* § 6921. A material that is a solid waste may be classified as a hazardous waste on one of two bases. First, a waste may be hazardous if it exhibits certain hazardous characteristics established by EPA, including reactivity (i.e., explosive), corrosivity (i.e., acidic), ignitability (i.e., flammable), or toxicity under EPA test protocols. *See* 40 C.F.R. §§ 261.20-.24 (1988). A generator is responsible for determining if its waste exhibits a hazardous characteristic. *See id.* § 262.11(c). Second, a waste may also be classified as hazardous if it has been specifically listed as such by EPA. *See id.* § 261.11. Particular types of wastes from industrial processes have been designated as listed wastes. *See id.* §§ 261.30-.33. A generator need only determine if its waste is on the list to know if the waste is hazardous. *See generally id.* § 260.11(b). A generator, however, may petition to have wastes from its particular facility "delisted" from the Agency's industry specific hazardous waste list. *See id.* § 260.22.

hazardous solid waste are significant: hazardous wastes are subject to a complex and potentially costly set of regulatory requirements.[16]

Because the RCRA Subtitle C program applies only to "wastes," the problem of recyclable materials is apparent. Recyclable materials are not in an obvious sense wastes; they are still within the stream of commerce.[17] Although commercial materials may be hazardous and raise environmental concerns, they are not regulated under RCRA. Other en-

16. Subtitle C, containing the so-called "cradle to grave" provisions, establishes regulation over generators, transporters, and those who treat, store, or dispose of hazardous wastes. 42 U.S.C. §§ 6921-6939b (1982 & Supp. IV 1986). RCRA was originally adopted by Congress in 1976, but EPA, for a variety of reasons, failed to promulgate adequate regulations implementing the statute until 1982. In 1984, Congress responded to perceived inadequacies in EPA's handling of RCRA by amending the statute to impose potentially very stringent requirements on the disposal of hazardous wastes. Hazardous and Solid Waste Amendments of 1984, Pub. L. No. 98-616, 98 Stat. 3221 (codified principally at 42 U.S.C. §§ 6921-6939b (1982 & Supp. IV 1986)).

Subtitle C of RCRA is not simple, but an understanding of the provisions dealing with recyclable materials requires some understanding of the overall structure of the hazardous waste provisions of RCRA. For a general discussion of the requirements of Subtitle C, see 2 ENVTL. L. INST., LAW OF ENVIRONMENTAL PROTECTION §§ 13.01-.03 (S. Novick ed. 1987); R. FORTUNA & D. LENNET, HAZARDOUS WASTE REGULATION, THE NEW ERA: AN ANALYSIS AND GUIDE TO RCRA AND THE 1984 AMENDMENTS (1987); J. QUARLES, FEDERAL REGULATION OF HAZARDOUS WASTES: A GUIDE 1-12 (1982). The following paragraphs outline the regulatory provisions of Subtitle C.

Generator Requirements. Under section 3002 of RCRA, generators of hazardous waste are subject to certain limited obligations, including proper storage, record keeping, and reporting. If wastes are disposed of offsite, the generator is also responsible for preparing a manifest that describes the waste and accompanies the waste during transportation. If the generator does not receive a copy of the manifest from the final disposal site within a certain period, it is required to notify EPA. If a generator decides to dispose of its wastes onsite, it is subject to the requirements applicable to a disposal facility. *See* Standards Applicable to Generators of Hazardous Waste, 40 C.F.R. Part 262 (1988).

Transporter Requirements. Section 3003 of RCRA establishes labeling and reporting requirements for transporters. The most significant substantive requirements are the obligations to take the waste only to an approved disposal site and to ensure that the manifest accompanies the shipment. *See* Standards Applicable to Transporters of Hazardous Waste, *id.* at Part 263.

TSDF Permit Requirements. Sections 3004 and 3005 set forth the requirements for hazardous waste disposal sites called "treatment, storage, or disposal facilities" or "TSDF's," subjecting them to a federally defined permit program. Although EPA initially was responsible for issuing TSDF permits, states with programs meeting EPA criteria may administer the program.

TSDF permit requirements are the most difficult and costly consequence of recycling hazardous wastes. *See* Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, *id.* at Part 264. EPA regulations impose a basic set of requirements on all facilities that either treat, store, or dispose of hazardous wastes. The most important of these are financial responsibility requirements (ensuring that the facility will have adequate financial resources to close properly and to compensate any victims of a spill or release), *id.* §§ 264.140-.151, preparedness planning, *id.* §§ 264.30-.37, and reporting and recordkeeping obligations, *id.* §§ 264.70-.77. Facilities that dispose of wastes by landfilling or incineration are subject to stringent limitations and controls. EPA has imposed a variety of these substantive requirements on facilities that recycle hazardous wastes. For a discussion of these requirements, see *infra* notes 131-42 and accompanying text.

17. *See infra* notes 36-45 and accompanying text.

vironmental statutes, including the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund),[18] the Emergency Planning and Community Right-to-Know Act,[19] and the Toxic Substance Control Act,[20] regulate hazardous substances regardless of whether they are "wastes."[21]

EPA has wrestled for over ten years with the problem of distinguishing between recyclable materials that are RCRA wastes and those that are commercial products and, thus, not subject to regulation.[22] In part, the problem arises because an adequate regulatory program must deal with a wide variety of existing and potential recycling activities. More fundamentally, the basic structure and objectives of RCRA create special problems in determining the proper regulatory approach to recyclable materials.

A. The Variety of Recycling Activities

The first source of EPA's difficulty in developing a regulatory program for recyclable materials lies in the enormous variety of types of recycling activities.[23] At a minimum, recycling means using a material for some commercial purpose when the material would otherwise be discarded. The concept encompasses activities with a variety of both positive and negative environmental consequences. Consider the following examples of industrial operations:[24]

> Toxic metal-containing sludges from the chemical industry go through a reclamation process that results in a soil-like solid that can be used for landfill cover material. Are the sludges solid wastes?[25]
>
> Non-halogenated spent solvents (heavy alcohol, ketones, hydrocarbons, and heavy residuals) from a chemical manufacturing plant are physically mixed into a product that is sold as marine fuel. Are the spent solvents solid waste?[26]

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18. 42 U.S.C. §§ 9601-9675 (1982 & Supp. IV 1986).

19. 42 U.S.C. §§ 11001-11050 (Supp. IV 1986).

20. 15 U.S.C. §§ 2601-2654 (1982 & Supp. IV 1986).

21. See *infra* notes 248-54 and accompanying text for a discussion of these statutes and their significance to EPA's regulation of recyclable materials.

22. *See* Original Definition, *supra* note 8, at 617.

23. *See generally* Garelick, *EPA's Definition of Solid Waste: Making Distinctions between Shades of Gray*, 17 Envtl. L. Rep. (Envtl. L. Inst.) 10,349 (1987); INDUSTRIAL ECONOMICS, INC., GUIDANCE MANUAL ON THE RCRA REGULATION OF RECYCLED HAZARDOUS WASTES (Mar. 1986) [hereinafter RCRA GUIDANCE MANUAL] (prepared for U.S. Environmental Protection Agency, Office of Solid Waste).

24. These examples are taken from a guidance manual on the definition of solid waste prepared for EPA. RCRA GUIDANCE MANUAL, *supra* note 23.

25. *Id.* at 2-7 to 2-8. Under EPA regulation the sludges are wastes because they are placed on the land, which is defined as use constituting disposal.

26. *Id.* at 2-32 to 2-33. The spent solvents are wastes because they are used to produce a fuel.

> Spent chromic acid from metal finishing plating baths is neutralized and goes through an ion exchange process that removes the chromium. The acid is regenerated and returned to the metal finishing plating bath. The ion exchange resin is treated with sodium hydroxide to remove any impurities and the resin is then returned to the ion exchange column. Is the contaminated ion exchange resin a solid waste?[27]
>
> Spent toluene that was used as a solvent in a manufacturing process is absorbed in an on-site carbon absorption system. After the absorption and desorption process, the solvent is decanted from water and reused in the original process. What is the status of the spent toluene?[28]
>
> Amorphous polypropylene residues go through a processor that extracts residual solvents for reuse as degreasers. The polymeric residues are blended with asphaltic materials to make a more crack-resistant asphalt for sale. What is the status of the asphalt?[29]

Clearly, coming up with a single regulatory definition that encompasses the almost limitless variety of recycling activities is not simple. But, as diverse as these activities may appear, they can be categorized under certain common recycling methods.

1. Direct Use of a Material as a Product

Materials that are byproducts of an industrial process may have incidental uses as commercial products. A prime example, and perhaps the paradigm case of a mismanaged hazardous waste, was the direct use of waste oil contaminated with dioxin as a dust suppressant on dirt roads in Times Beach, Missouri.[30] More commonly, waste oils are burned for their energy content in residential or industrial boilers. Such uses may be thought of as direct commercial uses. Additionally, recyclable materials may directly replace commercial chemical products in industrial operations. For example, some acid wastes are used to neutralize corrosive materials.

2. Use of a Material as an Ingredient

Recycling also may involve the use of a material as an ingredient in the production of a commercial product. Bottom ash, for example, can be used as an ingredient in cement. Distillation bottoms from the manu-

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27. *Id.* at 2-52 to 2-53. If the spent chromic acid is a "listed" waste, then it is a waste until it is regenerated. After it is regenerated, the regenerated acid becomes a product and not a waste.

28. *Id.* at 2-54 to 2-55. The spent toluene is a solid waste because it is being reclaimed.

29. *Id.* at 2-236 to 2-237. If the polyproplylene residues are hazardous solely because they exhibit a hazardous characteristic, and if the asphalt does not exhibit a hazardous characteristic, the asphalt is not a hazardous waste.

30. Continental Ins. Co. v. Northeastern Pharm. & Chem. Co., 811 F.2d 1180, 1182 n.1 (8th Cir. 1987) (describing the cleanup of Times Beach); Hall, *Health Risks from Exposure to Hazardous Wastes,* 14 Envtl. L. Rep. (Envtl. L. Inst.) 10,118 (1984); Reinhold, *Missouri Dioxin Cleanup: A Decade of Little Action,* N.Y. Times, Feb. 20, 1983, at 1, col. 2.

facture of carbon tetrachloride may be used in the production of tetrachloroethylene.[31]

3. *Reclamation of Usable Materials*

Recycling by reclaiming usable materials can range from the reuse of aluminum cans to the recovery of lead from old batteries. Similarly, reclamation can involve the regeneration for reuse of a contaminated material. Spent solvents, for example, can be reclaimed by removing contaminants.[32]

4. *Continued Processing of Materials*

Finally, recycling also may be thought of as the continued processing of materials. Petroleum refining, for example, involves the serial treatment of hydrocarbons through various thermal or catalytic processes through which "waste" oils are returned to the system for further processing.[33]

Although diversity of recycling may complicate the problem of regulation, this diversity is something that is to be encouraged. Novel, productive, and safe reuse of wastes is a goal of RCRA.[34] The difficulty lies in distinguishing recycling processes that involve the commercial reuse of waste materials and those that are simply a "sham" to avoid the expense of proper disposal and treatment of hazardous wastes. EPA purports to distinguish legitimate from "sham" recycling operations, but making these distinctions can be quite controversial.[35]

B. The Structure and Objectives of RCRA

Although the diversity of recycling methods makes development of a single regulatory definition of solid wastes difficult, the structure and objectives of RCRA present even more fundamental problems in fashioning a rational definition and regulatory program for recyclable hazardous wastes. The biggest problems arise from the jurisdictional scope of RCRA. Although RCRA applies only to hazardous "wastes," there may be no rational basis for distinguishing hazardous recyclable wastes

31. *See* Original Definition, *supra* note 8, at 619.

32. *Id.* at 624.

33. *Id.* at 614-24.

34. 42 U.S.C. § 6902 (1982 & Supp. IV 1986).

35. See *infra* notes 103-05 and accompanying text for a discussion of EPA's criteria for determining "sham" recycling. The problem of distinguishing legitimate from "sham" recycling is reflected in the controversy surrounding the Marine Shale Processors, Inc. operations in Louisiana. This facility purports to recycle wastes by burning hazardous waste and incorporating the ash into an aggregate to be sold as a product. The Senate has undertaken hearings, in response to complaints by the Hazardous Waste Treatment Council and others, to investigate whether Marine Shale's operations constitute "sham" recycling. *See* 18 Env't Rptr. (BNA) 2523 (Apr. 22, 1988).

from other hazardous materials. Problems also arise from RCRA's conflicting objectives of encouraging recycling and protecting human health and the environment from improper hazardous waste management. EPA walks a fine line in regulating recycling to ensure that it is adequately controlled but not unduly constrained.

1. Applicability of RCRA to Recyclable Materials

Because recyclable materials are reused in commerce, some have argued that the materials have not been "discarded" and therefore are not subject to Subtitle C regulatory controls.[36] EPA, however, has not been willing to give a blanket exclusion for all "recycled" materials. Moreover, it has consistently asserted its authority to regulate some materials that are recycled.[37]

The statute and its legislative history clearly show that *some* recycling was meant to be subject to regulation. RCRA itself states that it is intended to regulate "hazardous waste management" which, by statutory definition, includes the recycling practices of source separation and recovery.[38] A variety of other provisions of RCRA also apply to the recycling of materials that are classified as "solid waste."[39]

The legislative history of RCRA also indicates that Congress intended that some recyclable materials be classified as waste.[40] Approximately one-third of the damage incidents identified by Congress as the rationale for adopting RCRA involved the mismanagement of recyclable materials.[41] Additionally, the legislative history of the 1984 Hazardous

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36. *See* Hazardous Waste Management System: General; Indentification and Listing of Hazardous Waste; Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities; Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities; and Standards for the Management of Specific Wastes and Managment Standards for Specific Types of Facilities, 48 Fed. Reg. 14,472, 14,502 (1983) (proposed rules) [hereinafter Proposed Standards].

37. In an appendix to its 1983 proposal, EPA presented an extended analysis of its claim that RCRA provided authority to regulate some forms of recycling. *Id.* In the preamble to the 1985 regulation, EPA restated this position. Original Definition, *supra* note 8, at 616.

38. 42 U.S.C. § 6921 (1982 & Supp. IV 1986).

39. *Id.* § 6903(7). In the appendix to its 1983 proposal, EPA also noted that the terms "resource recovery," "resource recovery facility," "resource recovery system," and "recovered resources" all involve the recovery of products from solid waste, thus implying to the Agency that materials remain solid wastes subject to RCRA jurisdiction even when recycled through resource recovery. Proposed Standards, *supra* note 36, at 14,502.

The court in American Mining Congress v. EPA, 824 F.2d 1177, 1187 n.14 (D.C. Cir. 1987), was unimpressed by provisions of RCRA that referred to the recycling of "solid waste." The court implied that these sections begged the question since on their face they only applied to solid waste. The court termed this the "circularity" problem. *Id.* at 1188. Although the court is certainly correct that these provisions do not establish that *all* recyclable materials are wastes, they certainly imply that recyclable materials *may* be wastes. Thus, they refute the argument that a material, if recycled, cannot be a RCRA waste.

40. *See generally* H.R. REP. NO. 1491, *supra* note 2, at 1-25.

41. *See id.* at 18, 22; Appendix B: Summary of Damage Incidents Resulting from Recycling of Hazardous Wastes, Proposed Standards, *supra* note 36, at 14,505-07. *But see Ameri-*

and Solid Waste Amendments (HSWA) clearly indicates that at least some in Congress believed RCRA provided authority to regulate some recyclable materials.[42] Furthermore, by its own terms, HSWA requires EPA to establish a regulatory program for hazardous wastes burned for energy recovery.[43] It also specifically prohibits the use of hazardous waste for dust suppression or road treatment.[44]

Although this evidence suggests that some recyclable materials may be regulated as solid waste under RCRA,[45] it does little to resolve the basic question of how to distinguish recyclable "wastes" that should be regulated from products that are not wastes at all. In fact, it creates a difficult dilemma for EPA. Because Congress authorized EPA to regulate *some* recyclable materials under RCRA, EPA cannot avoid using a definition of solid wastes that includes materials that are not, in any obvious sense, discarded.

This problem also points to another fundamental dilemma in the structure of RCRA. Although it is clear that RCRA does not apply to "virgin" or raw materials used as commercial products, there is little *environmental* basis for distinguishing between the management of raw materials and the management of recyclable materials. The use, handling, and storage of both recyclable and raw materials have caused environmental harms. Nonetheless, EPA is required to distinguish between them for purposes of RCRA. Since both may pose similar environmental harms, however, EPA may not draw a line between wastes and products that relies exclusively on environmental concerns.[46] Ultimately, EPA is faced with a dilemma because using the classification of "waste" as the

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can Mining Congress, 824 F.2d at 1191.

42. In stating its rationale for a provision requiring EPA to regulate the burning of hazardous wastes for fuel, the Report of the House Committee on Energy and Commerce affirmed that:

> RCRA already provides regulatory authority over these activities (which authority the Agency has exercised to a limited degree) and in this provision [the Committee] is . . . clarify[ing] that materials being used, reused, recycled, or reclaimed can indeed be solid and hazardous wastes and that these various recycling activities may constitute hazardous waste treatment, storage, or disposal.

H.R. REP. No. 198, 98th Cong., 2d Sess. 46 (1984).

43. 42 U.S.C. § 6924(q)-(r) (1982 & Supp. IV 1986); see *infra* notes 164-71 and accompanying text for a discussion of the court's analysis of these sections.

44. 42 U.S.C. § 6924(l) (1982 & Supp. IV 1986).

45. EPA also has noted that courts have upheld the applicability of RCRA to recycling facilities under the "imminent hazard" enforcement provisions of RCRA and in authorizing guidelines for returnable beverage containers. *See* Proposed Standards, *supra* note 36, at 14,502-03.

46. In the preamble to its regulatory definition of solid waste, EPA noted: "We also do not accept the argument that a potentially harmful recycling practice is invariably subject to regulation under Subtitle C, since potential environmental harm is not always a determinative indicator of how closely a recycling activity resembles hazardous waste management." Original Definition, *supra* note 8, at 617.

regulatory dividing line makes little sense when dealing with recyclable materials.

2. *Inconsistent Objectives of RCRA*

In addition to the uncertainty of RCRA's scope, another problem in defining a regulatory program for recyclable materials arises from RCRA's potentially inconsistent objectives with regard to recycling. Congress clearly intended RCRA to encourage recycling both to conserve resources and to reduce the volume and hence the problem of hazardous wastes. One explicit objective of RCRA is to minimize "the generation of hazardous waste and the land disposal of hazardous waste by encouraging process substitution, materials recovery, properly conducted recycling and reuse and treatment."[47] Indeed, the statute's very name emphasizes its objectives of resource conservation and recovery.

Although Congress intended RCRA to encourage recycling in preference to disposal, the statute speaks of encouraging only "properly conducted" recycling activities.[48] Indeed, the basic aim of the statute is the "protection of human health and the environment,"[49] and EPA has stated that encouraging recycling is secondary to environmental protection.[50] Thus, the Agency must ensure that there are adequate environmental controls on recycling activities, while not discouraging the development of recycling as an alternative to disposal of wastes.[51]

II
EPA'S TREATMENT OF RECYCLABLE MATERIALS

EPA's attempt to define "solid wastes" for purposes of identifying which recyclable materials and recycling processes should be regulated

47. 42 U.S.C. § 6902(a)(6) (1982 & Supp. IV 1986).

48. *Id.*

49. *Id.* § 6902(a).

50. The preamble to the 1985 regulation states: "[T]he Agency is guided by the principle that the paramount and overriding statutory objective of RCRA is protection of human health and the environment. The statutory policy of encouraging recycling is secondary and must give way if it is in conflict with the principal objective." Original Definition, *supra* note 8, at 618.

51. EPA's obligation to balance environmental protection and recycling is unclear. The statute does not expressly provide for such balancing. Many of the substantive provisions of RCRA provide as the basic statutory standard "the protection of human health and the environment." *See, e.g.*, 42 U.S.C. § 6924(a), (n) (1982 & Supp. IV 1986). The provisions of HSWA that deal with the recycling of petroleum products also state that EPA is to adopt regulations "as may be necessary to protect human health and the environment." *Id.* § 6924(q). Only section 3014, which deals with restrictions on recycled oil, specifically requires EPA to ensure that its regulations do not discourage the recycling of used oil consistent with protection of human health and the environment. *Id.* § 6935(a).

Nonetheless, the statute does state that its objectives are both to protect the environment and to encourage recycling. EPA has implicitly recognized that both objectives are to be advanced even if encouraging recycling is to be given secondary importance. *See supra* note 50.

has been long and, apparently, painful.[52] Although RCRA was adopted in 1976, EPA did not promulgate its first definition of solid waste until May 1980.[53] This first definition was interesting. On the one hand, it asserted an extremely broad jurisdiction over recycled materials, encompassing all materials that were "sometimes" discarded.[54] Recyclable materials, if discarded by some, were treated as solid waste for all. On the other hand, EPA imposed only limited regulatory requirements on these materials.[55]

This broad definition was challenged in court,[56] and EPA began negotiating with the parties to develop a revised definition of solid waste.[57] On April 4, 1983, EPA proposed revisions to the initial definition, setting out a complex scheme that classified certain materials and recycling methods as creating solid wastes, according to the nature of the material and the manner of recycling.[58]

On January 4, 1985, EPA promulgated its current revised final regulations.[59] The final regulations adopt the basic approach of the 1983 proposal by defining a material as a "solid waste" if it is both within a specified group of "secondary materials" and is being "reused or recycled" in specified ways, generally corresponding to hazardous waste disposal, storage, or treatment.[60] Through this definition, EPA is attempting to assert jurisdiction over recyclable wastes while excluding recycling activities that are "very similar to normal production operations or normal uses of commercial products."[61]

As the preamble to the 1985 regulation states: "It is evident that the Agency is adopting a complicated regulatory scheme."[62] As always, EPA remains the master of understatement. The current definition is one of the most convoluted and complex regulations in a field known for

52. *See generally* J. QUARLES, *supra* note 16, at 51-66.

53. 40 C.F.R. § 261.2(b) (1988).

54. The regulation adopted in May 1980 defined solid waste to include "any other discarded material" that: (1) is discarded or is being accumulated, stored, or treated (physically, chemically, or biologically) prior to being discarded; or (2) has served its original intended use and sometimes is discarded; or (3) is a manufacturing or mining byproduct and sometimes is discarded. *Id.*

55. In describing its 1980 regulation, EPA wrote: "[T]he existing regulations establish broad jurisdiction over recycled materials and recycling operations, although this is tempered by regulating quite narrowly." Proposed Standards, *supra* note 36, at 14,475.

56. *Id.* at 14,475 n.4.

57. *See id.* Although the final definition was substantially influenced by the negotiations, the parties to the negotiation never reached final agreement.

58. *Id.* at 14,473.

59. Original Definition, *supra* note 8, at 614. The regulations retain the basis of the proposal but significantly alter the classifications and treatment of specific wastes. *See id.* at 616.

60. *Id.* at 618.

61. *Id.* at 617. See *infra* notes 212-24 and accompanying text for an analysis of EPA's rationale for classification of materials as solid waste.

62. Original Definition, *supra* note 8, at 617.

confusing regulations. Barbers wish that they could split hairs as finely as the Agency does.

To understand EPA's treatment of recyclable materials, it is important to recognize that the regulations first *include* within the definition of solid waste a specified group of secondary materials recycled or reused in specified ways. The regulations then *exclude,* through a series of exemptions, exclusions, and variances, materials over which EPA does not assert jurisdiction or which EPA has chosen not to regulate. Finally, the regulations establish differing *substantive* controls for different types of recycling. It is necessary to keep the ins and outs, yin and yang, of EPA's regulation in mind when evaluating whether a material is a waste. Nonetheless, enlightenment is possible.

A. Inclusion within the Definition of Solid Waste

EPA's general definition of solid waste is broad. It includes all materials that are "abandoned" by being burned, buried, accumulated, or stored.[63] Its treatment of "recycled" materials is more complex. As the Agency states in the preamble to its regulations: "The amended definition adopts the approach that for secondary materials being recycled, one must know both what the material is and how it is being recycled before determining whether or not it is a Subtitle C waste."[64] The regulations define both classes of secondary materials and types of recycling activities. The two elements are combined in a table or "matrix" that shows which classes of materials undergoing what type of recycling constitute solid waste subject to RCRA regulation.

1. Classification of Secondary Materials

Although the preamble to the EPA regulations describes the class of regulated recyclable wastes as "secondary materials," that term does not itself appear in the regulations.[65] Rather, the regulations specify six classes of recyclable materials as potential wastes:

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63. 40 C.F.R. § 261.2(a)(2)(i) (1988). EPA regulations limit the application of the definition of solid waste to materials that are also hazardous. Section 261.1(b)(1) provides:

> The definition of solid waste contained in this part applies only to wastes that are also hazardous for purposes of the regulations implementing Subtitle C of RCRA. For example, it does not apply to materials (such as non-hazardous scrap, paper, textiles, or rubber) that are not otherwise hazardous wastes and that are recycled.

This creates the nicely circular situation that a waste must be a solid waste to be a hazardous waste and hazardous to be a solid waste. This is the first step of the journey into the wonders of EPA's definition of solid waste.

64. Original Definition, *supra* note 8, at 618.

65. The preamble states:

> Throughout this preamble, EPA refers for convenience to 'secondary materials.' We mean a material that potentially can be a solid and hazardous waste when recycled. The rule itself refers to the following types of secondary materials: spent materials, sludges, by-products, scrap metal, and commercial chemical products recycled in ways that differ from their normal use. The rule does not use the term secondary

Spent Materials. Spent materials are substances that are no longer usable without regeneration.[66] The example the Agency frequently uses is spent solvents, which must have contaminants removed before they can be reused.[67]

Byproducts. Unlike spent materials, byproducts are materials that are incidentally produced in industrial, commercial, mining, or agricultural operations.[68] Byproducts are distinguished from coproducts, which ordinarily are used as commercial products without further processing.[69] Coproducts are not wastes.[70] Byproducts are further subdivided into *listed byproducts,* which are considered hazardous by virtue of a specific regulatory decision to list the material, and *unlisted byproducts,* which are classified as hazardous because they exhibit a hazardous characteristic.[71]

Sludges. Sludges are residues from pollution control equipment,[72] such as biological wastewater treatment systems or air pollution control scrubbers. Like byproducts, sludges are also divided into listed and unlisted classes of hazardous wastes.[73]

Commercial Chemical Products. Some commercial chemical products are treated as solid hazardous wastes. Commercial chemical products and off-specification variants and residues may be classified as wastes if they are burned or applied to the land and this is not their normal intended use.[74] For example, discarded or off-specification pesticides burned for energy recovery may be classed as wastes.[75] However, listed commercial chemical products that are applied to the land or burned are not defined as RCRA wastes if that is their ordinary manner of use.[76]

Scrap Metal. Scrap metal is defined as bits and pieces of metal "which when worn or superfluous can be recycled"[77] and generally in-

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materials.

Id. at 616 n.4.

66. 40 C.F.R. § 261.1(c)(1) (1988).

67. *See, e.g.,* Original Definition, *supra* note 8, at 624.

68. 40 C.F.R. § 261.1(c)(3) (1988).

69. *See* Original Definition, *supra* note 8, at 625.

70. *See id.* A coproduct is a product "produced for the general public's use [which is] ordinarily used in the form . . . produced by the process." 40 C.F.R. § 261.1(c)(3) (1988).

71. Unlisted byproducts (and unlisted sludges) that are reclaimed are only wastes if designated or listed by EPA. See *infra* notes 99-102 and accompanying text for a discussion of this distinction and its rationale.

72. 40 C.F.R. § 261.1(c)(2) (1988). Sludges may be solids, semisolids, or liquids but do not include treated wastewater effluents. *See id.* § 260.10.

73. *See supra* note 15.

74. *See* 40 C.F.R. § 261.33 (1988); *see also id.* § 261.2(a)(2)(i).

75. *See* Original Definition, *supra* note 8, at 618.

76. 40 C.F.R. § 261.2(c)(1)(ii)-(2)(ii) (1988).

77. *Id.* § 261.1(c)(6).

cludes metal wastes from both consumer and metal processing.[78] The definition does not include other types of wastes that contain metals, such as sludges or spent solvents; these wastes are classified as sludges and spent materials for purposes of regulation.[79]

Designated Wastes. EPA's regulations designate certain materials as "*inherently waste-like.*"[80] Specific materials that are not otherwise defined as solid wastes may be designated as solid wastes based on the criteria specified in this regulation. These criteria include whether the material is ordinarily disposed of, burned, or incinerated, whether it contains toxic materials not normally found in raw materials for which the recycled materials substitute, and whether the material poses a substantial hazard to human health and the environment when recycled.[81] To date, EPA has designated only certain materials containing dioxin as inherently waste-like.[82]

2. *Classification of Recycling Activities*

Although these six classes of recyclable materials are *potentially* within EPA's regulatory definition of "solid waste" under Subtitle C, they must also be recycled in one of four specific ways to be subject to regulation under RCRA.[83]

Use Constituting Disposal. Use constituting disposal is the application or placement of secondary materials on the land "in a manner that constitutes disposal."[84] This encompasses not only the direct land application of wastes (as is done in some instances as a dust suppressant), but

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78. Original Definition, *supra* note 8, at 624.

79. *See id.* EPA has deferred substantive regulation of the recycling of scrap metal. Thus, this distinction has important regulatory consequences.

80. 40 C.F.R. § 261.2(d) (1988).

81. *Id.* § 261.2(d)(2). The preamble states that materials may be designated as wastes under this provision if:

> (a) They are typically disposed of or incinerated on an industry-wide basis, or (b) they contain toxic constituents in concentrations not ordinarily found in the raw materials or products for which they substitute, which toxic constituents are not used, reused, or reclaimed during the recycling process. In addition, recycling of the materials must have the potential to pose a substantial hazard to human health and the environment. The Agency believes these criteria are relatively straightforward and understandable.

Original Definition, *supra* note 8, at 637.

Although the Agency said little about the rationale for these criteria when they were first promulgated, *see id.*, the Agency has subsequently claimed that these factors "address the element of discard necessarily involved in recycling these materials." Identification and Listing of Hazardous Waste; Amendments to Definition of Solid Waste, 53 Fed. Reg. 519, 523 (1988) [hereinafter Amendments to Definition]; *see infra* notes 212-16 and accompanying text.

82. 40 C.F.R. § 261.2(d)(1) (1988).

83. *Id.* § 261.2(c).

84. *Id.* § 261.2(c)(1)(i)(A). EPA has asserted jurisdiction over "waste-derived products whose recycling is similar to a normal form of waste management—in this case, land disposal." Original Definition, *supra* note 8, at 628.

also the land application of products that contain wastes.[85] Under EPA's definition, "waste derived products" such as fertilizers, asphalt, and building foundation materials (including concrete) are subject to RCRA jurisdiction if they contain hazardous wastes as an ingredient.[86]

Burning for Energy Recovery. Burning for energy recovery is the burning of secondary materials as a fuel, the use of secondary materials to produce a fuel, or the burning of fuels that contain secondary materials.[87] Burning waste oil in a boiler for heat is the classic example of burning for energy recovery.

EPA's substantive regulatory requirements distinguish burning wastes for energy recovery from incinerating wastes as a means of disposal. Hazardous waste incinerators are subject to a comprehensive set of requirements under RCRA as hazardous waste treatment facilities.[88] In contrast, the burning of wastes for energy recovery by industrial furnaces and boilers is now largely exempt from control while EPA develops substantive regulations.[89] Current EPA regulations do provide guidance for distinguishing between incineration and burning in industrial furnaces and boilers,[90] as well as a variance mechanism to designate an industrial combustion device as a boiler, rather than as an incinerator.[91]

Speculative Accumulation. Speculative accumulation involves long term storage of secondary materials for later recycling. Storing materials is not "speculative accumulation" if the material is potentially recyclable, the holder has a feasible means for recycling, and the amount recycled

85. 40 C.F.R. § 261.2(c)(1)(i)(B) (1988).

86. Original Definition, *supra* note 8, at 628. Under EPA regulations, if a hazardous waste that is hazardous solely because it exhibits a hazardous characteristic (i.e., corrosivity, ignitability, reactivity, or toxicity, *see supra* note 15) is mixed with other material, the mixture itself is hazardous only if the mixture as a whole exhibits the characteristic. 40 C.F.R. § 261.3(b)(3), (c), (d) (1988). Thus, if a product is derived from a hazardous waste, the product might not be hazardous if it does not exhibit the characteristics. *See* Original Definition, *supra* note 8, at 628.

EPA has adopted an additional provision exempting some products produced for the public's use that contain wastes. These products, which otherwise would be classified as wastes or waste-derived products used in a manner constituting disposal, are exempt from regulation if "the recyclable materials have undergone a chemical reaction . . . so as to become inseparable [from the other substances] by physical means." 40 C.F.R. § 266.20(b) (1988). The extent to which this provision exempts hazardous wastes used in the manufacture of asphalt and concrete is unclear. EPA has stated, however, that cement and aggregate produced in furnaces burning hazardous waste as fuel are not classified as hazardous wastes unless they use hazardous waste as ingredients. *See* Land Disposal Restrictions for First Third Scheduled Wastes, 53 Fed. Reg. 31,138, 31,198 (1988) (final rule).

87. 40 C.F.R. § 261.2(e)(2) (1988). EPA asserts jurisdiction over all hazardous secondary materials used as fuels or to make fuels. *See* Original Definition, *supra* note 8, at 629.

88. 40 C.F.R. §§ 264.340-.351 (1988).

89. *See id.* §§ 266.30-.35. EPA proposed a set of substantive requirements for industrial furnaces and boilers in May 1987. Burning of Hazardous Waste in Boilers and Industrial Furnaces, 52 Fed. Reg. 16,982 (1987) (proposed rule).

90. 40 C.F.R. § 260.10 (1988); *see also* Original Definition, *supra* note 8, at 630.

91. 40 C.F.R. §§ 260.32-.33 (1988).

during a one-year calendar period is at least 75% of the amount accumulated at the beginning of the year.[92] The regulations place the burden on the accumulator to demonstrate that the storage is not "speculative accumulation."[93]

Reclamation. Reclamation is the regeneration of wastes or the recovery of usable material from wastes, and it probably accords with the most common conception of recycling. Recovering the lead content from spent batteries, for example, is a form of reclamation, as is regenerating spent acids or solvents for reuse.[94]

EPA distinguishes between reclamation, which involves the reprocessing or recovery of materials, and the direct use of a secondary material as an ingredient in a product. EPA does not treat secondary materials directly used as ingredients as wastes; the Agency has stated that "secondary materials put to direct use in this way are being used essentially as products."[95] EPA claims that secondary materials directly used as products are not wastes and, therefore, are not subject to regulation under RCRA.[96]

3. *The Matrix of Materials and Uses*

EPA promulgated the following Table that formally classifies which secondary materials are solid wastes:

TABLE 1

	Use constituting disposal (§ 261.2(c)(1)) (1)	Energy recovery/fuel (§ 261.2(c)(2)) (2)	Reclamation (§ 261.2(c)(3)) (3)	Speculative accumulation (§ 261.2(c)(4)) (4)
Spent Materials	(*)	(*)	(*)	(*)
Sludges (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic of hazardous waste	(*)	(*)		(*)
By-products (listed in 40 CFR Part 261.31 or 261.32)	(*)	(*)	(*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)		(*)
Commercial chemical products listed in 40 CFR 261.33	(*)	(*)		
Scrap metal	(*)	(*)	(*)	(*)

Note: The terms "spent materials," "sludges," "by-products," and "scrap metal" are defined in § 261.1.
Source: 40 C.F.R. Sec. 261.2 (1988)

92. *Id.* § 261.1(c)(8).
93. *Id.*
94. *Id.* § 261.1(c)(4).
95. Original Definition, *supra* note 8, at 633; *see also* 40 C.F.R. § 261.2(e) (1988).
96. *See infra* note 110.

The logic of the matrix may not be immediately apparent.[97] Nevertheless, one basis for classifying materials as wastes does seem clear. Virtually all recyclable materials are defined as solid wastes if they are applied to land, burned, or accumulated speculatively. The common thread is that these "recycling" methods are in most senses equivalent to disposal or storage of hazardous wastes. To define such uses as legitimate, unregulated recycling would create a potentially enormous and dangerous loophole in the RCRA system.

The rationale for EPA's treatment of reclamation is less intuitively obvious. All scrap metal, spent material (whether listed or unlisted), and listed byproducts and sludges are RCRA wastes when reclaimed.[98] Unlisted byproducts and sludges that are reclaimed are not considered wastes, however, unless they are specifically designated as such by the Agency.[99] In the preamble to the 1985 regulation, EPA discussed the criteria that it would use to decide whether unlisted byproducts and sludges should be specifically designated as RCRA wastes.[100] These criteria include how frequently the material is recycled on an industry-wide basis, whether the material is replacing a raw material, and the degree to which the reclaimed material is similar in composition to the raw material. The Agency has stated that these criteria are intended to "show that the material is handled as a commodity."[101]

Certainly there is no environmental justification for regulating all spent materials while leaving the regulation of unlisted byproducts and sludges to a case-by-case determination. EPA seems to assume that spent materials, even when reclaimed, are almost always considered to be discarded wastes by the generator and that regulation is therefore warranted. Unlisted byproducts and sludges are not intrinsically less dangerous than spent materials, however. Apparently EPA was reluctant to classify all byproducts and sludges as solid wastes per se because byproducts and sludges may or may not be considered wastes by the generator.[102]

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97. See *infra* notes 212-24 and accompanying text for a discussion of EPA's rationale for classifying materials as solid wastes.

98. Original Definition, *supra* note 8, at 641.

99. 40 C.F.R. §§ 261.31-.32 (1988).

100. Original Definition, *supra* note 8, at 641. In response to *American Mining Congress*, EPA has proposed to promulgate these criteria as regulations. *See infra* notes 206-09 and accompanying text.

101. Original Definition, *supra* note 8, at 641.

102. The Agency did not fully explain this distinction in the preamble accompanying the final 1985 regulation. However, in the preamble to the 1983 proposal, the Agency explained that:

> These provisions do not apply to all spent materials, but only to listed sludges and listed by-products—to avoid including sludges and by-products routinely processed to recover usable products as part of normal commercial practice. Although some of those materials may be wastes, the Agency wishes to consider them individually before asserting jurisdiction, since many of them also have product-like aspects.

EPA does recognize that some recycling involving the direct use of secondary materials may be a "sham," intended merely to avoid the cost of waste disposal. In the preamble to the final regulation—but nowhere in the regulation itself—the Agency stated the factors that it considers relevant in determining whether a recycling activity is a "sham."[103] These factors focus on "recycling" operations where the recycled material is ineffective or only marginally effective for its intended use, where the materials are used in an amount greater than necessary, where the operator fails to keep adequate records, or where the operator stores or handles the materials inadequately.[104] EPA regulations provide that anyone claiming an exemption based on reclamation activities has the burden of proof in establishing that they legitimately are within the terms of the regulation.[105]

Finally, it is also important to note that the products made from recycled hazardous wastes are not themselves wastes unless they are burned for fuel or directly applied to land.[106] In fact, reclaimed secondary materials are regulated as solid wastes only between the time they are generated and the time they are inserted into the reclamation process.[107]

B. Exclusions, Exemptions, and Variances

EPA's broadly inclusive definition of solid waste is substantially narrowed by a series of exclusions, exemptions, and a variance from its regulatory treatment of recyclable materials.[108] The exclusions, exemptions, and the variance also are central to EPA's rationale for defining materials as wastes. By using these exceptions, the Agency is able to use a broad definition of solid waste, while exempting from regulation materi-

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Proposed Standards, *supra* note 36, at 14,486.

> In its 1988 proposal in response to *American Mining Congress*, the Agency stated:
> [S]ludges and by-products are more likely than spent materials to be involved in ongoing manufacturing operations. The existing rules thus classify sludges and by-products on a case-by-case basis based on factors which distinguish on-going manufacturing from waste management. Spent materials requiring reclamation, on the other hand, are not directly usable in ongoing manufacturing processes because, by definition, they are no longer usable and must first be restored to a usable condition.

Amendments to Definition, *supra* note 81, at 522.

103. Original Definition, *supra* note 8, at 638.

104. *Id.* EPA has subsequently discussed the issue of whether burning of hazardous wastes as fuel constitutes "sham" recycling. *See* Burning of Hazardous Waste in Boilers and Industrial Furnaces, 52 Fed. Reg. 16,982, 17,013 (1987) (proposed rule); Hazardous Waste Management System; Burning of Waste Fuel and Used Oil in Boilers and Industrial Furnaces, 50 Fed. Reg. 49,166 (1985) (final rule).

105. 40 C.F.R. § 261.2(f) (1988); *see also* Original Definition, *supra* note 8, at 642-43.

106. *See* 40 C.F.R. § 261.3(c)(2)(i) (1988). In keeping with EPA's commitment to clarity, the regulations make this important point as a parenthetical comment to provisions in the definition of hazardous waste.

107. *See infra* note 237.

108. Original Definition, *supra* note 8, at 614; *see also supra* note 8 and accompanying text.

als not normally thought of as wastes. The two main categories of materials treated in this way are those that are part of an ongoing production process and those that are being directly used as products.[109] The Agency disclaims authority to classify such materials as solid waste.[110]

1. Exclusions from the Definition of Solid Waste

As discussed above, EPA broadly defines solid waste to include many materials reused or recycled in specific ways.[111] EPA's exclusions to this otherwise broad definition of solid wastes provide that:

> Materials are not solid wastes if they can be shown to be recycled by being:
>
> (i) Used or reused as ingredients in an industrial process to make a product, provided these materials are not being reclaimed; or
>
> (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. The material must be returned as a substitute for raw material feedstock, and the process must use raw materials as principal feedstocks.[112]

These exclusions accomplish at least two objectives. First, they ensure that recyclable materials that are directly reused as a product, or as an ingredient in a product, are not regulated by RCRA. Second, they exclude materials that are still part of an ongoing manufacturing process. This exclusion, applicable to what the Agency calls "closed-loop recycling," is quite narrow. To qualify, the secondary material must be returned directly (as *feedstock*) to the original *primary* production process in which it was generated; the material cannot be reclaimed separately and then returned to the process.[113]

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109. Original Definition, *supra* note 8, at 619.

110. The Agency has stated: "We believe, however, that the grant of authority in RCRA over recycling activities is not unlimited. Specifically, we do not believe our authority extends to certain types of recycling activities that are shown to be very similar to normal production operations or to normal uses of commercial products." *Id.* at 616-17.

111. 40 C.F.R. § 261.2(b)-(d) (1988); *see supra* notes 63-97 and accompanying text.

112. 40 C.F.R. § 261.2(e)(1) (1988). The exclusion does not apply, however, to secondary materials that are used in disposal, burned for energy recovery, speculatively accumulated, or that have been designated as inherently waste-like. *Id.* § 261.2(e)(2). Further, this exclusion does not apply to recycled materials, such as spent materials, that are reclaimed before use. *Id.* § 261.2(e)(1).

EPA had proposed a broader exclusion that covered situations where a facility reclaimed and reused materials onsite. However, the Agency concluded that that was too broad and would have excluded activities from the definition of solid waste that should properly be covered. EPA stated that it rejected the proposed exclusion "because the risk of damage from spills and leaks at these [reclamation] facilities indicates that regulation is necessary to protect human health and the environment." Original Definition, *supra* note 8, at 617.

The Agency's judgment on this matter is questionable. *See infra* notes 239-60 and accompanying text.

113. The preamble states:

2. *Variance from the Definition of Solid Waste*

Although materials that are reclaimed are not eligible for the "closed-loop recycling" exclusion, the regulations do authorize a case-by-case variance for some reclaimed materials. EPA may grant a variance for secondary materials "that are reclaimed and then reused within the original primary production process in which they were generated,"[114] if the reclamation is an "essential part" of the primary production process.[115] Apparently, this variance applies to unusual situations where reclamation of secondary materials is part of an ongoing industrial process.[116] It is, in fact, a "closed-loop variance," distinct from the "closed-loop exclusion" described above.[117]

EPA assesses a number of factors to determine whether to grant a variance.[118] These include the economic viability of the production process if it were to use virgin rather than reclaimed materials, the location of the reclamation operation in relation to the production process, the prevalence of the reclamation process within the industry, the length of time between generation and reclamation, whether the person who generates the material also reclaims it, and other "relevant factors."[119] EPA

> In our opinion, there are three key requirements to a closed-loop process—that is, a production process that at some point utilizes secondary materials but nevertheless is both essentially ongoing and closely interrelated throughout all steps. The first requirement is the return of secondary materials to the original process without undergoing significant alteration or reprocessing, namely *without first being reclaimed.* Second, the production process to which these unreclaimed materials are returned itself must be *primary* material based—i.e., the materials must be returned to a primary production process. . . . Third, the secondary material must be returned as *feedstock* to the original *production* process and must be recycled as part of that process.

Original Definition, *supra* note 8, at 639 (emphasis in original) (footnotes omitted).

114. 40 C.F.R. § 260.30(b) (1988). In addition, the regulation authorizes a variance for secondary materials that are speculatively accumulated without sufficient amounts being recycled or that are reclaimed but need further reclamation. *Id.* § 260.30(a)-(c).

115. *Id.* § 260.31(b).

116. *See* Original Definition, *supra* note 8, at 654.

117. In 1986, EPA promulgated an exclusion for certain closed-loop tank recycling operations. This provision excluded from classification as solid waste certain types of recycling that were eligible for the "closed-loop variance." The Agency wrote:

> EPA is taking this step because these types of operations are best viewed as part of the production process, not as a distinct waste management operation. The Agency, in essence, is determining generically that tank systems that meet the requirements specified below satisfy the criteria specified in 260.31(b)(1) through (8) for granting a closed-loop variance.

Hazardous Waste Management System; Standards for Hazardous Waste Storage and Treatment Tank Systems, 51 Fed. Reg. 25,422, 25,442 (1986) (final rule) [hereinafter Final Standards].

118. *Id.*

119. *Id.* The preamble to the regulation states that the Agency may only grant the variance if the reclamation and reuse is conducted by the same person. Original Definition, *supra* note 8, at 655. This appears to contradict the regulation, which lists the identity of the reclaimer as a factor to consider and is apparently an error. *See* 40 C.F.R. § 260.31(b)(7) (1988).

also requires that the reclaimed material be used directly within the original production process.[120]

3. *Exemptions from the Definition of Solid Waste*

In addition to the definitional exclusions and variance provisions, EPA regulations also exempt certain wastes from RCRA controls.[121] Some wastes, such as domestic sewage and wastes covered under other regulatory programs, are exempted by statute.[122] The regulations also expressly exempt two specific industrial wastes—pulping liquors reclaimed in the paper industry, and spent sulfuric acid used to produce virgin sulfuric acid.[123] EPA claims that it exempted spent sulfuric acid, in part, simply as a clarification that the manufacturing process did not involve reclamation and the material was not a solid waste.[124] Thus, this exemption provides one specific industry a clarification of its status. EPA justified the exemption of reclaimed pulping liquors by saying that the industry essentially qualified for a generic closed-loop variance.[125]

Finally, in 1986 EPA promulgated another exemption for certain types of closed-loop recycling involving tank systems.[126] This decision

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120. 40 C.F.R. § 260.31(b) (1988). The preamble to the regulation states:

> The material that is returned also must be 'reused' when returned to the original process. We mean by this that the material must contribute directly to the production process as an ingredient, reactant, or an alternative feedstock. Secondary materials returned to a smelting furnace are an example. Solvents reclaimed and utilized for degreasing are not, because the reclaimed solvents are not contributing to the production process.

Original Definition, *supra* note 8, at 654-55.

The Agency might not, however, intend to apply this requirement too strictly. *See infra* note 125.

121. 40 C.F.R. § 261.4(a) (1988).

122. *See* 42 U.S.C. § 6903(27) (1982); *see also* 40 C.F.R. § 261.4(a) (1988). Discharges permitted under the Clean Water Act and special nuclear material regulated by the Atomic Energy Act, for example, are excluded from the definition of solid waste. *Id.*

Additionally, EPA regulations exclude certain solid wastes from classification as "hazardous wastes." These include, among others, household wastes. *Id.* § 261.4(b).

123. 40 C.F.R. § 261.4(a)(6)-(7) (1988).

124. *See* Original Definition, *supra* note 8, at 642.

125. The variance regulation requires that the reclaimed materials be reused "within the original primary production process in which they were generated." 40 C.F.R. § 260.30(b) (1988). Although the regulations state that it must be returned to the "original" primary production process, EPA justified excluding black liquor in the paper industry because the Agency determined that "black liquor, on a generic basis, meets the standards for a closed loop variance." Original Definition, *supra* note 8, at 641. In describing the paper industry operations, EPA stated that "[r]ecovery and reuse of black liquor can occur at a single paper mill, and also can involve a second paper mill which reclaims black liquor for its own use or for reuse by the generating mill." *Id.* This implies that EPA might not require that the reclaimed material be returned to the identical primary production process but merely the same type of production process within that industry. *See also* Final Standards, *supra* note 117, at 25,442 (discussing the meaning of the requirement that materials be returned to the original production process).

126. 40 C.F.R. § 261.4(a)(8) (1988).

was based on the Agency's "generic" determination that such systems satisfy the requirements for a closed-loop variance.[127]

EPA seems ambivalent about promulgating industry-specific regulations for recycling activities. The Agency has stated that "variances for broad classes of recycled wastes are unwarranted, because the variances would too easily become surrogate permits."[128] It did, however, issue the two industry-specific exemptions described above. Further, EPA has deferred substantive regulation of other specific industries and has adopted less stringent substantive requirements for specific types of recycling operations.[129]

C. *Requirements for Recycled Materials*

The set of substantive controls that EPA imposes on materials and processes constitutes the final element in the Agency's regulatory program for recyclable wastes.[130] Generally, EPA imposes stringent substantive requirements on facilities that treat, store, or dispose of hazardous wastes (TSDF's). These include permitting requirements, notification requirements, proof of financial responsibility, and specific standards for storage, containment, monitoring, and manifesting of the wastes.[131]

Recycling facilities, however, are not required to comply with all of the substantive requirements applicable to waste disposal facilities in general. In many cases, the recycling regulations, although purporting to assert jurisdiction, defer any substantive control.[132] As with most of EPA's treatment of recycling, the substantive requirements are confusing, and their rationale is, at best, uncertain.

Some of the confusion stems from EPA's organization of its substantive requirements. Section 261.6 contains the general requirements for recyclable materials.[133] In addition to the basic substantive requirements, this section also exempts some wastes from any regulatory requirements[134] and cross-references the requirements for certain other recyclable materials specified in Part 266.[135] Part 266 contains the substantive requirements applicable to specific types of recycling including

127. *See supra* note 117.

128. Original Definition, *supra* note 8, at 654.

129. *See, e.g., supra* note 117 and accompanying text.

130. *See* 40 C.F.R. § 261.6 (1988).

131. See *supra* note 16 for a discussion of the general requirements applicable to generators, transporters, and operators of TSDF's under RCRA.

132. 40 C.F.R. § 261.6(a)(3) (1988) exempts from regulation industrial ethyl alcohol that is reclaimed, used batteries returned for regeneration, used oil that exhibits a hazardous waste characteristic, scrap metal, and other materials.

133. *Id.* § 261.6.

134. *Id.* § 261.6(a)(3); *see supra* note 132.

135. 40 C.F.R. § 261.6(a)(2) (1988).

"Recyclable Materials Used in a Manner Constituting Disposal"[136] and "Hazardous Waste Burned for Energy Recovery."[137] And you thought the worst was over.

On the surface, the regulations appear to subject facilities that reclaim hazardous wastes to permitting, financial responsibility, and other significant requirements.[138] However, in one of the most important and best hidden provisions of the regulations, facilities that immediately reclaim materials *without storing* them before recycling are subject only to notification and manifesting requirements.[139] These facilities are under no obligation to obtain a permit or meet other requirements, including proof of financial responsibility.[140] Evidently, EPA's primary environmental concern under RCRA is not the reclamation process itself, but that spills or leaks might occur when hazardous materials are stored at a recycling facility.[141]

Because a facility that does not store its reclaimed materials faces far less stringent regulation under RCRA than one that does, the question of

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136. *Id.* §§ 266.20-.23.

137. *Id.* §§ 266.30-.35. Part 266 establishes regulatory requirements for specific hazardous wastes and specific types of hazardous waste management facilities, including:

Subpart C—Recyclable Materials Used in a Manner Constituting Disposal (Land Application). Under the Agency's regulations, hazardous secondary materials that are recycled by applying them to the land are classified as "materials used in a manner that constitutes disposal." *Id.* § 266.20(a)(2). Subpart C of Part 266 also provides that generators and transporters of materials used in a "manner that constitutes disposal," as well as owners and operators of facilities that store or use recyclable materials that are to be disposed of in this manner are generally subject to a full set of substantive regulatory requirements. *Id.* §§ 266.21-.23.

Subpart D—Hazardous Waste Burned for Energy Recovery. Most hazardous secondary materials that are burned for energy recovery are classified as hazardous wastes. *See id.* §§ 261.2(c)(2), 261.3. EPA has developed a complicated set of regulations that distinguish "incinerators," whose purpose is destruction of hazardous waste, from "boilers and industrial furnaces," in which wastes are burned to recover energy. *See id.* § 260.10. Incinerators are subject to the applicable incinerator regulations as TSDF's. *Id.* §§ 264.340-.351. Boilers and industrial furnaces that "recycle" wastes for their energy value are governed by the provisions of Part 266, Subpart D. *Id.* §§ 266.30-.35. This regulation involves a complex set of requirements applicable to generators, transporters, and marketers of hazardous waste fuels as well as owner/operators of facilities that use hazardous wastes as fuels. *Id.* The Hazardous and Solid Waste Amendments of 1984 specifically address issues of production and use of hazardous waste fuels. Pub. L. No. 98-616, § 204, 98 Stat. 3221, 3235-38 (codified at 42 U.S.C. §§ 6923, 6924, 6930 (1982 & Supp. IV 1986)); H.R. REP. NO. 198, 98th Cong., 2d Sess. 1, *reprinted in* 1984 U.S. CODE CONG. & ADMIN. NEWS 5576, 5598-5603.

Additionally, Part 266 contains standards for "Used Oil Burned for Energy Recovery," 40 C.F.R. §§ 266.40-.44 (1988), "Recyclable Materials Utilized for Precious Metal Recovery," *id.* § 266.70, and "Spent Lead-Acid Batteries Being Reclaimed," *id.* § 266.80.

138. 40 C.F.R. § 261.6(c)(1) (1988).

139. *Id.* § 261.6(c)(2). Hazardous wastes recycled by burning for energy recovery or by land application in a "manner constituting disposal" are not subject to this provision. *Id.* § 261.6(a)(2). This provision essentially applies only to reclamation activities.

140. The regulations state that "facilities that recycle recyclable materials without storing them before they are recycled" are not required to have a permit and are subject only to notification requirements and the obligation to deal with manifested wastes. *Id.* § 261.6(c)(2).

141. *See infra* notes 239-47 and accompanying text.

what constitutes storage is critical. The regulations define "storage" as "the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere."[142] There is, however, no definition of "temporary," and thus storage for any period of time in drums or tanks prior to processing is likely to invoke the substantive requirements. Nor is it clear whether physically connecting "holding" tanks to a recycling process would avoid classification as RCRA storage. It is odd that what is potentially the most important general exemption for recyclable materials should rest on so fine a distinction.

EPA's regulation of recyclable materials attempts to balance the competing objectives of environmental protection, enhanced recycling, and regulatory effectiveness. Nonetheless, no one working with the regulations can feel satisfied with the final product. The regulations are horrendously complex, make fine distinctions that have significant regulatory consequences, and simply do not seem to have a coherent basis.

After a discussion of how the treatment of the regulations in *American Mining Congress* further confused matters, this Article suggests possible revisions to the regulations that would rationalize the Agency's approach.

III

AMERICAN MINING CONGRESS V. EPA

In 1985, trade associations representing mining and petroleum interests challenged EPA's definition of solid waste, claiming that EPA had exceeded "its regulatory authority in seeking to bring materials that are not discarded or otherwise disposed of within the compass of 'waste.' "[143] The petroleum industry opposed the definition because EPA classified as solid waste certain hydrocarbon fractions that escape from refinery production vessels and are reinserted into the petroleum refining process.[144] The mining industry was concerned that the definition covered materials, including dusts released during the processing of a metal, that are reinserted into the mining extraction process for additional extraction.[145]

142. 40 C.F.R. § 260.10 (1988). Under RCRA, generators are allowed to store hazardous wastes onsite for up to ninety days without obtaining a permit. *Id.* § 262.34(a). It is unlikely that EPA intended the storage provisions applicable to recyclers to reflect this time period. Certainly neither the regulations themselves nor the preamble makes any reference to the ninety-day storage provisions. However, it is an interesting question whether a generator, who is entitled to store material for ninety days without a TSDF permit, is required to obtain the permit if the generator reclaims the materials during that period.

143. American Mining Congress v. EPA, 824 F.2d 1177, 1178 (D.C. Cir. 1987).

144. *Id.* at 1181.

145. *Id.* at 1180-81. See *infra* notes 182-86 and accompanying text for a full discussion of the basis on which these materials were classified as wastes under the EPA regulations.

The court, with Judge Starr writing for a two-to-one majority, invalidated EPA's regulatory definition of solid waste.[146] Analyzing the term "other discarded material" found in RCRA's definition of "solid waste,"[147] the court concluded that Congress intended RCRA to apply only to materials that had "truly" been discarded in the sense of having been "disposed of, thrown away or abandoned."[148] After analyzing *Chevron U.S.A., Inc. v. NRDC*[149] and other cases defining the limits of judicial review of agency interpretation of statutes,[150] the court refused to defer to EPA's interpretation of RCRA, finding the statutory language and the intent of Congress clear and unambiguous.[151]

146. A ripeness issue was raised because the regulations specifically exempted both petroleum refining wastes that are recycled by being reinserted into the refining process and wastes generated from the smelting and refining of ores and minerals. The court concluded it was appropriate to consider petitioners' claims with respect to activities that were exempt because, under the test in Abbott Laboratories v. Gardner, 387 U.S. 136 (1967), the issue was in a posture fit for resolution and withholding review would constitute a hardship to the parties. *American Mining Congress*, 824 F.2d at 1180 n.3. The court noted that Congress intended prompt resolution of issues regarding EPA's RCRA regulations in order to avoid delays in implementation of the important environmental program. *Id.*

147. RCRA defines solid waste as:

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

42 U.S.C. § 6903(27) (1982) (emphasis added).

148. American Mining Congress v. EPA, 824 F.2d 1177, 1190.

149. 467 U.S. 837 (1984) (upholding the EPA's definition of "stationary source" under the Clean Air Act as Congress' intent was unclear and the Agency's construction was reasonable).

150. 824 F.2d at 1192-93.

151. *Id.* at 1193. The majority discussed at length the case law defining its role in reviewing agency regulations. The court noted that the principles enunciated in *Chevron* and its progeny guided the court's inquiry. *Id.* at 1182. Under *Chevron*, review of an agency regulation is a two-step process. First, the court is to determine if Congress has " 'directly spoken to the precise question at issue.' " *Id.* (quoting *Chevron*, 467 U.S. at 842). If it has, the unambiguous intent of Congress must govern. If the statute is silent or ambiguous on the issue, then the court must limit its inquiry to determining whether the agency's answer is based on " 'a permissible construction' " of the statute. *Id.* (quoting *Chevron*, 467 U.S. at 843).

After reviewing a series of cases construing the court's role in light of *Chevron*, including I.N.S. v. Cardoza-Fonseca, 480 U.S. 421 (1987) (rejecting the Attorney General's interpretation that the standards of proof under the Refugee Act and the Immigration and Nationality Act are identical), Board of Governors v. Dimension Fin. Corp., 474 U.S. 361 (1986) (rejecting the Federal Reserve Board's extension of its jurisdiction to "non-bank" banks), and United States v. Riverside Bayview Homes, 474 U.S. 121 (1986) (affirming the Corps of Engineers' definition of "waters of the United States"), the court concluded that EPA's regulatory definition could not be justified in light of Congress' clear and unambiguous intention. 824 F.2d at 1193. Distinguishing earlier cases, the court held that the Agency's definition could not be justified as an attempt to reach the evils Congress intended to be regulated that would otherwise escape regulation. The court wrote:

> We are thus not presented with a situation in which Congress likely intended that the pivotal jurisdictional term be read in its broadest sense, detached from everyday parlance; instead, we have a situation in which Congress, perhaps through the process of legislative compromise which courts must be loathe to tear asunder, employed a term with a widely accepted meaning to define the materials that EPA could regulate under RCRA.

In reaching this conclusion, the court relied on a number of factors. First, it found the "ordinary, plain-English" meaning of a statutory term was entitled to considerable weight.[152] Based on the Webster's Dictionary definition, the court stated that including materials that are immediately reused within the scope of discarded materials "strains, to say the least, the everyday usage of that term."[153]

Although the court found that the word "discarded" had a clear meaning, it also examined RCRA's overall scope to determine if Congress expressed an intention to define "discarded" in other than its ordinary sense.[154] The court concluded that Congress adopted RCRA to protect health and the environment by regulating hazardous wastes and by encouraging the development of alternatives to existing methods of disposal, including recycling.[155] Judge Starr added that:

> To fulfill these purposes, it seems clear that EPA need not regulate "spent" materials that are recycled and reused in an *ongoing* manufacturing or industrial process. These materials have not yet become part of the waste disposal problem; rather, *they are destined for beneficial reuse or recycling in a continuous process by the generating industry itself.*[156]

The court also relied on the fact that RCRA contains thirty-nine specific definitions; the court called this "definitional specificity of the first order."[157] Somehow, this indicated to the court that the term "discarded" was to be defined narrowly. The court also applied the "long-standing canon of statutory construction, *ejusdem generis*."[158] The court

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Id. at 1187.

In fact, the court's entire opinion is premised on its conclusion that the meaning of solid waste is clear and unambiguous. *Id.* at 1193. If a review of EPA's regulations and the problem of recycled materials demonstrates anything, it is that nothing is clear and unambiguous in this field. In fact, the issue is only clear and unambiguous if the court ignores EPA's rationale for its regulatory decisions embodied in its definition of solid waste. *See infra* notes 182-89 and accompanying text.

In light of *Chevron,* the court's analysis is shocking on its face. As the dissent points out, the majority acknowledged that EPA's analysis of RCRA was of "marginal force" and that the legislative history supporting the Agency's position was "ambiguous at best." 824 F.2d at 1194-95. Notwithstanding some indication of contrary legislative intent, however, the dissent concluded that "*Chevron* therefore requires us to give effect to the agency interpretation if it is reasonable." *Id.* at 1195.

This debate illustrates that "*Chevron* and its progeny" have not been successful in limiting courts' authority to review substantively the reasonableness of an agency's legislative construction. *Chevron* merely requires the court to restate its conclusions in terms of formalistic holdings about the clarity or ambiguity of Congressional intent.

152. 824 F.2d at 1184. To the court, the term "discarded" is "neither inherently difficult to define nor is so intimately tied to knowledge of the industry and the practicalities of regulation that definition requires agency expertise." *Id.* at 1184 n.7.

153. *Id.* at 1184.

154. *Id.* at 1185-90.

155. *Id.* at 1185.

156. *Id.* at 1186 (emphasis in original) (footnote omitted).

157. *Id.* at 1189.

158. *Id.*

concluded that because the phrase "other discarded materials" followed the terms "garbage, refuse and sludge from a waste treatment plant, water supply treatment plant or air pollution control facility"[159] in the definition of solid waste, it should be construed to include materials that, like the other terms, fit the ordinary definition of discarded.[160]

In response to EPA's assertion that there are numerous statutory provisions that indicate Congress intended RCRA to regulate the recycling of hazardous waste, the court noted that this involved a circular argument: because the referenced sections only apply to "hazardous wastes," it was circular to rely on them to determine what in fact constitutes wastes.[161]

EPA also presented the court with two provisions of RCRA, added in 1984 by HSWA,[162] to support its claim that RCRA was intended to apply to recycled secondary materials.[163] These subsections, 6924(q) and (r), deal specifically with the regulation of hazardous wastes used as fuel.[164] Both contain language suggesting that petroleum wastes reinserted into a refining process should be regulated as wastes in the absence of a statutory exemption.[165] Subsection 6924(q) requires EPA to promulgate standards for owners and operators of facilities that produce a fuel from hazardous waste; the same subsection, however, exempts "petroleum refinery wastes containing oil which are converted into petroleum coke at the same facility at which such wastes were generated."[166] Similarly, subsection 6924(r) requires the labeling of fuel produced from hazardous waste, but exempts fuels produced from petroleum refining waste containing oil if "such materials are generated and reinserted onsite into the refining process."[167]

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159. *Id.* at 1190.

160. *Id.*

161. The court concluded that "EPA's various arguments based on the statute itself are, upon analysis, circular, relying upon the term 'solid waste' or 'hazardous waste' to extend the reach of those very terms. This, all would surely agree, will not do." *Id.* at 1187.

In fact, the court was somewhat glib in dismissing EPA's arguments as circular. Several of the provisions on which EPA relied do not define their scope in terms of "wastes." Subsection 3004(r)(3) of RCRA, for example, applies to "oily materials." 42 U.S.C. § 6924(r)(3) (1982 & Supp. IV 1986). Subsection 3004(q)(1) defines "hazardous waste" to include certain types of commercial chemical products. *Id.* § 6924(q)(1). And circular or not, it is quite clear that Congress intended that used oil, if sufficiently hazardous, be treated as a hazardous waste if recycled. *Id.* § 6935.

162. Pub. L. No. 98-616, 98 Stat. 3221 (codified in scattered sections of 42 U.S.C.).

163. 824 F.2d at 1187-89.

164. 42 U.S.C. § 6924(q)-(r) (Supp. IV 1986).

165. *Id.; see also* 824 F.2d at 1187-89.

166. 42 U.S.C. § 6924(q)(2)(A) (Supp. IV 1986). *Compare id.* § 6924(q)(1) *with id.* § 6924(q)(2)(A).

167. *Id.* § 6924(r)(2)(A).

Although the court acknowledged that these sections provided "some support" for EPA's position, and were of "marginal force,"[168] it concluded that they did not contradict the court's conclusion that solid waste only includes materials that had been truly discarded.[169] Again the court found EPA's logic circular and noted that subsection 6924(q) exempts only materials already classified as wastes.[170] As for subsection 6924(r), the court argued rather unconvincingly that it applies only to material that "has indeed become hazardous waste, has reached a hazardous waste treatment facility, and is being recycled at that point."[171]

Finally, the court reviewed the legislative history of RCRA and the 1984 amendments, but found nothing to contradict its earlier conclusion that the language was plain and unambiguous.[172] One passage from the Report of the House Committee on Energy and Commerce potentially supported EPA's argument:

> This proposed section of the bill amends [proposed section 6921] of RCRA to require the Administrator to issue regulations regarding use, reuse, recycling, and reclamation of hazardous wastes. This provision is intended to reaffirm the Agency's existing authority to regulate as [sic] *hazardous waste* to the extent it may be necessary to protect human health and the environment. The Committee affirms that RCRA already provides regulatory authority over *these activities* (which authority the Agency has exercised to a limited degree) and in this provision is amending to clarify that materials being used, reused, recycled, or reclaimed can indeed be solid and hazardous wastes and that these various recycling activities may constitute hazardous waste treatment, storage, or disposal.[173]

The court found this statement "ambiguous at best."[174] The circularity argument, together with other portions of legislative history indicating that EPA's authority is limited to regulating the disposal of discarded materials, led the court to reject EPA's arguments.[175]

Ultimately, the court invalidated EPA's definition of solid waste based on its conclusion that Congress "clearly and unambiguously" intended to limit the definition of solid waste (and therefore EPA's regulatory authority) to materials that were discarded by being disposed of, abandoned, or thrown away.[176]

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168. 824 F.2d at 1188.

169. *Id.* at 1190.

170. *Id.* at 1188.

171. *Id.*

172. *Id.* at 1191-92.

173. *Id.* at 1191 (emphasis added by court) (citing H.R. REP. No. 198, 98th Cong., 2d Sess. 46, *reprinted in* 1984 U.S. CODE CONG. & ADMIN. NEWS 5605).

174. *Id.*

175. *Id.* at 1191-92.

176. The court stated that it was:

> constrained to conclude that, in light of the language and structure of RCRA, the problems animating Congress to enact it, and the relevant portions of the legislative

Judge Mikva, writing in dissent, would have upheld EPA's interpretation of the statute based on principles of judicial deference to an agency's interpretation of a statute it is responsible for implementing.[177] Reviewing the same language and legislative history as the majority, the dissent concluded that RCRA's language was sufficiently ambiguous, and EPA's interpretation sufficiently reasonable, to require the court, under the *Chevron* test, to uphold EPA's definition of solid waste.[178]

A. Problems with the Court's Analysis

Although there is something intuitively obvious in the court's conclusion that solid waste is limited to materials that have been disposed of, abandoned, or thrown away, there is unfortunately nothing that is either intuitive or obvious about RCRA or EPA's regulations. While the majority's analysis disproves its own statement that Congress' intent was "unambiguous,"[179] there are deeper flaws in the court's analysis.

1. The Court Failed to Address EPA's Rationale for Regulating Secondary Materials as Solid Waste

The court never indicated that it understood EPA's rationale for regulating recyclable materials as solid waste. Rather, in abstract fashion, the court characterized the issue as whether RCRA's definition of "wastes" includes materials that have not been "discarded" and concluded that materials that are part of an ongoing manufacturing process are not discarded in the "ordinary" sense of the word.[180] EPA regulations, however, already purport to exempt materials that are part of an ongoing production process from the definition of solid waste.[181] EPA has applied this exemption narrowly, but the court failed to analyze, or to try to understand, the rationale behind EPA's regulations.

This lack of understanding is best illustrated by the court's discussion of the petroleum and mining wastes at issue in the case. Although the court identified the petroleum and mining practices that were regulated, it did not discuss the basis for regulation. EPA defined the petroleum wastes as RCRA wastes because they were secondary materials used to produce a fuel.[182] In general, EPA regulates the use of secondary

history, Congress clearly and unambiguously expressed its intent that "solid waste" (and therefore EPA's regulatory authority) be limited to materials that are "discarded" by virtue of being disposed of, abandoned, or thrown away.

Id. at 1193.

177. *Id.* at 1194-95.

178. *Id.* at 1196-97.

179. *Compare id.* at 1182 (stating the rule that deference is due the agency only where statutory language is unambiguous) *with id.* at 1192 (saying that RCRA is ambiguous).

180. *Id.* at 1185-86.

181. *See* 40 C.F.R. § 261.4(a)(8) (1988).

182. In its 1988 proposal, EPA described the basis for regulating these wastes:

Petroleum refineries often take oil-bearing by-products and sludges from the refining

materials to produce fuels to avoid the burning of hazardous wastes as a surrogate for proper incineration.[183] Whatever one may think of EPA's questionable application of this purpose in the context of ongoing processing at a petroleum refinery, the court never addressed the Agency's rationale.[184]

More troubling is the court's failure to address the reason why EPA included mining wastes under its RCRA regulations. EPA classified these materials as solid waste because they were listed byproducts or sludges, which did not satisfy the criteria for "closed-loop" exclusions in ongoing production processes.[185] Apparently, the mining wastes were not reintroduced into the original production process, a crucial element of the EPA exclusion.[186]

The proper issue for the court to address was whether EPA's narrow classification of ongoing production processes was a permissible construction of RCRA.[187] Indeed, most of the court's discussion is

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> process, and return these materials, either by direct reinsertion into the petroleum refining process or (more normally) return to an oil recovery system ("slop oil") after which recovered oils are returned to the petroleum refining process. These by-products and sludges are sometimes hazardous (for example, API separator sludge and DAF Float from petroleum refining, both listed hazardous wastes, are sometimes recycled in this way), and, if so, would be classified as hazardous waste under the Agency's existing rules because they are used to produce fuels.

Amendments to Definition, *supra* note 81, at 520.

183. 40 C.F.R. § 261.2(c)(2) (1988); *see also* Original Definition, *supra* note 8, at 618.

184. If these materials, otherwise not wastes because part of an ongoing production process, are defined as wastes *solely* because they are being used to produce a fuel, then EPA's classification is difficult to justify. Part of EPA's basic rationale for defining materials as waste has been to distinguish materials that are part of a production process. *See* Amendments to Definition, *supra* note 81, at 521. The use of a secondary material to produce a fuel is relevant to classification of a waste, *see infra* notes 235-37 and accompanying text, but only if the material has ceased to be used within the ongoing process. *See* Amendments to Definition, *supra* note 81, at 522. This problem may, however, be limited to the petroleum refining industry. It is hard to imagine a situation, other than a petroleum refinery, where a material is part of the ongoing production process and is being used to produce a fuel.

185. *See generally* 824 F.2d at 1180-81 & n.3.

186. 40 C.F.R. § 261.2(e)(1) (1988). The Agency described the regulation of these wastes as follows:

> The primary smelting industries also frequently recover additional metal values from sludges and by-products generated in the primary smelting process. This recovery can involve direct return to the smelting process, or recovery in other unit operations. . . . To the extent these activities involve sludges and by-products on the lists of hazardous wastes from specific and non-specific sources . . . and the activity occurs outside of a closed-loop reclamation system, they are classified as solid wastes under the existing EPA rules the court considered in its decision.

Amendments to Definition, *supra* note 81, at 520.

Although it was not discussed, the primary smelting industries apparently were not eligible for the closed-loop variances for materials that are reclaimed. At no point did the court indicate that it understood the availability of a potential variance. *See* 40 C.F.R. § 260.30 (1988) ("Variances from Classification as a Solid Waste"). This case is even more remarkable than it appears if the court is suggesting that an administrative agency may not handle marginal cases by means of a variance rather than through the basic definition.

187. *See* Original Definition, *supra* note 8, at 639.

irrelevant since EPA agrees with the court's basic conclusion that materials that are still part of an ongoing process are not wastes.[188]

It is one thing to ask, in the abstract, whether Congress intended RCRA to apply to materials that do not fall within the ordinary meaning of discarded. It is quite another to consider whether EPA's regulatory construction (that only materials returned as feedstock to the original production process are part of an ongoing production process) is a legitimate exercise of agency discretion. By defining the issue as it did, the court reflected a lack of understanding of EPA's position and a disregard for EPA's primary responsibility to establish a regulatory program under RCRA.[189]

2. *Ambiguity in the Scope of the Court's Holding*

Because the majority in *American Mining Congress* failed to discuss EPA's construction of the meaning of "discarded," it is difficult to assess the significance of the court's opinion on the validity of the Agency's basic interpretation. Although the majority announced that "solid wastes" were limited to materials that were "truly" discarded,[190] the opinion only appears to preclude EPA's regulation of materials that are part of a continuous, ongoing industrial operation.[191]

If the opinion is read narrowly, as prohibiting EPA from regulating certain materials that are part of an "ongoing" industrial operation, its effect may be limited. Through its exclusions and variances, EPA already exempts most of these materials.[192] Indeed, EPA has construed *American Mining Congress* in this fashion and proposed rather modest amendments to its regulations in response to the opinion.[193]

Although the specific holding of the case is narrow, the court's rationale for its holding is quite broad. Ultimately, the court suggests that EPA is limited to regulating materials that satisfy some "plain-English meaning" definition of discarded materials.[194] Not surprisingly, this ambiguity has led to a dispute over the changes EPA must make to respond

188. *See* Amendments to Definition, *supra* note 81, at 520 ("For the most part, EPA's existing rules already distinguish between on-going, in-house types of manufacturing activities and waste management. Indeed, this was the Agency's avowed purpose . . . .").

189. *See* 42 U.S.C. § 6921 (1982 & Supp. IV 1986).

190. 824 F.2d at 1192.

191. *Id.* at 1181 n.3. Although the court characterized petitioners' contention as whether "EPA's authority under RCRA is limited to controlling materials that are discarded or intended for discard," the court also characterized the argument as whether "EPA's reuse and recycle rules, *as applied to inprocess secondary materials,* regulate materials that have not been discarded, and therefore exceed EPA's jurisdiction." *Id.* at 1180 (emphasis both omitted and added).

192. *See, e.g.*, 40 C.F.R. §§ 260.30-.33, 261.4 (1988).

193. *See infra* notes 200-11 and accompanying text.

194. 824 F.2d at 1184.

to the court's holding.[195] The extent to which the court will apply this rationale to limit EPA regulation of materials that are recycled in ways other than through reuse in ongoing industrial processes remains to be seen.

3. *The Court's Rationale is Essentially Useless in Constructing a Workable Regulatory Definition of Solid Waste*

The court's failure to define clearly the term "discarded" has sent EPA back to the drawing board with as useless a set of directions as that provided by Congress in its statutory definition of solid wastes.[196] Contrary to the court's statement, the definition of discarded is not obvious and does require the application of agency expertise.[197] Many questions remain. Are waste oils used as dust suppressants obviously discarded? Are waste oils burned for fuel in residential boilers obviously discarded? Under the court's analysis, what is one to conclude about spent material sent to a recycler for recovery of valuable materials or for regeneration? Are these secondary materials any more obviously discarded than materials reprocessed onsite at the original generating industry?[198] Although there is much to criticize about the EPA regulations,[199] the court's conclusion contributes little to devising a workable program to accomplish the somewhat contradictory goals of regulating environmentally destructive waste and promoting recycling.

Ultimately, the court's analysis merely restates the problem. It is as difficult to separate legitimate reuse and recycling from "sham" recycling under the court's approach as it is under the Agency's. Unless EPA is prepared to give up virtually all regulatory control over anything that purports to be recycling, the opinion is useless as a guide to the Agency.

B. EPA's Proposal in Response to American Mining Congress

In response to *American Mining Congress,* EPA proposed revisions to its definition of solid waste.[200] Construing the opinion narrowly to apply only to materials that are part of an ongoing industrial process, EPA has claimed that "manufacturing processes (or other types of recycling) involving an element of discard which do not involve secondary materials passing through a continuous, ongoing manufacturing process

195. *See infra* note 202.

196. 42 U.S.C. § 6903(27) (1982).

197. 824 F.2d at 1184 & n.7.

198. The court does suggest that some "recycling" may involve wastes that are within the jurisdiction of RCRA. For example, the court characterizes a "pesticide drum being reused as a trash container," *id.* at 1191 n.20, as a "clear example[] of waste disposal." *Id.* at 1191; *see also id.* at 1180.

199. *See infra* notes 212-67 and accompanying text.

200. Amendments to Definition, *supra* note 81, at 519.

remain within the Agency's jurisdiction."[201] EPA asserts that the opinion requires only modest changes because "[f]or the most part, EPA's existing rules already distinguish between ongoing, in-house types of manufacturing activities and waste management."[202]

EPA's proposal makes three basic changes. First, it would specifically exclude from regulation certain "oil bearing hazardous secondary materials from petroleum refining."[203] To be eligible for the exclusion, the oil-bearing residue must be generated onsite and reinserted into the onsite refining process as part of an ongoing and continuous process not characterized by any elements of discard.[204]

Second, EPA has proposed to promulgate the criteria it will use to decide which sludges and byproducts will be listed as "hazardous waste."[205] EPA believes that by explicitly articulating its criteria, it can justify the regulations under the holding in *American Mining Congress*.[206] The proposed regulation states that "[t]he ultimate object in applying these factors is to determine whether the sludges or by-products are being utilized in ongoing, continuous manufacturing processes."[207]

The proposed criteria include determining (1) whether the material, on an industry-wide basis, is "typically" recycled rather than disposed of, (2) whether the material is replacing a raw material when it is reclaimed, (3) whether the reclamation is closely related to the principal activity of the reclamation facility, and (4) whether the material is stored prior to

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201. *Id.* at 520.

202. *Id.* As discussed above, this seems to be a proper reading of *American Mining Congress.* If there is any incongruity in stating that *American Mining Congress* requires only modest changes in EPA's regulations, it stems from the court's failure to understand the basis and structure of EPA's regulations.

Petitioners, however, take a somewhat different view. After EPA published its proposal in response to the opinion, petitioners actually filed a motion with the court seeking to have the opinion "enforced" and claiming that the Agency was in contempt of court. Petitioners claimed that the Agency was attempting to "circumvent the judicial process" and had "blatantly disregarded" the court's opinion. 19 Env't Rep. (BNA) 203 (June 10, 1988). The court denied this motion. 19 Env't Rep. (BNA) 966 (Sept. 9, 1988).

203. Amendments to Definition, *supra* note 81, at 529.

204. *Id.* at 525. The proposed new portions of 40 C.F.R. § 261.4 ("Exclusions") state:

> (9) Oil-bearing hazardous secondary materials from petroleum refining which are converted into petroleum coke at the same facility at which such materials are generated, provided the materials are not stored in a manner involving placement on the land, or accumulated speculatively, before being so recycled. (However, coke produced from such recycling is not a solid waste.)
>
> (10) Oil-bearing hazardous secondary materials from petroleum refining that are generated on site and reinserted into the petroleum refining process along with normal process streams, provided that the materials are not stored in a manner involving placement on the land, or accumulated speculatively, before being so recycled. (Fuels produced from such recycling are not solid wastes.)

Amendments to Definition, *supra* note 81, at 529 (to be codified at 40 C.F.R. § 261.4(a)(9), (10)).

205. *Id.* at 521.

206. *Id.* at 520-21, 526.

207. *Id.* at 529 (to be codified at 40 C.F.R. § 261.2(c)(3)(ii)).

reclamation in a manner designed to minimize loss.[208] The proposed regulation also provides a self-implementing variance for individual facilities reclaiming listed sludges and byproducts if the facility can demonstrate that the material is part of an ongoing continuous industrial process.[209]

Third, the proposal creates a new "exclusion" that is applicable to secondary materials that are reclaimed before reinsertion into the original processes from which they were generated.[210] These materials would be excluded if the entire reclamation process is enclosed by means of pipes or other enclosed conveyances, the reclamation does not involve long-term storage or burning, and the reclaimed materials are not used as a fuel or applied to the land.[211] This proposal essentially extends the closed-loop exclusion to certain reclamation activities that otherwise would have been eligible only for a variance.

IV
RETHINKING THE REGULATION OF RECYCLABLE MATERIALS

So where are we? EPA has promulgated a confused and somewhat arbitrary definition of solid waste. The D.C. Circuit has produced a limited and inadequate analysis of the issue. You are undoubtedly confused.

Perhaps it is time to step back and reconsider some of the basic issues relevant to devising an appropriate regulatory definition of solid waste. EPA's approach to regulating recyclable materials is basically sound; however, there are three ways by which the Agency could improve its regulations. First, EPA must articulate a consistent and understandable rationale for classifying materials as solid waste. Second, EPA should reconsider the need for some of its requirements in light of other statutory programs. Third, EPA should rewrite and restructure its regulations to make them more intelligible.

A. The Rationale for Classifying Materials as Solid Wastes

EPA has never clearly stated its rationale for classifying recyclable materials as solid waste. It has acknowledged that its authority does not extend to certain types of recycling activities "that are shown to be *very similar to normal production operations or to normal uses of commercial products.*"[212] Although the regulations contain a variety of criteria for determining whether a material is a waste,[213] these criteria are not com-

208. *Id.* at 529 (to be codified at 40 C.F.R. § 261.2(c)(3)(i)).

209. *Id.*

210. *See id.* at 527-28.

211. *Id.* at 529 (to be codified at 40 C.F.R. § 261.4(a)(8)). The coverage of the closed-loop exclusion is discussed *supra* note 113 and accompanying text.

212. Original Definition, *supra* note 8, at 617 (emphasis added).

213. See, e.g., *infra* note 264 for a list of seven different criteria, exclusions, and variances that EPA has promulgated or proposed, all of which purport to identify whether a material is

pletely consistent. Some focus on whether a material is being used as an "essential part" of an ongoing production process,[214] but others, such as the criteria for designating materials as "inherently waste-like," focus on the environmental harm from recycling the material.[215] At times EPA has described the basis for defining solid waste as searching for an "element of discard."[216]

Although the Agency has not stated it in these terms, the regulations appear to define solid waste as any: (i) "secondary material,"[217] (ii) that is recycled in a manner constituting "hazardous waste disposal, storage or treatment,"[218] and (iii) that is *not* part of an "ongoing commercial process."[219] The basis for excluding materials that are part of an ongoing commercial process seems clear. If *American Mining Congress* means anything, it is that materials cannot be wastes as long as they continue to be part of an ongoing manufacturing process.[220] EPA has always recognized this principle, but has used a narrow definition of ongoing manufacturing processes that includes only processing or reclamation through a physically closed system, or through the reintroduction of the material into the primary production process.[221] Clearly, *American Mining Congress* adopted a more liberal definition of what an ongoing manufacturing process is under RCRA.[222] EPA's proposed changes expand the exclusion slightly, but it is unclear whether this will satisfy the court.

Furthermore, EPA has never explained why secondary materials reused in a manner constituting hazardous waste disposal, storage, or treatment constitute wastes. Although the concept of "secondary materials" is central to its definition, EPA has not defined the term. Rather, the Agency has stated circularly that a secondary material is a material that "potentially can be a solid and hazardous waste when recycled."[223] Moreover, although it has defined specific types of secondary materials, EPA has never stated why these materials are regulated as RCRA wastes[224] or why the type of recycling activity is relevant to whether a material is classified as a solid waste.

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being used as part of an ongoing commercial process.

214. *See, e.g.*, 40 C.F.R. § 260.31(b) (1988).

215. *See id.* § 261.2(d); *see also* Original Definition, *supra* note 8, at 637.

216. *See supra* notes 80-81 and accompanying text; *see also, e.g.*, Amendments to Definition, *supra* note 81, at 520-21, 527.

217. *See* Original Definition, *supra* note 8, at 616 n.4.

218. *See* 40 C.F.R. § 261.3(c)(2)(i) (1988).

219. *See* Amendments to Definition, *supra* note 81, at 520.

220. *See id.*

221. *See* Original Definition, *supra* note 8, at 639.

222. *See* 824 F.2d at 1186.

223. Original Definition, *supra* note 8, at 616 n.4.

224. All of the secondary materials share the characteristic of not being intentionally produced for the use to which they are put, and there is a certain intuitive logic to classifying materials not deliberately produced as commercial products as wastes. *See infra* notes 229-32 and accompanying text. Indeed, regardless of the uses that may be found for them, these

Despite EPA's failure to explain the basic rationale for its regulations, its definition of solid waste can be justified in economic terms. Both the classification of secondary materials and the methods of recycling are relevant in assessing whether a material has economic "value" to society. Ultimately, it is the concept of "value" that distinguishes a waste from a product: products have some economic value in society, but wastes do not.

EPA has acknowledged that "value" is a relevant criteria for classifying a material as a waste, and it had considered a definition of solid waste based in part on whether a recycler had paid or given value for the materials.[225] Although EPA felt this approach had an "intuitive appeal," it ultimately rejected the definition based largely on the difficulty of enforcement.[226]

Focusing on value, however, remains the correct approach to take in defining solid waste. The problem with EPA's earlier notion was that its definition of whether a material had economic value was too narrow.[227] Recyclable materials may have "value" even if the *recycler* is paid to take the materials. If, for example, a waste costs forty dollars a ton to dispose of conventionally and the generator would give a recycler thirty dollars to recycle the material, it would be economically appropriate, *under certain conditions,* to encourage that recycling. Although in such a case the value comes in part from avoiding the cost of disposal, the recyclable material, as opposed to a waste that cannot be recycled, still has some economic value to society.[228]

EPA's current definition already identifies the broader factors relevant to determining whether a material has economic value. It does this implicitly by classifying materials that are not produced in response to market demand (and that gain value as commodities by imposing on society externalities that RCRA was intended to prevent) as wastes.[229]

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secondary materials are generally treated by industry as wastes. *See generally* Proposed Standards, *supra* note 36, at 14,476 n.7. In many ways, by regulating recycled secondary materials as wastes, EPA is resurrecting, in revised form, its coverage of materials that "sometimes are discarded." *See supra* notes 54-55 and accompanying text.

225. *See* Proposed Standards, *supra* note 36, at 14,478-81.

226. The Agency recognized the "intuitive appeal" of relying on payment as an indication of whether a material is a waste, but it also recognized a number of problems with relying on payment when defining whether a material is a waste. Exempting materials if a recycler has paid for them would create difficult enforcement problems, discourage recyclers from accepting some small quantities of materials that they would not otherwise buy, and not ensure that the materials were actually recycled. *See id.*

227. *See generally id.* at 14,475.

228. *See id.* at 14,478.

229. An important concern of environmental economics is the analysis of externalities. "Externalities occur when the actions of one person affect the well-being of other persons and there is no compensating market transaction between the persons." Rooney, *Environmental Economics,* 1 U.C.L.A. J. ENVTL. L. & POL'Y 47, 48 n.1 (1980).

Viewed this way, EPA's current approach is a rational method that presumptively classifies materials as wastes based on value.

1. Responsiveness to Market Demand

One significant characteristic that can be used conceptually to distinguish wastes from products is whether their production is influenced by demand.[230] The "market" theoretically determines the efficient level of production of goods based on supply and demand. Goods are intentionally produced based on a judgment that a market exists, and it is the responsiveness of production to demand that leads to an efficient level of output of a product.[231]

In contrast, wastes are the unintended or unwanted consequence of commercial activity. Wastes are not deliberately produced to satisfy a perceived demand.[232] The secondary materials that EPA regulates as potential solid wastes clearly have this characteristic. Spent materials, sludges, and byproducts are not intentionally generated for use in recycling: a generator does not alter its production process to increase the output of these materials relative to the output of its basic product. Although EPA does not state it this way, this seems to be the rationale underlying the treatment of secondary materials as a potential solid wastes. It follows, then, that when a material is intentionally produced at the expense of the basic product, the generator should be able to demonstrate that the material is a coproduct and not a waste.

2. Imposing Externalities by Recycling

Because the cost of hazardous waste disposal may be high, a generator has an incentive to create a "recycling" operation whose value comes not from the product produced by recycling, but from the ability to avoid the costs of proper disposal. Recycling undertaken to avoid disposal costs, however, is not a "sham." Recycling materials at a cost lower than conventional disposal may be an economically valuable alternative. Recyclable materials have value in this sense, however, only if that value does not impose externalized costs on society.[233]

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230. For a general discussion of supply, demand, and market equilibrium, see P. SAMUELSON, ECONOMICS 55-67 (8th ed. 1970).

231. *See id.*

232. The production of wastes also responds to economic factors, largely through the legal liabilities that stem from their production. Disposal requirements imposed through RCRA raise the costs associated with the production of wastes and act as a disincentive to their production. *See, e.g.*, 42 U.S.C. §§ 6922, 6924 (1982 & Supp. IV 1986). Although RCRA directly requires plans for waste minimization (*id.* § 6922(b)), it probably accomplishes this goal indirectly through increasing costs and liabilities in the production of wastes.

233. *See, e.g.*, A. KNEESE, R. AYRES & R. D'ARGE, ECONOMICS AND THE ENVIRONMENT: A MATERIALS BALANCE APPROACH 3 (1970); Fisher & Peterson, *The Environment in Economics*, 14 J. ECON. LITERATURE 1, 4 (1976); Rooney, *supra* note 229, at 48 n.7. The correction of the market failure that led to the "externalities" is one basic rationale for govern-

One argument for defining solid waste broadly under RCRA is that this internalizes the potential social costs that could result from a broad range of activities leading to health and environmental problems through improper disposal.[234] By regulating these material and activities, RCRA forces the producer to bear the full costs of production including proper disposal. If a generator, however, can avoid the costs of disposal simply by labeling an operation as "recycling," even where the activity creates environmental problems similar to those caused by improper disposal, then the value of recycling comes from a shell game. The generator avoids the internalized costs of regulation and, instead, imposes the costs on society. Thus, materials whose value comes from avoiding disposal costs should be classified as wastes if recycling these materials creates the types of environmental problems and risks that RCRA was designed to avoid.

EPA's regulations implicitly recognize the importance of environmental values by classifying materials that are recycled in a manner constituting hazardous waste disposal, storage, or treatment as wastes.[235] Secondary materials that are recycled by burning, application to land, or long-term storage presumptively create the same environmental problems addressed by RCRA incineration and land disposal regulations.[236] To a more limited extent, as discussed below, this is also true of recycling by reclamation.[237] The materials used in reclamation activities also may not have true value to society if their primary value arises from avoiding the costs of conventional disposal.

Thus, EPA's definition of waste focuses on those materials and processes whose production is not subject to market forces and whose use generates externalities that the hazardous waste disposal system is designed to avoid. Taken together, these factors establish the basic prin-

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ment intervention and regulation. *See, e.g.*, R. MUSGRAVE, THE THEORY OF PUBLIC FINANCE 7 (1959).

234. Although most would agree that internalization of social costs is both a goal and rationale for environmental regulation, there is a larger debate as to whether the extent of environmental regulation should be governed by criteria of market efficiency. *Compare* W. BAXTER, PEOPLE OR PENGUINS: THE CASE FOR OPTIMAL POLLUTION (1974) *with* Sagoff, *Economic Theory and Environmental Law*, 79 MICH. L. REV. 1393 (1983).

To argue that it is appropriate to focus on market efficiency criteria in defining wastes under RCRA says nothing about the propriety of defining the scope of environmental regulation in terms of market efficiency. Market criteria must be used in this case because Congress tied RCRA's jurisdiction to a concept—waste—that is essentially economic in nature. *See supra* note 3 and accompanying text.

235. *See* Original Definition, *supra* note 8, at 618.

236. *See generally id.* at 627-28.

237. The issue of reclamation is somewhat more complicated. Goods produced from reclaimed materials generally are not treated as wastes. EPA treats secondary materials destined for reclamation as wastes only until they are actually introduced into the reclamation process. *See* Proposed Standards, *supra* note 36, at 14,486. As discussed below, the environmental externalities EPA is attempting to avoid may, in most cases, not be an appropriate subject for regulation under RCRA. *See infra* note 257.

ciples that justify EPA's presumptive classification of secondary materials recycled in methods constituting hazardous waste disposal, storage, or treatment as solid wastes.[238] In individual cases a generator may claim that these materials are not wastes. If so, a unified variance mechanism is the appropriate method to deal with these cases.

B. Regulation of Reclamation Activities

In adopting a regulatory program for recyclable materials, EPA must reconcile RCRA's objective of preventing environmental harm with its objective of encouraging recycling. Where recycling is by land application, incineration, or long-term storage, stringent regulation is warranted because these practices pose direct environmental threats equivalent to hazardous waste disposal practices.

Reclamation activities, however, are different. In most cases, EPA regulates neither the product produced by reclamation nor the reclamation process itself. In fact, if the reclaimer does not store materials onsite prior to reclamation, the regulations merely require that the reclaimer satisfy certain notification requirements and manifest the wastes during transport.[239] In its 1983 proposal, EPA largely exempted onsite reclamation from regulation.[240] In its final regulation, however, EPA concluded that exempting such reclamation would create too great an environmental risk from improper storage.[241]

EPA provided that if materials are "temporarily" stored onsite prior to reclamation, the reclamation facility not only must manifest the wastes, it also must obtain a hazardous waste permit.[242] To obtain a permit, the facility must prepare storage plans and satisfy financial responsibility requirements for closure and personal injury insurance.[243]

Much of the complexity of the regulations stem from EPA's decision to regulate reclamation activities. This decision led it to create, for example, the distinction between the "closed-loop recycling exemption," the "closed-loop" variance, and the proposed new "closed-loop reclamation exemption."[244]

EPA's decision to regulate "temporary" storage at reclamation facilities has other costs in addition to regulatory complexity. Under RCRA, new facilities generally are not authorized to begin operating until they have received a final permit,[245] a process that often takes consid-

238. *See supra* note 140.
239. *See supra* note 139 and accompanying text.
240. *See* Proposed Standards, *supra* note 36, at 14,488.
241. *See* Original Definition, *supra* note 8, at 637-40.
242. 40 C.F.R. § 261.6 (1988).
243. *Id.*
244. *See* Original Definition, *supra* note 8, at 639.
245. Only "interim status" facilities may operate pending receipt of a final permit. Interim status is available only to facilities that were in existence on November 19, 1980 or "in exist-

erable time. Moreover, the need for a permit creates another significant obstacle to the construction of new reclamation facilities; the financial responsibility provision requires facilities to provide financial assurances of over a million dollars.[246]

Legitimate reclamation, however, should be encouraged. Given that EPA regulates neither the product nor the process of reclamation, the Agency should reconsider what it is achieving through its regulatory requirements.

EPA's primary concern seems to be the potential for improper storage and handling of recyclable materials at reclamation facilities, a position it has justified based on past environmental incidents.[247] What EPA seems to have ignored is that other environmental statutes, adopted in most cases after these damage incidents occurred, lessen the need to regulate these facilities under RCRA.

The most important of these statutes is the Comprehensive Environmental Response Compensation and Liability Act, known as CERCLA or Superfund.[248] CERCLA imposes liability on a facility for the cost of cleanup of all hazardous substances, not just wastes, that are released into the environment.[249] Moreover, the owners and operators of reclamation facilities are subject to liability for the release of a hazardous substance even if it is not a waste under RCRA.[250]

Furthermore, the recently adopted Emergency Planning and Community Right-to-Know Act (EPCRA), Title III of the Superfund Amendments and Reauthorization Act, requires industrial facilities to inventory and to report publicly on the quantities of hazardous substances that are present at their site.[251] Although EPCRA does not spe-

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ence on the effective date of statutory or regulatory changes under [RCRA] that render the facility subject to the requirement to have a permit." 42 U.S.C. § 6925(e)(1) (1982 & Supp. IV 1986). Interim status facilities, including those that directly dispose of hazardous wastes, may operate under a set of interim regulatory requirements until their permit is processed. *See* 40 C.F.R. § 265.1 (1988).

246. *See* 40 C.F.R. §§ 264.140-.151 (1988).

247. *See* Proposed Standards, *supra* note 36, at 14,474.

248. 42 U.S.C. §§ 9601-9675 (1982 & Supp. IV 1986).

249. *Id.* § 9607.

250. *Id. See generally* ENVTL. L. INST., *supra* note 16, § 13.06; D. STEVER, LAW OF CHEMICAL REGULATION AND HAZARDOUS WASTE (1986).

251. The Emergency Planning and Community Right-to-Know Act (EPCRA) was adopted as part of the Superfund Amendments and Reauthorization Act of 1986. Pub. L. No. 99-499, 100 Stat. 1613, §§ 300-330 (codified at 42 U.S.C. §§ 11001-11050 (Supp. IV 1986)). The Act is a nightmarish mix of planning and notification requirements. One part of the Act requires the establishment of state and local emergency response commissions. 42 U.S.C. § 11001 (Supp. IV 1986).

Additionally, EPCRA imposes requirements on industrial facilities where there are hazardous chemicals. The nature of the requirements depends on the classification of the chemicals, i.e., whether they have been classed by EPA as "extremely hazardous substances," and the quantities of chemicals at the facility. *Id.* § 11004. The requirements include preparing chemical inventories, reporting to the local emergency response committee, and reporting the

cifically mandate proper storage, it does create significant incentives to properly handle hazardous materials, and it is broadly applicable to all hazardous substances.[252]

The Toxic Substance Control Act (TSCA)[253] may also help control recyclable materials. TSCA authorizes EPA to regulate or even to prohibit the introduction of new chemical substances, as well as significant new uses of substances, that may pose an unreasonable risk to human health or the environment.[254]

Finally, RCRA itself applies to any "waste" material that is *generated* at the reclamation facility.[255] As with any other industrial facility, a reclamation facility would be classed as a generator if it produced any hazardous waste in its reclamation process.[256]

In light of these statutes, it is questionable whether the incremental protection afforded by the regulations justifies the added costs they impose.[257] EPA's regulations already protect against the direct and more substantial environmental risks of other forms of recycling activities including uses constituting disposal, burning for energy recovery, and speculative accumulation.[258] Its regulation of reclamation activities targets only short-term storage at the cost of creating both greater regulatory complexity and disincentives to reclamation.

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facility's releases of "toxic chemicals" annually. *See* H.R. REP. NO. 253(I), 99th Cong., 2d Sess., *reprinted in* 1986 U.S. CODE CONG. & ADMIN. NEWS 2835. *See generally* ENVTL. L. INST., *supra* note 16, § 13.07.

252. *See generally* ENVTL. L. INST., *supra* note 16, § 13.07(1)-(2).

253. 15 U.S.C. §§ 2601-2654 (1982 & Supp. IV 1986).

254. *See generally* D. STEVER, *supra* note 250, §§ 2.01-.02.

255. *See generally* 42 U.S.C. § 6903 (1982 & Supp. IV 1986).

256. *See* 40 C.F.R. § 260.10 (1988).

257. EPA's regulations for reclamation facilities also require that they satisfy certain financial responsibility requirements both to ensure cleanup in the event of a release and to compensate any victims of a release. 40 C.F.R. §§ 264.140-.151 (1988). CERCLA does impose liability for cleanup, although it does not ensure that there are resources to satisfy that liability. *See* 42 U.S.C. § 9607 (1982 & Supp. IV 1986). But neither CERCLA, nor any other related environmental statute, imposes liability for compensation to persons injured from the release. The question arises whether EPA is justified in requiring insurance from reclamation facilities when there is no comparable requirement for other industrial facilities.

Although such insurance is certainly a good idea, it is worth asking whether RCRA was intended to be used to create a personal injury compensation system for reclamation processes that are not themselves environmentally harmful and are similar to other types of industrial processes that do not require compensation. It is also worth noting that EPA does not impose this requirement on facilities that reclaim materials without first storing them. *See supra* note 140.

Finally, EPA requires a manifest system that ensures that materials are tracked from their point of generation to their place of reclamation. *See* 40 C.F.R. §§ 264.40-.44, 263.20-.22, 264.70-.77 (1988). EPA also imposes this requirement on materials that are not stored prior to reclamation. This control of recyclable materials is warranted because of the often marginal market value of these materials (which increases the likelihood of illegal dumping), the minor cost of the control, and the large environmental threat stemming from the particular characteristics of recyclable materials.

258. *See supra* notes 83-93 and accompanying text.

EPA should reconsider its regulatory treatment of reclamation. The Agency should classify all secondary materials that are reclaimed as wastes, but limit the regulatory requirements to notification and manifesting, whether the materials are stored onsite or not. This change would ensure that the materials are subject to control, focusing government and public attention on the facility and minimizing the threat of midnight dumping, but is not so onerous that legitimate reclamation activities are made uneconomical.

This change also would allow EPA to simplify its definition of solid waste by eliminating distinctions based on the type of material that is reclaimed.[259] Any generator or recycler would still be entitled to claim that her material was not a waste and to seek a variance. However, given the minor regulatory consequences of being classified as a waste, it is unlikely that this would occur frequently.[260]

C. *Simplifying the Regulatory Scheme*

If a regulatory system leaves the regulated community confused, the costs of the system will be increased and its effectiveness decreased. As should be obvious, EPA has created a system that is enormously complicated and more confusing than necessary. Because part of the problem arises from the structure of the regulations themselves, this confusion can be minimized.

First, EPA could restructure the basic definition of solid wastes. EPA should simply define solid wastes as "secondary materials that are reused or recycled in a manner constituting hazardous waste disposal, storage or treatment." This definition would reflect the basis of EPA's decision to treat the material as waste.

As part of this change EPA must define "secondary materials."[261] The Agency should define them as including the existing specified types of material, but the definition itself should contain the exclusion, now found at section 261.2(b),[262] for materials that are still a part of ongoing commercial processes. The current definition confusingly includes materials that are part of a commercial process, and then has a subse-

259. *See supra* note 224 and accompanying text.

260. EPA could also provide that any material that is exempt from classification as a waste automatically will be considered for regulation under TSCA as a new chemical or significant new use. There is even less incentive for a facility in such a case to request to be moved from the frying pan into the fire.

261. Similarly, EPA should define "hazardous waste disposal, storage, and treatment" as including land application, incineration, speculative accumulation, and reclamation. By labeling only land application as "use constituting disposal," *see* Original Definition, *supra* note 8, at 646, EPA obscures the point that all of these activities are subject to regulation as forms of hazardous waste management.

262. The problems caused by using an independent set of exemptions, exclusions, and a variance for such processes are discussed *supra* notes 114-29 and accompanying text.

quent exclusion. This confusion is amplified when EPA has several independent provisions that act as exclusions from the classification as solid waste. If EPA tied its regulatory definition of solid waste directly to the concept of secondary materials (which by definition would not include materials in an ongoing commercial process), the regulation would be simpler and more rational on its face.

EPA could also eliminate the distinctions among materials that are reclaimed. This would allow EPA to eliminate its "matrix" of materials and uses.[263] *All* secondary materials that are reclaimed should be presumptively classified as solid wastes. Because, under the new definition, secondary materials would not include materials used directly as products or materials in an ongoing production process, the regulation would eliminate the need to distinguish among types of secondary materials.

Second, EPA needs to promulgate a single set of criteria for classifying materials as solid wastes, to be used both for EPA determinations to list materials as wastes and for decisions whether to grant variances from classification as wastes. Currently EPA uses seven different sets of criteria, exclusions, and variances, not all of which are consistent, to decide how materials are classified and whether to grant variances.[264] There is no reason to use different criteria to designate unlisted sludges, byproducts, and inherently waste-like materials and to grant variances from the definition of solid waste.

Third, EPA should formally promulgate its criteria for determining whether an activity is "sham" recycling. These criteria, now found in portions of the preamble to the 1985 regulation[265] and in the 1988 proposal,[266] should be included as part of the definition of reuse and recycling now found in the regulation.[267]

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263. *See supra* notes 97-107 and accompanying text.

264. EPA has promulgated or proposed a variety of criteria that purport to identify whether a material is part of an ongoing commercial process and hence not a waste. These include: (1) determining whether secondary materials are eligible for an exclusion because they are ingredients in the industrial process, are used directly as a product, or are part of an ongoing commercial process, 40 C.F.R. § 261.2(e)(1) (1988); (2) determining whether unlisted sludges and byproducts should be listed as wastes, Amendments to Definition, *supra* note 81; (3) determining whether reclaimed secondary materials should be granted a variance from the definition of solid waste because they are an "essential part" of an ongoing commercial process, 40 C.F.R. § 260.31(b) (1988); (4) determining whether reclaimed sludges and byproducts may be excluded from the definition of solid waste because they are physically connected to the primary process and remain part of an ongoing, continuous manufacturing process, Amendments to Definition, *supra* note 81; (5) whether a material should be designated as inherently waste-like, 40 C.F.R. § 261.2(d) (1988); (6) exclusion of tank storage involving closed pipes, *id.* § 261.4(a)(8)(i); and (7) whatever criteria EPA used to conclude that spent sulfuric acid processing and black liquor reclamation should be excluded from the definition of solid waste, *id.* § 261.4(a)(6)-(7).

265. *See* Original Definition, *supra* note 8, at 617.

266. 40 C.F.R. § 261.1 (1988).

267. *Id.*

Finally, EPA should consolidate its substantive regulatory requirements for recyclable materials, now located primarily in 40 C.F.R. section 261.6 and Part 266. EPA should simply combine the two sets of requirements under Part 266 and establish a subpart that provides the general requirements for recyclable materials and a subpart that specifically sets out the requirements for recyclable materials that are reclaimed.

V
CONCLUSION

Congress gave EPA an impossible job when it required the Agency to define solid waste under RCRA. Given the structure and contradictory objectives of the statute and the complexity of the problem, there was virtually no way that the Agency could have developed a clear, comprehensive, and rational definition.

Nonetheless, EPA has done a credible job with this difficult problem. Although the D.C. Circuit invalidated the regulation, the opinion is attributable in part to the court's failure to understand the basis for EPA's definition of materials as solid waste. The court's opinion only requires minor modifications of the Agency's definition.

With some restructuring of the regulations, and by articulating its basis for classifying materials as wastes, EPA can simplify its regulations and make them more understandable. At a minimum, EPA should define the term "secondary materials" and codify the various exclusions and variances from the definition of solid waste.

More fundamentally, however, the Agency should reconsider the extent of its regulation of reclamation activities. Stringent controls on recycling activities that pose direct environmental risks, such as burning, land application, and long-term storage, are warranted. EPA's regulation of reclamation apparently focuses only on the problems associated with short-term storage. Given that other statutes address this issue, it is questionable whether the added costs and complexity associated with regulation under RCRA are warranted. Legitimate reclamation is the type of recycling that should be encouraged the most.

The need to recycle hazardous wastes will continue to grow as the difficulty and cost of waste disposal increase. EPA's definition of solid waste will play a crucial role in encouraging recycling and ensuring that "sham" recycling does not create more problems than it solves.