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REENGINEERING RCRA: THE COMMAND CONTROL REQUIREMENTS OF THE WASTE DISPOSAL PARADIGM OF SUBTITLE C AND THE ACT'S OBJECTIVE OF FOSTERING RECYCLING — RETHINKING THE DEFINITION OF SOLID WASTE, AGAIN

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INTRODUCTION

In 1992, the United States Environmental Protection Agency (EPA) created the Definition of Solid Waste Task Force (Task Force).[1] Specifically, the Task Force was created to eliminate perceived disincentives to recycling, eliminate regulatory loopholes for those recycling practices presenting risks to health and the environment, and clarify the definition of solid waste.[2] In September, 1994, the Task Force published a report titled *Reengineering RCRA for Recycling: Definition of Solid Waste Task Force: Report and Recommendations* (*Reengineering RCRA*).[3] This report advocated a new

1. *EPA Task Force to Develop Strategy for Improving Definition of Solid Waste*, Daily Env't Rep. (BNA) No. 195, at A-1 (Oct. 7, 1992).

2. DEFINITION OF SOLID WASTE TASK FORCE, U.S. ENVTL. PROTECTION AGENCY, REENGINEERING RCRA FOR RECYCLING: DEFINITION OF SOLID WASTE TASK FORCE: REPORT AND RECOMMENDATIONS ii (1994) [hereinafter REENGINEERING RCRA].

3. *Id.*

national regulatory system for recycling.[4] Consistent with past practice, the proposed system is to be administered by the EPA through jurisdiction vested in it by the Resource Conservation and Recovery Act of 1976 (RCRA),[5] as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA)[6].[7]

The development of a regulatory system for the recycling of industrial, commercial, and municipal solid wastes is currently among the most significant issues in the environmental policy arena.[8] While the development of other solid waste policies (such as the shift to producer responsibility and the development of market forces to encourage waste reduction and reuse) are increasingly being addressed on a global scale, RCRA recycling is a distinctly national issue.[9] The focus of this article is to develop a regulatory framework for a new national recycling system. The discussion contained herein advocates a regulatory system that moves away from perceptions of recycling as a subset of waste management and disposal.

Part I of this article explains how recycling is defined through the definition of solid waste and explores the fallacies associated with the current interpretation of recycling as a subset of waste management. Part II describes the difficulties courts have had in applying this definition. In Parts III and IV, *Reengineering RCRA* and the solutions it proposes are discussed and analyzed. Finally, in Part V, a modified approach to *Reengineering RCRA* is offered. The modified strategy constructs a legal foundation for a risk-based approach to regulation of recycling. Through a "matrix" evaluating the health and environmental risks posed and mitigated by the use of enumerated environmentally sound management practices, this article attempts to draw a bright line that ultimately distinguishes between bona fide and sham recycling practices.

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4. *Id.*

5. Resource Conservation and Recovery Act of 1976, 42 U.S.C. §§ 6901-6992k (1988 & Supp. V 1993).

6. Hazardous and Solid Waste Amendments of 1984, Pub. L. No. 98-616, 89 Stat. 3221 (1984).

7. *See Solid Waste Definition Report Tackles Recycling Obstacles*, PESTICIDE & TOXIC CHEM. NEWS, Oct. 5, 1994.

8. Randolph Hill, *An Overview of RCRA: The "Mind-Numbing" Provisions of the Most Complicated Environmental Statute*, 21 Envtl. L. Rep. (Envtl. L. Inst.) 10254, 10255 (May 1991).

9. *See* Robert F. Housman & R. Michael Sweeney, *Two Sculptors Shaping World Markets: The Intersection of Trade and Solid Waste Policies*, *in* YALE WORKING PAPERS ON SOLID WASTE POLICY (forthcoming January 1996) (discussing international trends in solid waste policy).

I. DEFINING RECYCLING THROUGH THE DEFINITION OF SOLID WASTE

Recycling means many different things to many people.[10] Universally acknowledged as an integral part of any legitimate strategy to solve the Nation's solid waste crisis, few people truly appreciate and understand the intricacies associated with this resource recovery technique. More than the mere diversion and separation of materials from the solid waste stream, recycling is premised upon the processing of a substantial amount of separated materials into marketable products for sale as commodities or for use in making new products.[11]

Because RCRA regulation applies only to "wastes," the problem of recyclable materials is apparent.[12] Recyclable materials are not in the obvious sense "wastes" because they remain within the stream of commerce.[13] Many secondary materials (*e.g.*, scrap metal, paper, plastics, etc.), even though posing minimal risk of harm to health and the environment when sold as commodities or used as raw materials or other feedstocks, are regulated as "solid wastes." In contrast, several potentially hazardous commercial materials (*e.g.*, chlorine gas, commercial grade acids, petroleum distillates, etc.) posing similar health and environmental concerns escape waste regulation under RCRA because they are intentionally produced as products.[14] These materials may or may not be subject to regulation by other environmental statutes.[15]

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10. Letter from J. Thomas Wolfe, Esq., L.L.M., Counsel & Director of Government Relations, Institute of Scrap Recycling Industries, Inc., to the Office of Solid Waste, Solid Waste Task Force, U.S. Environmental Protection Agency 1 (June 15, 1995) [hereinafter Wolfe Task Force Letter] (on file with author).

11. Philip L. Comella, *Understanding A Sham: When Is Recycling, Treatment?*, 20 B.C. ENVTL. AFF. L. REV. 415, 427 (1993). Processing, whether through direct reuse, reclamation, or recycling, is often characterized as a value-adding technique necessary for the extraction of secondary mineral values from an object that would otherwise be designated as a waste. Wolfe Task Force Letter, *supra* note 10, at 1.

12. Jeffrey M. Gaba, *Solid Waste and Recycled Materials under RCRA: Separating Chaff from Wheat?*, 16 ECOLOGY L.Q. 623, 626 (1989).

13. *Id.*

14. *Id.*

15. *Id.* at 627. *See* Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9601-9675 (1988 & Supp. V 1993); Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. §§ 11001-11050 (1988 & Supp. V 1993); Toxic Substances Control Act, 15 U.S.C. §§ 2601-2692 (1994).

Since RCRA's enactment, the EPA has agonized over distinguishing between materials that are RCRA "wastes" and recyclable secondary materials possessing "commodity-like" characteristics that are bought and sold in the same manner as commercial products, raw materials, or other manufacturing feedstocks.[16] This quandary demonstrates the need to develop a comprehensive federal regulatory framework covering a wide array of recycling activities.[17] At the heart of the problem is RCRA's basic structure and objectives.[18] As currently enforced, RCRA creates special problems for determining the most efficient and protective, yet least intrusive, way to regulate recyclable materials and recycling itself.[19] The characterization of recycling as a subset of waste management and disposal under the Act's definition of "solid waste" sets the stage for the existing state of RCRA regulatory folly.

A. *Is Recycling A Subset of Waste Management or the Polar Opposite?*

In the practice of environmental law, defining the terms "solid waste" and "hazardous waste" under RCRA certainly is not child's play, although RCRA has an "Alice in Wonderland" quality about it.[20] A careful examination of RCRA and its regulations reveals that "solid waste" plainly means one thing in one part of the Act, and something entirely different in another part.[21] While definitions are

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16. Gaba, *supra* note 12, at 627.

17. *Id. See generally* U.S. ENVTL. PROTECTION AGENCY, GUIDANCE MANUAL ON THE RCRA REGULATION OF RECYCLED HAZARDOUS WASTES (1986) [hereinafter RCRA RECYCLING GUIDANCE].

18. Gaba, *supra* note 12, at 627.

19. *Id.*

20. *See* Connecticut Coastal Fisherman's Ass'n v. Remington Arms Co., 989 F.2d 1305, 1308 (2d Cir. 1993) (quoting LEWIS CARROLL, THROUGH THE LOOKING GLASS, 106-09 (Schocken Books 1987) (1872)):

> When I use a word," Humpty Dumpty said in a rather scornful tone, "it means just what I choose it to mean - neither more nor less."
> The question is," said Alice, "whether you can make words mean so many different things."
> The question is," said Humpty Dumpty, "which is to be master - that's all."

Id. Following the rationale set forth in Lewis Carroll's time-honored fable, in the case of RCRA, Congress is undoubtedly the master. *Id.*

21. *Id.* Under RCRA, the definition of "solid waste" is bifurcated between the statute itself and its regulations. Adam Babich, *RCRA Imminent Hazard Authority: A Powerful Tool for Businesses, Governments, and Citizen Enforcers*, 24 Envtl. L. Rep. (Envtl. L. Inst.) 10122, 10123 (Mar. 1994). *Compare* RCRA § 1004(27), 42 U.S.C. § 6903(27) *with* 40 C.F.R. § 261.2(a) (1995). The regulations, while further amplifying the definition of "solid waste," also address the Act's

often characterized as unpleasant abstractions, RCRA's authority to regulate recyclable hazardous materials as "solid waste" is perhaps best characterized as "a riddle wrapped in a mystery inside an enigma."[22]

At the time of the 1985 Definition of Solid Waste rulemaking, the gray area between waste management and product manufacturing was perceived as the "last remaining loophole in environmental law."[23] The difference between recycling and treatment is often times difficult to distinguish.[24] This said, the Act has a bigger and

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application to secondary materials recycling. *See generally* 40 C.F.R. § 261.2.

22. RICHARD C. FORTUNA, HAZARDOUS WASTE TREATMENT COUNCIL, REVISING RCRA'S DEFINITION OF SOLID WASTE TO CONTROL HAZARDOUS WASTE RECYCLING PRACTICES 1 (1990) [hereinafter HWTC REPORT] (on file with author).

23. Definition of Solid Waste, 50 Fed. Reg. 614, 616 (1985) (to be codified at 40 C.F.R. §§ 260-261, 264-266) [hereinafter 1985 Definition of Solid Waste] (quoting H.R. Rep. No. 94-1491, 98th Cong. 2d Sess. 4 (1984)).

24. *See* Memorandum from Sylvia Lowrance, Office of Solid Waste, U.S. Envt'l. Protection Agency to Hazardous Waste Management Directors: Regions I-X, U.S. Envt'l. Protection Agency (Apr. 26 1989) [hereinafter EPA Sham Recycling Memo] (discussing sham recycling criteria) (on file with author). The following criteria have been asserted as guidelines for determining whether an activity is sham recycling (treatment) or bonafide recycling:

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

(2) What degree of processing is required to produce a finished product?
   (a) Can the secondary material be fed directly into the process (direct reuse) or is reclamation (or pretreatment) required?
   (b) How much value does final reclamation add?

(3) What is the value of the secondary material?
   (a) Is it listed in industry news letters, trade journals, etc.?
   (b) Does the secondary material have the economic value comparable to the raw material that normally enters the process?

(4) Is there a guaranteed market for the end product?
   (a) Is there a contract in place to purchase the "product" ostensibly produced from the hazardous secondary materials?
   (b) If the type of recycling is reclamation, is the product used by the reclaimer? The generator? Is there a batch tolling agreement?
   (c) Is the reclaimed product a recognized commodity? Are there industry recognized quality specifications for the product?

(5) Is the secondary material handled in a manner consistent with the raw material/product it replaces?
   (a) Is the secondary material stored on land, in a similar manner as the analogous raw material?

more complex job than any other environmental statute or regulation.[25]

The role of interpreting the definition of "solid waste" under RCRA is delegated to the EPA.[26] Specifically, the EPA must distinguish between waste management activities and manufacturing or production practices across the full range of U.S. industry.[27] This task alone is unique to RCRA, adding to the responsibilities already delegated to the EPA by this "multi-media, multi-material, multi-activity statute."[28]

Contrary to popular opinion, the EPA is the first to acknowledge that its RCRA authority to regulate recycled secondary materials is limited.[29] Technically, RCRA solid waste jurisdiction stops short of regulating recycling activities that are analogous to "normal production operations or to normal uses of commercial products."[30] The "potential [for] environmental harm is not always a determinative indicator of how closely a recycling activity resembles waste management."[31] Rather the key factors are (1) whether a recycling activity is sufficiently analogous to product manufacturing, or (2) whether a recycled secondary material is used in essentially the same manner as a primary commercial product.[32] Therefore, a potentially harmful

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(b) Are adequate records regarding transactions kept?
(c) Do the companies involved have a history of mismanagement of hazardous wastes?

(6) Other relevant factors.

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

Id.; Identification and Listing of Hazardous Waste; Amendments to Definition of Solid Waste, 53 Fed. Reg. 519, 522 (1988) (to be codified at 40 C.F.R. § 261) (proposed Jan. 8, 1988) [hereinafter 1988 Definition of Solid Waste Amendments]; Burning of Hazardous Waste in Boilers and Industrial Furnaces, 52 Fed. Reg. 16982, 17013 (1987) (to be codified at 40 C.F.R. §§ 260-261, 264-266 & 270-271) (proposed May 6, 1987) [hereinafter BIF Proposed Rule]; 1985 Definition of Solid Waste, *supra* note 23, at 638.

25. *See* EPA Sham Recycling Memo, *supra* note 24; 1988 Definition of Solid Waste Amendments, *supra* note 24, at 522; BIF Proposed Rule, *supra* note 24, at 17013; 1985 Definition of Solid Waste, *supra* note 23, 50 at 616.

26. 1985 Definition of Solid Waste, *supra* note 23, at 616.

27. *Id.*

28. HWTC REPORT, *supra* note 22, at 1.

29. 1985 Definition of Solid Waste, *supra* note 23, at 616-17.

30. *Id.* at 617.

31. *Id.*

32. *See id.*

recycling practice will not invariably be subject to regulation under Subtitle C of RCRA, if one of the above factors is met.

Moreover, the lack of any practical sort of flexibility, under the "recycling as subset of waste management" approach, has a disparate regulatory impact on recyclable secondary materials. Unfortunately, the first impediment to this approach is its over-inclusive and under-inclusive reach.[33] This becomes apparent when the definition of "solid waste" is applied to materials destined for beneficial reuse or recovery through recycling.[34] Frequently cited as regulating "potentially hazardous" solid waste from "cradle to grave," this characterization obscures the true scope of RCRA's jurisdiction.[35] At its simplest, the Act's application is limited solely to "hazardous" solid wastes, and under the crucial language of the statute, its regulatory reach extends only to materials that have been "discarded."[36]

Broadly speaking, the quandary surrounding RCRA's definition of "solid waste" is a primary problem. For instance, "discarded materials" are vaguely defined under the statute and regulations,[37] recycling is not specifically addressed under the statute or regulations,[38] and, as will be discussed later, the EPA and the courts have been forced to implement difficult regulatory language.[39]

Because the Act's single most important term — solid waste — is also its most ambiguous term, a cloud of uncertainty engulfs several important issues involving resource recovery. At the threshold is the Act's failure to clearly establish at what point waste is "born" and subject to regulation.[40] It is more than an academic issue.[41] Be-

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33. U.S. ENVTL. PROTECTION AGENCY, RCRA IMPLEMENTATION STUDY UPDATE: THE DEFINITION OF SOLID WASTE 7 (1992) [hereinafter RCRA IMPLEMENTATION STUDY]. The disparate regulatory application of the definition of "solid waste" allows certain hazardous secondary materials presenting a substantial risk to health and the environment to go unregulated, while other secondary materials that present minimal hazards are fully regulated. *Id.*

34. Hill, *supra* note 8, at 10257.

35. Nancy Bacon Brown, *Background Paper: EPA's Jurisdiction Over Solid Waste* 1 (1993) (unpublished manuscript, on file with author).

36. *Id.*

37. *See* 40 C.F.R. § 261.2(a) (1995).

38. *See id.* § 261.2(e).

39. *See* Barry Needleman, *Hazardous Waste Recycling Under the Resource Conservation and Recovery Act: Problems and Potential Solutions*, 24 ENVTL. L. 971, 1017 (1994). *See also* RCRA § 1004(27), 42 U.S.C. 6903(27) (statutory provision defining term "solid waste"); 40 C.F.R. § 261.2 (1995) (regulatory provision defining term "solid waste").

40. Stephen Johnson, *Recyclable Materials and RCRA's Complicated, Confusing, and Costly Definition of Solid Waste*, 21 Envtl. L. Rep. (Envtl. L. Inst.) 10357 (July 1991).

cause RCRA clearly regulates the storage,[42] transportation,[43] treatment,[44] and disposal[45] of hazardous solid waste,[46] determining whether a material is a solid waste has enormous implications for its handling and management.[47]

A determination that a material is not a solid waste can mean that its transportation, handling, storage, and processing are virtually unregulated.[48] Conversely, a determination that a material is, in fact, a solid (and potentially hazardous) waste can mean that its handling and management from point of generation through final disposal is strictly controlled under the Act's very onerous Subtitle C.[49] This "all or nothing" prerequisite for regulation requires that RCRA jurisdiction be determined prior to evaluating the risks to health and the environment posed by a material and/or a particular recycling technique.[50]

Another perplexing aspect of RCRA practice is the Act's treatment of recycling under Subtitle C and its regulations.[51] Confusion associated with this issue is generally attributed to potentially inconsistent policy goals found within the Act's precatory language set forth at sections 1002,[52] 1002a,[53] and 1003.[54] These

41. Hill, *supra* note 8, at 10257.

42. RCRA §§ 3004-3005, 42 U.S.C. §§ 6924-6925.

43. *Id.* § 3003, 42 U.S.C. § 6923.

44. RCRA §§ 3004-3005, 42 U.S.C. §§ 6924-6925.

45. *See id.*

46. Johnson, *supra* note 40, at 10357.

47. *See generally* RCRA IMPLEMENTATION STUDY, *supra* note 33, at 7.

48. *See id.*

49. *See id. See also* RCRA §§ 3001-3019, 42 U.S.C. §§ 6921-6939e; Hill, *supra* note 8, at 10260.

50. RCRA IMPLEMENTATION STUDY, *supra* note 33, at 15.

51. *See* RCRA §§ 3001-3019, 42 U.S.C. §§ 6921-6939e; 40 C.F.R. §§ 260-299 (1995).

52. RCRA § 1002, 42 U.S.C. § 6901. Specifically, when enacting RCRA, Congress found that millions of tons of recoverable material was needlessly landfilled when methods existed for separating this material from solid waste. RCRA § 1002(c), 42 U.S.C. § 6901(c). Additionally, it was determined that the recovery of such material reduced domestic dependence on imported raw materials and reduced the deficit in its balance of payments. *Id.*

53. RCRA § 1002a, 42 U.S.C. § 6901a. The declaration that used oil is a valuable resource is a prime example of Congress' intent to foster recycling. *Id.* § 6901a(1). More than merely declaring this discarded material a valuable resource, Congress found it to be in the national interest to recycle used oil in an environmentally responsible manner for the conservation of energy and resources. *See generally id.*

54. RCRA § 1003, 42 U.S.C. § 6902. The fundamental objectives and policy goals under RCRA are health and environment protection and the conservation of valuable material and energy resources, in part through waste minimization, process substitution, materials recovery,

three provisions unequivocally demonstrate Congressional intent to foster bona fide recycling, not to inhibit it. However, the EPA has never taken the view that regulation of improper waste management activities and the encouragement and promotion of recycling are equally valid Congressional objectives requiring balance in the regulatory process.[55]

Presently, health and environmental protection are enforced as RCRA's "paramount and overriding objective."[56] Thus, the "statutory policy of encouraging recycling is secondary and must give way if it is in conflict with the [Act's] principal objective."[57] This extremely complex and unenvious decision was not, however, made by the EPA without qualification.[58] To a certain degree, the Agency's position reflects the conflict between waste management and resource recovery that runs throughout the entire statute. Best evidenced in the statutory definition of the term "treatment" and the complex RCRA regulations that define "solid waste" for Subtitle C purposes, recycling is not treated as a separate and distinctly regulated resource recovery activity, rather, it is largely treated as a subset of waste management and disposal.[59]

In addition, many critical regulatory distinctions, such as whether a recycling activity resembles product manufacturing or waste management, exemplify the manner by which the Act's "solid waste" jurisdiction addresses recycling as a subset of waste management.[60] These distinctions decline to reflect the actual harm to health or the environment posed by either process.[61] As a result, materials and activities posing similar environmental hazards are treated inconsistently, and the economic consequences are often serious.[62]

In practical terms, RCRA's draconian command and control requirements impose huge economic burdens on the regulated

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properly conducted recycling and reuse, and treatment. *Id.* § 6902(a)(6).

55. *See* 1985 Definition of Solid Waste, *supra* note 23, at 616. In the 1985 Definition of Solid Waste, the EPA stated for the record that "RCRA embodies a general principle that hazardous secondary materials are considered to be hazardous wastes when recycled." *Id.*

56. *Id.* at 618.

57. *Id.*

58. *See id.* at 617.

59. *See* RCRA §§ 1004(27), 1004(34), 42 U.S.C. §§ 6903(27), 6903(34); 40 C.F.R. §§ 260-299 (1995); 1985 Definition of Solid Waste, *supra* note 23, at 616.

60. RCRA IMPLEMENTATION STUDY, *supra* note 33, at 7.

61. *Id.*

62. *Id.*

community, while sometimes achieving minimal environmental gains.[63] By failing to balance environmental costs and benefits in situations involving recycling, RCRA's command and control structure can stifle environmental gains on one front merely to protect environmental values on another.[64] In its attempt to promote a national recycling system, the most important role government can play is to take a hard look at the regulatory obstacles facing those who collect, process, and utilize materials diverted from the waste stream and ultimately destined for recycling.[65]

Moreover, if the precatory language of RCRA[66] is to be given any force and effect, a clear statutory distinction must be drawn between materials possessing "commodity-like" characteristics that are destined for recovery and materials that are handled in an "inherently waste-like" manner. Current regulations often impede efforts to promote recycling as a method of resource recovery because of uncertainty regarding who should benefit from these promotional efforts.[67] In fact, the EPA's reluctance to devise a statutory or regulatory bright line distinguishing bona fide recycling from waste treatment and disposal is widely recognized as the primary impediment to the recycling of secondary materials.[68] If the EPA were to define "solid waste" and "recycling" properly under RCRA, the present linear view of industrial activities would be dispelled and the creation of cyclical industrial ecosystems would be promoted.[69]

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63. Interview with J. Thomas Wolfe, Esq., L.L.M., General Counsel/Director Government Relations, Inst. of Scrap Recycling Indus., Inc., in Washington D.C. (Apr. 11, 1995) [hereinafter Wolfe Interview I]. Command and control regulation is an outgrowth of environmentally-based social values seeking clean air, clean water, and toxic and hazardous waste minimization. *See generally* RACHEL CARSON, SILENT SPRING (1962); ALBERT GORE, EARTH IN THE BALANCE (1992). When originally enacted, command and control measures were viewed as a evil necessary to influence behavior amongst the industrial private sector and to promote a national policy of pollution control and abatement. Wolfe Interview I, *supra.*

64. Wolfe Interview I, *supra* note 63.

65. RCRA IMPLEMENTATION STUDY, *supra* note 33, at 1.

66. *See* RCRA § 1003(a)(6), 42 U.S.C. § 6902(a)(6).

67. Comella, *supra* note 11, at 416.

68. *Id.*

69. Robert A. Frosh & Nicolas E. Gallopoulos, *Strategies For Manufacturing*, SCI. AM., Sept. 1989, at 144. Many industrial and commercial operations depend on using recovered materials as raw materials and feedstock. RCRA IMLPEMENTATION STUDY, *supra* note 33, at 1. Clarifying the definition of "solid waste" would allow such operations to develop bonafide recycling schemes, while easing unwarranted and overly-inclusive regulatory requirements. *See* Comella, *supra* note 11, at 420 (discussing the need to distinguish "recycling" from "treatment").

Recycling and reuse of recovered materials not only saves time, money, and energy, it contributes to our nation's economic vitality.[70]

While everyone desires a simple, intuitive, and implementable "solid waste" definition, it is unrealistic to believe that such a multi-faceted rule would meet with universal approval.[71] For example, even simple numeric discharge limits for individual pollutants frequently engender significant controversy.[72] Nevertheless, because so much rides on the threshold determination of waste versus non-waste status, implementing the definition of "solid waste" detracts attention from potential environmental hazards or the lack thereof, implicit to every recycling fact situation.[73]

As a result of the complexity associated with the regulation of recycling under RCRA, twice, in 1980 and 1985, the EPA was forced to rethink, revise, and redefine the amorphous reach of its chief regulatory tool, the definition of "solid waste."[74] Since that time and until the present, RCRA jurisdiction, especially the definition of "solid waste" itself, has been the source of intense controversy and litigation.[75]

B. *The Bifurcated Definition of Solid Waste — Which Applies and Where?*

As noted above, the scope of RCRA is delineated by definitions to several key terms.[76] Commonplace words are given new and

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70. RCRA IMPLEMENTATION STUDY, *supra* note 33, at 1.

71. HWTC REPORT, *supra* note 22, at 1.

72. *Id. See* EPA Administered Permit Program; The National Pollutant Discharge Elimination System; General Pretreatment Regulations for Existing and New Sources; Regulations to Enhance the Control of Toxic Pollutant and Hazardous Waste Discharges to Publicly Owned Treatment Works, 55 Fed. Reg. 30082 (1990) (to be codified at 40 C.F.R. §§ 122, 403) [hereinafter NPDES Rulemaking].

73. *Id.*

74. *See generally* Hazardous Waste Management System: Identification & Listing of Hazardous Waste, 45 Fed. Reg. 33084 (1980) (to be codified at 40 C.F.R. § 261) [hereinafter 1980 Definition of Solid Waste]; 1985 Definition of Solid Waste, *supra* note 23.

75. *See.*Louisiana-Pacific Co. v. ASARCO, Inc., 24 F.3d 1565 (9th Cir. 1994), *cert. denied*, 115 S. Ct. 780 (1995); Connecticut Coastal Fisherman's Ass'n v. Remington Arms Co., 989 F.2d 1305 (2d Cir. 1993); Shell Oil Co. v. United States Envtl. Protection Agency, 950 F.2d 741 (D.C. Cir. 1991); American Mining Congress v. United States Envtl. Protection Agency, 907 F.2d 1179 (D.C. Cir. 1990); American Petroleum Inst. v. United States Envtl. Protection Agency, 906 F.2d 729 (D.C. Cir. 1990); American Mining Congress v. United States Envtl. Protection Agency, 824 F.2d 1177 (D.C. Cir. 1987).

76. RIDGEWAY HALL ET AL., RCRA HAZARDOUS WASTES HANDBOOK, § 2.1, at 2-1 (11th ed. 1996) [hereinafter RCRA HAZARDOUS WASTES HANDBOOK].

important meanings because of statutory and regulatory definitions enacted by Congress and the EPA.[77] In the context of waste recycling and reuse practices, RCRA's definitional dilemma can be distilled down to one word: the use of the term "discarded" in the Act's statutory and regulatory definition of "solid waste."[78] Several decisive issues gyrate around the term "discarded." For example, is reuse a form of "discarding?"[79] Which forms of "discarding" or "recycling" are more or less analogous to waste management or product manufacturing?[80] If the materials are "discarded," how stringently should they be regulated?[81]

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77. *Id.*

78. RCRA § 1004(27), 42 U.S.C. § 6903(27). Under the statute, "solid waste" means: "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 . . . ." *Id.* (emphasis added).

79. HWTC REPORT, *supra* note 22, at 3.

80. *Id.* The EPA has stated that many "recycling" practices are functionally equivalent to "discarding," such as land disposal, burning materials for energy recovery, or excessively long storage of materials. *Id.* at 4; *see* 40 C.F.R. § 261.2(a) (1995). One commentator suggests that regeneration or reclamation of a "spent material" is functionally equivalent to waste management, as the burning of waste for energy and materials recovery is functionally equivalent to incineration. HWTC REPORT, *supra* note 22, at 4. Blanket analogies, such as the previous comment, fail to consider one practical point: waste treatment of a spent or discarded material, whether through regeneration or reclamation, is intended to prepare the material for ultimate disposal. The RCRA definition of "treatment" makes this very point. In short, it states that "treatment, when used in connection with hazardous waste, means any method, technique, or process . . . designed . . . to neutralize such waste or so as to render such waste nonhazardous, safer for transport, amenable for recovery, amenable for storage, or reduced in volume . . . ." RCRA § 1004(34), 42 U.S.C. § 6903(34). This definition can be read to require, under certain circumstances, treatment as a condition precedent for recovery of discarded materials. Stated differently, a material's hazardous nature must be neutralized before its insertion into the recovery process. Common sense dictates that if a discarded material poses such a risk to health and the environment, then stringent regulatory controls are warranted. Conversely, if a spent or other discarded material is reclaimed or regenerated for recovery purposes, without first being treated, it is more difficult to argue that this form of processing is "treatment" within the context of RCRA Subtitle C. As such, a reasonable argument exists that the material is not discarded under the statutory definition of "solid waste." First, the material is destined for recovery without initially undergoing neutralization or other treatment. Second, regardless of whether the material is reclaimed or regenerated, each process is fashioned to recover secondary mineral or chemical values from material whose primary useful life has expired. Third, unlike the traditional treatment scenario, the material is not destined for disposal, but rather for recovery. Finally, any residual wastes generated from the recovery process exhibiting hazardous characteristics should be handled in accord with RCRA's Subtitle C's requirements, whereas the recovered materials are sold as raw materials or feedstock for industrial and manufacturing processes.

81. Gaba, *supra* note 12, at 623.

Adding confusion to chaos, the definition of "solid waste" under RCRA is bifurcated; the Act contains both a statutory definition and a regulatory (Subtitle C) definition.[82] Moreover, regardless of whether the statutory definition or the regulatory definition of "solid waste" is considered, the term "solid waste" itself is also inextricably intertwined with the term "hazardous waste."[83] "Hazardous waste" is, by law, a subset of "solid waste." [84] Therefore, a material or substance cannot be a "hazardous waste" without first triggering RCRA jurisdiction under the statutory or regulatory definition of "solid waste."[85] Making this determination is one of the most complicated and confusing aspects of waste management regulation and counseling.[86]

1. *The Statutory Definition of Solid Waste and Its Application.* The statutory definition of "solid waste," while broadly defined, generally applies in limited situations.[87] The first includes "imminent hazard" lawsuits brought by the United States under section 7003 of RCRA.[88] The second pertains to citizen enforcement actions brought under section 7002(a)(1)(B) of RCRA seeking to abate an imminent hazard to health or the environment.[89] Courts have repeatedly applied the statutory definition of "solid waste" under these circumstances.[90] Additionally, RCRA inspection authority

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82. Babich, *supra* note 21, at 10123.

83. *Id. See* RCRA § 1004(5), 42 U.S.C. § 6903(5) (statutory provision defining hazardous waste); 40 C.F.R. § 261.1(b)(1) (1995).

84. RCRA § 1004(5), 42 U.S.C. § 6903(5).

85. Specifically, RCRA defines "hazardous waste" as:

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

RCRA § 1004(5), 42 U.S.C. § 6903(5).

86. Hill, *supra* note 8, at 10256.

87. *See id.*

88. RCRA § 7003, 42 U.S.C. § 6973. *See also* 40 C.F.R. § 261.1(b)(2)(ii) (1995).

89. RCRA § 7002(a)(1)(B), 42 U.S.C. § 6972(a)(1)(B).

90. 1985 Definition of Solid Waste, *supra* note 23, at 627. *See* Feikema v. Texaco, Inc., 16 F.3d 1408 (4th Cir. 1994) (discussing whether RCRA imminent hazard authority preempts state law regarding redress of petroleum contamination leaked from local petroleum distribution facility); United States v. Self, 2 F.3d 1071 (10th Cir. 1993) (invoking government's imminent hazard authority under RCRA § 7003); Craig Lyle Ltd. v. Land O'Lakes, Inc., 877 F. Supp. 476 (D. Minn 1995) (upheld citizens suit brought under RCRA § 7002(a)(1)(B) for contamination

found at section 3007 and under the monitoring and testing requirements set forth in section 3013 also invoke the application of the statutory definition.[91]

In contrast to the complex regulatory definition, the statutory definitions of "solid" and "hazardous" waste are as simple as RCRA practice gets.[92] As stated above, the definition of "solid waste" under the statute turns on the term "discarded material."[93] In effect, RCRA's solid waste jurisdiction covers all "discarded materials" that do not fall into four narrow statutory exemptions.[94] The exemptions include: (1) domestic sewage,[95] (2) irrigation return flows,[96] (3) industrial discharges covered by section 402 of the Clean Water Act,[97] and (4) nuclear source, or by-product material regulated under the Atomic Energy Act of 1954, as amended.[98]

Within the hazardous waste regulatory context, it is relatively easy to determine when the statutory, as opposed to the regulatory "solid waste" definition applies.[99] Section 3001(a) of RCRA instructs the EPA to (1) list hazardous wastes and (2) identify characteristics of hazardous wastes that "should be subject to the provisions of [Subchapter III (Subtitle C)]."[100] Throughout the statute, whenever referring to Subtitle C wastes, RCRA employs "hazardous waste identified or listed under this subchapter" or similar

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from underground storage tank); Jones v. Inmont Corp., 584 F. Supp. 1425 (S.D. Ohio 1984) (applying RCRA citizen's imminent hazard authority to abandoned/inactive dump site); United States v. Waste Indus., 556 F. Supp. 1301 (E.D.N.C. 1982), *rev'd*, 734 F.2d 159 (4th Cir. 1984) (seeking injunctive relief for groundwater contamination corrective action); United States v. Reilly Tar & Chemical Corp., 546 F. Supp. 1100 (D. Minn. 1982) (upheld government imminent hazard authority under RCRA § 7003 for contamination from coal tar refining practices); United States v. Price, 523 F. Supp. 1055 (D.N.J. 1981), *aff'd*, 688 F.2d 204 (3d Cir 1982) (seeking injunctive relief from chemical dumping).

91. *See* RCRA §§ 3007, 3013, 42 U.S.C. §§ 6927, 6933. *See also* Mobil Oil Corp. v. United States Envtl. Protection Agency, 716 F.2d 1187 (7th Cir. 1983), *cert. denied*, 466 U.S. 980 (1984).

92. Babich, *supra* note 21, at 10126.

93. *Id.*; RCRA § 1004(27), 42 U.S.C. § 6903(27).

94. RCRA § 1004(27), 42 U.S.C. § 6903(27).

95. *Id.*

96. *Id.*

97. *Id.*

98. *Id.*

99. Babich, *supra* note 21, at 10125.

100. *Id.*; RCRA § 3001(a), 42 U.S.C. § 6921(a). Listed hazardous wastes are located at 40 C.F.R. § 261.30-.35, and the identifying characteristics for hazardous materials are set forth at 40 C.F.R. § 261.20-.24. *See* Babich, *supra* note 21, at 10125 n.37.

language.[101] When the Act simply refers to "hazardous" or "solid waste" it is the statutory definition that applies.[102]

2. *The Regulatory Definition of Solid Waste and Its Application.* The regulatory definition of "solid waste" is distinct and more complex than its statutory counterpart.[103] This is largely attributed to Congress' "checkered history"[104] of attempting to incorporate a multitude of diverse statutory and regulatory concepts into the definition.[105] Contrary to the statute, the regulations take a very narrow view of what materials constitute "solid waste." To reiterate, the regulatory definition of "solid waste" is useful solely for purposes of identifying materials that also are Subtitle C hazardous wastes.[106] This point is an implicit one, since this definition appears in the regulations implementing Subtitle C of RCRA, which only applies to hazardous wastes.[107] For instance, the application of the regulatory

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101. Babich, *supra* note 21, at 10125. *See* RCRA §§ 3005(a), 3010(a), 42 U.S.C. §§ 6925(a), 6930(a).

102. Babich, *supra* note 21, at 10125. *See* RCRA §§ 3004(u), 3007, 30013, 7002(a)(1)(B), 7003, 42 U.S.C. §§ 6924(u), 6927(a), 6933(a), 6972(a)(1)(B), 6973.

103. *See* 40 C.F.R. § 261.2(a) (1995). Specifically, the regulations define "solid waste" as "any discarded material" not expressly exempt by regulation or by variance. *Id. See* 40 C.F.R. § 261.4(a) (1995) (listing regulatory exemptions); 40 C.F.R. § 260.30 (1995) (listing variances); 40 C.F.R. § 260.33 (1995) (describing procedure for variance classification).

104. RCRA HAZARDOUS WASTES HANDBOOK, *supra* note 76, § 2.2, at 2-4. *See generally* Identification and Listing of Hazardous Waste; Amendments to Definition of Solid Waste, 59 Fed. Reg. 38536 (1994) (to be codified at 40 C.F.R. §§ 261, 266); Hazardous Waste Management System; Modification of the Hazardous Waste Recycling Regulatory Program, 58 Fed. Reg. 8102 (1993) (to be codified at 40 C.F.R. §§ 261-262, 264-265, 268, 270, 273) (proposed Feb. 11, 1993); Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Toxicity Characteristic, 56 Fed. Reg. 5910 (1991) (interim final rule) (to be codified at 40 C.F.R. § 261); Hazardous Waste Management System; Identification and Listing of Hazardous Waste; and Designation, Reportable Quantities, and Notification, 53 Fed. Reg. 35412 (1988) (to be codified at 40 C.F.R. §§ 261, 302); (to be codified at 40 C.F.R. § 261); Regulatory Determination for Wastes from the Extraction and Beneficiation of Ores and Minerals, 51 Fed. Reg. 24496 (1986) (regulatory determination); 1985 Definition of Solid Waste, *supra* note 23; Hazardous Waste Management System: General; Identification 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; Standards for the Management of Specific Wastes and Management Standards for Specific Types of Facilities, 48 Fed. Reg. 14472 (to be codified at 40 C.F.R §§ 260-261, 264-266) (proposed April 4, 1983) [hereinafter TSDF Proposed Rule]; 1980 Definition of Solid Waste *supra* note 74.

105. Babich, *supra* note 21, at 10124.

106. 40 C.F.R. § 261.1(b)(1) (1995); 1985 Definition of Solid Waste, *supra* note 23, at 627.

107. 1985 Definition of Solid Waste, *supra* note 23, at 627.

definition is strictly limited to wastes either listed as hazardous,[108] identified as possessing a hazardous characteristic,[109] or possessing an "Appendix VIII" constituent.[110] Any material deemed hazardous

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108. *See* 40 C.F.R. § 261.30-.35 (1995) (listing hazardous wastes). At its simplest, a waste is listed if it comes from a process found to generate a "hazardous" waste, or if the waste is a discarded commercial chemical product. *See* MARK HANEY & JANE CASLER, ENSR CONSULTING AND ENGINEERING, RCRA HANDBOOK, A GUIDE TO PERMITTING, COMPLIANCE, CLOSURE AND CORRECTIVE ACTION UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT, 31 (3d ed. 1990). EPA regulations have established three independent criteria for deciding whether to list a waste: (1) the waste exhibits one of the four hazardous characteristics (ignitability, corrosivity, reactivity, or toxicity); (2) the waste is acutely hazardous (e.g., it is shown to be fatal in low doses); or (3) the waste contains one or more of a RCRA "Appendix VII" constituent and poses a substantial or potential hazard to health and the environment when improperly managed. 40 C.F.R. § 261.11(a)(1)-(3) (1995); Hill, *supra* note 8, at 10259.

In addition, RCRA hazardous waste listings are designated by four separate classifications. Hill, *supra* note 8, at 10259. First are the "F-listed wastes." 40 C.F.R. § 261.31 (1995). "F-listed wastes" consist of "nonspecific source" wastes, such as spent chemicals, wastes, and by-products generated in a variety of industrial sectors. 40 C.F.R. § 261.31 (1995); Hill, *supra* note 8, at 10259. The second category consists "K-listed" or "specific source wastes." 40 C.F.R. § 261.32 (1995). "K-list wastes" are primarily sludges and by-products generated by a single industrial sector. Hill, *supra* note 8, at 10259. Finally, two categories of "off-specification" commercial chemical products and pesticides or their residues exist. Hill, *supra* note 8, at 10259. These wastes are designated "P" or "U" wastes. 40 C.F.R. § 261.33 (1995). "P" and "U" listed materials are deemed hazardous waste either when discarded or accidentally spilled. *Id.*

109. 40 C.F.R. § 261.20-.24 (1995) (identifying hazardous characteristics). "Characteristic" hazardous wastes are hazardous because of inherent properties which satisfy one or more test developed by the EPA for evaluating solid wastes. Hill, *supra* note 8, at 10258. In all, characteristic hazardous wastes exhibit one of the following four characteristics: (a) ignitability, (b) corrosivity, (c) reactivity, or (d) toxicity. 40 C.F.R. § 261.21-.24 (1995). "Ignitable wastes" are primarily liquid wastes with a flash point of 60 degrees centigrade, nonliquid wastes combustible at standard temperature and pressure, ignitable compressed gases, oxidizers, and solid waste displaying EPA Hazardous Waste Number D001. *Id.* §§ 261.21(a)(1)-(4). "Corrosive wastes" are liquid or aqueous (acidic) wastes with a ph < 2 or > 12.5, or corrode steel at a rate faster than the EPA regulations specify. 40 C.F.R. § 261.22 (1995). "Reactive wastes" are wastes that are qualitatively unstable under normal conditions. *Id.* § 261.23. Finally, 'toxic" wastes are determined by the EPA through specified procedures. *Id.* § 261.24; Hill, *supra* note 8, at 10258. Nonliquid wastes, for instance, are capable of leaching into soil, surface water, and ground water. *Id.* at 10258. Using the Toxicity Characteristic Leaching Procedure (TCLP), potentially toxic constituents are extracted from a sample of waste. *Id.* at 10258; 40 C.F.R. § 261.24(a) (1995). The concentrate of toxic constituents found in the sample are compared to regulatory thresholds set by the EPA. This toxic constituent threshold is set at 100 times the maximum contaminant level established for a contaminant under the Safe Water Drinking Act, 42 U.S.C. § 300f-2 (1988 & Supp. V 1993), or at a similar health based standard for ingestion of the constituent. *See* 1980 Definition of Solid Waste, *supra* note 74, at 33111. If the waste extract concentrations exceed the regulatory levels, then the waste is a "characteristic" hazardous waste. Hill, *supra* note 8, 10260.

110. 40 C.F.R. § 261 app. VIII (1995). The reference to "Appendix VIII" constituents has proved to be a source of some confusion. RCRA HAZARDOUS WASTE HANDBOOK, *supra* note 76, § 2.2, at 2-14. But Appendix VIII is not a separate and distinct list of hazardous waste. Specifically, Appendix VIII includes toxic constituents that, if found in a solid waste, are given

by one of these criteria is subject to the Act's burdensome Subtitle C generation,[111] transportation,[112] storage,[113] treatment,[114] and disposal requirements.[115]

Surviving the mind boggling "journey into the wonders of the definition of solid waste" requires a firm grasp of the term "discarded" and its application under the regulations.[116] A "discarded material" is any material that is "abandoned,"[117] "recycled,"[118] or considered "inherently waste-like."[119] To understand the effects of the term "discarded" on recycling, it is useful to understand the interplay between these three sub-classifications of "solid waste."[120] The significance of the terms "recycled" and "inherently waste-like" only come into play when determining whether a material is a solid waste when being used, reused, recycled, or reclaimed.[121] Each sub-classification is briefly addressed below.

a. "Abandoned" and "Inherently Waste-Like" Materials. A concept essential to understanding the regulatory definition of "solid waste" concerns the meaning of the term "abandoned."[122] A material is "abandoned" if it is: (1) "disposed of;"[123] (2) "burned or

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consideration by EPA for hazardous waste listing. *Id.* Thus, solid waste is not automatically deemed hazardous simply because it contains an Appendix VIII constituent. *Id.* Rather, the presence of an Appendix VIII constituent means that the waste is a candidate for listing; the waste is not a listed "hazardous waste" unless and until listed by the EPA. *Id. See also* ROBIN K. WIENER & CHRISTOPHER L. BELL, RCRA COMPLIANCE & ENFORCEMENT MANUAL § 2.04 (Shepard, 2d. ed. 1994) [hereinafter RCRA ENFORCEMENT MANUAL].

111. 40 C.F.R. § 262 (1995) (standards applicable to generators of hazardous waste).

112. *Id.* § 263 (standards applicable to transporters of hazardous waste).

113. *Id.* §§ 264-265 (standards for owners/operators of hazardous waste treatment, storage, and disposal facilities).

114. *Id.*

115. *Id.*

116. *Id.* § 261.2(a). *See also* Gaba, *supra* note 12, at 634 n.63.

117. 40 C.F.R. § 261.2(b) (1995).

118. *Id.* § 261.2(c).

119. *Id.* § 261.2(d).

120. Needleman, *supra* note 39, at 988.

121. RCRA HAZARDOUS WASTE HANDBOOK, *supra* note 76, § 2.2, at 2-6. *See also* 40 C.F.R. § 261.2(e) (1995).

122. RCRA HAZARDOUS WASTE HANDBOOK, *supra* note 76, § 2.2, at 2-7; 40 C.F.R. § 261.2(b) (1995). *See also* Letter from Matthew A. Straus, Chief, Waste Identification Branch, U.S. Environmental Protection Agency, to John A Quinlan, Legal Assistant, Evans, Kitchel, and Jenckes, P.C. 1 (July, 1, 1985) (on file with author).

123. 40 C.F.R. § 261.2(b)(1) (1995). "Disposal" is defined as:

> [T]he discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste, or hazardous waste into or on any land or water so that such solid waste or

incinerated;"[124] or (3) "accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned or incinerated."[125]

"Inherently waste-like" materials include, among others, certain wastes that pose substantial risk of harm to health and the environment.[126] Despite being a seemingly vague and tautological way to define a term,[127] materials designated as "inherently waste-like" are considered to warrant stringent regulation regardless of management methods.[128]

b. Recycled Materials. Disparities abound between thosecompanies that are required to reuse, recycle, and reclaim materials under the protective standards of the RCRA Subtitle C system, and those companies lucky enough to benefit from the use of regulatory loopholes, exemptions, and EPA timidity to escape protective controls.[129]

Rather than fostering recycling by setting standards distinguishing it from hazardous waste treatment, the EPA attempts to advance recycling regulatory efforts through the definition of "solid waste."[130] This approach has been criticized for its obliqueness and

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hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any wastes, including ground water.

Id. § 260.10.

124. *Id.* § 261.2(b)(2). Neither RCRA nor its regulations define the terms "burned" and "incinerated." RCRA HAZARDOUS WASTE HANDBOOK, *supra* note 76, § 2.2, at 2-7. Under the regulations, materials that are burned or incinerated (regardless of whether the purpose is to recovery energy) are solid wastes. 40 C.F.R. § 261.2(e)(2)(ii) (1995).

125. 40 C.F.R. § 261.2(b)(3) (1995).

126. *Id.* § 261.2(d).

127. RCRA HAZARDOUS WASTE HANDBOOK, *supra* note 76, § 2.2, at 2-6.

128. Needleman, *supra* note 39, at 989. Specifically, Hazardous Waste Numbers F020, F021 (unless used as an ingredient to make a new product at the generation site), F022, F023, F026, and F028 warrant stringent regulation. 40 C.F.R. § 261.3 (1995); RCRA ENFORCEMENT MANUAL, *supra* note 110, § 2.04, at 2-20. Additionally, a material may be deemed inherently-waste like if the EPA determines that it is: (1) (a) ordinarily disposed of, burned or incinerated, or (b) contains an Appendix VIII constituent that is not ordinarily found in the original raw material or product and not used or reused (as defined at 40 C.F.R. § 261.1(c)(5) (1995)) during recycling processes; and (2) the material poses a substantial hazard to health and the environment when recycled. 40 C.F.R. § 261.2(d) (1995); RCRA ENFORCEMENT MANUAL, *supra* note 116, at § 2.04, 2-20 to -21; Memorandum from James R. Berlow, Director, Definition of Solid Waste Task Force, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, to Roundtable Members (Dec. 21, 1993) (discussing Revised EPA/State Discussion Paper: Rethinking the Definition of Solid Waste (Dec. 20, 1993)).

129. HWTC REPORT, *supra* note 22, at 23.

130. 40 C.F.R. § 261.2 (1995); Comella, *supra* note 11, at 433.

its inability to further recycling.[131] Specifically, the EPA concentrates on delineating the circumstances by which a "secondary material," otherwise classified as a "hazardous solid waste," is exempt from RCRA Subtitle C regulation if recycled in a variety of ways.[132]

Ironically, a term critical to the regulation of recycling activities under RCRA, "secondary material," is not defined under the regulations. Rather, the term is used in a residual or "catch-all" manner and refers to material that "potentially can be a solid and hazardous waste when recycled."[133] Although the regulations offer only four enumerated examples of secondary materials, in reality the breadth and impact of this term is sweeping.[134] For instance, despite the potential environmental or economic benefits associated with recycling, the fact that a secondary material is destined for recovery through recycling does not mean the material is automatically exempt from being regulated as "a potentially hazardous solid waste."[135]

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131. Comella, *supra* note 11, at 433.

132. *Id.*; 40 C.F.R. §§ 261.2(c), 261.2(e) (1995).

133. *See* 1985 Definition of Solid Waste, *supra* note 23, at 616 n.4; Comella, *supra* note 11, at 433 n.172.

134. The four categories of secondary materials include: (1) spent materials; (2) sludges and by-products; (3) commercial chemical products; and (4) scrap metal. 40 C.F.R. § 261.1(c)(1)-(6) (1995). "Spent material" is "any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing." *Id.* § 261.1(c)(1). Thus, "spent materials" can be identified by two primary characteristics: contamination and the inability to perform the purpose for which the material or product was originally intended to perform without further processing. *Id.* In addition, a material is deemed "spent" once its primary useful life has expired regardless of any existing secondary uses or values. *Id.* "Sludge" is defined as "any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial waste water treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant." *Id.* § 260.10. A "by-product" is "a material that is not one of the primary products of a production process and is not solely or separately produced by the production process." *Id.* § 261.1(c)(3). Slag generated from electric arc steel smelting is an example of "by-product." Comella, *supra* note 11, at 433 n.172. "Commercial chemical products" are characterized as chemical substances manufactured or formulated for commercial or manufacturing use consisting of the pure or technical grade of the chemical, or a formulation in which the chemical is the sole active ingredient. *Id.*; 40 C.F.R. § 261.33(d) (1995). Finally, "scrap metal" is "bits and pieces of metal parts (*e.g.*, bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (*e.g.*, radiators, scrap automobiles, railroad box cars), which, when worn or superfluous, can be recycled." *Id.* § 261.1(c)(6).

135. RCRA ENFORCEMENT MANUAL, *supra* note 110, § 2.04, at 2-10, 2-12. Secondary materials are generally subject to regulation as a solid waste if they are "recycled" in any of the following manners: (1) used in a manner constituting disposal; (2) burned for energy recovery; (3) reclaimed; and (4) speculatively accumulated. 40 C.F.R. § 261.2(c)(1)-(4) (1995). "Use constituting disposal" is generally acknowledged as applying material to or placing material on land in manner that constitutes disposal. *Id.* § 261.2(c)(1)(i)(A). In addition, material used to

However, under enumerated circumstances secondary materials recycling may avoid regulation as a "solid waste" under RCRA.[136] Specifically, secondary materials are generally not deemed "solid wastes" if they are: (1) used or reused as an ingredient in an industrial production process,[137] (2) used or reused as an effective commercial substitute for a commercial product,[138] (3) returned to the original process from which it was generated without prior reclamation,[139] or (4) reclaimed and returned to the original process from which it was generated via a closed-loop process.[140]

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produce products that are applied to or placed on land or otherwise contaminated in such products are also solid wastes. *Id.* § 261.2(c)(1)(i)(B). *See* Owen Elec. Steel Co. of S.C. v. Browner, 37 F.3d 146 (4th Cir. 1994) (holding land placement of slag six months prior to reuse triggered RCRA solid waste jurisdiction). Examples of such solid waste include fertilizers, fill material, and dust suppressants. RCRA ENFORCEMENT MANUAL, *supra* note 110, § 2.04, at 2-15. The second method of recycling which invokes RCRA solid waste jurisdiction is the "burning of material for energy recovery." *Id.*; 40 C.F.R. § 261.2(c)(2) (1995). This classification concerns materials that are used to produce a fuel or otherwise contained in fuels. *Id.* § 261.2(c)(2)(i)(B). In the latter case, the fuel itself is a solid waste. *Id.* A material is reclaimed, and subject to solid waste regulation, if "it is processed to recover a usable product or if it is regenerated." *Id.* § 261.1(c)(4). The recovery of lead values from spent batteries and regeneration of spent solvents are prime examples of reclamation. *Id.* § 261.2(c)(3). It should be noted that materials reclaimed from solid wastes for beneficial reuse are not themselves solid waste unless they are burned for energy recovery or used in a manner constituting disposal. *Id.* § 261.4(a)(8)(iv). Finally, the speculative accumulation of recyclable materials will trigger RCRA solid waste jurisdiction. *Id.* § 261.2(c)(4). A material is accumulated speculatively if "accumulated before recycling, unless the person accumulating the material can show that (1) the material is potentially recyclable and a feasible means for recycling the material exists, and (2) that during the calendar year, the amount of material recycled or shipped for recycling exceeds 75% of the by weight or volume of the amount accumulated at the beginning of the year." *Id.* § 261.1(c)(8).

136. 40 C.F.R. § 261.2(e)(1) (1995).

137. *Id.* § 261.2(e)(1)(i). This activity must involve the direct reuse of secondary material as an ingredient or feedstock without prior reclamation with primary materials being the material of principle use. RCRA ENFORCEMENT MANUAL, *supra* note 110, § 2.04, at 2-17. Use or reuse can take place on-site or off-site. *Id.* Off-site transport does not require the use of a hazardous waste manifest. *Id. See* 40 C.F.R. §§ 262, 263.20 (1995).

138. 40 C.F.R. § 261.2(e)(1)(ii) (1995). This exemption involves the direct reuse of material as an effective substitute without any intervening treatment or processing. *Id.* The use of substitute materials possessing far fewer of the relevant active ingredients than the commercial product may raise suspicions of sham recycling. RCRA ENFORCEMENT MANUAL, *supra* note 110, § 2.04, at 2-18; *see* Letter from Sylvia Lowrance, Director, Office of Solid Waste, U.S. Environmental Protection Agency, to Robert Elliot, Zerpol Corp. (Mar. 20, 1989) (on file with author).

139. 40 C.F.R. § 261.2(e)(1)(iii) (1995). To qualify for this exemption, secondary material must be returned as an ingredient or feedstock to the primary production process. *Id.*

140. *Id.* § 261.2(e)(1)(iv). "Closed-loop" recycling prevents the leakage or release of fugitive emissions of secondary materials by enclosing all means of storing and conveying recyclable materials. In addition, the use of controlled flame combustion through the use of boilers, industrial furnaces, or incinerators for reclamation purposes is expressly prohibited. *Id.*

The current regulations thus treat certain secondary materials as solid wastes regardless of how they are recycled (*e.g.*, use in a manner constituting disposal through land application, burned for energy recovery, reclaimed, or speculatively accumulated).[141] On the other hand, exemptions for specified recycling processes (*e.g.*, closed-loop recycling),[142] case-by-case variances,[143] and outright regulatory exemptions[144] exist, allowing certain secondary material recycling to escape RCRA "solid waste" regulation.

II. THE JUDICIARY'S TREATMENT OF THE DEFINITION OF SOLID WASTE

The "wild goose chase through the labyrinthine maze" of jurisdictional triggers and carveouts under the definition of "solid waste" regulations has had an impact beyond the regulated community. The federal judiciary, most notably the Court of Appeals for the District of Columbia, has expressed its astonishment, displeasure, and sheer befuddlement at interpreting and applying the definition of "solid waste" as set forth under the RCRA regulations. The judicial trends discussed below elucidate the confusion that the definition of "solid waste" has created among the judiciary. Such confusion sets the stage for the development of the EPA's approach in *Reengineering RCRA* and the alternative paradigm which this article proposes.

A. *American Mining Congress et progeny*

Beginning in 1987, the EPA's definition of "solid waste" has been analyzed in major cases brought primarily before the U.S. Court of

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§ 261.4(a)(8)(ii). Reclaimed material cannot be used to produce a fuel or products used in a manner constituting disposal. *Id.* §§ 261.4(a)(8)(ii), 261.4(a)(8)(iv).

141. *Id.* § 261.2(c).

142. Comella, *supra* note 11, at 434; 40 C.F.R. § 261.2(e)(1) (1995). These exemptions may be characterized as "process specific." Needleman, *supra* note 39, at 984.

143. Needleman, *supra* note 39, at 987; 40 C.F.R. § 260.31 (1995). In general, subject to certain conditions, variances may be granted for materials that (1) are speculatively accumulated, (2) are reclaimed and reused in the original production process, and (3) require several levels of reclamation before reuse if initial reclamation results in the production of a commodity-like product. *Id.* §§ 260.31(a)-(c). Such variances are commonly referred to as "facility-specific" exemptions. Needleman, *supra* note 39, at 987.

144. 40 C.F.R. § 261.4(b) (1995). Examples include: (1) materials subject to *in-situ* mining techniques; (2) reclaimed and reused spent wood preserving solutions and wastewater; and (3) EPA Hazardous Waste Nos. K060, K087, K141-K145, K147-K148, and other wastes generated from coke by-product processes that are hazardous solely because they exibit the Toxicity Characteristic. *Id.* §§ 261.4(a)(5), 261.4(a)(9)-.4(a)(10).

Appeals for the District of Columbia Circuit.[145] These decisions do not "clearly or consistently establish the boundaries of RCRA's definition of solid waste, nor do they fully answer the question of when a recyclable material becomes a solid waste under RCRA."[146]

1. *AMC I.* The leading decision regarding the definition of "solid waste" and its application to recycling is *American Mining Congress v. United States Environmental Protection Agency* (*AMC I*).[147] The industrial processes at issue in *AMC I* presented illogical extremes for the interpretation of RCRA solid waste jurisdiction.[148] Specifically, *AMC I* drew the legal line determining when "spent materials" generated from petroleum refining and extractive metallurgy processes were either "discarded" and thus a solid waste or were recycled.[149]

Based on the language and structure of RCRA, *AMC I* limited the EPA's regulatory authority to only those materials that are truly "discarded, disposed of, thrown away, or abandoned."[150] To fulfill the Act's purposes, secondary materials recycled and reused in an ongoing manufacturing process or industrial process within the generating industry itself need not be regulated as "solid waste."[151]

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145. Johnson, *supra* note 40, at 10361. *See supra* note 75.

146. Johnson, *supra* note 40, at 10361.

147. American Mining Congress v. United States Envtl. Protection Agency, 824 F.2d 1177 (D.C. Cir. 1987) [hereinafter *AMC I*].

148. *Id.* at 1181.

149. *Id.* at 1180-81. The wastes at issue in *AMC I* were generated from the petroleum refining process and the extraction and processing of metal ores. *Id.* Both processes are performed sequentially in a step-by-step manner. *Id.* Stated another way, neither process consists of a single, uninterrupted production phase. *Id.* Each stage of production refines raw material feedstock for consumption and, consequently, each stage generates residual wastes in the form of secondary materials. *Id.*

During petroleum refining, for example, various hydrocarbon materials generated from processing are combined to produce products such as gasoline, fuel oil, or lubricating oils. *Id.* Hydrocarbons that cannot be used in a particular form or state are returned to the refining process for reuse at the appropriate stage. *Id. See* 40 C.F.R. § 261.4(a)(8) (1995). Additionally, any fugitive emission, in the form of hydrocarbons and other secondary material, escaping from refinery production vessels are gathered through a complex retrieval system and returned to the refining process. *AMC I*, 824 F.2d at 1181.

Primary metal ore processing involves the extraction of fractions of metals contained within a complex mineralogical matrix. *Id.* Similar to petroleum refining, extractive metallurgy is an incremental process. *Id.* Residual wastes generated from primary ore processing are returned and reprocessed to remove as much of the pure metal from the natural ore as possible. *Id.*

150. *AMC I*, 824 F.2d at 1190. *See also* Johnson, *supra* note 40, at 10362 n.71 (describing the *AMC I* panel's use of the statutory construction canon of *ejusdem generis*).

151. *AMC I*, 824 F.2d at 1186.

Such materials have not yet been truly "discarded" and, thus, have not become part of the "waste disposal problem."[152]

2. *API.* In 1990, RCRA jurisdiction was expanded to included *all discarded* materials, except those subject to reclamation in an *ongoing manufacturing process within the generating industry itself.*[153] The ruling in *American Petroleum Institute v. United States Environmental Protection Agency* (*API*) applies RCRA jurisdiction to the use of land treatment as a method of pre-treatment for K061 slag[154] generated from primary steel production prior to recycling or reuse in smelting processes.[155] Unlike the secondary materials at issue in *AMC I*, slag generated in the electric arc furnaces was neither reclaimed nor recycled in an ongoing process *within* the generating industry itself.[156] Instead, the material was placed on the land, pretreated in preparation for recycling, and taken to a separate reclamation facility.[157] *API* distinguished *AMC I* by noting that

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152. *Id.*

153. American Petroleum Inst. v. United States Envtl. Protection Agency, 906 F.2d 729 (D.C. Cir. 1990) [hereinafter *API*].

154. K061 slag is produced when gases containing zinc-bearing particulate matter are emitted from electric arc furnaces and collected by air pollution control devices, most notably through baghouse filtration systems. *Id.* at 740 n.14. Once removed from the electric arc furnace by air pollution control equipment, the K061 slag is characterized as "sludge" from an "air pollution control facility" and is a solid waste. *Id. See also* RCRA § 1004(27), 42 U.S.C. § 6903(27) (defining solid waste); 40 C.F.R. § 260.10 (1995) (defining sludge from an air pollution control facility). Subsequently, the K061 is reclaimed for reuse in metal smelting processes. *API*, 906 F.2d at 740 n.14.

155. *API*, 906 F.2d at 741.

156. *Id.* (citing American Mining Congress v. United States Envtl. Protection Agency, 824 F.2d 1177, 1186 (D.C. Cir. 1987)).

157. *Id.* at 734, 741. Land application of K061 slag violates RCRA's Land Disposal Restrictions (LDR), otherwise known as RCRA's "Land Ban." *See* RCRA § 3004(d)(1), 42 U.S.C. § 6924(d)(1); 40 C.F.R. § 268 (1995). RCRA prohibits land placement or disposal of enumerated hazardous wastes beyond specified dates unless treatment standards for such wastes have been set in a manner that is protective of both human health and the environment. RCRA § 3004(d)(1), 42 U.S.C. 6924(d)(1); 40 C.F.R. § 268 (1995). *See also* ELSEVIER SCIENCE INC., THE RCRA LAND DISPOSAL RESTRICTIONS: A GUIDE TO COMPLIANCE (1993); U.S. ENVTL. PROTECTION AGENCY, LAND DISPOSAL RESTRICTIONS: SUMMARY OF REQUIREMENTS (June 1989); RCRA ENFORCEMENT MANUAL, *supra* note 110, § 3.01, at 3-2. As such, hazardous wastes subject to treatment standards must be treated to levels achievable through the use of the best demonstrated available technology (BDAT) or other treatment methods constituting BDAT. RCRA § 3004(m)(1), 42 U.S.C. § 6924(m)(1); Hazardous Waste Management System; Land Disposal Restrictions, 51 Fed. Reg. 40572, 40578 (1986) (to be codified at 40 C.F.R. § 260-262, 264-265, 268, 270-271). BDAT for K061 slag is high temperature metals recovery. *API*, 906 F.2d at 734. Land treatment of K061, or other hazardous wastes for that matter, is expressly prohibited as form of BDAT. RCRA § 3004(k), 42 U.S.C. § 6924(k). Rather, the land

secondary materials destined for reuse or recycling in a continuous process "within 'the generating industry'" itself are beyond the regulatory reach of RCRA.[158] In *API*, the slag was undisputedly discarded since placing it on land prior to recovery operations presented a serious threat of land contamination and, thus, contributed to the waste disposal problem.[159] Furthermore, the slag metals recovery operations did not take place *within the generating industry itself.*[160]

3. *AMC II.* After handing down *API*, the D.C. Circuit further strangled the reach of its prior holding in *AMC I.*[161] Specifically, *American Mining Congress v. United States Environmental Protection Agency* (*AMC II*)[162] addressed whether secondary materials managed in land disposal units of wastewater treatment systems were "discarded."[163] Interestingly, the secondary materials at issue never left the treatment systems and were capable of direct reinsertion into an ongoing production process.[164]

The time frame in which these materials would be recycled, however, was uncertain, and thus the materials were found to be

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application of discarded material is regulated as a form of disposal not treatment. *API*, 906 F.2d at 734 (citing Response to Comments Related to the First-Third Wastes Treatment Technologies and Associated Performance, vol. V, Doc. No. LDR7-S001E, p. 01621; vol. VI, Doc. No. LDR9-S001F, pp. 01755, 01758).

158. American Petroleum Inst. v. United States Envtl. Protection Agency, 906 F.2d 729, 741 (D.C. Cir. 1990). Specifically, in *API* the D.C. Circuit held that the reclamation or recycling of secondary materials in an ongoing process within the generating industry itself does not carry with it any of the elements of "discard," such as use constituting disposal, burning for energy recovery, or abandonment. *Id. See* 40 C.F.R. § 261.2(a) (1995). Thus, RCRA jurisdiction is precluded from attaching when the secondary materials are not truly discarded, disposed of, thrown away, or abandoned. *API*, 906 F.2d at 741.

159. *API*, 906 F.2d at 741.

160. *Id.*

161. Hill, *supra* note 8, at 10257.

162. American Mining Congress v. United States Envtl. Protection Agency, 907 F.2d 1179 (D.C. Cir. 1990) [hereinafter *AMC II*].

163. *Id.* at 1185-86. At issue in *AMC II* was the production of large volumes of wastewater from the generation of wastes during primary smelting operations. *Id.* at 1185. The wastewater required treatment before discharge. *Id.* After smelting, surface impoundments were used to collect, treat, and dispose of the wastewater. *Id.* at 1186. The impoundments continually produce sludges from wastewater sedimentation. *Id.*

164. *Id.* The wastes at issue in *AMC II* were six hazardous wastes generated from primary metal smelters. *Id.* at 1183. *See also* 40 C.F.R. § 261.11(a)(3) (1995) (listing wastes because wastes contains one or more hazardous constituents under 40 C.F.R. § 261 app. VII).

"discarded".[165] *AMC II* interpreted *AMC I* as exempting only those materials that are "destined for *immediate reuse* in another phase of the industry's ongoing production process."[166]

B. *Analysis: Where Does the Definition of Solid Waste Apply? What Can We Glean From the Existing Case Law?*

It has been suggested that "the fairest reading of *API* and *AMC II* is that the court has overruled *AMC I sub silentio*."[167] *API* and *AMC II* tacitly ratify the EPA's authority to regulate all the recycled materials it ever intended to regulate in its 1985 Definition of Solid Waste rulemaking.[168] However, an alternate view may be that *API* and *AMC II* merely refine the D.C. Circuit's prior ruling in *AMC I*. Regardless of whatever theory is applied, *AMC I* is responsible for laying the broad strokes that illustrate the circumstances under which recycled secondary materials are, by definition, solid wastes.[169]

No longer is there any doubt that secondary materials "destined for immediate reuse in another phase of the industry's ongoing production process" are *not* RCRA solid wastes.[170] Secondary

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165. *AMC II*, 907 F.2d at 1185-86. It was claimed that the sludges produced from wastewater and stored in surface impoundments may at sometime be reclaimed for their secondary mineral value. *Id.* at 1186.

166. *Id.* Thus, materials immediately reinserted into ongoing production processes cannot be said to be "solid wastes," since they have not yet become part of the "waste disposal problem." *Id. AMC II* limited the reach of *AMC I* by leaving no doubt that the court was referring to immediate, on-site recycling.

167. Hill, *supra* note 8, at 10257.

168. *Id.* Curiously, *AMC I* and its progeny did not address the ramifications of RCRA solid waste jurisdiction regarding "low risk" secondary materials generated from manufacturing operations and consumer use. For purposes of this paper, "low risk" secondary materials are specifically characterized as materials that are not subject to the tight "closed loop" controls discussed in *AMC I* and fail to exhibit the land contamination risks presented in *API* and *AMC II*. Generally, these materials are freely traded as commodities (products, raw materials, or other feedstocks), rather being reinserted into ongoing production processes. However, "low risk" secondary recyclable materials have never received the benefits of *AMC I*. Currently, some "low risk" recyclables materials are presently exempt from RCRA Subtitle C regulation. *See generally* 40 C.F.R. § 261.4(b) (1995); REENGINEERING RCRA, *supra* note 2, at 4-1 to -8. Nevertheless, when not specifically destined for beneficial reuse or recycling in an ongoing production process within the generating industry itself, these secondary materials are RCRA solid wastes. 40 C.F.R. § 261.4(a)(8) (1995).

169. *See* American Mining Congress v. United States Envtl. Protection Agency, 824 F.2d 1177 (D.C. Cir. 1987).

170. American Mining Congress v. United States Envtl. Protection Agency, 907 F.2d 1179, 1185-86 (D.C. Cir. 1990). *See also* Owen Elec. Steel Co. of S.C. v. Browner, 37 F.3d 146, 150 (4th Cir. 1994).

materials handled in this manner have not yet become "part of the waste disposal problem."[171]

While *AMC I* established this standard, the court left the definition of solid waste open to interpretation.[172] Through *API* and *AMC II*, the D.C. Circuit offered its further interpretation by narrowing the scope of *AMC I*. With this in mind, the recycling versus waste management dichotomy as set forth in *AMC et progeny* can be distilled down to two important factors.

The first factor is whether recovery operations are permitted to occur on-site or off-site. The answer to this question determines whether the operations are occurring in the generating industry itself. By emphasizing that secondary material must be "destined for beneficial reuse or recycling in a continuous process by the generating industry itself," *API* implies that exempt recycling activities must take place on-site.[173] Thus, one is precluded from reading the phrase "by the generating industry itself" as meaning a facility located off-site that is tangentially associated with the generating industry-at-

171. *AMC I*, 824 F.2d at 1186; 1985 Definition of Solid Waste, *supra* note 23, at 616.

172. *See AMC I*, 824 F.2d at 1193. The petroleum refining and extractive metallurgy present illogical extremes for the interpretation of RCRA solid waste jurisdiction. *Id.* at 1181. First, with regard to the time span between generation of secondary materials and ultimate recycling, petroleum refining operations employ a system that is very similar to "closed-loop" recycling. *Id.* Specifically, various hydrocarbon fractions not useable in a particular state and materials escaping from production vessels are gathered by a complex retrieval system and returned the appropriate part of the refining process. *Id.* This action appears to fall squarely under the holding in *AMC I*. The materials are reused in an ongoing production process in the generating industry itself. *Id.* at 1186. Common sense dictates that materials handled by such methods have not "yet become part of the waste disposal problem." *Id.*

On the other hand, extractive metallurgy consists of incrementally processing volumes of metal ore, separating the processed ore from residual, and reprocessing the residual material. *Id.* at 1181. Depending on the system employed, reinsertion of secondary materials for processing may be accomplished by conveyor belts or by stockpiling smaller amounts residual materials until a full load can be processed. Either way, the above mentioned reinsertion techniques for extractive metallurgy are outside the scope of the protections afforded by *AMC I*. *Id.* at 1186. Thus, assuming that petroleum refining uses a "closed-loop" system (characterized by pipes and other mechanisms to contain and prevent fugitive emissions) and extractive metallurgy stockpiling of residual secondary materials generated from primary processing, each system is the illogical extreme of the other. The potential for vastly different fact scenarios set the stage for the subsequent holdings in *API* and *AMC II*.

173. American Petroleum Inst. v. United States Envtl. Protection Agency, 906 F.2d at 741 (citing American Mining Congress v. United States Envtl. Protection Agency, 824 F.2d 1177, 1186 (D.C. Cir. 1987)).

large.[174] Instead, it appears that the recycler must be a *de facto* member of the generating industry.

AMC II unequivocally closes the door on exempting the secondary materials recycled off-site from RCRA solid waste jurisdiction.[175] Specifically, the qualifying phrase "immediate reuse in another phase of the generating industries ongoing production process" leaves little room for speculation that exempt recovery operations must be analogous to on-site, "closed-loop" recycling.[176]

The second factor to consider is the time frame between secondary material generation and reinsertion into an ongoing production process for beneficial reuse or recycling. The primary issue for consideration during this period is the manner by which secondary materials are handled.[177] *API* clarifies that secondary materials generated from primary production processes and handled in a manner characterized by an element of "discard" prior to recycling will be regulated as a "solid waste."[178] Specifically, handling "potentially hazardous" or "hazardous" solid wastes in a manner that presents a legitimate risk of contamination to the land, ground water supplies, and to other media through surface run-off will trigger RCRA jurisdiction.[179] This method of handling secondary material falls squarely within the parameters of "use constituting disposal," as defined in the RCRA regulations.[180]

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174. For example, scrap metal such as turnings and borings, generated during manufacturing must be recycled on-site within the primary production operation to escape regulation as a RCRA solid waste. If, however, the same material was collected after primary production and directly shipped off-site to ferrous metal recycler, the material would be regulated as a RCRA solid waste. However, the health and environmental risks posed by such material are no different, regardless of whether the material is on-site or off-site.

175. American Mining Congress v. United States Envtl. Protection Agency, 907 F.2d, 1179, 1186 (D.C. Cir. 1990).

176. *Id.*

177. The key is whether the material is handled in a commodity-like manner or in an inherently waste-like manner. *See* EPA Sham Recycling Memo, *supra* note 24; Owen Elec. Steel Co. of S.C. v. Browner, 37 F.3d 146 (4th Cir. 1994); *AMC II*, 907 F.2d 1179; *API*, 906 F.2d 729.

178. *See API*, 906 F.2d at 741.

179. *See id.*

180. *See AMC II*, 907 F.2d at 1186; 40 C.F.R. § 261.2(c)(1) (1995). Secondary materials are "used in a manner constituting disposal" when applied to the land in a manner that constitutes disposal, or used to produce products that applied to or place on the land or otherwise contained in products that are applied to or placed on the land. *Id.* The placement of K061 slag on the ground as a method of pretreatment before recycling is the textbook definition of "use constituting disposal." *See id.* § 261.2(c)(1)(A).

Addressing the issue of time frame, *AMC II* more clearly delineated bona fide recycling from sham recycling operations. The court found that the phrase "immediate reuse" meant that secondary materials could not be held over for later recycling.[181] The term "immediately" prohibits land storage, or any form of storage for that matter, of secondary materials without succumbing to the stringent requirements of the Act's Subtitle C.

AMC et progeny appear to have drawn bright lines regarding the extent of RCRA's solid waste jurisdiction. When applied to distinctly different recycling fact scenarios, however, the narrow nature of these holdings begins to shine through. It is unrealistic to expect that the holdings set forth in *AMC I, API* and *AMC II* address the full universe of secondary materials recycling operations. As such, the weight accorded *AMC et progeny* should be limited to facts and circumstances in each case. This line of cases, however thoughtful and eloquent, should not be treated as the last word on RCRA jurisdiction. Most bona fide secondary materials recycling occurs at off-site facilities or, in other words, at facilities separate and distinct from the site of generation. *AMC et progeny* do not provide any additional insight into RCRA's regulatory treatment of recycling activities conducted on-site or off-site and presenting only an intermediate threat of harm to health and the environment.

For example, operations that reclaim lead components from spent automotive batteries involve a secondary material that could be considered a product for the purposes of one and waste for the purposes of another.[182] Reclaiming lead from batteries requires the removal of the battery casings, which must be disposed of since they are abandoned.[183] The lead components of the battery, however, are not waste. Rather, they are akin to commercial raw materials used in a secondary lead smelting operation that is more analogous to manufacturing or industrial production than waste management. Furthermore, secondary lead smelting conserves natural resources,

181. American Mining Congress v. United States Envtl. Protection Agency, 907 F.2d 1179, 1185-86 (D.C. Cir. 1990).

182. Catellus Dev. Corp. v. United States, 34 F.3d 748, 751 (9th Cir. 1994). Referring to a previous Ninth Circuit ruling in *Louisiana Pacific v. ASARCO*, Inc., 24 F.3d 1565 (9th Cir. 1994), the *Catellus* court specifically stated in dicta, "[a] by-product of a metallurgical process, if sold, can be a product for purposes of one and waste for the purposes of another." *Catellus*, 34 F.3d at 751 (quoting *Louisiana Pacific*, 24 F.3d at 1575).

183. *Catellus*, 34 F.3d at 752.

saves energy, and mitigates harsh environmental effects from the extraction and processing of lead ore.[184]

This being said, the mere fact that a lead reclaimer finds value in the battery's recyclable components will not alter the determination that the battery has been "discarded."[185] Despite the significant economic and environmental benefits conferred by secondary lead smelting, an exemption from regulation cannot be justified on the theory that an industry's contribution to resolving environmental problems outweighs the environmental harm caused by its operations.[186]

Encouragingly, however, the Ninth Circuit has looked at secondary lead smelting operations for batteries as involving bona fide recycling techniques. In *Catellus Development Corp. v. United States*,[187] the court's explicit dicta makes a significant distinction between the circumstances under which a secondary material, if sold, can be a product for purposes of one and waste for the purposes of another.[188] The sale of secondary material may not be considered the "discarding" of a waste if a productive use is made of such material.[189] Thus, strict application of a "once discarded, always discarded" approach to the off-site recycling of secondary materials such as lead components in spent automotive batteries is unwarranted.[190]

AMC et progeny could not envision their application to the vast array of fact situations surrounding numerous off-site secondary

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184. *See* United States v. ILCO, Inc., 996 F.2d 1126, 1128 (11th Cir. 1993).

185. *Id.* at 1132. *See* American Mining Congress v. United States Envtl. Protection Agency, 824 F.2d 1177, 1186 (D.C. Cir. 1987).

186. *ILCO*, 996 F.2d at 1128. While *ILCO* aptly recognizes that government response to the potential threats to health and the environment form secondary lead smelting is warranted, it fails to consider that much of the environmental harm attributed to this industry was a direct product of prior government policy. *See id.* In short, prior government policy was to leave secondary battery smelting unregulated. *See generally* THE TECHNICAL GROUP, INC., CHEMICAL MANUFACTURERS ASSOCIATION, SHAM AND UNCONTROLLED RECYCLING: A SECOND LOOK (1993) [hereinafter A SECOND LOOK AT SHAM RECYCLING].

187. Catellus Dev. Corp. v. United States, 34 F.3d 748 (9th Cir. 1994). In *Catellus*, the court applied a RCRA analysis in determining liability concerning arranging for disposal of a hazarous substance, as defined under CERCLA § 107(a)(3), 42 U.S.C. § 9607(a)(3). *Id.*

188. *Id.*

189. *Id.*

190. Unfortunately, in *United States v. ILCO, Inc.*, 996 F.2d 1126 (11th Cir. 1993), the Eleventh Circuit has applied the "once discarded, always discarded" approach to operations reclaiming lead components from automobile batteries. *Id.* The court failed to acknowledge, as the *Catellus* court had, that lead components in spent batteries recycled without prior reclamation would escape the purview of RCRA solid waste jurisdiction. Catellus Dev. Corp. v. United States, 34 F.3d 748, 752 (9th Cir. 1994). *See* 40 C.F.R. § 261.2(e)(1) (1995).

materials recycling operations, including secondary lead smelting.[191] While exemption from regulation should not be justified by a process's contribution to resolving environmental issues, the regulation of such activity should be proportional to the threat of harm it creates.[192] Moreover, if bona fide recycling is to be encouraged and properly regulated it should not be treated as a subset of waste management.

The risks to health and the environment inherent in secondary lead smelting are substantial. If full RCRA Subtitle C regulation, or the equivalent thereof, is required to adequately protect health and the environment, then such requirements should be applied without hesitation. However, materials and processes posing significantly less risk of environmental contamination should be held to a lesser standard than full RCRA waste management regulation.

III. REENGINEERING RCRA FOR RECYCLING

In its 1985 Definition of Solid Waste rulemaking, the EPA considered and rejected the use of a narrative, self-implementing definition for categorically determining whether secondary materials are "solid wastes."[193] Such a standard would have been based on (1) whether materials were typically dealt with as commodities, and (2) whether such materials contained significant concentrations of non-recyclable toxic constituents not customarily found in analogous raw materials.[194] This approach was considered too subjective to operate as a self-implementing standard because in most cases one must know both what material is being recycled and how it is being recycled before determining whether it is a waste.[195] Thus, a

191. This is not to say that the standards established by *AMC et progeny* will never be applicable. For example, in *Owen Electric Steel Co. of South Carolina v. Browner*, 37 F.3d 146 (4th Cir. 1994), the Fourth Circuit correctly applied the parameters laid out in *API* and *AMC II* to find that slag generated from electric arc steel production and stored in surface impoundments six months prior to reuse as road base material was "discarded" and, thus, a "solid waste" under RCRA. *Id.* at 150. This is because storing sludge in surface impoundments designated as "solid waste management units" and the indefinite time frame in which the slag was to be recycled presented serious risks to human health and the environment. *Id.* Moreover, under the holding of *AMC II*, the slag was not destined for "immediate reuse or recycling in another phase of ongoing production process in the generating industry itself," but rather was beneficially reused as road base material. *Id.* at 147, 150.

192. *ILCO*, 996 F.2d at 1128.

193. 1985 Definition of Solid Waste, *supra* note 23, at 617.

194. *Id.*; TSDF Proposed Rule, *supra* note 104, at 14476 n.7.

195. 1985 Definition of Solid Waste, *supra* note 23, at 617.

narrative definition, based solely on the nature of the material itself, could not function as an effective regulatory standard.[196]

The possibility of conditionally exempting from regulation those operations not presenting a significant risk of over-accumulating secondary materials prior to and during recycling was also briefly entertained.[197] For example, generators or reclaimers of secondary materials reclaiming either for their own subsequent reuse or in accord with a batch tolling agreement would have been conditionally exempted.[198] Concern for potential spills and leaks of recyclable secondary materials, however, deterred the use of this policy.[199]

In 1985, the need to control the storage of secondary materials in recycling situations was thought to require a level of control commensurate with the storage of hazardous wastes.[200] Potentially hazardous secondary materials stored before reclamation — even where a minimal risk of over accumulation exists — were deemed dangerous if mismanaged.[201] Likewise, the use of market-based mechanisms were also considered insufficient to prevent mismanagement scenarios.[202] As such, the current regulatory approach for monitoring secondary materials recycling was adopted by the EPA.[203]

A. *The Definition of Solid Waste Task Force's Proposed Approach — An Overview*

In 1992, after reexamining the 1985 Definition of Solid Waste rulemaking through the RCRA Implementation Study (RIS), it was

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196. *Id.*

197. *Id.* Specifically, when determining to draw the line between exempt activities and regulated activities under the definition of "solid waste," the EPA viewed over accumulation as the chief danger to guard against. *Id.*

198. *Id.*

199. *Id.* The likelihood that a secondary material was to be recycled was not sufficient to ensure that it would not spill or leak before actual recycling occurs. *Id.* Furthermore, safe handling of such material is not always assured even for secondary materials that are commodity-like. *Id.* The EPA reasoned that company decisions on how carefully to handle materials prior to recycling turned chiefly on a number of factors — (1) principally the value of the material being recycled and the value of the end products of recycling versus the cost of purchasing additional raw materials, (2) the profit margin of the facility, and (3) the cost of improving the integrity of the facility. *Id.* Finally, the Agency concluded, in 1985, that unless wastes are extremely valuable, it is not imperative to avoid leaks and spills. *Id.*

200. *Id.* at 618.

201. *Id.*

202. *Id.*

203. *Id.*

concluded that the definitions of "solid waste" and "hazardous waste" were complex, difficult to understand, and equally difficult to implement.[204] The complexity of the definitions, as currently written, hampers permitting and the enforcement of RCRA requirements.[205] The RIS recommended several ways to address these perceived shortcomings.[206]

The first option was a federal regulatory system for recycling tailored to different recycling categories.[207] The second option provided States which have authorized RCRA programs broad discretion to fashion their own requirements for recycling categories.[208] The third option offered limited revisions to other parts of RCRA perceived as troublesome.[209] In the end, the first approach advocating national requirements tailored to categories of recycling was favored.[210]

As a result of the forgoing and numerous meetings among the EPA, the regulated community, state regulators, and environmental advocacy groups, a three-tiered system was proposed.[211] Almost nine years after rejecting a narrative, categorical definition of "solid waste," the EPA, through the Task Force, proposed such a regulatory approach for the recycling of secondary materials.[212] Specifically, the proposed system classifies the status of secondary materials by how they are managed, and then recommends appropriate management standards.[213] The tiers of controls set forth in *Reengineering RCRA* may be articulated as follows:

(1) *Tier I*: Recycling that is exempt or excluded from most RCRA solid waste regulation;

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204. *See generally* RCRA IMPLEMENTATION STUDY, *supra* note 33, at 11-30.

205. REENGINEERING RCRA, *supra* note 2, at 3-1.

206. RCRA IMPLEMENTATION STUDY, *supra* note 33, at 31-43.

207. REENGINEERING RCRA, *supra* note 2, at 3-4. These categories could be based on the type of industry, type of waste, risk, or recycling process involved. *Id.*

208. *Id.* All state-promulgated requirements would have been required to meet minimum standards promulgated by the EPA. *Id.*

209. *Id.*

210. *Id.* Specifically, concern was voiced regarding state-promulgated requirements leading to inconsistent results when interpreting and applying regulations and, ultimately, creating competitive disadvantages through implementation of state requirements. *Id.* In addition, piecemeal revision of individual provisions of RCRA not directly tailored to recycling was perceived as an impediment to any attempt to tailor controls to particular recycling situations. *Id.*

211. *Id.* at 3-5.

212. *See generally* 1985 Definition of Solid Waste, *supra* note 23, at 614 (publishing rulemaking on January 4, 1985).

213. REENGINEERING RCRA, *supra* note 2, at 3-5.

(2) *Tier II*: Recycling meeting tailored standards for each of the four recommended recycling categories (*e.g.*, a RCRA recycling subtitle); and
(3) *Tier III*: Recycling warranting full Subtitle C hazardous waste management standards, including permitting requirements.[214]

1. *Tier I: RCRA Exempt/Excluded Recycling.* The proposed RCRA Exempt/Excluded Tier (Tier I) includes materials and processes that (1) are statutorily excluded from regulation, (2) may not be clearly excluded by RCRA but resemble normal manufacturing, or (3) appear to present little incremental risk of harm to human health or the environment.[215] For example, managing a secondary material before and during recycling in a manner that prevents it from becoming a part of the "waste disposal problem" would be considered indicia that the recycling process is more like manufacturing than waste management.[216] Similar to the current regulations, secondary material could not be placed on land, burned, used to produce a fuel, or speculatively accumulated.[217]

Under *Reengineering RCRA*, the prohibition on land placement is broader than the current "use constituting disposal" prohibition found in the RCRA regulations.[218] In their present form, the "use constituting disposal" regulations permit the storing of exempt materials on the ground before or during recycling.[219] Certain practices, currently exempt from RCRA regulation, would now fall subject to the full set of RCRA Subtitle C hazardous waste management requirements.[220] However, if stored in tanks, containers, and

214. *Id.*

215. *Id.* at 4-1. It is recommended that Tier One be implemented by continuing to apply the EPA's current interpretation of its jurisdiction over "solid wastes" under RCRA, and by exercising this jurisdiction differently in some areas. *Id.* Exempt processes and materials will be defined more specifically to prevent them from becoming part of the waste disposal problem. *Id.*

216. *Id.*

217. *Id.* at 4-1 to -2. *See* 40 C.F.R. § 261.2(c) (1995).

218. REENGINEERING RCRA, *supra* note 2, at 4-2; 40 C.F.R. § 261.2(c)(1) (1995).

219. REENGINEERING RCRA, *supra* note 2, at 4-2. Currently, the land application of waste-derived products is prohibited. *Id.*; 40 C.F.R. § 261.2(c)(1) (1995). As previously discussed in Part II of this article, there has been confusion over what type and duration of contact with the land constitutes land application. REENGINEERING RCRA, *supra* note 2, at 4-2. *See supra* Part II.

220. REENGINEERING RCRA, *supra* note 2, at 4-2.

containment buildings before and during recycling, such materials would be spared meeting RCRA hazardous waste unit standards.[221]

To assuage any confusion over the type and duration of land contact constituting the land application of a hazardous substance, a list of uses of waste-derived products would be promulgated.[222] Furthermore, products generated from exempt recycling processes may be applied to the land, unless specifically prohibited.[223]

Although Tier I generally prohibits the burning of secondary materials, three new exemptions were proposed in *Reengineering RCRA*.[224] The first exemption applies to "clean fuels" burned for energy recovery, while the other two address the "direct reuse" of hydrocarbons at petroleum and petrochemical facilities.[225] The

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221. *Id.* The EPA and the Task Force are of the view that significant environmental damage could occur prior to recycling and reprocessing due to the toxicity of theses materials. *Id.* Specifically, mismanagement of hazardous wastes through improper land placement has led to significant groundwater contamination. *Id.* Thus, this position is based on that fact that secondary materials often contain higher concentrations of toxic constituents before processing and recycling. *Id.*

222. *Id.* For instance, products actually applied to the land, or incorporated into the soil (*e.g.*, soil conditioners, fertilizers, and dust suppressants) are clearly distinguished from products where land contact is incidental to their use (*e.g.*, concrete). *Id.*

223. *Id.*

224. *Id.* at 4-3. With the exemption of "clean fuels," *Reengineering RCRA*'s Tier I approach generally continues the prohibition against burning secondary materials for energy recovery or using them to produce a fuel. *Id.* *See* 40 C.F.R. § 261.2(c)(2) (1995).

225. REENGINEERING RCRA, *supra* note 2, at 4-3. The "clean fuel" exemption is directed at fuels that "contain lower levels of hazardous constituents than those found in many common fossil fuels." *Id.* These materials burn "cleanly" because they have low levels of toxic metals, contain negligible halogen concentrations to aid in forming dioxins and furans, are not complex mixtures of organic compounds, and exhibit no hazardous characteristics except ignitability. *Id.* Therefore, it has been determined that such secondary materials contain the predicable and relatively safe products of incomplete combustion. *Id.* The second exemption applies to "thermal processing of certain secondary materials containing hydrocarbons at a petroleum refinery or petrochemical plant." *Id.* The proposed exemption is broader than the current exemption for such materials. 40 C.F.R. § 261.6(a)(3)(v)-(viii) (1995). Moreover, the "direct reuse" exemption found at 40 C.F.R. § 261.2(e)(i) does not allow the reuse of used materials as fuel. *See* REENGINEERING RCRA, *supra* note 2, at 4-3. Tier I proposes to allow the direct reuse of such materials in commercial fuel production, since this process more closely parallels chemical production than mixing hazardous wastes for combustion in boilers and industrial furnaces (BIFs). *Id.* Finally, the third exemption applies to the "blending of secondary materials containing hydrocarbons directly (without thermal processing) into commercial grade gasoline at a petroleum refinery." *Id.* For example, the blending of xylene into gasoline to use as an octane enhancer falls within the parameters of this exemption. *Id.* Commercial grade gasoline is required to conform to strict product specifications and, as such, this type of blending presents little incremental harm to health and the environment. *Id.* This exemption stops short of blending of secondary materials into diesel or other fuels since these fuels do not possess the same strict product specifications as gasoline. *Id.*

exempt activities must resemble normal fuel production without posing an incremental risk over the burning of traditional fuels.[226] Recyclers would be required to submit to the EPA or State environmental authorities a brief one-time statement showing: that the exempt recycling activity is performed at the site, the actual recycling location, and that the grounds for any exemptions or exclusions claimed.[227]

In addition to the "clean fuels" exemptions, incidental processing of secondary materials would also be exempt.[228] Incidental processing and/or reclamation prior to processing are intrinsic parts of manufacturing and production processes.[229] Presently, however, any processing of secondary materials (*e.g.*, reclamation) will trigger RCRA solid waste jurisdiction.[230] Moreover, many times prior to undergoing processing, recycling secondary materials are accumulated and stockpiled.[231] Speculatively accumulating secondary materials, the hallmark of sham recycling, is prohibited under RCRA.[232] Assuming enumerated conditions are met, however, secondary materials stored on-site for periods of no longer than twelve months are currently outside of the Act's jurisdictional reach.[233]

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226. REENGINEERING RCRA, *supra* note 2, at 4-3.

227. *Id.*

228. *Id.* at 4-4.

229. *Id.* Generally, these activities are usually physical in nature and include filtering, screening, sorting, and grinding. *Id.* Reclamation activities are, at times, conducted in portable units for the purposes of pretreating secondary materials. *Id.* Such devices present minimal risk of releases to the environment. *Id.*; *see* American Mining Congress v. United States Envtl. Protection Agency, 824 F.2d 1177 (D.C. Cir. 1987) (discussing the incidental processing of secondary materials in petroleum refining and extractive metallurgy processes).

230. *See* 40 C.F.R. § 261.2(c)(3) (1995).

231. *See, e.g.*, REENGINEERING RCRA, *supra* note 2, at 4-4 ("Production runs up to 18 months apart are not uncommon, and the recycler may need to store material until the production run that is best suited for its reuse.").

232. *See* 40 C.F.R. § 261.2(c)(4) (1995). A material is "accumulated speculatively" if it is accumulated before being recycled. *Id.* § 261.1(c)(8). A material is not speculatively accumulated, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled, and that during the calendar year (beginning January 1), the amount transferred to a different site for recycling equals at least 75% of the volume of the amount of that material accumulated at the beginning of the period. *Id.* In calculating the percentage of turnover, the 75% requirement is to be applied to each material of the same type (*e.g.*, slags from a single smelting process) that is recycled in the same way (*e.g.*, from which the same material is recovered or that is used in the same way). *Id.* Material is no longer speculatively accumulated once removed from accumulation for recycling. *Id.*

233. *Id.* § 261.4(a)(8)(iii). Specifically, secondary materials reclaimed and returned to the original process from which they were generated can only be tank-stored in a closed-system that

Tier I would slightly modify the rule on speculative accumulation. Secondary materials could be accumulated speculatively for a period of eighteen months on-site and twelve months off-site, provided that the material has a 100% turnover rate.[234] Production runs of up to eighteen months apart are uncommon.[235] Furthermore, recyclers often need to store material for a fixed period of time to accumulate a sufficient volume to make the reprocessing or reclamation feasible.[236]

Finally, recycling facilities would be required to prepare and keep on file a document articulating the basis for exemption or exclusion from RCRA regulation.[237] Filing this document with state or federal regulators is not mandatory.[238] Nevertheless, it must be made available for inspection if questions arise about the facilities status under the Act.[239] Specifically, if inspected, facilities must produce a brief statement articulating the statutory or regulatory ground for the claimed exemption or exclusion.[240] The documentation requirement applies to all exempt recyclers, except those using unused products or scrap metal.[241]

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does not involve controlled flame combustion, and the reclaimed material is not used to produce a fuel or used to produce products that are used in a manner constituting disposal. *See e.g., id.* § 261.4(a)(8).

234. REENGINEERING RCRA, *supra* note 2, at 4-5.

235. *Id.* The speculative accumulation requirements for off-site recycling are more stringent because it is the Task Force's position that recyclers should not accept and store secondary materials, unless they plan to recycle them within one year. *Id.*

236. *See e.g., id.* at 4-5 to -6.

237. *Id.* at 4-6.

238. *Id.*

239. *Id.*

240. *Id.*

241. *Id.* Unused products and scrap metal are both temporarily exempt for RCRA Subtitle C requirements. *See* 40 C.F.R. § 261.6(a)(3)(B)(ii) (1995) (listing scrap metal exemption from Subtitle C requirements). Under Tier I, the following materials and processes are excluded from RCRA regulations: (1) processing statutorily excluded materials (Bevill wastes); (2) secondary materials directly reused on-site as an ingredient in a production process or as an effective substitute for a commercial chemical product; (3) recycling characteristic by-products, commercial chemical products and container and spill residues of commercial chemical products (4) materials returned, without first being reclaimed, to any unit of the original production process from which they were generated and used as a substitute for raw material feedstock; (5) materials recycled or reclaimed in a closed-loop; (6) recovery of "clean" waste-derived fuels; (7) direct reuse of secondary materials containing hydrocarbons in thermal processes in petroleum or petrochemical processes; (8) direct reuse of secondary materials containing hydrocarbons blended into commercial grade gasoline at a petroleum refinery only; and (9) currently exempt petroleum refining oil recovery processes. REENGINEERING RCRA, *supra* note 2, at 4-6 to -7.

2. *Tier II: Tailored Standards for RCRA Recycling.* The primary objective of Tier II is the regulation of secondary materials recycling through the use of categorized, tailored standards that address problems of over-regulation and under-regulation.[242] Each category should reflect the proper degree of regulation for different types of recycling operations.[243] Specifically, this approach advocates a simplified system for easy implementation, while adequately addressing relevant health and safety concerns.[244] Under Tier II of *Reengineering RCRA*, secondary materials recycling would be divided into four enumerated categories.[245] The categories have been designated as follows:

(1) *Category A:* Direct reuse off-site of spent material and precious metals recovery;

(2) *Category B:* On-site recycling;

(3) *Category C:* Captive/intracompany recycling and product stewardship; and

(4) *Category D:* Off-site commercial recycling.[246]

a. Category A. Reengineering RCRA imposes notification, biennial reporting, transportation, and legitimacy requirements on recyclers of spent materials directly reused off-site and recyclers of precious metals.[247] Currently under Subtitle C, the direct reuse of off-site secondary materials is not subject to the Act's jurisdiction.[248] Under Category A, however, the above-mentioned spent solvent would be regulated as a RCRA "solid waste."[249]

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242. REENGINEERING RCRA, *supra* note 2, at 5-1.

243. *Id.*

244. *Id.*

245. *Id.*

246. *Id.* at 5-1 to -2.

247. *Id.* at 5-2.

248. *Id.*; 40 C.F.R. § 261.2(e)(1)(i)-(ii), 261.6(c)(2) (1995). For example, an electronics manufacturer uses a high-grade solvent in its production process and then sends the used solvent to another company. REENGINEERING RCRA, *supra* note 2, at 5-2. The receiving company uses the solvent, without reclaiming or reprocessing it, to clean automobile parts, a use that does not require the same degree of chemical purity as manufacturing electronic components. *Id.* The used solvent is not defined as a solid waste and is exempt from all regulatory requirements. *Id.*; *see* 40 C.F.R. § 261.2(e)(1)(i)-(ii) (1995). *Reengineering RCRA* views this exemption from the Act's solid waste jurisdiction as a regulatory loophole. REENGINEERING RCRA, *supra* note 2, at 5-2.

249. REENGINEERING RCRA, *supra* note 2, at 5-2.

Furthermore, the term "spent material" would be defined as a "material that has been used and is no longer usable at the site of generation or is used on-site following reclamation."[250] The recovery of precious metals is also subject to Category A requirements.[251] Currently, precious metals are regulated under Subtitle C.[252] Under Subtitle C, precious metal recyclers must meet relevant notification, record keeping, and transportation requirements.[253] In addition, shipping such material must be conducted via a hazardous waste hauler with a hazardous waste *manifest*.[254] In the new system, precious metals would be shipped with a *recyclable materials* manifest and would be subject to Department of Transportation (DOT) requirements.[255]

b. Category B. On-site recycling of secondary materials (*e.g.*, at a manufacturing facility) would be regulated under Tier II, Category B in the *Reengineering RCRA* system.[256] The rules as set forth in proposed Category B particularly affect facilities presently characterized as large quantity generators of hazardous waste.[257] To promote increased on-site secondary materials recycling, Category B manufacturers are exempted from prior approval or public notice obligations before recycling.[258] Subject to safe management standards, on-site secondary materials recycling is generally of less

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250. *Id.*

251. *Id.*

252. 40 C.F.R. § 266.70 (1995). The RCRA precious metal regulations specifically apply to economically significant amounts of gold, silver, platinum palladium, iridium, osmium, rhodium, ruthenium, or any combination thereof. *Id.* § 266.70(a).

253. *See id.* § 266.70(b).

254. *Id.* §§ 263.20-.21.

255. REENGINEERING RCRA, *supra* note 2, at 5-2. Notification, record keeping, and biennial reporting requirements are the same for direct reuse of off-site secondary materials. *Id.* All other requirements (including generator requirements, if applicable) would still be regulated under Subtitle C. *Id.* at 5-2 to -3.

256. *Id.* at 5-3.

257. *Id.* Large quantity generators (LQG) are those operations that generate over 1000 kilograms of hazardous waste in any one month of the calendar year. *See* 40 C.F.R. § 261.5(e) (1995). Generators of less than 1000 kilograms of hazardous waste in any one month remain subject to the existing "small quantity generator" (SQG) requirements. *Id.* § 261.5(g). It was reasoned that secondary materials recycling would increase if certain impediments were eliminated, especially permit requirements. REENGINEERING RCRA, *supra* note 2, at 5-3. The proposed system does not require Category B manufacturers to obtain prior approval or provide notice to the public before recycling on-site. *Id.* Similarly, any modifications to the recycling process must be included in biennial reporting requirements. *Id.*

258. REENGINEERING RCRA, *supra* note 2, at 5-3.

concern than recycling of secondary materials generated at one facility and shipped to another for recovery.[259] In other words, the risks presented by recycling performed entirely at the site of generation do not justify the time, cost, and reduced flexibility caused by prior approval and public notice.[260]

c. Category C. Proposed Category C regulates "captive" recycling and product stewardship.[261] Captive recycling may be characterized as intracompany recycling.[262] This concept specifically includes facilities that recycle materials generated by other facilities owned and operated by the same parent corporation.[263] Product stewardship, or product return, connotates the return of used or spent products to the original manufacturer of the product, or its authorized agent.[264] The manufacturer then recycles, rebuilds, and remanufactures or reuses all or part of the returned product.[265]

Category C facilities are subject to the same regulatory requirements as Category B facilities, with one exception.[266] Facilities receiving more than 12,000 kilograms of secondary materials annually from off-site generators will be subject to public notification require-

259. *Id.*

260. *Id.* Certification by manufacturers complying with required management standards enables both federal and state environmental regulators to enforce compliance. *Id.*

261. *Id.* at 5-4 to -5.

262. *Id.* at 5-5. An ink manufacturer, for example, may send spent solvents used in one process to another facility, owned by the same corporation, that produces paint thinner. *Id.* The second facility distills the solvents as part of its production process. *Id.* If recycling the spent solvent in this way required a RCRA permit, the manufacturer may not recycle it due to the associated administrative costs. *Id.*

263. *Id.*

264. *Id.* From an international perspective, the concept of "product stewardship" is referred to as "extended producer responsibility." This system is based primarily on the polluter pays principle and seeks to shift the cost of reducing the generation of and management of wastes from the taxpayer to the generator. *See generally* ORGANISATION ON ECONOMIC COOPERATION AND DEVELOPMENT, INTERNATIONAL WORKSHOP ON WASTE MINIMIZATION: EXTENDED PRODUCER RESPONSIBILITY PROGRAMS HANDOUT (1995) (on file with author); ORGANISATION ON ECONOMIC COOPERATION AND DEVELOPMENT, TRADE IMPLICATION OF RECYCLING, LIFE-CYCLE MANAGEMENT AND TRADE 128-130 (1994).

265. REENGINEERING RCRA, *supra* note 2, at 5-5. For example, a photographic processing company returns its spent fixative to the original manufacturer, who then reclaims and resells it. *Id.* Since these materials are often hazardous waste if disposed of or treated, the manufacturer and customer are able to avoid disposal costs and possible CERCLA liability. *Id.*

266. *Id.*

ments and must allow access to all nonconfidential materials.[267] No public meetings or prior approval would be required.[268]

d. Category D. Finally, Tier II proposes Category D to address off-site commercial recycling facilities.[269] Unlike Category C recyclers, Category D anticipates the use of secondary materials or hazardous wastes as raw materials or other feedstocks.[270] The proposed approach recommends an approval process with full public participation.[271] Regulatory review of Category D recycling operations would focus on processes presenting the greatest potential for danger to health and the environment.[272] For instance, two currently exempt RCRA recycling activities would become subject to the EPA's solid waste jurisdiction under *Reengineering RCRA*.[273] First, the recycling of spent materials transported off-site for direct reuse (without reclamation) would be covered by Category A minimal controls.[274] Second, characteristic sludges, those sludges/emission control residues demonstrating a hazardous characteristic, would be regulated.[275] Under the present system, characteristic sludges are not considered solid wastes when reclaimed.[276]

3. *Tier III: Full Subtitle C Regulation of Secondary Materials Recycling.* The remaining secondary materials recycling operations subject to full RCRA Subtitle C controls are those operations presenting a substantial risk of harm to health and the environment if left unregulated.[277] This class of secondary materials includes: (1)

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267. *Id.*
268. *Id.*
269. *Id.* at 5-6.
270. *Id.*
271. *Id.*
272. *Id.*
273. *Id.*
274. *Id.* at 5-7.
275. *Id.*
276. *See* 40 C.F.R. § 261.2(c)(3) (1995). *Reengineering RCRA* recognizes that certain types of characteristic sludges (*e.g.*, baghouse dusts with a high metal content collected from primary metal smelting) can be more product-like because they are very valuable and represent continuous extraction of metal values from the ore. REENGINEERING RCRA, *supra* note 2, at 5-7. Within the primary metals industry, baghouse dust is routinely recycled rather than disposed. *Id.* Such materials would continue to be exempt under *Reengineering RCRA*, whereas operations outside the primary metals manufacturing industry would not normally be considered "continuous" manufacturing of ore-derived materials. *Id.*
277. REENGINEERING RCRA, *supra* note 2, at 5-36.

used oil, (2) "inherently wastelike" materials, (3) waste-derived products containing "toxics along for the ride" (TARs) or any secondary materials containing TARs, (4) recycling consisting of landfilling or land storage, and burning for destruction, and (5) other materials and activities so identified by the EPA in the future.[278]

B. *Management Requirements for Reengineering RCRA Recycling*

In contrast to current RCRA management standards, *Reengineering RCRA* recommends the use of self-implementing standards.[279] Several key principles employed in RCRA recycling are adopted and incorporated into the management requirements for each Tier II recycling category.[280]

1. *No Land Storage.* Because RCRA highly values groundwater, the EPA's hazardous waste regulations generally prohibit placing secondary materials on land.[281] Within the recycling context, land placement of secondary materials is perceived as an indication that a material is not intended for recycling, rather it has become part of the waste disposal problem.[282] *Reengineering RCRA* applies the regulatory definition of land disposal found at 40 C.F.R. Part 261.2(c)(1) to land storage before and after recycling activities.[283] Storage of recyclable materials would thus be limited to tanks, containers, and

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278. *Id.* at 5-36 to -37. With regard to the recycling of used oil, the current rules surrounding special management would not be effected. *Id.* at 5-36. *See generally* 40 C.F.R. § 279 (1995). Inherently waste-like materials, dioxins, and certain secondary materials fed into halogen furnaces are subject to full RCRA Subtitle C regulation. *See id.* § 261.2(d)(1)-(2).

279. REENGINEERING RCRA, *supra* note 2, at 5-8.

280. *Id.* at 5-7. In selecting management standards for each category the Task Force relied on the following:

(1) Equipment designed to prevent the releases of hazardous constituents to the environment;
(2) Quick and effective spill response techniques;
(3) Submission of proper information regarding management standards to competent authorities, including facility identification and other information to sufficiently enforce compliance;
(4) Safe transportation assurances through a tracking system from "cradle to grave";
(5) Recycled materials cannot present a greater threat to health and the environment than the virgin materials that they are replacing; and
(6) Public notification of the acceptance of hazardous secondary materials generated off-site. *Id.*

281. *Id.* at 5-8. *See* RCRA § 3004(d)(1), 42 U.S.C. § 6924(d)(1); OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, U.S. ENVTL. PROTECTION AGENCY, LAND DISPOSAL RESTRICTIONS: SUMMARY REQUIREMENTS 9934.0-1A (1991); ELSEVIER SCIENCE, THE RCRA LAND DISPOSAL RESTRICTIONS: A GUIDE TO COMPLIANCE (1993).

282. REENGINEERING RCRA, *supra* note 2, at 5-8.

283. *Id.*

containment buildings meeting RCRA design installation and operation standards.[284] Storage in surface impoundments or stock piles would be prohibited.[285]

Some situations exist, however, where land application is the primary purpose of the recycled product, such as the use of slag as road base material.[286] Land-applied recycled products would be conditionally exempt from regulation if: (1) good management practices are used by the facility to prevent releases to the environment before actual use, (2) the material can be delisted or shown to no longer exhibit the characteristic for which it was listed as hazardous, or (3) the material is a commercial chemical product listed under 40 C.F.R. Part 261.33 that is applied to land in the ordinary course of business.[287]

2. *Legitimacy Testing — No Toxics Along for the Ride.* A legitimacy evaluation in the form of a "Toxics Along for the Ride" (TAR) test will be employed to distinguish sham recycling operations from bonafide recycling operations.[288] Prohibiting TARs as a condition within each of the previously discussed Tier II recycling categories is recommended.[289] The proposed three-part TAR test applies only to products made with secondary materials.[290] Moreover, such products are required to meet only one of the following three prongs to meet the proposed legitimacy requirements:[291]

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284. *Id. See generally* 40 C.F.R. §§ 262, 264-265 (1995).

285. REENGINEERING RCRA, *supra* note 2, at 5-8.

286. *Id.* at 5-9.

287. *Id.*

288. *Id.* TARs are characterized as hazardous constituents not critical to the recycled product's intended performance. *Id.* at 5-10. In many instances, TARs may be present in recycled products at significantly higher levels than in analogous virgin materials. *Id.*

289. *Id.* However, a substantial hurdle that must be overcome is the jurisdictional overlap between the Toxic Substance Control Act, 15 U.S.C. § 2601-2692 (1988 & Supp. V 1993), the Consumer Product Safety Act, 15 U.S.C. §§ 2051-2083 (1988 & Supp. V 1993), and the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 301-392 (1988 & Supp. V 1993). The Task Force opined that a large number of products potentially affected by an increase in recycling of waste-derived products makes reliance on the aforementioned statutes impractical. REENGINEERING RCRA, *supra* note 2, at 5-10. Citing lack of consumer faith in safety of recycled products produced without government supervision, *Reengineering RCRA* asserts that manufacturers of recycled products are under a continuing duty to demonstrate that their products will not create significant new risks to the users of the product. *Id.*

290. REENGINEERING RCRA, *supra* note 2, at 5-10.

291. *Id.*

The first prong uses a self-implementing analytical method.[292] First, products would be required to pass a statistical test chosen by the EPA comparing it to similar products made from virgin materials.[293] Specifically, the concentration and amount of Appendix VIII[294] hazardous constituents in the recycled product cannot be significantly higher than present in the comparable product made from virgin material.[295] In the alternative, a recycler could compare the concentrations of hazardous constituents in the recyclable material to the concentrations of hazardous constituents in the virgin materials.[296] This method of evaluation attempts to prevent manufacturers from replacing commercially available virgin raw materials or other feedstocks with recyclable materials containing appreciably higher level of hazardous constituents.[297]

The second and third prongs require prior government review and approval.[298] Such review would be conducted on a case-by-case basis.[299] In particular, the second test provides a variance from a recycled product's TAR threshold if the toxic ingredient enhances the performance of the product.[300] The third and final TAR test encompasses a TAR variance based on the life-cycle analysis of the product.[301] Even with the presence of a higher toxic constituent, variances can be granted if a manufacturer demonstrates that a product does not present a significant increase in risk to health and the environment over its useful life, including disposal.[302]

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292. *Id.* at 5-10 to -11.

293. *Id.* at 5-11.

294. *See* 40 C.F.R. § 261 app. VIII (1995).

295. REENGINEERING RCRA, *supra* note 2, at 5-11.

296. *Id.*

297. *Id.*

298. *Id.*

299. *Id.*

300. *Id.* Specifically, manufacturers must demonstrate that the increased toxic levels are "necessary for the product to function as intended" or that industry specifications "otherwise justify the use of higher concentrations of toxics." *Id.*

301. REENGINEERING RCRA, *supra* note 2, at 5-11.

302. *Id.* A relevant example is a product that has strong chemical bonds between its toxic constituents and its other ingredients, and thus the toxics are unlikely to be released. *Id.* In such a case, recyclers would additionally be required to show that the product would be used in industrial applications not normally resulting in disposal via municipal waste incineration. *Id.* The risks presented by incineration are associated with the increase of toxics present in incinerated ash or air emissions. *Id.*

Any material failing all three prongs of the TAR test would be classified as a waste.[303] As a consequence, all subsequent transportation, storage, and use would be subject to full Subtitle C regulation.[304] The status of recycled material that passed the TAR test will not be affected by other material produced from the same recycling process that has failed the TAR test.[305]

3. *Notification and Reporting Requirements.* In addition to TAR testing, notification and reporting requirements are considered integral components to any legitimate environmental planning and compliance program, including secondary materials recycling. Notification would be required for Tier II Category A-D facilities.[306] Biennial reporting requirements would be imposed on large-quantity-generators (LQGs), as well as facilities qualifying as RCRA treatment, storage, and disposal facilities (TSDFs).[307] A recycler who is not a LQG or TSDF will not be subject to biennial reporting requirements.[308]

4. *Transportation and Manifesting Requirements.* Hazardous waste shipped off-site for recycling and recovery are subject to numerous regulatory controls under RCRA.[309] Most notably, the transportation of hazardous secondary materials (hazmats) must be documented in a hazardous waste manifest.[310] *Reengineering RCRA*

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303. *Id.*

304. *Id.*

305. *Id.*

306. *Id.* at 5-12 to -13. As previously stated, notification would require basic information about the notifying facility (*e.g.*, name, address, contact person, etc.) and information about the activity occurring at the facility (*e.g.*, generator, transporter, etc.) and, if necessary, the particular EPA waste codes involved. *Id.* Specific identification of recycling activities would not be required. *Id.* at 5-12. Recyclers who believe that they are managing secondary materials excluded from the definition of "solid waste" are not required to notify. *Id.*

307. *Id.* Specifically, LQGs and TSDFs will be required to report bienially on the volume and type of wastes generated, how they are managed (*e.g.*, recycled, treatment, or disposal), and whether they were managed on-site or off-site. *Id.* at 5-12 to -13.

308. *Id.* at 5-13.

309. *Id.*

310. *Id. See* 40 C.F.R. § 262.20 (1995). A hazardous waste manifest is analogous to a bill of lading used by industry when transporting materials. As part of this document, an individual knowledgeable about the material shipped must be identified in the event that an accident or release occurs. Both large and small quantity generators of hazardous secondary materials are responsible for ensuring that a hazardous waste manifest has been properly prepared before transport off-site. *See* RCRA ENFORCEMENT MANUAL, *supra* note 110, § 4.07, at 4-13. Generally, the manifest must be accompanied by the following information: (1) the manifest

suggests the use of a "recyclable materials" manifest for "all Category A, C, and D secondary materials shipped off-site."[311] Except for its name the manifest is identical to a hazardous waste manifest.[312] The name change is intended to avoid the "stigma" which is often attached to hazardous waste transportation.[313] Monthly or quarterly submissions of manifest information for recyclable secondary materials, in lieu of stringent state requirements, are recommended.[314]

With regard to transportation issues, RCRA regulations reference DOT pre-transport regulatory requirements for packaging, labeling, marking, and placarding.[315] To eliminate redundancy between DOT and EPA regulations, changes to DOT rules incorporating the Category A, C, and D recyclable materials are advised.[316] Finally, application of DOT rules would eliminate the need to promulgate separate requirements under RCRA regarding the transportation of recyclable secondary materials, other than manifest procedures.[317]

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document number, (2) the generator's name, (3) the address, telephone number and EPA Identification Number, (4) the designated and alternate TSDF's name, address, telephone number and EPA Identification Number, (5) the DOT description of the waste, including proper shipping name, hazard class, and identification number, (6) the number and type of containers used to transport the waste, (7) the total quantity of each hazardous waste by weight or volume, (8) the waste handling codes, (9) the generator's certification that the hazardous waste has been properly described, classified, packed, marked, labeled, and is in proper condition for transportation. *Id.*; 40 C.F.R. § 262.30 (1995); Hazardous Waste Management System: General; Standards Applicable to Generators of Hazardous Waste; State Hazardous Waste Program Requirements, 49 Fed. Reg. 10501-10503 (1984) (to be codified at 40 C.F.R. §§ 260, 262, 270). Finally, generators are responsible for insuring that manifest copies are provided to all involved parties and that a final copy of the manifest is returned to the final TSDF. *See* 40 C.F.R. § 262.22 (1995).

311. REENGINEERING RCRA, *supra* note 2, at 5-14.

312. *Id.*

313. *Id.*

314. *Id.*

315. *Id.* at 5-13. *See generally* 49 C.F.R. §§ 172-173, 178-179 (1995). Nine categories of materials are regulated by DOT using different requirements for labeling, placarding, packaging, and marking. REENGINEERING RCRA, *supra* note 2, at 5-13. Recyclable materials not falling under one of the first eight categories automatically fall under Class 9 (the current DOT category for RCRA hazardous waste). *Id.* at 5-13 to -14.

316. REENGINEERING RCRA, *supra* note 2, at 5-14. DOT Class 9 requirements and EPA standards for hazardous waste transporters are nearly identical. *Id. See* 40 C.F.R. § 263 (1995). In certain instances, states may impose additional requirements, such as special training or equipment, insurance, taxes or fees, or additional reporting requirements. REENGINEERING RCRA, *supra* note 2, at 5-14. These requirements are claimed to substantially increase the cost of transporting RCRA manifested hazmats. *Id.* For instance, the costs of transporting a load of lead-bearing materials between Columbus, Georgia and Indianapolis, Indiana was $1,400 by a hazardous waste hauler and only $630 via a DOT hazmat carrier. *Id.*

317. REENGINEERING RCRA, *supra* note 2, at 5-14.

C. *Proposed Facility and Recycling Unit Management Standards*

1. *General Facility Standards.* It is well settled that the primary goal of RCRA solid waste jurisdiction is to ensure the safe and proper handling of materials when transported off-site for recycling, treatment, or disposal.[318] As such, *Reengineering RCRA* seeks to apply the general facility standards found at 40 C.F.R. Parts 264 and 265, Subparts B, C, and D to Tier II Categories B-D.[319] Category A recycling operations would, however, be exempt from general facility management standards under this approach.[320] Since Category A recyclers generally engage in on-site recycling of secondary materials or precious metals, the imposition of off-site recycling controls is not warranted.[321]

a. Containers and Containment Areas. Additionally, RCRA TSDF standards would be used at Category B-D facilities to manage recyclable materials in containers and containment areas.[322] These performance standards are intended to prevent releases of hazardous constituents from containers to groundwater through the use of primary containment techniques.[323] RCRA tank standards listed at 40 C.F.R. Part 265, Subpart J would apply to Category B-D recyclers.[324] Specifically, these requirements govern the nature of the

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318. *Id.* at 5-15; RCRA § 1003(a), 42 U.S.C. § 6902(a).

319. REENGINEERING RCRA, *supra* note 2, at 5-15.

320. *Id.*

321. *Id.* Presently, generators and TSDFs (including certain recyclers) are subject to general management standards to minimize any threat posed by the facility or material to health or the environment. *Id. See* 40 C.F.R. § 262 (1995) (generator requirements); 40 C.F.R. § 264 (permitted facilities); 40 C.F.R. § 265, Subparts B-D (interim status facilities). Under TSDF standards, a facility must obtain an EPA Identification Number, perform a general waste analysis, inspect the plant, train personnel for managing hazardous materials, comply with location standards and provide construction quality assurances. *Id.* §§ 262, 264-65, Subparts B-D. *See also* 40 C.F.R. § 266, Subpart F (1995).

322. REENGINEERING RCRA, *supra* note 2, at 5-16. *See* 40 C.F.R. §§ 264.170-.179 (permitted facilities) (1995); 40 C.F.R. §§ 265.170-.178 (generators and interim status facilities) (1995).

323. REENGINEERING RCRA, *supra* note 2, at 5-16. *See* 40 C.F.R. §§ 264.170-.179 (1995).

324. REENGINEERING RCRA, *supra* note 2, at 5-17. Generally, these standards require an "initial assessment of the integrity of the tank system, containment and detection of releases, minimum design and installation specifications, general operating practices, proper inspection, response to leaks and spills, and closure and post-closure care." *Id. See generally* 40 C.F.R. §§ 265.191-.201 (1995).

materials that may be introduced into the tank and the use of spill and overflow prevention controls.[325]

The use of containment buildings is a relatively new management practice. This management technique was originally offered as a solution to the Third-Third Land Disposal Restriction Rule under RCRA.[326] Specifically, the Third-Third Rule inadvertently limited storage practices for materials destined for recycling through the promulgation of inconsistent regulations by the EPA.[327] Recognizing this inconsistency, *Reengineering RCRA* advocates the management of recyclable materials in containment buildings.[328]

b. Operations Planning. An operations plan must be provided to state authorities by Category B-D recyclers as an additional condition of compliance.[329] Detailed operation plans are currently part of the Part B RCRA permit process.[330] However, a simplified

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325. REENGINEERING RCRA, *supra* note 2, at 5-17.

326. *Id.* at 5-19 to -20. *See* Land Disposal Restrictions for Third-Third Scheduled Wastes, 57 Fed. Reg. 8086 (1992) (technical amendments); Washington; Final Authorization of State Hazardous Waste Mangement Program, 55 Fed. Reg. 33695 (1990); Land Disposal Restrictions for Third-Third Scheduled Wastes; Rule, 55 Fed. Reg. 22520 (1990) (to be codified at 40 C.F.R. §§ 148, 261-262, 264-265, 268, 270-271); Land Disposal Restrictions; Final Rule, 54 Fed. Reg. 8264 (1989) (to be codified at 40 C.F.R. § 268). The Third-Third Rule affected 344 listed waste streams, five newly listed wastes, and many characteristic wastes. RCRA ENFORCEMENT MANUAL, *supra* note 110, § 3.01, at 3-5 n.16. The EPA also promulgated treatment standards for multi-source leachate and mixed hazardous radioactive waste. *See* Hazardous Waste Management System: Land Disposal Restrictions (LDR); DOE Mixed Wastes Extension Application, 57 Fed. Reg. 22024 (1992). Existing standards for wastes generated from the petroleum refining industry were also advised in the Third-Third rulemaking. RCRA ENFORCEMENT MANUAL, *supra* note 110, § 3.01, at 3-5 n.16. Moreover, previously promulgated treatment standards expressed as "no land disposal" for non-waste waters were replaced with treatment levels or specified methods. *Id.* A listing of the Third-Third wastes can be found at 40 C.F.R. § 268.35. *Id. See* 40 C.F.R. § 268.35 (1995).

327. REENGINEERING RCRA, *supra* note 2, at 5-20. *See* 40 C.F.R. § 268.35 (1995).

328. *Id.* Current EPA regulations for containment buildings in general are to be used for managing recyclable materials. *See* 40 C.F.R. § 265.1100-.1102 (1995). The standards in Subpart DD require: (1) a completely enclosed building structure with a floor, walls, and roof to prevent exposure to the elements; (2) ensuring incompatible wastes are placed in the unit; (3) installing a primary barrier capable of withstanding the movement of personnel, waste and equipment; (4) good housekeeping practices to prevent gaps, cracks or corrosion to the primary barrier; (5) certification of the building by a qualified, registered professional engineer; (6) release detection devices; (7) removal procedures; and (8) unit inspections. *See id.* § 265.1101(a).

329. REENGINEERING RCRA, *supra* note 2, at 5-22.

330. *Id.*; 40 C.F.R. §§ 270.14-.27 (1995). Operations plans detail how secondary materials will be managed. REENGINEERING RCRA, *supra* note 2, at 5-22. Information found in an operations plan includes: (1) chemical and physical analysis of the hazardous waste in order to manage the material in accordance with 40 C.F.R. § 264 management requirements; (2) a copy of the waste analysis plan; and (3) a description of the procedures, structures, or equipment used

two part operations plan has been suggested.[331] Part One would consist of a waste analysis describing the chemical and physical processes used to measure and identify chemical parameters in secondary materials, the frequency of measurement, quality assurance and control procedures, and the decisional process used to accept or reject material destined for recovery operations.[332] Part Two would entail a description of facility operations, including how recyclables are handled and processed from receipt through ultimate recycling.[333]

2. *Recycling Unit Standards.* Currently, recycling units, distinct from storage units, that process secondary materials are exempt from the majority of hazardous waste regulations.[334] Under *Reengineering RCRA*, Category B-D facilities would be subject to the same management standards as accumulation (*e.g.*, storage) units.[335] A tailored command and control approach specifically designed to cover recycling units is perceived as necessary to balance the need to protect health and the environment with the need to remove economic deterrents to recycling.[336] It should be noted that Tier I units that produce "clean fuels" or commercial chemical products normally used in fuels will be classified as manufacturing units rather than recycling units, provided they are not otherwise exempt.[337]

a. Closure and Financial Assurances. Reengineering RCRA defines "closure" as "the process during which a hazardous waste is removed, if possible, from a hazardous waste management unit or facility, and any contamination to the equipment, facility, or to soil or

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at the facility to prevent hazards in unloading operations, or prevent runoff from hazardous waste handling areas to other areas of the facility or the environment. *Id.*

331. REENGINEERING RCRA, *supra* note 2, at 5-22.

332. *Id.* at 5-22 to -23.

333. *Id.* at 5-23.

334. *Id.* at 5-25.

335. *Id. See* 40 C.F.R. § 265.190-.202 (1995).

336. REENGINEERING RCRA, *supra* note 2, at 5-25. This approach does not specify design or operating procedures for enumerated recycling processes, but rather, is apparently limited to ensuring only that unsafe materials will not be released into the environment. *Id.* In other words, recyclers should be afforded the same flexibility to improve their production processes as manufacturers of virgin products. *Id.* Otherwise it is unlike that recycling operations can compete on a level playing field with producers of virgin products, nor could they continuously improve the efficiency of their operations, adapt to market forces, and sufficiently comply with regulatory changes. *Id.*

337. *Id.*

ground water is addressed."[338] RCRA hazardous waste regulations include requirements for closing TSDFs and caring for such facilities after they have closed.[339] Generally, two kinds of closure can be performed depending on the type of waste unit and status of the facility.[340] "Clean" closure occurs when all hazardous materials are removed and the facility itself is completely decontaminated.[341] Alternatively, TSDFs may be closed via "landfill closure" or "closure as a landfill."[342] Under this process, the waste is left in place and an "engineered final cover" is installed to minimize the generation or release of leachate after closure.[343]

The preparation and submission of closure plans is considered by industry to be costly and inefficient.[344] With this in mind, a "cookbook" approach to estimating closure costs is advocated.[345] In lieu of submitting a closure plan, a facility would be "required to submit a work sheet calculating the closure cost estimate, tailoring it to the units and characteristics of the specific facility."[346] Determining the conservative cost estimates based on the historical cost of closing particular units has been suggested for implementing this approach.[347]

b. Corrective Action. Under RCRA, section 3004(u) corrective action addresses situations where a TSDF's solid waste management

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338. *Id.* at 5-28. Generally, when closing a TSDF, an owner or operator (including a recycler) must: (1) minimize the need for further maintenance; (2) protect health and the environment from post-closure releases of hazardous materials; and (3) comply with any additional closure requirements as set forth in the regulations. 40 C.F.R. §§ 264.111, 265.111 (1995).

339. *See* 40 C.F.R. §§ 264.110-.120, 265.110-.120 (1995).

340. REENGINEERING RCRA, *supra* note 2, at 5-28.

341. *Id.* Such units do not require post-closure care. *Id.*

342. *Id.*

343. *Id.* Post-closure care is required in this scenario. *Id.* Such care is generally required for thirty years following the completion of closure activities. *Id.* To prevent releases of hazardous wastes, TSDFs or generators must monitor and maintain units that have wastes left in place. *Id.* Closure requirements are comprised of three main functions: (1) performance standards; (2) procedural requirements; and (3) technical and design standards. *Id. See* 40 C.F.R. §§ 264.110-.120, 265.110-.120 (1995) (performance standards and procedural requirements); 40 C.F.R. §§ 264.170-.351, 264.570-.603, 264.1100-.1102, 265.170-.352, 265.440-.445, 265.1100-.1102 (1995) (technical and design standards).

344. REENGINEERING RCRA, *supra* note 2, at 5-30; *see* 40 C.F.R. §§ 264.110-.120, 265.110-.120 (1995).

345. REENGINEERING RCRA, *supra* note 2, at 5-30.

346. *Id.*

347. *Id.*

unit releases hazardous wastes and/or constituents.[348] It is applicable to all facilities subject to RCRA permitting requirements.[349] A major concern with the RCRA corrective action program is its reach. For example, section 3004(v) of RCRA permits corrective action to take place beyond a facility's boundary when deemed appropriate.[350] Thus, facility-wide corrective action is not uncommon for a release that is reported in a limited or contained area of a facility.[351]

Siding with the regulated community, *Reengineering RCRA* does not advocate facility-wide corrective action.[352] Modeling cleanup requirements after the current spill response regulations for tanks at hazardous waste generation facilities, the remediation of reported releases would be limited to the spill itself under the proposed approach.[353] By instituting self-implementing response procedures, the potential for releases to the environment is reduced through prevention and banning land storage, polluters would be held accountable for their actions, and the incentive to recycle secondary materials should increase.[354] The proposed ban on facility-wide

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348. *Id.*; RCRA § 3004(u), 42 U.S.C. § 6924(u).

349. REENGINEERING RCRA, *supra* note 2, at 5-30; RCRA § 3004(u), 42 U.S.C. § 6924(u).

350. RCRA § 3004(v), 42 U.S.C. § 6924(v); REENGINEERING RCRA, *supra* note 2, at 5-30.

351. *See* RCRA § 3004(u), 42 U.S.C. § 6924(u); 40 C.F.R. §§ 264.552-.553 (1995). Generally, corrective action is organized into four stages: (1) the RCRA Facility Assessment; (2) the RCRA Facility Investigation; (3) the Corrective Measures Study; and (4) the Corrective Measures Implementation. REENGINEERING RCRA, *supra* note 2, at 5-31. *See* 40 C.F.R. §§ 264.552-.553 (1995). The RCRA Facility Assessment (RAF) consists of the identification of all actual and potential releases from solid waste management units. REENGINEERING RCRA, *supra* note 2, at 5-31. The assessment determines whether there is sufficient evidence of a release to support a more thorough investigation. *Id.* If so, then a schedule of compliance is designed in accord with RCRA § 3008(h), 42 U.S.C. § 6928(h). *Id.* Next, a RCRA Facility Investigation (RFI) is conducted to characterize the nature and extent of the contamination. *Id.* This includes potential pathways of migration for the contaminants. *Id.* Once the RFI is completed, a determination is made regarding the necessity for corrective action. *Id.* If corrective action is required, then a Corrective Measures Study (CMS) is undertaken. *Id.* The CMS identifies a remedy and/or several alternative remedies. *Id.* Finally, once a remedy is selected it is implemented during the Corrective Measures Implementation (CMI) phase. *Id.* at 5-32. The remedy is considered complete when all media cleanup standards have been met, all containment actions are complete, and all closure and post-closure procedures are satisfied. *Id.*

352. REENGINEERING RCRA, *supra* note 2, at 5-32.

353. *Id.* at 5-32 to -33; *see* 40 C.F.R. § 264.196 (1995). The major elements of the tank spill response regulations include: (1) immediate unit shut-down and inspection; (2) removal of material from tank within 24 hours or as soon as practicable; (3) containment of visible releases after a visible inspection; (4) reporting to competent federal and/or state authorities within 24 hours; (5) installation of secondary containment measures, repair, or closure of the tanks; and (6) certification of repair by an independent, qualified, registered professional engineer. *Id.*

354. REENGINEERING RCRA, *supra* note 2, at 5-33.

corrective action will apply to Category A-D recycling operations.[355]

IV. ANALYSIS OF REENGINEERING RCRA

Reengineering RCRA is a laudable attempt to rectify the difficulties in understanding and implementing the definition of "solid waste." As stated earlier, regulators, industry, and the environmental community all desire a definition of "solid waste" that can be easily understood and implemented.[356] However, universal approval of such a multifaceted rule is unrealistic.[357] Such is the case with the EPA's *Reengineering RCRA* proposal. It is, nevertheless, a step in the right direction.

A. *What Works Under Reengineering RCRA*

Four solutions to RCRA recycling can be immediately discerned from *Reengineering RCRA*. First and foremost is the recognition that RCRA prior approval (Part B permitting) provisions are so onerous that they are a major disincentive to recycling.[358] Second is the continued prohibition of speculative accumulation for off-site commercial recyclers.[359] Third concerns the proposed exemption for "clean fuels" burned for energy recovery and hydrocarbons used by petrochemical plants and petroleum refineries.[360] Fourth is the recommendation to forgo facility-wide corrective action for Tier II Category A-D recycling operations,[361] another positive solution enabling the EPA to create a legitimate and sustainable national recycling program.

The departure from the current RCRA prior approval, or Part B permitting, requirements would apply to all Tier II, Category B-D facilities not already having or required to have a RCRA permit.[362] Category D facilities would be the only ones to require any form of

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355. *Id.* at 5-32.

356. HWTC REPORT, *supra* note 22, at 1.

357. *Id.*

358. *See* REENGINEERING RCRA, *supra* note 2, at 5-30 to -36. *See also* 40 C.F.R. §§ 264-265 (1995).

359. REENGINEERING RCRA, *supra* note 2, at 4-1 to -2, 5-23 to -25.

360. *Id.* at 4-3 to -4. *See* William A. Stephens, Recycling in America: Can it Survive "RCRA Reengineering?" 5 (Mar. 10, 1995) [hereinafter Recycling in America] (unpublished manuscript on file with author).

361. REENGINEERING RCRA, *supra* note 2, at 5-32.

362. *Id.* at 5-34. *See* 40 C.F.R. §§ 264.10-.151, 264.570-.575, 264.1030-.1103 (1995).

prior government approval before beginning operation.[363] In addition to initial notification, Category D recyclers would be required to provide the EPA and state authorities with certification of compliance with all applicable standards.[364] This requirement attempts to fulfill the duty of the EPA and the delegated states to protect human health and the environment, while simultaneously encouraging resource conservation and recovery.[365]

The continuing prohibition of off-site speculative accumulation of secondary materials helps ensure the legitimacy of such recycling operations. Drawing a clear statutory delineation between bona fide recycling and sham recycling is critical. The speculative accumulation provision protects against sham activities through prohibiting the infinite storage of large quantities of secondary materials not otherwise exempted from the hazardous waste management system.[366] In short, this provision protects against the dangers of over-accumulation previously voiced by the EPA.[367]

Presently, RCRA regulations define otherwise exempted or excluded secondary materials (*e.g.,* scrap metal) as "solid waste" if "accumulated speculatively."[368] Accumulating large quantities for an extended time could have adverse effects on health and the environment.[369] Accumulation could also have adverse economic effects since soil or groundwater contamination due to leachate resulting from improper storage imposes significant financial burdens on taxpayers if the responsible company is either unwilling or unable to pay the removal costs.[370] Thus, this provision along with a

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363. REENGINEERING RCRA, *supra* note 2, at 5-34 to -35. Prior government approval and regulatory oversight is warranted for these facilities since there is a sufficient degree of risk involved in the transport, management, and recycling of secondary materials at Category D facilities. *Id.* at 5-35.

364. *Id.* at 5-34.

365. *See* RCRA § 1003(a)(6), 42 U.S.C. § 6902(a)(6); 1985 Definition of Solid Waste, *supra* note 23, at 617.

366. REENGINEERING RCRA, *supra* note 2, at 5-23.

367. 1985 Definition of Solid Waste, *supra* note 23, at 617.

368. 40 C.F.R. § 261.2(c)(4) (1995).

369. REENGINEERING RCRA, *supra* note 2, at 5-23. It should be noted that speculative accumulation of secondary materials over an extended time period is distinct from extended periods of time associated with production runs and finite periods for recyclers to accumulate enough material to process a "load" of recyclables. *See id.* at 4-5.

370. *Id.* at 5-23. *See In re* Marine Shale Processors, Inc., No. 06900009, 1995 RCRA LEXIS 10 (Mar. 17, 1995) (holding aggregate kiln did not meet definition of an industrial furnace and combustion of hazardous materials did not constitute legitimate recycling).

workable legitimacy provision could help ensure the integrity of a national recycling system.

The proposed exemption for the burning of "clean fuels" for energy recovery and recovery of hydrocarbons generated at petrochemical and petroleum facilities also makes good sense.[371] This provision exempts materials emitting low-level hazardous constituents when burned in the normal course of operation.[372] Moreover, permitting the addition of "clean fuels" to standard commercial fuel production processes or gasoline blending operations more closely resembles chemical production than the blending of hazardous wastes for direct combustion at other industrial facilities.[373] However, it should be noted that these activities do not fall squarely under the purview of recycling either. Burning for energy recovery is not the reclamation of mineral values for beneficial reuse. Rather, it is the recovery of energy for thermal value. This process is more analogous to disposal than recycling. Nonetheless, it is a simple, low risk process that does not warrant RCRA Subtitle C hazardous waste regulation.

One of the largest deterrents to facilities desiring to establish on-site or off-site recycling operations is the threat of facility-wide corrective action.[374] By limiting the application of section 3004-(v),[375] all Tier II recyclers would be exempt from facility-wide corrective action.[376] These facilities will merely be required to report and clean up spills occurring at specific stages in the reclamations process without conducting facility-wide investigations if enumerated criteria are met.[377] In light of the Act's conflicting statutory framework, the previous points go a long way towards developing a sustainable, nationally-enforceable recycling program.

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371. Recycling in America, *supra* note 360, at 5. *See* REENGINEERING RCRA, *supra* note 2, at 4-3 to -4.

372. REENGINEERING RCRA, *supra* note 2, at 4-3 to -4.

373. *Id.* at vii.

374. CHET M. THOMPSON, METALS INDUSTRY RECYCLING COALITION, REDEFINITION OF SOLID WASTE DISCUSSION PAPER 6 (1995) [hereinafter MIRC DISCUSSION DOCUMENT].

375. RCRA § 3004(v), 42 U.S.C. § 6924(v).

376. REENGINEERING RCRA, *supra* note 2, at 5-32.

377. *Id. See* 40 C.F.R. § 264.196 (1995).

B. *What Does Not Work Under the Reengineering RCRA Approach*

The jurisdictional key to RCRA is the term "discarded."[378] If a material is not "discarded" it escapes RCRA's regulatory grasp, since the Act does not grant the EPA authority to regulate manufacturing activities.[379] Consequently, the EPA cannot regulate materials that have not been truly discarded nor manufacturing operations utilizing such materials.[380] *Reengineering RCRA*, however, strays from this scheme.[381]

Unfortunately, the lack of an obvious regulatory distinction between recycling and waste management retards the progress made by *Reengineering RCRA*. Continuing to perpetuate the concept that recycling is a subset of waste management and disposal is a direct and undeniable disincentive to resource recovery.[382] Recycling and waste management must be treated as distinct concepts. If *Reengineering RCRA* is applied without modification, a significant quantity of material that need not be regulated as "waste" will fall subject to RCRA jurisdiction.[383] The "one-size-fits-all" approach to secondary materials recycling-at-large further distorts the waste management-recycling dichotomy.[384] This said, many states have reserved

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378. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 1.

379. *Id.*

380. *Id.*

381. *Id.*

382. Letter from Thomas Ovenden, Project Director, *National Environmental Development Association*, to Jim O'Leary, Definition of Solid Waste Task Force, *U.S. Envt'l. Protection Agency* 1 (Aug. 18, 1995) [hereinafter NEDA/RCRA Proposal] (on file with author). NEDA/RCRA is a project of the National Environmental Development Association, founded in 1973 to help businesses respond to environmental issues. *Id.*

383. *Id.*

384. *See, e.g.*, Memorandum from Allan B. Silber, Chairman, *Recyclers of Copper Alloy Products* to RE-CAP Subgroup and Recycler of Copper Alloy Products Association Heads 4 (April, 1995) [hereinafter RE-CAP Memo] (on file with author). In addition, *Reengineering RCRA* fails to clearly distinguish secondary materials recycling from hazardous waste treatment. The statutory and regulatory definition of the term "treatment" includes any "process" that makes materials "amenable for recovery." RCRA § 1004(34), 42 U.S.C. § 6903(34); 40 C.F.R. § 260.10 (1995). More accurately, the regulatory definition of the "treatment" means "any method, technique, or *process*, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or *material resources* from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or *amenable for recovery*, amenable for storage, or reduced in volume." *Id.* (emphasis added). Arguably, the highlighted terms are more indicative of recycling concepts than waste management concepts.

judgment on the viability of *Reengineering RCRA*.[385]

Moreover, a "one-size-fits-all" approach is simply not appropriate for numerous and exceedingly diverse types of recycling operations conducted throughout American industry. For example, what is appropriate for metals recycling is usually not appropriate for chemical and petroleum recycling and vice versa.[386] RCRA recycling must be based on a federally-enforceable framework unconditionally exempting inherently "commodity-like" secondary materials, conditionally exempting "low-to-medium-risk" secondary materials destined for beneficial reuse and handled in a "commodity-like" manner, and imposing full Subtitle C regulations for recyclables posing a substantial risk of harm to health and the environment and Subtitle D requirements for residual non-hazardous wastes. Such an approach would specifically tailor its regulatory impact in proportion to the risk of harm presented by the recycled secondary material and the particular recycling operation itself.

Additionally, *Reengineering RCRA* ignores one of the most important characteristics of a recyclable secondary material: its "commodity-like nature" or inherent positive secondary value.[387] For example, scrap metal is a secondary material that is commonly recycled and traded in established domestic and international markets

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In addition, they illustrate the overlap between what at times may be characterized as two barely distinguishable activities. Most recyclable secondary materials must be processed prior to recycling and reclamation. Processing, including incidental processing, is generally conducted to prepare the material for actual recycling. Generally, materials must be prepared to specification prior to insertion in the recycling process. Moreover, the phrase "material resources" could reasonably be construed as the recovery of secondary materials possessing a positive value. Thus, it follows that a waste material (*e.g.*, one without appreciable secondary value) is less likely to be construed as a "resource" due to its negative economic value. In other words, the cost of reclaiming secondary values from a waste exceeds the cost of lawfully disposing it. The distinction between recycling and waste management lies in whether the act of "processing" a secondary material is construed as a value adding technique.

385. *See* BUSINESS RECYCLING COALITION, SUMMARY OF STATE COMMENTS ON REENGINEERING RCRA FOR [HAZARDOUS WASTE] RECYCLING 2 (Jan. 10, 1995). The United States Chamber of Commerce, through its Business Recycling Coalition (BRC), obtained 42 copies of states' responses and prepared a summary response to *Reengineering RCRA*. *Id.* at 1. This review presents a wide range of opinions with little or no consensus on major points made in the proposed approach. *Id.* Specifically, the states were hesitant to reach firm conclusions whether *Reengineering RCRA* offers a better regulatory system than the one currently in place. *Id.* at 2.

386. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 5.

387. *See* REENGINEERING RCRA, *supra* note 2, at ii-iii.

for positive economic value.[388] From its purchase by the scrap processor through its sale as a recycled product by the mill or foundry, the scrap metal remains within the stream of commerce. Since the scrap metal is handled as a commodity, and is neither treated in preparation for disposal nor actually disposal of, it has not yet become a part of our nation's "waste disposal problem."[389]

V. A PROPOSED SOLUTION: A NEW JURISDICTIONAL PARADIGM

The following paradigm is a response to *Reengineering RCRA*. However, this paradigm is not intended to expand RCRA jurisdiction to include commodities or commodity-like materials or other materials that have not yet been truly "discarded."[390] Neither does it affect the EPA's current RCRA exemptions from the definition of "solid waste."[391] Rather, the paradigm advocates a management-based approach for regulating secondary materials that are destined for recycling and beneficial reuse. Implemented through a four-tiered jurisdictional matrix, this regulatory model considers: (1) whether a recyclable material is benign or hazardous and (2) whether the manner in which the material is handled is more analogous to recycling or waste management.[392]

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388. *See* 40 C.F.R. § 261.1(c)(6) (1995) (defining scrap metal). The following example illustrates the elements of commercial transaction for the purchase of scrap metal, a secondary material, for recycling and beneficial reuse. First, pursuant to an arm's length transaction, a scrap recycler purchases the material according its current fair market value. The fair market value is determined by the type and grade of metal. Second, the material is processed to meet strict market specifications for purity and physical form. *See* INSTITUTE OF SCRAP RECYCLING INDUSTRIES, INC. (ISRI), SCRAP SPECIFICATIONS CIRCULAR, GUIDELINES FOR FERROUS SCRAP, NONFERROUS SCRAP, GLASS CULLET, PAPER STOCK, PLASTIC SCRAP (1994) [hereinafter ISRI SCRAP SPECIFICATIONS] (listing market specifications for purity and physical form of recyclable scrap metals). Third, after initial processing by either bailing, shredding, or shearing, the material is sold to mills, secondary smelters, foundries for final recycling and reuse. The recycled scrap metal is then sold as a product, raw material, or other feedstock.

389. However, all residual materials generated from processing operations that cannot be recycled are undeniably discarded. Such material should be treated as a "solid waste" and disposed of in accord with the RCRA regulations.

390. *See* MIRC DISCUSSION DOCUMENT *supra* note 374, at 3. Thus this paradigm will not impact secondary material recyclers operating completely outside of RCRA's jurisdiction. *Id.*

391. *Id.*

392. *See* Edison Elec. Inst. v. United States Envtl. Protection Agency, 2 F.3d 438 (D.C. Cir. 1993) (affirming EPA authority to adopt management-based approach to identifying hazardous wastes). The EPA has the authority under RCRA to take into account the conditions under which a secondary material will be managed in deciding whether the material needs to be regulated as a hazardous waste. *See id.* at 446. Under such an approach, the Agency can

A. *Tier I: Unconditional Exemption of "Commodity-Like" Secondary Materials from RCRA Jurisdiction*

Economics is a critical factor in determining whether a recycling operation is bona fide or a sham.[393] The EPA's seminal and thoughtfully discussed regulatory position on the economic viability of recycling remains mere guidance at this juncture.[394] In addition, *Reengineering RCRA* fails to speak directly to this issue. Therefore, Tier I of the paradigm proposes to exempt unconditionally from RCRA jurisdiction certain "commodity-like" secondary materials that have not historically contributed our nation's waste disposal problem.[395] Specifically, secondary materials diverted or removed from the waste stream, traded freely as commodities, and not "discarded" in any meaningful, dictionary sense would be eligible for this exemption.[396]

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conditionally exclude a secondary material from regulation as a hazardous waste, if the material is managed in an environmentally protective manner that prevents it from becoming part of the waste disposal problem. *See id.*; Letter from Harvey Alter, Director, *Business Recycling Coalition, U.S. Chamber of Commerce* to James Berlow, Office of Solid Waste, *U.S. Envtl. Protection Agency* 6 (March 15, 1994) [hereinafter BRC Letter].

393. Letter from David J. Lennett, Esq., Law Offices of David J Lennett, to James Berlow, Office of Solid Waste, U.S. Environmental Protection Agency 10 (Feb. 4, 1994) [hereinafter Lennett Comments].

394. *Id. See* EPA Sham Recycling Memo, *supra* note 24.

395. Hazardous Waste; Land Disposal Restrictions; Definitions and Clarifications 61 Fed. Reg. 2338, 2362 (1996) (to be codified at 40 C.F.R. § 148) (proposed Jan. 26, 1996) [hereinafter 1996 LDR Clarification]. *See also* Telefax from Paul Borst, Economics, Methods, and Risk Assessment Division, U.S. Environmental Protection Agency to J. Thomas Wolfe, Esq., L.L.M., Counsel & Director, Government Relations, Institute of Scrap Recycling Industries, Inc. 6-15 (Jan. 16, 1996) [hereinafter Borst Fax] (regarding exclusion of scrap metal from RCRA definition of "solid waste" under Phase IV of the Act's Land Disposal Restrictions) (on file with author). Specifically, on December 15, 1995, regulatory language was signed by the EPA Administrator Carol Browner proposing to amend the definition of "solid waste" by excluding processed scrap metal being recycled from RCRA jurisdiction. *Id.* at 1. Noting that scrap metal is a "commodity-like" secondary material, the EPA considered the following factors relevant: (1) the degree of processing the material has undergone and the degree of further processing required; (2) the value of the material after it has been reclaimed; (3) the degree to which reclaimed material is similar to an analogous raw material; (4) the extent to which an end market for the product is guaranteed; and (5) the extent to which the material is managed to minimize a loss. *Id.* at 5. These factors are the same criteria necessary for a variance from the definition of solid waste for materials that have been reclaimed but require further processing. *See* 40 C.F.R. § 260.31(c) (1995). While this variance from the definition of solid waste specifically acknowledges the "commodity-like" nature of qualified secondary materials, it does not provide sufficient regulatory latitude for use as an unconditional exemption from RCRA. *Id.*

396. Borst Fax, *supra* note 395, at 3.

The inherent positive economic value of recyclable secondary material would act as the bright line distinguishing it from RCRA "solid waste."[397] Distinct from waste management operations, recycling operations function on a profit margin generated by the *price paid for input of secondary materials* and the *price received for recycled products after processing*.[398] The theory here is "buy low, sell high." Generally, "commodity-like" recyclables are sought for use in manufacturing processes as a substitute for competing virgin materials.[399]

1. *Defining "Commodity-Like" Secondary Materials.* Any unconditional statutory clarification to RCRA jurisdiction should attempt to: (1) cite the clearest examples that "commodity-like" secondary materials are not RCRA "solid wastes" and (2) provide an objective test by which the EPA can determine whether a specified material warrants an unconditional exemption from the Act's jurisdiction.[400] A Tier I "commodity-like" secondary material would be subject to a simple test addressing the material's inherently "salable" characteristics. In particular, the unconditional exemption

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397. *Id.* The manufacturing versus service provider dichotomy is one method for distinguishing legitimate secondary materials recycling from waste management. For example, recycling functions on the inherent positive value attributed to a secondary material's "commodity-like" characteristics. Recyclers *purchase* secondary materials at a positive price dictated by the market; usually at a nominal percentage of a comparable virgin materials market price. The value of the secondary material increases as recyclers invest capital to process and prepare the material for resale and reuse as consumer product. *See* Wolfe Task Force Letter, *supra* note 10, at 2. Processing is necessary to add value to the product, meet product specifications, and minimize loss of secondary values. 1996 LDR Clarification, *supra* note 395, at 2361-62. Activities performed by companies that transport, treat, or dispose of secondary waste materials are service-oriented rather than maunfacturing-oriented. Wolf Task Force Letter, *supra* note 10, at 2. For instance, waste management operations are *paid* to remove, treat, or dispose of materal others wish to get rid of. *Id.* The nature of a waste management transaction (*e.g.*, paid to remove waste) can be construed as evidence of a waste material's inherently negative value. In other words, but for the fact that the waste management company is paid to remove the material, it would not be allowed to handle it in the first place.

398. Wolfe Task Force Letter, *supra* note 10, at 2. Bona fide recycling should not be mistaken with waste management services. The hallmark of waste management is that such operations are paid by a generator to remove, treat, and/or dispose of waste materials. Waste managers do not purchase the waste for a nominal, positive value, treat or reclaim it, and dispose of it at a profit. Generally, the fee paid for waste management services covers numerous costs, including, but not limited to: transportation, treatment, and landfill/incinerator tipping fees.

399. *Id.* Processed scrap products, especially scrap metal, are such examples. *Id.*; 1996 LDR Clarification, *supra* note 395, at 2361.

400. Wolfe Task Force Letter, *supra* note 10, at 2.

would require that "commodity-like" secondary materials be diverted or removed from the "solid waste" stream (*e.g.*, destined for disposal).[401] The following factors may, in part, be considered indicia of whether a secondary material is "commodity-like":

> (1) If the material meets commercial specifications for use in manufacturing;[402]
> (2) If the material is sold, traded, tolled for value, reclaimed on-site to recover valuable components, or reclaimed off-site for reuse for its original purpose;[403]
> (3) If the material serves as a replacement for virgin material or is used to make a product that competes with virgin products in a manufacturing process that does not involve land application or burning of the material;[404]
> (4) For existing materials, the material demonstrates a history of recycling using one of the above-listed criteria;[405] and

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401. *Id.*

402. *Id.* at 3. *See generally* ISRI SCRAP SPECIFICATIONS, *supra* note 388.

403. Wolfe Task Force Letter, *supra* note 10, at 3; *See* BRC Letter, *supra* note 392, at 1. Recycling on a toll basis entails situations where a recycler is paid for processing the material, but at no time does the recycler take title to the feedstock or product. *Id.*

404. Wolfe Task Force Letter, *supra* note 10, at 3. For example, in the iron and steel industry, electric arc furnaces (which typically use processed scrap iron and steel as an input) compete in steel production with integrated steel facilities (which use basic oxygen furnaces that utilize iron derived from iron ore as an input). 1996 LDR Classification, *supra* note 395, at 2362. Also, non-ferrous processed scrap such as aluminum cans is another example of recycled product that is frequently used as a substitute for a virgin material. *Id.* In fact, processed aluminum scrap comprises a significant portion of the current aluminum market. *Id.*

405. Wolfe Task Force Letter, *supra* note 10, at 3. With specific regard to the metals recycling industry several proposals were suggested for defining "commodity-like" secondary materials. One group proposed an exemption from RCRA for "commodity-like" secondary materials with certain criteria falling perilously close to being conditional by nature. *See* Letter from John W. Wilmer, Esq., Vorys, Sater, Seymour, & Pease to J. Thomas Wolfe, Counsel & Director of Government Relations, Institute of Scrap Recycling Industries, Inc. 2 (May 4, 1995) [hereinafter RE-CAP "Commodity-Like" Criteria Letter] (on file with author). As demonstrated below, the use of any conditional criterion prohibited this proposal from consideration as a model for use as an unconditional exemption from RCRA jurisdiction:

> (1) the material was sold, traded, tolled for value, reprocessed on-site, to reclaim metal content value;
> (2) the material contained secondary mineral values in concentrations comparable to other non-waste secondary resources;
> (3) the material contained more of the secondary mineral values than is found in virgin material;
> (4) an end market exists for the recycled product, which is not discarded upon sale (*e.g.*, land applied);
> (5) material recycled on-site or off-site is handled in an environmentally sound manner up to the point of final reclamation, as evidenced by;
>
> (A) material is shipped for off-site processing must be containerized;
> (B) material is not land disposed at any point prior to recycling. *Id.*

Another proposal was offered and rejected as being too narrow and self-serving. *See e.g.*, Telefax dated April 28, 1995 from Barry Meyer, The Aluminum Association to John W. Wilmer,

(5) The potential for release of contaminants contained within the material is minimal.[406]

However, a prerequisite for applying the Tier I "commodity-like" factors test would be the presence of a guaranteed, established market for the recycled product, raw material or other feedstock.[407] Several methods may be employed for determining whether a guaranteed, established market exists for a recycled product. The following examples could be construed as indicia that a recyclable material is being processed for reuse or resale in a guaranteed end market:[408] (1) the sorting, sizing, separating, and agglomerating of recyclable secondary material for insertion into a manufacturing process that produces specified intermediate or end products;[409] (2) the growing demand for analogous "commodity-like" second materials necessary to meet the decreasing supply of finite, non-renewable virgin raw materials;[410] and (3) the free trade of recycled products for positive economic value in both domestic and international markets.

B. *Tier II: Conditional Exemption for Low-to-Medium-Risk Secondary Materials Handled in an Environmentally Sound Manner*

The most complex problem lies with regulating recycling activities that are analogous to manufacturing, but pose a greater risk of harm

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Esq., Vorys, Sater, Seymour & Pease 1 [hereinafter Aluminum Association Criteria] (on file with author).

406. *See* 1996 LDR Clarification, *supra* note 395, at 2362. Traditionally, solid non-dispersible secondary material have little potential for release. *Id.* An example is processed scrap metal. *Id.* As part of its decision to remove scrap metal from RCRA jurisdiction due to its "commodity-like" characteristics, the EPA reviewed damage incidents on Superfund Records of Decisions (RODS) database and Damage Incident Data Base (DIDS). *Id.* DIDS related to hazardous waste recycling, and consultation with U.S. Bureau of Mines commodity trade specialists, relevant literature, and on-line searches failed to reveal any incidents where releases to the environment of hazardous constituents were attributable to the management of processed scrap metal itself. *Id.* However, the EPA's review did indicate that residual materials generated from recycling of unprocessed scrap (*e.g.,* batteries, ash, and other residuals) were mismanaged and historically contributed to the waste management problem. *Id.* Many of these residuals are subject to full or partial regulations under RCRA Subtitle C. *Id.*

407. *See id.*; Aluminum Association Criteria, *supra* note 405, at 1; RE-CAP "Commodity-Like" Criteria Letter, *supra* note 405, at 2.

408. *See* 1996 LDR Clarification, *supra* note 395, at 2362.

409. *Id.*

410. *Id.*

than Tier I unconditionally exempt materials.[411] Tier II's conditional exemption is premised upon managing recyclable secondary materials pursuant to reasonable and flexible management standards.[412] Under a management-based approach, recyclable materials would be handled in a manner that prevents them from becoming part

411. The conditional exclusion is intended to regulate "low-to-medium-risk" recyclable secondary materials. Such material falls between environmentally benign material subject to the proposed Tier I unconditional exclusion and full RCRA Subtitle C regulation. The conditional exclusion requires use of "Environmentally Sound Management Practices." *See infra* text accompanying notes 414-90. Tier II, for example, would apply to the wastes at issue in the *Catellus*, *AMC II*, and *API* cases. *See* Catellus Dev. Corp. v. United States, 34 F.3d 748 (9th Cir. 1994); American Mining Congress v. United States Envtl. Protection Agency (*AMC II*), 907 F.2d 1179 (D.C. Cir. 1990); American Petroleum Inst. v. United States Envtl. Protection Agency (*API*), 906 F.2d 729 (D.C. Cir. 1990). In each instance, the secondary materials at issue were all beneficially recycled. Each material was, however, regulated as RCRA Subtitle C "solid waste." In short, the materials were determined to be "discarded" and thus "solid wastes." Specifically, in *AMC II* and *API*, the materials were not "immediately reinserted into phase of an ongoing production process within the generating industry itself," and thus were deemed as contributing to the waste disposal problem. *See AMC II*, 907 F.2d at 1186; *API*, 906 F.2d at 741.

Tier II of the proposed paradigm was designed to prevent the above-mentioned secondary materials from being regulated as "solid wastes" if destined for beneficial reuse or recycling. The conditional exclusion from Subtitle C regulation instructs medium-risk secondary material recyclers to manage this material in an environmentally sound manner. For instance, under the paradigm the K061 slag produced in *API* would be stored in an appropriate manner (*e.g.*, on drip pads or in bins) prior to recycling. *See API*, 906 F.2d at 741. Thus, the threat of land contamination due to land placement of this secondary material is significantly reduced before the material is inserted into an "ongoing process within the generating industry itself." *See id.*

412. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 2. *See* RCRA § 3001(g), 42 U.S.C. § 6921(g); Edison Elec. Inst. v. United States Envtl. Protection Agency, 2 F.3d 438, 446 (D.C. Cir. 1993); BRC Letter, *supra* note 392, at 1-2. The EPA has already issued a number of proposals that reflect a "conditional exclusion" approach to the definition of "solid waste." *Id.* at 2. The Special Collection System rule for "universal wastes" (*e.g.*, batteries and suspended/canceled pesticides that are recalled) is one example. *Id.* Hazardous Waste Management System; Modification of the Hazardous Waste Recycling Regulatory Program, 58 Fed. Reg. 8012 (1993) (to be codified at 40 C.F.R. § 260-262, 264-265, 268, 270, 273) (proposed Feb. 11, 1993). Under this approach, covered batteries and pesticides that are managed by generators, transporters, and owner/operators of consolidation points in compliance with the requirements of 40 C.F.R. § 273 are exempt from regulation under RCRA Subtitle C. BRC Letter, *supra* note 392, at 2. Another example is a proposed amendment to the closed-loop recycling provision of 40 C.F.R. § 261.2(e)(1)(iii). *Id.* That amendment excludes from the definition of "solid waste" materials that "returned to a secondary process from which they were generated without first being reclaimed, provided they are managed before return in a protective manner . . . such that there will be little potential for release of the material or its hazardous constituents to the environment." *Id.*; Land Disposal Restrictions for Newly Identified and Listed Hazardous Wastes and Hazardous Soil, 58 Fed. Reg. 48092, 48155-56 (1993) (to be codified at 40 C.F.R. §§ 148, 260-261, 268, 271). Conditionally excluding recyclable materials from the definition of "solid waste" when managed in accordance with standards developed under the Definition of Solid Waste Task Force Initiative is fully consistent with these other actions. BRC Letter, *supra* note 392, at 2.

of the waste disposal problem, without subjecting desirable recycling activities to the stigma and other strong disincentives associated with regulation as a Subtitle C waste.[413]

1. *Environmentally Sound Management of Recyclable Secondary Materials.* In a significant departure from *Reengineering RCRA*, the paradigm would shift the Act's jurisdictional trigger from the definition of "solid waste" to the definition of "environmentally sound management."[414] This is a direct attempt to mitigate the impact of the "one-size-fits-all" regulatory scheme proposed by *Reengineering RCRA*. "Environmentally sound management practices" (ESMPs)[415] would be developed for each industry taking into account the (1) specific risks posed by specified materials and (2) recycling practices.[416] The proposed management standards would specifically apply to generators, processors, and recyclers of conditionally

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413. BRC Letter, *supra* note 392, at 2-3.

414. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 2.

415. The following criteria for ESMPs were originally offered under the Business Recycling Coalition's proposed Recycling Reform Act of 1995:

(1) general notification standards;
(2) presumption against speculative accumulation and preventative measures;
(3) storage in a manner protective of health and the environment considering material stored and recycling process involved;
(4) use of recyclable materials manifest;
(5) development and implementation of facility release prevention and response plans including:
    (A) spill avoidance measures;
    (B) procedures for containment, cleanup, and management of spills;
(6) general facility standards including:
    (A) safe operating procedures;
    (B) emergency procedures;
    (C) personnel training;
    (D) security;
    (E) recyclable materials sampling procedures; and
(7) record keeping requirements.

See Memorandum from Office of Domestic Policy, U.S. Chamber of Commerce to J. Thomas Wolfe, Esq., L.L.M., Counsel & Director, Government Relations, Institute of Scrap Recycling Industries, Inc. 4-7 (May 22, 1995) [hereinafter Chamber of Commerce Memo].

416. *Id.* at 5. It is acknowledged that the development ESMPs on an industry-specific basis is potentially overly burdensome to the EPA. *See* Memorandum from John W. Wilmer, Jr., Vorys, Sater, Seymour, and Pease to RE-CAP Subgroup, Recyclers of Copper Alloy Products 2 (April 1995) [hereinafter Wilmer Memo]. As such, an alternative view suggests that EPA evaluate the physical form of the material when deciding whether to conditionally exclude it from the definition of "solid waste." *Id.* For instance, secondary materials generated by the metals industry (*e.g.*, slag, dross, fines) are primarily solids that present a significantly lower risk to the environment than the liquid secondary materials (*e.g.*, spent solvents, used oil) generated by other industrial processes. *Id. See generally* 1996 LDR Clarification, *supra* note 395, at 2362-63.

excluded secondary materials.[417] Manufacturers utilizing recycled feedstock materials would be allowed to handle secondary materials in the same manner as virgin feedstock.[418] The regulatory framework for ESMPs will be patterned after RCRA's self-implementing standards for used oil recycling.[419]

Furthermore, the paradigm does not distinguish between on-site and off-site recycling.[420] As previously stated, a management-based approach designates standards based on the level of environmental risk associated with the recycling of secondary materials, regardless of the resource recovery operation's location.[421]

a. Definition of Solid Waste. Specifically, the proposed conditional exemption would be defining what is *not*, in fact, a "solid waste."[422] For example:

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417. Chamber of Commerce Memo, *supra* note 415, at 4.

418. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 2-3.

419. *Id.* at 2. *See* 40 C.F.R. § 279.20-.24 (1995). Generally, the following requirements apply to all generators of used oil: (1) keep storage tanks and containers in good conditions, with no apparent leaks; (2) label used oil storage tanks "used-oil"; (3) clean up any used-oil spills or leaks to the environment; and (4) use a transporter with an EPA Identification number when shipping used oil off-site. *See id.* §§ 279.22(b)-.22(d), 279.24. Certain standards are applicable to used-oil processors and used-oil re-refiners. *See id.* § 279.50-.59. They include: (1) obtaining an EPA Identification Number and notifying the EPA of any activities concerning used oil; (2) maintaining storage tanks and containers in good condition and labelling them as used oil; (3) processing and storing used oil in areas with oil-impervious flooring and secondary containment structures (*e.g.*, berms, ditches, or retaining walls); (4) cleaning up any used oil spills or leaks to the environment; (5) preparing a plan and a schedule for testing used oil for halogen content; (6) tracking incoming used oil and outgoing used oil products; (7) maintaining certain records and biennial reporting; (8) managing used oil processing and re-refining residuals safely; and (9) ensuring that the facility is properly closed when recycling operations cease. *Id.*

420. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 2.

421. *Id.*

422. *Id.* In the alternative, the Business Recycling Coalition of the U.S. Chamber of Commerce (BRC) has offered its own draft version of the definition of solid waste. *See* BUSINESS RECYCLING COALITION, U.S. CHAMBER OF COMMERCE DISCUSSION PAPER 1 (May 10, 1995) [hereinafter BRC DISCUSSION PAPER] (on file with author). Specifically, BRC would amend the definition of "solid waste" found at RCRA § 1004(27), 42 U.S.C. 6903(27), as follows:

> "Such term does not include —
>
> (A) intermediate or in-process materials;
> (B) scrap metal that is recycled; or
> (C) recyclable materials which —
>
> (I) are legitimately and beneficially recycled . . . and;
> (II) if they are hazardous recyclable materials, are managed in an environmentally sound manner, in accordance with regulations promulgated by the Administrator under section 6939f of this title."

Id. This definition groups together materials that could be part of an outright exclusion from secondary jurisdiction, to wit, intermediate and in-process materials, as well as scrap metal. *Id.*

> Recyclable materials which are managed in an environmentally sound manner and legitimately and beneficially recycled in a process that (1) produces a *product for use or sale in commerce*, or (2) produces a *valuable material for further use as a feedstock* in manufacturing process, *are not solid wastes*.[423]

Therefore, legitimate and bona fide recycling is distinguished from waste management when the paradigm's definition of "solid waste" is applied in conjunction with ESMPs.[424] Clearly delineating recycling and waste management accomplishes one of *Reengineering RCRA's* primary goals: simplification of the definition of "solid waste."[425]

What this all means is that, even where the EPA has the authority to regulate a recyclable material as a hazardous waste *if there were reason to expect that it might be mismanaged and become part of the waste disposal problem*, the Agency need not exercise that authority, provided it *identifies management practices that will prevent materials from becoming part of the waste disposal problem* and requires that those practices be followed. If this were the case, the

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Like MIRC, the BRC proposal defines solid waste by defining what is not a solid waste. *Id.*; MIRC DISCUSSION DOCUMENT, *supra* note 374, at 2.

423. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 2. Another approach solely addresses whether a recycled secondary material can be substituted for a virgin material. Wilmer Memo, *supra* note 416, at 1-2. Rather than concentrating on the "commodity-like" nature of a recyclable secondary material, it is argued that an analysis of this material should focus on the potential for environmental harm resulting from the substitution of recycled material for virgin material. *Id.* at 2. For example, Company X incurs $500/ton cost for disposing non-hazardous lead slag. *Id.* At the same time, a local government may be in need of gravel for a parking lot, but cannot afford it. *Id.* Company X donates its slag for the parking lot. *Id.* Is this disposal because the company donates the slag for municipal parking lot? *Id.* What if the environmental risk is demonstrated to be minimal. *Id.* Thus, Company X has saved the disposal fee by substituting the slag into paving material and conserved landfill space. *Id.* Advocates of this approach reason that although the generator did not produce a salable product as discussed in the text above, the company has gained a significant economic benefit and the environment was unharmed. *Id.*

This approach is not viable under the proposed paradigm. First, the transaction resembles a waste management transaction more than it does recycling. A service was provided in lieu of the dismissal of fee. The secondary material was not purchased for its inherent positive economic value. Second, the use of lead-containing slag as road base falls squarely under the "use constituting disposal" prohibition in the RCRA regulations, *Reengineering RCRA* and, as will be discussed *infra*, under this paradigm. *See* 40 C.F.R. § 261.2(c)(1) (1995); REENGINEERING RCRA, *supra* note 2, at 4-2 to -3; *infra* text accompanying notes 436-39. Although used as "substitute" for virgin material, the slag's ultimate placement on the ground so closely involves elements of "discard" that the need for clearly demarcating recycling from waste management requires that it be regulated as a solid waste under the paradigm.

424. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 2.

425. *Id.*

requirements for a "conditional exclusion" to RCRA Subtitle C would be met.[426]

b. General Standards. General guidelines applicable to all industry groups must be designed and regulations addressing industry-specific concerns must be promulgated. The following examples are offered:

(1) No Speculative Accumulation

Speculative accumulation of recyclable materials would be prohibited under this paradigm.[427] Recognizing regulators' need for a bright line accumulation test and the regulated community's need for flexibility, there would be a presumption that recyclable materials are not accumulated speculatively if: (1) generators do not store materials on-site for a period greater than twelve months;[428] and (2) the year end volume of secondary materials processed at a recycling facility during the course of the calendar year equals or exceeds the volume of secondary materials held in inventory at the beginning of the calendar year.[429] Storage in excess of accumulation period limits will be permitted if a recycler can demonstrate that a reasonable market justification exists for granting an extension.[430]

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426. BRC Letter, *supra* note 392, at 2.

427. *See* MIRC DISCUSSION DOCUMENT, *supra* note 374, at 3; NEDA/RCRA Proposal, *supra* note 382, at 1.

428. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 3.

429. *Id.* The present 75% turnover requirement recognizes that inventories are not always depleted and inventories may be blended to meet commercial feedstock specifications. BRC Letter, *supra* note 392, at 8. Therefore, requirements for legitimate recyclers under Tier II of the paradigm's matrix must include a requirement for adequate business records. *Id.* This requirement should be used to establish a baseline for determining the legitimacy of a recycler's speculative accumulations claims. *Id.* Maintaining adequate business records are critical to effective enforcement of the speculative accumulation regulations. *Id.* For example, an inspector must review documents concerning the inventory on-hand at the beginning and end of the period and the amounts processed during that time. *Id.*

430. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 3. This approach is more realistic and more flexible than *Reengineering RCRA*'s speculative accumulation provision for two reasons. *See* REENGINEERING RCRA, *supra* note 2, at 4-5. First, recyclers are not forced to turn over a fixed percentage of recyclable secondary materials in a sluggish commodities market. *See* BRC Letter, *supra* note 392, at 8. Thus, recyclers have the flexibility to "sit on" stocks of recyclable materials when the profit margin borne by the market price for such commodities is unreasonably slim. *Id.* Although inventory is a substantial expense that must be minimized to keep a positive cash flow, requiring a recycler to turn over 100% of his inventory in down market would force him to accept substantial financial losses. *Id.* Moreover, the 100% turnover rate advocated by *Reengineering RCRA* will distort the market price for these materials by glutting the market when the demand is low. In contrast, the paradigm's less stringent standard allows recyclers to wait out a "poor" commodities market while protecting health and the

(2) Storage to Prevent Release into the Environment

Secondary materials, recycled products, and recycled feedstocks must be stored in a *manner to prevent release into the environment.*[431] Distinct for *Reengineering RCRA*, the storage of conditionally excluded materials in RCRA-certified tanks, containers, or containment buildings would not be required.[432] The appropriate storage technique would be determined by the person handling the recyclable material, subject to review and challenge by regulatory authorities.[433] Drip pads, bins, or asphalt or concrete pads are a few

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environment from the risks associated with the over-accumulation of secondary materials. The remaining material is subject to handling as per the ESMPs established under the paradigm. Second, with regard to generators, the time frames established for accumulating materials is consistent with current RCRA regulations. *See* 40 C.F.R. § 261.1(c)(8) (1995). Interestingly, on-site recycling is limited to a twelve month accumulation period as opposed to the eighteen month period proposed in *Reengineering RCRA*. REENGINEERING RCRA, *supra* note 2, at 4-5. *Reengineering RCRA* generously recognizes that production runs can, at times, take up to eighteen months. *Id.* In practice, however, the need to maintain positive cash flow requires that recyclers turn over their recycled inventory in a shorter time frame. Moreover, the paradigm's accumulation period for recycling facilities reflects the fact that recycling operations are analogous to manufacturing and the sales of recycled products are subject to the ebb and flow of the marketplace. The storage extension, based on a reasonable market justification, clearly is indicative of the commodity-like nature of recycled secondary materials.

431. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 3.

432. *Id. See* NEDA/RCRA Proposal, *supra* note 382, at 1; BRC Letter, *supra* note 392, at 9. Throughout the Task Force's Definition of Solid Waste rulemaking, the regulated community (secondary material recyclers) advocated that land storage of hazardous reclaimable materials should be prohibited. *Id.* Rather, materials presenting a risk of release of hazardous substances into the environment should be stored in clearly marked units that are demonstrably adequate for the job. *Id.* Both *Reengineering RCRA* and contrarians would impose RCRA standards under a "one-size-fits-all" approach. *See* REENGINEERING RCRA, *supra* note 2, at 5-16; BRC Letter, *supra* note 392, at 9. The contrarian argument, however, plainly ignores that RCRA tanks and containers were specifically designed to cope with highly corrosive waste mixtures, often of unknown composition. BRC Letter, *supra* note 392, at 9. This was a reaction to both ignorant and abusive past practices. *Id. Compare* HAZARDOUS WASTE TREATMENT COUNCIL/ENVIRONMENTAL DEFENSE FUND, SHAM AND UNCONTROLLED RECYCLING, A STRATEGY TO STOP ENVIRONMENTAL DEGRADATION AND PROMOTE SOURCE REDUCTION (1992) [hereinafter EDF 1992 REPORT] (prepared for Senate Env't. and Public Works Comm.) (on file with author) *with* A SECOND LOOK AT SHAM RECYCLING, *supra* note 186. When originally proposed, secondary containment was virtually an unpracticed storage technique. BRC Letter, *supra* note 392, at 9. Industry pioneered containment buildings in order to raise materials handling safety standards. Subject to regulatory oversight and challenge, recyclers are in the best position to implement ESMPs without resorting to full RCRA designs and procedures. *Id.* Finally, recycling facilities store materials of known composition and properties, which is in stark contrast to waste mixtures received by fully permitted RCRA TSD facilities. *Id.* at 9-10. Record keeping requirements and periodic inspections/certifications should help ensure storage techniques develop as part of recycling facilities' ESMPs. *Id.*

433. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 3. Storage options are determined only after considering specifics regarding the recycling process and the secondary material to be

examples of secondary material storage techniques that could be employed by recyclers as ESMPs.[434] The specified method of storage for each recyclable secondary material and its justification would be documented in the Facility Operations Plan discussed below.[435]

(3) Land- Applied Products

Land applied recycled products (*e.g.*, recycled slag used as a road base) are inherently difficult to regulate.[436] Specifically, recycled secondary materials "used in a manner constituting disposal" fall into the chasm between legitimate recycling and waste management.[437] For instance, land applied products are often "recycled" by methods that are indistinguishable from waste treatment and used in a manner commonly equivocated with disposal. When applied to the land, these materials may present a significant risk of contamination from release into the environment.

Acknowledging this and the need to distinguish recycling from waste management practices, land application of recycled secondary materials would be prohibited under the paradigm.[438] However, not all land applied recycled products present significant risks of environmental contamination. Therefore, only recyclables satisfying the current "use constituting disposal" requirements codified at 40 C.F.R. Part 266.20 or a RCRA risk-based or health-based exclusion would be exempt from the Act's "solid waste" jurisdiction.[439]

(4) Release Response Planning

Like all other manufacturing and industrial operations, generators storing recyclable materials and owners/operators of recycling facilities should be held responsible for any release of contaminants into the

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recycled. *Id.*

434. *Id.*

435. *Id. See infra* text accompanying notes 452-54.

436. *See, e.g.*, RCRA IMPLEMENTATION STUDY, *supra* note 33, at 38-40.

437. In many instances, land applied products carry a plethora of the indicia of "commodity-like materials." For example, recycled secondary materials placed on land are used as substitutes for virgin material, are purchased for positive value as commodity pursuant to commercial specifications, have guaranteed markets for sale, are reclaimed and, subsequently, reused. However, the fact that this material is destined for a single beneficial reuse, to wit, land application, casts a heavy shadow over whether this material is legitimately recycled or merely disposed of.

438. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 6. Under the paradigm, secondary materials recycled for beneficial reuse as road base materials would be prohibited. *See* Owen Elec. Steel Co. of S.C. v. Browner, 37 F.3d 146 (4th Cir. 1994); Louisiana-Pacific v. ASARCO Co., 989 F.2d 1305 (2d Cir. 1993).

439. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 3.

environment.[440] However, the scope of release response planning would be limited to storage areas or particular recycling activities posing significant risks to health and the environment.[441] The purpose of this requirement is to require facilities to respond to specific releases or accidents.[442] Facility-wide RCRA corrective action is not warranted.[443] Applying corrective actions requirements to portions of a facility having no relation to a release or spill at a designated resource recovery unit is a significant deterrent to recycling and should be avoided.[444]

As part of a Facility Operations Plan (as discussed below), generators and recyclers would be required to include: (1) a spill response plan to contain, clean up, and manage releases of recyclable materials; (2) reasonable precautions to avoid releases; and (3) a program to repair and replace damaged storage units.[445]

(5) Transportation Requirements

In accord with *Reengineering RCRA*, recyclable secondary materials would be shipped using "recyclable material manifests" pursuant to DOT shipping and labeling requirements.[446] Recyclables would be labeled "recyclable material" and not "hazardous waste."[447] Generators of secondary materials destined for recycling and beneficial reuse would be required to meet record keeping and reporting requirements similar to those found at 40 C.F.R. Part 262, Subpart D.[448] Finally, facilities receiving recyclable secondary

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440. *Id.* at 3-4.

441. *Id.* at 4.

442. *Id.*; BRC Letter, *supra* note 392, at 9.

443. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 4.

444. *Id.* at 6. States already have sufficient authority to determine the extent of any necessary cleanup or response operation. *Id.* at 4.

445. *Id. See* 40 C.F.R. § 264.196 (1995).

446. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 4. *See supra* text accompanying notes 348-55 (discussing *Reengineering RCRA*'s plan for corrective action).

447. *See* MIRC Discussion Document, *supra* note 374, at 4.

448. *Id.* Generally, generators would be subject to a three year record keeping requirement for all "recyclable materials" manifests. *See* 40 C.F.R. § 262.40(a) (1995). This requirement mandates that generators maintain both copies of each manifest, and returned manifest invoices signed by the recycling facility. *Id.* In addition, generators must maintain, for a three year period, copies of each Biennial Report and Exception Report submitted to the EPA. *Id.* § 262.40(b). Test results, recyclable materials analyses, or other determinations made in accordance with 40 C.F.R. § 262.11 must also be kept for three years. *Id.* § 262.40(c). Finally, the EPA reserves the right to automatically extend the three year retention period during the course of a pending enforcement action. *Id.* § 262.40(d).

materials must comply with record keeping and reporting requirements similar to those codified at 40 C.F.R. Part 264, Subpart E.[449]

c. Procedural Requirements. Critical to the success of the paradigm's proposed conditional exclusion for RCRA solid waste jurisdiction are procedures that verify compliance with Tier II's ESMPs.[450] More than merely verifying compliance with specific ESMPs, such procedures also provide a baseline for enforcement activities.[451] The following documentation, notification and reporting requirements are proposed to ensure the paradigm's legitimacy:

(1) Facility Operations Plan

It is not unreasonable to require a recycling facility seeking a Tier II conditional exclusion from RCRA solid waste jurisdiction to demonstrate that the facility is, in fact, entitled to this exemption.[452] By developing a Facilities Operation Plan (FOP), a secondary materials recycler would maintain certain records specified by the EPA and state environmental agencies to verify compliance if challenged.[453] Under the paradigm, a generic FOP would include: (1) a facility spill prevention and response plan; (2) the type and quantity of secondary materials recycled and the recycling techniques employed; (3) a recycled materials analysis/sampling requirement; (4) contracts for sale or use of recycled materials; (5) speculative accumulation and storage requirements; (6) closure plans, if necessary; and (7) record keeping and reporting requirements for off-site shipping.[454]

(2) Notification

One time, front-end notification to the EPA or state authorities would be required.[455] Recycling facilities operating pursuant to the conditional exclusion must remit a description of: (1) the recyclable

449. *See generally* 40 C.F.R. §§ 264.70-.77 (1995) (establishing manifest system, record keeping and reporting).

450. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 4. *See* NEDA/RCRA Proposal, *supra* note 382, at 1.

451. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 4.

452. *Id.*

453. *Id. See* NEDA/RCRA Proposal, *supra* note 382, at 1.

454. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 4. Generator FOPs would be limited in scope. *Id.* Only elements relevant to a generator's operations. *Id.* For example, only (1) release response plans; (2) inventory descriptions; (3) contractual arrangements for sale or use of recyclable secondary materials; (4) storage methods; (5) off-site shipment documentation; and (6) closure plans for storage areas. *Id.*

455. NEDA/RCRA Proposal, *supra* note 382, at 1.

secondary material; (2) the recycling process; and (3) the intended use of the recycled product or feedstock.[456] In contrast, generator's notice requirements would include a description of the types of recyclable materials stored and transported for recycling.[457] Renewal of notifications would be required if a significant change in facility operations or recycling inventory occurred.[458] "Significant change" would be characterized as "any change in facts or circumstances rendering the original notification inaccurate."[459] Although public notice would not be mandated under Tier II of the paradigm, notification information would be available for review from the EPA through a Freedom of Information Act request.[460] In addition, recyclers should be subject to additional reporting obligations under other environmental statutes.[461]

d. Legitimacy Criteria. Any legitimate strategy to resolve the nation's "waste disposal dilemma" must be predicated on the proposition that the vast majority of resource recovery operations conducted within the United States are legitimate and bona fide.[462] Implicit in this proposition is that sham recyclers are the exception and not the rule.[463] However unfortunate and detrimental, limited instances of sham recycling will continue to occur regardless of the regulatory system in place.[464] Nevertheless, if continually held hostage to the current RCRA regulations, which are designed to overregulate out of fear of sham recycling, bona fide recyclers will remain at a competitive disadvantage to manufacturers of comparable virgin products.[465] A "legitimacy and beneficial recycling test" would be employed under the paradigm to ensure legitimacy to secondary materials recycling operations and to avoid sham practices.[466]

General legitimacy testing criteria would determine whether: (1) the secondary material is suitable for commerce as an ultimate

456. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 4.

457. *Id.*

458. *Id.*; NEDA/RCRA Proposal, *supra* note 382, at 1.

459. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 5.

460. *Id. See* Freedom of Information Act, 5 U.S.C. §§ 552-552a (1988 & Supp. V 1993).

461. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 5. *See* Emergency Planning & Community Right-to-Know Act of 1986, 42 U.S.C. §§ 11001-11050 (1988 & Supp. V 1993).

462. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 5.

463. *Id.*

464. *Id.*

465. *Id.*

466. *Id.*; NEDA/RCRA Proposal, *supra* note 382, at 4; BRC Letter, *supra* note 392, at 3.

product, raw material or other feedstock; (2) the material meets (a) standardized commercial specifications or (b) specifications established by a recycler; (3) the material is handled in a "comodity-like manner" (*e.g.*, managed to minimize loss); and (4) adequate records have been maintained regarding the receipt/process and sale/use of the recycled materials.[467] If, upon review, a recycler fails to document the proposed legitimacy criteria in a manner allaying concerns that recycled products may present a more substantial risk than products produced with virgin materials, additional legitimacy procedures would then be utilized.[468]

In its revisions to the definition of "solid waste," *Reengineering RCRA* recommends applying a TAR test to determine the legitimacy of secondary material recycling and its end products.[469] TAR testing is, however, neither appropriate nor necessary to identify sham recyclers.[470] At the outset, the immense economic burden imposed on secondary material recyclers required to undertake TAR tests is a significant deterrent to recycling.[471] More importantly, the *Reengineering RCRA's* TAR proposal takes the EPA's Subtitle C jurisdiction

467. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 5. The NEDA/RCRA proposal advocates addressing this issue in two-dimensions. NEDA/RCRA Proposal, *supra* note 382, at 2. Specifically, materials should be evaluated for their recycling potential and, subsequently, whether recycling is being conducted in lieu of treatment and disposal. *Id.* This approach mimics EPA's Sham Recycling Memo issued by Sylvia Lowrance regarding F006 recycling. *See generally* EPA Sham Recycling Memo, *supra* note 24. Acknowledging that the "legitimacy" of a recycling operation is fact and case specific, NEDA/RCRA would only require that a good faith effort be made by the recycler to document these criteria. NEDA/RCRA Proposal, *supra* note 382, at 2. Meeting each individual criterion is not mandatory under this proposal; however, recyclers' documents would be examined in their totality. *Id.*

468. NEDA/RCRA Proposal, *supra* note 382, at 4. For example, the test could focus on whether a product was destined for direct consumer use or land application. *Id.*

469. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 8.

470. BRC Letter, *supra* note 392, at 3. The EPA has never relied upon this form of legitimacy testing in a threshold capacity for distinguishing bona fide from sham recycling operations. *Id.* TAR has merely been identified as one factor for consideration when evaluating whether a particular recycling activity is legitimate or sham. *See* EPA Sham Recycling Memo, *supra* note 24. TAR testing was not, however, determinative of this issue. *Id.*

471. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 6. For example, scanning a recyclable secondary material for hundreds of Appendix VIII constituents is prohibitively expensive, impractical and extremely difficult for most recyclers. BRC Letter, *supra* note 392, at 4. *See* 40 C.F.R. § 261, app. VIII (1995). As a result, many manufacturers may cease using recovered secondary materials for feedstocks for fear that their production operation would become a RCRA TSD facility. BRC Letter, *supra* note 392, at 4.

far beyond the realm of waste management and into the realm of product manufacturing.[472]

First, TAR as a form of legitimacy testing is flawed both conceptually and practically.[473] Conceptually, TAR assumes that any statistically-significant increase in the amount of an Appendix VIII[474] constituent in any recycled product, when compared to a virgin product, constitutes disposal and should be presumed to entail a significant risk to health and the environment.[475] In practice, recycled products frequently differ in composition from products made with virgin materials.[476] The Appendix VIII constituents contained therein are found in different chemical compounds and chemical matricies.[477] As such, the EPA has never offered evidence that a correlation exists between the presence of higher levels of some Appendix VIII constituents in recycled products and meaningful increases in risks to health and the environment.[478]

Currently both the paradigm and RCRA itself provide sufficient safeguards to distingiush between recycling and waste management when handling land-applied recycled products. Unless expressly exempt, both regulatory schemes prohibit the use of products used in a manner constituting disposal and regulate such materials as "solid waste."[479] Recycled products destined for consumer use, such as metal ingots reclaimed through high temperature metals recovery or organic products purified by distillation or crystallization, are not discarded and should not be treated as a RCRA Subtitle C "solid waste."[480] Accordingly, legitimacy testing should be designed with the eye towards encouraging environmentally beneficial recycling,

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472. BRC Letter, *supra* note 392, at 4. The TAR concept would extend to products and activities that are unquestionably legitimate and have no connection to the waste disposal problem. *Id.* If retained in Reengineering RCRA, the TAR principal should be limited to the direct use of materials in products whose primary use is application to the land. *Id.*

473. Letter from J.J. Jewett, Vice President, Legal and Regulatory Affairs, National Association of Chemical Recyclers to James R. Berlow, Director, Definition of Solid Waste Task Force, U.S. Environmental Protection Agency 4 (Nov. 12, 1993) [hereinafter NACR Comments].

474. 40 C.F.R. § 261, app. VIII (1995).

475. NACR Comments, *supra* note 473, at 4.

476. *Id.*

477. *Id.*

478. *Id.*

479. *See* 40 C.F.R. §§ 261.2(a)(1), 266.20 (1995).

480. BRC Letter, *supra* note 392, at 4.

rather than attempting to catch a few illegitimate recyclers while over-regulating and discouraging legitimate recycling in the process.[481]

e. Corrective Action. Consistent with *Reengineering RCRA's* conclusion, this paradigm advocates that facility-wide corrective action is not warranted.[482] Instead, both approaches agree spill response obligations should be self-implementing.[483] Without doubt, secondary materials recyclers should be held accountable for releases of potential contaminants from their recycling operations. RCRA corrective action should not, however, apply to releases from SWMUs that are not a part of an on-going recycling operation.[484] Existing federal and state remediation and cleanup authorities can adequately address preexisting releases at recycling facilities.[485] Finally, to avoid the appearance of a competitive disadvantage, facility-wide corrective action would not be required at currently-permitted RCRA TSDFs legitimately recycling secondary materials.[486]

f. Financial Assurance. Integral to clarifying the recycling-waste management dichotomy is regulating recycling activities in a manner similar to manufacturing operations and not like waste treatment, storage, or disposal operations.[487] A significant up-front financial obligation is another unnecessary regulatory hurdle to secondary materials recycling for following reasons. First, the potential for strict, joint, several, and retrospective liability under CERCLA has a chilling effect on owner/operators considering starting and running marginal recycling operations.[488] Second, the prohibition on speculative accumulation specifically prevents threats of contamination from over-accumulation of dangerous materials.[489]

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481. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 8.

482. *See* REENGINEERING RCRA, *supra* note 2, at 5-32; MIRC DISCUSSION DOCUMENT, *supra* note 374, at 8. *See supra* text accompanying notes 348-55.

483. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 8; 40 C.F.R. § 264.196 (1995).

484. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 8.

485. *Id. See also* Walter G. Wright, State Regulation of Beneficial Reuse of Manufacturing Residues: The Developing State Programs, Presented at the 88th Annual Meeting & Exhibition, Air & Waste Management Association (June 18-23, 1995) (on file with author).

486. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 9.

487. *Id.*

488. *Id. See* Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §§ 9601-9675 (1988 & Supp. V 1993). For example, generators are unlikely to contract with recycling facilities without concrete assurances that the recycler has the capacity to legitimately recycle materials. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 9.

489. MIRC DISCUSSION DOCUMENT, *supra* note 374, at 9.

Lastly, through its regulatory oversight powers, the EPA can control the commencement of shady recycling operations through a careful review of a recycler's FOP.[490]

C. *Tiers III & IV: Implementing RCRA's Subtitle C & Subtitle D Management Standards*

Tier III of the paradigm would implement the current Subtitle C regulations for recyclable secondary materials presenting a *substantial risk of harm to health and the environment* prior to, during, or after recycling operations. Tier III recyclables would not qualify for the paradigm's conditional exemption from RCRA jurisdiction. Managing this material in accord with Tier II ESMPs would not sufficiently address the actual and potential threats to health and the environment. Prudence dictates that the Act's stringent Subtitle C requirements be imposed on generators, transporters, and recyclers of such materials. However, one substantial factor would continue to distinguish Tier III recyclers from waste managers; Tier III secondary materials will have been diverted from the waste stream specifically for beneficial reuse and recycling.

All other non-hazardous materials that are discarded or managed in a manner that includes elements of discard would fall under RCRA's Subtitle D jurisdiction. Thus, Tier IV of the paradigm would act as a residual category for non-hazardous secondary materials not destined for reuse or recycling or materials no longer possessing reclaimable secondary values. Such material must be disposed of in accord with RCRA Subtitle D requirements or, for delegated jurisdictions, state solid waste management regulations.

CONCLUSION

The fallacies associated with the interpretation of "recycling as a subset of waste management and disposal" must be exposed and dispelled once and for all. Bona fide secondary materials recycling is not a subset of waste management. Rather, recycling is more accurately designated as a subset of manufacturing. This said, the time has come to draw a bright line between secondary materials destined for beneficial reuse through recycling and waste materials destined for disposal.

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490. *Id.*

Regulating recycling under the RCRA definition of "solid waste" using a "one-size-fits-all" approach is not the solution. Specifically, a "one-size-fits-all" approach is inappropriate for an industry as diverse and complex as secondary materials recycling. To ensure environmental protection and avoid the disparate, anti-competitive impacts of a strict command and control system, recycling operations should be regulated in proportion to the actual harm they pose to human health and the environment. Such an approach must be premised on the philosophy that bona fide recycling is the rule, whereas, sham or rogue recycling is the exception. Thus, any proposed regulatory framework must reflect the "commodity-like" characteristics of recyclable secondary materials, while incrementally tailoring its controls to require that such materials be handled in an environmentally sound manner.

The balance between economic productivity and environmental protection is delicate. The regulated community and the public-at-large have an equal, vested interest in preserving both. Reengineering RCRA to develop a new national recycling system will be an extremely complex task. Neither the EPA, the states, the regulated community, nor the environmental community have all the answers to the numerous technical questions presented by this daunting assignment. The solution to this dilemma must be left to the *open-minded*, *cooperative*, and *informed* participation of all interested parties. This article was written to help facilitate this process. Specifically, it is intended as a "thought-piece" to educate practitioners about secondary materials recycling, illuminate the recycling-waste management dichotomy, and offer an alternative approach for regulating secondary materials recycling other than that proposed by *Reengineering RCRA*. Until this quandary is resolved, a good deal of environmental protection, natural resource conservation, and economic competitiveness hangs in the balance.