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The Fact and Fiction of Financial Responsibility for Hazardous Waste Management

Steven W. Black*

INTRODUCTION

Financial responsibility requirements, as their name implies, are designed to ensure that responsible parties bear the costs of activities involving a high degree of risk, and not shift those costs to third parties through insolvency. Firms that engage in activities that involve risks of damages that exceed their net worth must demonstrate, through insurance or otherwise, their ability to pay for the costs of accidents associated with such activities, including the costs of restoring the status quo ante. As the potentially staggering cost of responding to environmental contamination has become apparent,1 financial responsibility requirements have become a common feature of a growing body of federal environmental law. Examples of such financial responsibility requirements are found in the Clean Water Act,2 the Deepwater Port Act,3 the Surface Mining Control and Reclamation Act,4 and the Comprehensive Environmental Response, Compensation, and Liability Act.5 Financial responsibility requirements are also found in a number of federal statutes regulating particularly hazardous industries.6 Similarly, a variety of

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1. The Office of Technology Assessment has estimated that cleaning up abandoned and closed hazardous waste disposal sites will cost approximately $500 billion. See J. ACTON, UNDERSTANDING SUPERFUND: A PROGRESS REPORT 2 (RAND Publication Series No. R-3838 ICI, 1989).
state health and safety statutes, including a growing number of environmental statutes, contain financial responsibility requirements.7

When Congress enacted the Resource Conservation and Recovery Act of 1976 (RCRA),8 it likewise sought to ensure that funds would be available for proper maintenance of hazardous waste dump sites9 and to compensate tort claimants for injuries to persons or property resulting from the treatment, storage, and disposal of hazardous wastes.10 Furthermore, by requiring the responsible parties to bear third-party liability and site closure and cleanup costs, RCRA’s financial responsibility requirements are designed to prevent insolvency from undermining the deterrent effects of ordinary liability rules.11 Accordingly, Congress authorized EPA to promulgate and enforce financial responsibility requirements applicable to owners and operators of treatment, storage, and disposal facilities (TSDF’s)12 “as may be necessary or desirable.”13

7. The most familiar examples are state workers’ compensation laws and motor vehicle registration statutes. See Cheek, Risk-Spreaders or Risk Eliminators? An Insurer’s Perspective on the Liability and Financial Responsibility Provisions of RCRA and CERCLA, 2 VA. J. NAT. RESOURCES L. 149, 152 & nn.15-16 (1982). Workers’ compensation statutes typically require employers to furnish evidence of insurance or other financial guarantees of medical, rehabilitation, and wage replacement benefits for employees suffering work-related injuries or illnesses. Id. at 152. Vehicle registration laws often require owners to furnish evidence of insurance or other financial means to satisfy specified levels of liability to third parties. Id. See generally M. WOODRUFF, J. FONSECA & A. SQUILLANTE, AUTOMOBILE INSURANCE AND NO FAULT LAW § 3.5 (1974) (discussing numerous state financial responsibility requirements).


11. Ordinary tort liability deters only those accidents that would not force a firm into bankruptcy. See Note, Encouraging Safety Through Insurance-Based Incentives: Financial Responsibility for Hazardous Waste, 96 YALE L.J. 403, 405-07 & nn.4-5 (1986). A facility faced with an otherwise devastating liability judgment might attempt to avoid that liability through bankruptcy. Id. at 405 n.5. By requiring TSDF’s to carry liability insurance or its equivalent, the RCRA financial responsibility requirements remove this incentive unless the potential liability exceeds the insurance coverage by a margin that still represents an unmanageable liability. Id. at 405.

12. The terms “treatment”, “storage”, and “disposal” are defined both in the statute, 42 U.S.C. § 6903(3), (33), (34) (1982), and in EPA’s implementing regulations, 40 C.F.R. §§ 260.10, 270.2 (1989). Although the statute does not define “facility”, EPA has defined that term by rule to mean “all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous wastes.” Id. § 260.10. EPA is not authorized to impose financial responsibility requirements on transporters and
An important secondary purpose of the RCRA financial responsibility provisions is to enlist insurers as surrogate regulators. Both Congress and EPA assumed that insurers would help control risks associated with hazardous waste management. Insurers were expected to encourage safe management of a facility's operation and to monitor a policyholder's behavior through risk assessments in the underwriting process, adjustments to premium schedules, and conditions in the insurance contract. Liability insurers, therefore, are a critical component of Congress' overall management scheme.

Obviously, the anticipated quasi-regulatory effects of a liability insurance requirement are premised, among other things, on the availability of commercial insurance. Recent studies by the Government Accounting Office (GAO), however, show that the market for environmental liability insurance has contracted sharply, therefore undermining this premise. Environmental liability insurance is completely unavailable for most firms and is disproportionately costly for the few large busi-
nesses that continue to carry it. 19 Instead of commercial insurance, firms are relying on an alternative financial mechanism available under EPA regulations, the financial test. 20 As a result, insurers no longer play the role originally anticipated by Congress and EPA. 21

An increased reliance on the financial test to demonstrate a self-insurance capability or to substantiate a corporate guarantee also jeopardizes the compensatory and deterrent objectives of the financial responsibility requirements. Neither of these alternative financial mechanisms provides a sufficient degree of assurance that third parties will be adequately compensated for their injuries, or that the costs of accidents will be fully internalized. 22 Thus, the insurance industry's current reluctance to insure against pollution liability undermines both the compensatory and the regulatory objectives of RCRA's financial responsibility requirements.

This Comment argues that the advantages of insurance-based financial responsibility requirements warrant a renewed emphasis on mandatory liability insurance in EPA's RCRA regulations. Part I examines the legislative and administrative history of the RCRA financial responsibility requirements, with particular emphasis on the evolution of the liability insurance requirement in response to EPA's changing assumptions about the insurance market. Part II examines the decline of the environmental liability insurance market. After reviewing the theoretical case for insurance-based safety incentives, Part III analyzes the weaknesses of the alternative financial test. Part IV proposes changes in current EPA regulations. This Comment concludes that the potential benefits of the financial responsibility requirements justify revision of the current regulatory scheme. It proposes regulatory changes that would both improve the overall quality of financial assurance provided by the requirements and gain the quasi-regulatory effects of a mandatory insurance requirement.

19. See Pollution Insurance, supra note 18, at 28.
20. The "financial test for liability coverage," 40 C.F.R. § 264.147(f) (1989), is a net worth and asset test that permits sufficiently large and solvent firms to self-insure or to guarantee the liabilities of a subsidiary or an otherwise related corporation. See infra notes 44-47 and accompanying text.
21. EPA expected that the insurance industry would oversee hazardous waste management facilities during the interim status period. Consolidated Permit Regulations, supra note 15, at 2827. Arguably, this switch away from commercial insurance has further eroded the insurance market. See M. Katzman, Chemical Catastrophes: Regulating Environmental Risk Through Pollution Liability Insurance 42 (1985).
22. See M. Katzman, supra note 21, at 42.
I

THE RCRA FINANCIAL RESPONSIBILITY REQUIREMENTS

A. Statutory and Regulatory Structure

Against the backdrop of increasing quantities of waste materials\(^{23}\) and alarming incidents of improperly handled hazardous wastes and toxic chemicals,\(^{24}\) Congress enacted RCRA to ensure the safe management of waste from its generation to its disposal,\(^{25}\) and to improve the safety practices of facilities that handle and dispose of hazardous wastes.\(^{26}\) RCRA was also designed to ensure proper closure of hazardous waste facilities.\(^{27}\) It created an extensive regulatory system designed to control the "treatment, storage, transportation, and disposal of hazardous wastes which have adverse effects on health and the environment."\(^{28}\)

RCRA employs two devices to meet its regulatory objectives. First, the Act requires EPA to impose extensive recordkeeping and reporting requirements on generators, transporters, and disposers of hazardous waste.\(^{29}\) Second, RCRA requires EPA to establish minimum performance standards, operating procedures, and permit requirements for hazardous waste TSDF's.\(^{30}\) EPA is also directed to determine appropriate treatment, storage, and disposal methods; to establish requirements for the location, design, and construction of TSDF's; and to establish contingency plans for accidents at TSDF's.\(^{31}\)

RCRA also grants EPA broad authority to develop financial responsibility requirements applicable to TSDF's.\(^{32}\) Under EPA's current regul-

\[^{23}\] H.R. REP. No. 1491, supra note 9, at 3.
\[^{24}\] Id. at 89-90. For a comprehensive treatment of the hazardous waste problem, see generally S. EPSTEIN, L. BROWN & C. POPE, HAZARDOUS WASTE IN AMERICA (1982).
\[^{25}\] RCRA was Congress' attempt to establish "cradle to grave" control of hazardous wastes. See H.R. REP. No. 1491, supra note 9, at 5.
\[^{27}\] See infra text accompanying notes 33-36. The RCRA regulatory scheme is complemented by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). RCRA is directed at the management of hazardous wastes from their generation to their disposal, the so-called cradle-to-grave regulatory system. CERCLA, on the other hand, created and funded the federal Superfund program to clean up abandoned hazardous waste disposal sites.
\[^{29}\] Id. §§ 6924-6925; 40 C.F.R. pts. 264(E), 265(E) (1989).
\[^{31}\] Id. § 6924(a)(3)-(5).
\[^{32}\] Id. § 6924(a)(6) (requiring EPA to develop standards governing "the maintenance and operation of such facilities and requiring such additional qualifications as to ownership, continuity of operation ... and financial responsibility (including financial responsibility for
lations, owners and operators of all TSDF's are required to demonstrate a level of financial assurance equal to the estimated cost of closing the facility pursuant to an approved closure plan. If the TSDF is a land disposal facility, owners must set aside enough resources to assure site safety after closure for a period of thirty years. This coverage must include the estimated annual cost of postclosure monitoring and maintenance.

In addition, all TSDF's must maintain a minimum level of liability coverage “for bodily injury and property damage to third parties” resulting from sudden and nonsudden accidental occurrences arising out of the operation of the facility. Liability coverage must provide at least $1 million per occurrence, and annual aggregate coverage of no less than $2 million, excluding legal defense costs. In addition, if the facility is a surface impoundment, landfill, or land treatment facility, the owner or operator must maintain third-party liability coverage of at least $3 million per occurrence, and annual aggregate coverage of at least $6 million for damages caused by nonsudden discharges of hazardous materials. These limits, however, may be applied to a group of facilities owned or

corrective action) as may be necessary or desirable”); see also supra note 13.

33. 40 C.F.R. §§ 264.143, 265.143 (1989). The closure plan must identify the “steps necessary to perform partial and/or final closure of the facility at any point during its active life.” Id. §§ 264.112(2)(b), 265.112(2)(b). The estimate must be adjusted whenever a change in the closure plan would affect the cost estimate, and to account for annual inflation. Id. §§ 264.142(b), 265.142(b).

34. A land disposal facility is one at which hazardous waste is “applied onto or incorporated into the soil surface . . . [and where] the waste will remain after closure.” Id. § 260.10. Because land treatment (and disposal) facilities involve putting the waste on top of or into the ground, they pose a great risk of groundwater contamination. See H.R. REP. NO. 1491, supra note 9, at 89-90.


36. Id. §§ 264.145, 265.145. All land disposal facilities are subject to additional groundwater monitoring and reporting requirements and must maintain and monitor waste containment systems that will remain onsite subsequent to facility closure. Id. §§ 264.118, 265.118.

37. A sudden accidental occurrence is defined as “an occurrence which is not continuous or repeated in nature” and which results in “bodily injury or property damage neither expected nor intended from the standpoint of the insured.” Id. § 264.141(g). By comparison, a nonsudden occurrence is one which “takes place over time and involves continuous or repeated exposure.” Id.

38. Id. §§ 264.147(a), 265.147(a).

39. Id. Legal defense costs are those expenses “that an insurer incurs in defending against claims of third parties brought under the terms and conditions of an insurance policy.” Id. § 264.141(g).

40. Id. §§ 264.147(b), 265.147(b). EPA’s definition of “nonsudden occurrence” is designed to broadly define the point at which the injury occurred (e.g., exposure, manifestation of symptoms, or otherwise) and thus includes latent harms.

The owner or operator must maintain liability coverage for a facility until final closure. See id. §§ 264.143, 265.143. Within 60 days after receiving certification of final closure, EPA’s Regional Administrator will notify the owner or operator in writing that liability coverage for that facility is no longer necessary. Id. § 264.147(e). However, if the Regional Administrator has reason to believe that closure has not been in accordance with an approved closure plan, she may require continued coverage. Id.
operated by the same entity: there is no requirement that liability coverage be demonstrated separately with respect to each facility in the group.\textsuperscript{41}

EPA's current financial responsibility regulations permit owners and operators of TSDF's to demonstrate financial responsibility in a variety of ways.\textsuperscript{42} Financial responsibility for third-party liability claims may be demonstrated by obtaining liability insurance,\textsuperscript{43} by passing a financial test (and thereby demonstrating a self-insurance capability),\textsuperscript{44} or by obtaining a corporate guarantee.\textsuperscript{45} The financial test may be satisfied in either of two ways. First, the owner or operator may show that it has (1) net working capital and tangible net worth equal to at least 6 times the amount of required liability coverage; (2) tangible net worth of at least $10 million; and (3) assets in the United States that amount to at least 90% of total assets or 6 times the amount of required liability coverage.\textsuperscript{46} Second, a TSDF operator may satisfy the financial test by demonstrating (1) a current bond rating of BBB or better (as issued by Standard and Poor's), or Baa or better (as issued by Moody's); (2) tangible net worth of at least $10 million and at least 6 times the amount of required liability coverage; and (3) assets in the United States as described above.\textsuperscript{47}

In addition, owners and operators may demonstrate financial responsibility for third-party liability through an irrevocable standby letter

\textsuperscript{41} Id. §§ 264.147(a), 265.147(a).

\textsuperscript{42} For a brief analysis of the merits of each of the various financial mechanisms, see Cohen & Derkics, Financial Responsibility for Hazardous Waste Sites, 9 CAP. U.L. REV. 509, 512-18 (1980).

\textsuperscript{43} 40 C.F.R. §§ 264.147(a)(1)-(b)(1), 265.147(a)(1)-(b)(1) (1989). The regulations do not set a limit on the amount of the deductible. Instead, they require that the insurer agree, through an EPA-approved policy endorsement, to pay honored claims within the limits of the policy. Consolidated Permit Regulations, supra note 15, at 2828. This allows the insurer and the insured to negotiate a deductible, but assures the public that "first dollar" coverage will be available regardless of the financial condition of the insured. Id.


\textsuperscript{45} The guarantor must fall into one of three categories: the parent (or grandparent) corporation of the owner or operator, or a principal shareholder of a subsidiary; a brother/sister corporation (corporation owned by the same parent) of the owner or operator; or a firm that has a substantial business relationship with the owner or operator. Id. §§ 264.147(g)(1), 265.147(g)(1). A "substantial business relationship" is one that "arise[s] from a pattern of recent or ongoing business transactions, in addition to the guarantee itself, such that a currently existing business relationship between the guarantor and the owner and operator is demonstrated to the satisfaction of the applicable EPA Regional Administrator." Id. § 264.141(h). The guarantor must submit proof that it passes the financial test set forth above and must describe the value received from the owner or operator in consideration of the guarantee. Id. §§ 264.147(g), 265.147(g).

\textsuperscript{46} Id. §§ 264.147(f)(1)(i), 265.147(f)(1)(i). "Net working capital" is defined as current assets minus current liabilities; "net worth" is defined as tangible assets (i.e., excluding goodwill and rights to patents or royalties) minus all liabilities. Id. § 264.141.

\textsuperscript{47} Id. §§ 264.147(f)(1)(i), 265.147(f)(1)(i).
of credit, a surety bond, or a fully funded trust for liability coverage. TSDF operators may demonstrate the required liability coverage through a combination of any of these mechanisms, provided that the total amount of coverage meets the minimum requirements for the facility. The same flexibility generally applies to closure and postclosure financial requirements as well: an owner or operator may use any of these mechanisms, alone or in any combination.

The regulations further provide that an owner or operator may obtain a variance from these requirements if it can show that the mandated levels of financial assurance are "not consistent with the degree and duration of risk" associated with operation of the TSDF. Conversely, EPA's Regional Administrator may increase the level of coverage required if "necessary to protect human health and the environment."

48. *Id.* §§ 264.147(h), 265.147(h). The letter of credit must be from an authorized financial institution regulated by a federal or state agency. *Id.* §§ 264.147(h)(1)-(2), 265.147(h)(1)-(2).

49. *Id.* §§ 264.147(i), 265.147(i). TSDF's selecting the surety bond option must be covered by a payment bond guaranteeing payment of valid third-party claims in the event the owner or operator fails to satisfy such claims. The amount of coverage guaranteed by the bond must equal the required per occurrence and annual aggregate amounts of financial responsibility. *Id.* §§ 264.147(i)(2), 265.147(i)(2).

50. *Id.* §§ 264.147(j), 265.147(j). A trust fund may be used to demonstrate financial responsibility if assets equal to the full amount of the coverage to be provided by the trust fund are placed in the fund before it becomes effective (i.e., if it is funded "up front"). *Id.* §§ 264.147(j)(3), 265.147(j)(3); see also Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities: Liability Coverage, 53 Fed. Reg. 33,938, 33,943 (1988) (final rule) [hereinafter Liability Coverage Final Rule]. While a fully funded trust provides a high degree of assurance because funds are set aside specifically for the purpose of liability coverage, the cost of such a fund is likely to be prohibitive.

51. 40 C.F.R. §§ 264.147–151, 265.147 (1989); see also Liability Coverage Final Rule, *supra* note 50, at 33,944. Where a combination of mechanisms is used, the owner or operator must specify one type of coverage as "primary" and the remainder as "excess" coverage. 40 C.F.R. §§ 264.147(a)(6)-(b)(6), 265.147(a)(6)-(b)(6) (1989). An owner or operator may combine self-insurance for part of the liability coverage with a corporate guarantee only if the financial statement of the guarantor and the owner or operator are not consolidated. *Id.*

52. In most respects, the requirements for the use of each mechanism for closure/postclosure costs parallel those outlined above for third-party liability coverage. See 40 C.F.R. §§ 264.143(a)-(f), 264.145(a)-(f), 265.143(a)-(e), 265.145(a)-(e) (1989). However, the first of the two alternative financial tests is augmented in the closure/postclosure requirements by a solvency test. The owner or operator must meet any two of three financial ratio tests: a ratio of net worth to total liabilities greater than or equal to 1:2; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 1:10; and/or a ratio of current assets to current liabilities greater than 3:2. *Id.* §§ 264.143(f), 264.145(f), 265.143(e), 265.145(e).

If the facility is covered by a trust fund, it may be a "sinking trust fund," which does not need to be fully funded up front. Owners and operators of interim status facilities may gradually accumulate the full amount of closure and postclosure costs over the expected life of the facility, or over a 20-year period beginning with the effective date of the regulations, whichever is shorter. *Id.* §§ 264.143(a)(3), 265.143(a)(3).

53. See *id.* §§ 264.143(g), 264.145(g), 265.143(f), 265.145(f).

54. *Id.* § 264.147(c); see also 42 U.S.C. § 6924(a) (1982 & Supp. V 1987).

55. 40 C.F.R. § 264.147(d) (1989).
B. Development of EPA's Regulatory Policy

The RCRA financial responsibility requirements have two distinct policy objectives. The first is a compensatory or "source of funding" objective. Both the third-party liability requirements and the closure/postclosure funding requirements ensure that if a facility owner is insolvent or defaults on its obligations, money will be available so that victims are compensated and closure is not accomplished at the expense of third parties. The compensatory objective is the most obvious characteristic of all financial responsibility requirements, including EPA's RCRA regulations.

The second objective is regulatory: the RCRA financial responsibility requirements are intended to encourage safe operating procedures at hazardous waste treatment facilities. EPA assumed that owners and operators of hazardous waste facilities would rely primarily on commercial insurance to meet the liability coverage requirements and that insurers would play an active role in the regulation — not merely the spreading — of risks associated with hazardous waste management. EPA agreed with commentators who argued that "the insurance industry, through its routine inspection and monitoring practices, would provide valuable oversight of hazardous waste management facilities during

56. As a corollary to this principle, the financial responsibility requirements prevent insolvency from undermining the deterrent effects of ordinary liability rules. See supra note 11. Without these requirements, companies would be able to escape liability through bankruptcy. See, e.g., Ohio v. Kovacs, 469 U.S. 274 (1985), aff'd 717 F.2d 984 (6th Cir. 1983) (industrial polluter escaped order to clean up toxic waste site under the protection of federal bankruptcy proceeding); cf. Note, supra note 11, at 405 (noting conflict between compensatory objective and deterrence objective). See generally Note, Cleaning Up in Bankruptcy: Curbing Abuse of the Federal Bankruptcy Code by Industrial Polluters, 85 COLUM. L. REV. 870 (1985) (discussing the clash between environmental legislation and the U.S. Bankruptcy Code and concluding that the Bankruptcy Code undermines financial responsibility requirements).

57. See infra text accompanying notes 187-224.

58. For example, in the interim final standards for TSDF's issued in 1981, EPA stated that "liability insurance is the most appropriate mechanism for assuring the public that there will be a pool of funds available from which third parties can seek compensation for claims arising from the operations of hazardous waste management facilities." Consolidated Permit Regulations, supra note 15, at 2827.

59. Id. The same regulatory objectives did not motivate the closure/postclosure funding requirement. Although the regulations permit the use of insurance to cover estimated closure and postclosure costs, 40 C.F.R. §§ 264.143(e) (closure), 264.145(e) (postclosure) (1989), insurers are unlikely to be willing to insure postclosure liability. See Cohen & Derkics, supra note 42, at 518 & n.43 (citing EPA, HAZARDOUS WASTE MANAGEMENT ISSUES PERTINENT TO SECTION 3004 OF THE RCRA OF 1976 (SW-183C) 50 (1979)).

Although initially Congress did not explicitly authorize EPA to impose liability insurance requirements, the Agency found implied authority in the financial responsibility provision of the Act, as interpreted in light of its legislative history. See Consolidated Permit Regulations, supra note 15, at 2821. Congress eventually amended RCRA to specifically authorize EPA to adopt a liability insurance requirement. Hazardous and Solid Waste Amendments of 1984 (HSWA), § 205, 42 U.S.C. § 6924(t) (Supp. V 1987). The legislative history of the HSWA supports EPA's assumption that Congress intended insurers to play an active regulatory role. See, e.g., Statement of Senator Moynihan, supra note 15, at S9176.
the interim status period, when EPA itself will be devoting the bulk of its resources to issuing facility permits.\textsuperscript{60}

The insurance industry, however, has not provided nearly as much coverage as was expected,\textsuperscript{61} and consequently EPA's regulatory policy since the early 1980's has been characterized more by reaction to changing conditions in the insurance market than by deliberate policy choices.\textsuperscript{62} EPA has responded to the tightening market by expanding the number and type of alternative financial mechanisms that will satisfy the financial responsibility requirements. Those changes, however, fail to replace the regulatory role envisioned for commercial insurers.

EPA first proposed financial responsibility regulations on December 18, 1978.\textsuperscript{63} The draft regulations would have required liability coverage for damages resulting from both sudden and nonsudden discharges of hazardous materials.\textsuperscript{64} The insurance industry resisted this development,\textsuperscript{65} however, and there was some evidence that insurance for nonsudden accidental occurrences was generally unavailable.\textsuperscript{66} In response, EPA delayed promulgation of final regulations and eventually withdrew its original liability insurance proposal.\textsuperscript{67} In 1980, Congress amended RCRA but left the original (statutory) financial responsibility requirements essentially unchanged.\textsuperscript{68}

\textsuperscript{60.} Consolidated Permit Regulations, \textit{supra} note 15, at 2827. Interim status permits are those permits under which facilities operate during the time period prior to the issuance of a final permit by EPA. The standards applied to interim status facilities are less stringent than those applied to facilities with final permits. The interim status period generally denotes the period of time after the passage of RCRA when most facilities were operating under interim status permits while EPA reviewed final permit applications. 45 Fed.Reg. 33,153, 33,158 (1980).

\textsuperscript{61.} \textit{See} Pollution Insurance, \textit{supra} note 18, at 28.

\textsuperscript{62.} \textit{See} Consolidated Permit Regulations, \textit{supra} note 15, at 2827.


\textsuperscript{64.} \textit{Id.} at 59,007.

\textsuperscript{65.} According to Leslie Cheek, chief counsel for Crum and Forster Insurance Companies, insurers objected to, among other things, the mandatory Hazardous Waste Facility Liability Endorsement proposed by EPA. More fundamentally, Cheek argues that insurers have "no mandate or desire to enforce public policy," and therefore attempts to cast insurers in the role of surrogate regulators constitute an improper delegation of EPA's regulatory responsibility. \textit{See} Cheek, \textit{supra} note 7, at 155-56.

\textsuperscript{66.} Several reasons have been suggested for this gap in available coverage. \textit{See}, e.g., Light, \textit{The Long Tail of Liability}, 2 Va. J. Nat. Resources L. 179, 182 (1982). Whatever the reasons, however, it was clear that EPA would postpone implementation of its financial responsibility regulations until pollution insurance became available.


EPA reversed its position on the liability insurance requirement again in early 1981, at the close of the Carter Administration. Apparently convinced that a market had developed for liability insurance covering the operation of interim status facilities, EPA announced proposed "interim final" TSDF standards that would have required liability insurance coverage for both sudden and nonsudden occurrences at all hazardous waste management facilities. The proposed regulations would not have permitted owners and operators of TSDF's to self-insure or to substitute any other financial mechanism for the required liability insurance policy. The Agency acknowledged that demand for nonsudden coverage might far outstrip supply and therefore that smaller waste management firms would experience greater difficulty in obtaining the required coverage than would larger firms, but it remained optimistic that insurance would soon become available.

In the early days of the Reagan administration, all work toward developing workable financial responsibility regulations came to a halt. It was the administration's intention to ease or eliminate the financial responsibility requirements and to ease the permitting process in general.

Because EPA was much slower in implementing RCRA than Congress had anticipated, Congress granted interim status to facilities in existence on Nov. 19, 1980, the effective date of the final TSDF regulations. Solid Waste Disposal Act Amendments of 1980 § 10, 42 U.S.C. § 6925 (1982 & Supp. V 1987). This amendment had the effect of grandfathering in those facilities that had entered the developing TSDF market since the enactment of RCRA. See Hazardous Waste Management System; General and EPA Administered Permit Programs; The Hazardous Waste Permit Program, 46 Fed. Reg. 2344 (1981) (interim final amendment to rule and request for comments) (interpreting and applying the Solid Waste Disposal Act Amendments). See generally S. REP. No. 172, supra, at 3 (clarifying that existing facilities would not be immediately subject to prosecution for failure to have a permit and would be entitled to interim status); H.R. CONF. REP. No. 1444, 96th Cong., 2d Sess. 33, reprinted in 1980 U.S. CODE CONG. & ADMIN. NEWS 5028, 5033 (stating that regulations should be flexible to allow for differing designs and locations of existing facilities and establishing that existing facilities are granted interim status). Existing facilities were thereby exempted from the final operating permit requirement, but were required to comply with the applicable regulations, including the financial responsibility requirements. 42 U.S.C. § 6925(e) (1982 & Supp. V 1987).

EPA attributed its change of heart to "further analysis by the Agency" following "[r]ecent discussions with the insurance industry." Consolidated Permit Regulations, supra note 15, at 2827.

EPA later announced, however, that it was considering alternative financial mechanisms that owners and operators could use to satisfy the requirements for liability coverage and delayed the effective date of the proposed regulations from July 13, 1981 to Oct. 13, 1981. Financial Requirements Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities; Deferral of Effective Date, 46 Fed. Reg. 27,119 (1981).

Consolidated Permit Regulations, supra note 15, at 2827. EPA again emphasized its "commitment to rely to the extent possible on the insurance industry to provide liability coverage for hazardous waste management facilities." Id. The Agency did not explain the reasons for its optimism. See id.

EPA seeks to ease financing rules on disposal sites, Wall St. J., Sept. 29, 1981, at 10, col. 2. This policy shift reflected President Reagan's campaign promises of general
On October 1, 1981, EPA deferred the proposed effective date of all of its January 1981 TSDF financial responsibility regulations until April 13, 1982 and considered withdrawing the liability requirements in their entirety.  

On February 25, 1982, EPA eased the financial responsibility regulations somewhat, but indicated that it was still undecided about the liability insurance requirement. EPA published "revised interim final" regulations on April 16, 1982, stating that the changes were "necessary to eliminate unworkable aspects of the previous regulations, improve their effectiveness, and allow reasonable flexibility in satisfying the requirements." The final regulations for sudden coverage became effective on July 15, 1982. These revisions allowed owners and operators of TSDF's to provide evidence of adequate self-insurance as an alternative to, or in combination with, liability insurance. Because EPA was still concerned that insurance for nonsudden occurrences might not be readily available, the requirements for nonsudden coverage were phased in over a period of three years, according to the size of the facility.

The Hazardous and Solid Waste Amendments of 1984 (HSWA) radically changed the RCRA regulatory scheme. In what proved to be...
one of its most important accomplishments precisely because of its immediate effect, Congress amended section 3005 of RCRA to require all land disposal facilities operating under an interim status permit to submit applications for final permits by November 8, 1985, one year after the date of enactment.\(^4\) Permit applicants were required, among other things, to certify compliance with applicable groundwater monitoring and financial responsibility requirements.\(^5\) Firms that failed to meet the statutory deadline would automatically lose their interim status classification and therefore would be required to close.\(^6\)

Congress made three additional changes to the RCRA financial responsibility requirements. First, HSWA established a new financial assurance requirement for corrective action.\(^7\) According to EPA estimates, approximately 50-60% of the interim status land disposal facilities operating at that time either had leaked or were leaking and needed corrective action.\(^8\) Consequently, HSWA added section 3004(u) to RCRA requiring TSDF’s to perform corrective action for continuing

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85. HSWA § 213(a)(3), 42 U.S.C. § 6925(e)(2)(B) (Supp. V 1987). This provision was enacted in response to surveys conducted by Congress and the General Accounting Office that showed widespread noncompliance with the groundwater monitoring and financial responsibility requirements. See, e.g., STAFF OF SUBCOMM. ON OVERSIGHT AND INVESTIGATIONS OF THE HOUSE COMM. ON ENERGY AND COMMERCE, 99TH CONG., 1ST SESS., GROUNDWATER MONITORING SURVEY (Comm. Print 1985). By tying the so-called loss of interim status provision to these requirements, Congress left no doubt as to the importance of the groundwater monitoring and financial responsibility requirements to the safe management of hazardous wastes. See H.R. REP. NO. 198, 98th Cong., 2d Sess., pt. 1, at 44, reprinted in 1984 U.S. CODE CONG. & ADMIN. NEWS 5576, 5603.

86. HSWA § 213(a), 42 U.S.C. § 6925(e)(2) (Supp. V 1987). Because the pollution liability insurance market had not revived by the November 8 deadline, Rep. James Broyhill introduced a bill, H.R. 3917, that would have extended the deadline one year for those facilities that certified compliance with groundwater monitoring requirements, but could not obtain pollution liability insurance. See EPA, SOME REPRESENTATIVES SUPPORT EXTENDING RCRA DEADLINE TO OBTAIN LIABILITY INSURANCE, [16 CURRENT DEVELOPMENTS] ENV'T REP. (BNA) 1256 (Nov. 15, 1985) [hereinafter RCRA DEADLINE]. Although the bill passed in the House, it died in the Senate while still in committee. See HOUSE PASSES BILL TO ALLOW RCRA LANDFILLS ADDITIONAL TIME TO OBTAIN LIABILITY INSURANCE, [16 CURRENT DEVELOPMENTS] ENV'T REP. (BNA) 1619 (Dec. 20, 1985).

Of the 1,600 interim status land disposal facilities operating at that time, approximately 1,200 failed to certify compliance with the groundwater monitoring requirements and were forced to close. Id. Of the remaining facilities, about 50 could not certify compliance with the financial responsibility requirements solely because they were unable to obtain liability insurance. Id.


releases of hazardous wastes. HSWA also amended RCRA section 3004(a)(6), the general financial responsibility provision, to require EPA to include financial responsibility requirements for corrective action in its TSDF performance standards.

Second, HSWA added the so-called direct action provision. Prior to the 1984 amendments, it was unclear whether EPA could proceed directly against a third-party guarantor or insurer when the owner or operator was insolvent and under the protection of the U.S. Bankruptcy Code, or solvent but outside the jurisdictional reach of the Federal or state courts. The new section allowed EPA to assert a claim for performance of closure, postclosure care, or third-party liability directly against the guarantor of financial responsibility, even if the owner or operator was insolvent or otherwise outside the reach of courts.

Finally, Congress unequivocally affirmed EPA’s liability insurance requirement in HSWA. Initially, RCRA did not clearly mandate that TSDF’s be insured against third-party liability, although EPA believed that section 3004(6) (now section 3004(a)(6)) provided sufficient authority for the Agency to impose such a requirement. In the new section 3004(t) of RCRA, Congress specifically authorized EPA to specify allowable financial responsibility mechanisms, including liability insurance, and to specify necessary or appropriate “policy [requirements] or other

89. HSWA § 206, 42 U.S.C. § 6924(u) (Supp. V 1987). RCRA § 3004(u) further requires TSDF’s to demonstrate the financial capability to complete such corrective action as a condition to obtaining an operating permit. Id.

90. The amendment added “(including financial responsibility for corrective action)” after “and financial responsibility” in RCRA section 3004(a)(6). HSWA § 208, 42 U.S.C. 6924(a)(6) (Supp. V 1987). Prior to the amendment, there was no requirement of financial assurance for corrective action. The amendment filled an important gap by requiring a funding alternative to CERCLA:

In instances where corrective action may be required, cleanup costs could be substantial especially if groundwater is contaminated. Such costs could well far exceed the costs of closure or postclosure maintenance. Many companies, faced with large corrective action costs, may choose, or be forced into, bankruptcy. In such cases, it is likely that the sites would have to be cleaned up using Superfund moneys. This amendment is designed to avoid that eventuality.

Statement of Senator Moynihan, supra note 15, at S9176.


92. Id. The guarantor’s liability is limited to the “aggregate amount which the guarantor has provided as evidence of financial responsibility.” Id.


94. Section 3004(a)(6) of RCRA provides in relevant part: “[T]he Administrator shall promulgate regulations establishing such performance standards, applicable to owners and operators of facilities for the treatment, storage, or disposal of hazardous waste . . . as may be necessary to protect human health and the environment . . . Such standards shall include . . . requirements respecting . . . financial responsibility . . .” 42 U.S.C. § 6924(a)(6) (1982 & Supp. V 1987).

contractual terms, conditions, or defenses.”96 Congress thus put EPA “squarely in the insurance regulatory business.”97

Since Congress enacted HSWA in 1984, EPA has twice been forced to change its regulatory policy. Responding to the difficulty that many firms have had obtaining insurance for third-party liability coverage, EPA recently expanded the number and type of alternative financial mechanisms that will satisfy the financial responsibility requirements. In 1986, the Agency authorized use of the corporate guarantee by a parent company for liability coverage,98 and in September 1988, EPA authorized use of letters of credit, surety bonds, trust funds, and guarantees provided by firms that are not the direct parent of the facility owner or operator.99

Although these changes added needed flexibility to the RCRA financial responsibility requirements, they further eroded Congress’ and EPA’s original strategy of relying on commercial liability insurers as surrogate regulators. As the next section demonstrates, EPA’s departure from that management strategy was to a large extent dictated by the deterioration in the market for environmental liability insurance.

II
MARKETPLACE REACTIONS: DECREASING SUPPLY AND THE ADVENT OF SELF-INSURANCE

A. The Decline of the Pollution Liability Insurance Market

Until the widely publicized insurance crisis,100 owners and operators of TSDF’s most frequently used liability insurance to satisfy RCRA’s

96. 42 U.S.C. § 6924(t)(1) (Supp. V 1987). In addition to insurance, Congress expressly authorized the use of guarantees, surety bonds, letters of credit, and “qualification as a self-insurer.” Id.; see also Statement of Senator Moynihan, supra note 15, at S9176-77.
99. Liability Coverage Final Rule, supra note 50, at 33,938. EPA announced that it will now accept a corporate guarantee from either a parent, grandparent, or sibling corporation, or from a company with a “substantial business relationship” with the owner or operator. Id. at 33,941-43 (codified at 40 C.F.R. § 264.147(g) (1989)); see also supra note 45.
100. The causes of the so-called insurance crisis in general, and of the problems that plague the environmental liability insurance market in particular, have been extensively debated. See Abraham, Environmental Liability and the Limits of Insurance, 88 COLUM. L. REV. 942 (1988). See generally D. Stever, supra note 97, § 5.06[3][e][ii] (historical discussion of RCRA liability insurance requirements).

According to insurance industry officials, uncertainties stemming from the broad scope of statutory liability for environmental hazards and from unfavorable judicial interpretations of insurance policy language have led to the tightening of the pollution insurance market. Pol-
financial responsibility requirements. During the last several years, however, the market for environmental liability insurance has contracted sharply. Liability coverage for damage caused by hazardous wastes is extremely difficult to obtain and, when available, is often prohibitively expensive. Moreover, the insurance coverage currently available is offered on comparatively restrictive terms. New policies have lower coverage limits, are issued on a novel claims-made basis instead of on a traditional occurrence-based basis, and so-called fronting policies are replacing true insurance policies. As a result of the increasing expense and reduced coverage of commercial liability insurance, more TSDF's are forced to rely upon one or more alternative financial mechanisms.

Congress first raised concerns about the availability of pollution insurance during the 1985-86 Superfund reauthorization process. Faced with conflicting testimony from the insurance industry and its critics, Congress directed the GAO to perform four insurance studies. In the first of those studies, the GAO concluded that pollution liability insurance continued to be generally unavailable and that the near-term outlook for increased availability did not look favorable. The report identified only one insurer that actively sought to insure pollution

101. POLLUTUON INSURANCE, supra note 18, at 25.
102. See id. at 28.
103. Id. at 28.
104. Between 1980 and 1984, the American International Group (AIG), the principal current supplier of pollution insurance, offered policies with coverage up to $20 million. In 1985 and 1986, however, maximum coverage dropped to only $10 million. AIG officials attribute the difference to a decline in the availability of reinsurance for pollution. Currently, AIG's maximum policy limit is $12.5 million, reflecting a greater availability of reinsurance, although about half of its policies are at the $6 million annual aggregate minimum level required under RCRA. INSURANCE AVAILABILITY, supra note 18, at 20.
105. Under a claims-made policy, the insurer is responsible only for claims made during the policy period (or an extended period for which an additional premium is paid). D. STEVER, supra note 97, § 5.06[3][e][ii] & n.477. By comparison, traditional occurrence-based policies "cover liability for activities that take place during the policy period, regardless of the timing of a suit that seeks to impose liability for these activities. The insurer's obligation to indemnify the insured for activities occurring during the policy period may extend to claims filed years after the expiration of that period." Abraham, supra note 17, at 131. See generally infra notes 124-129 and accompanying text.
106. See infra notes 130-132 and accompanying text.
107. POLLUTION INSURANCE, supra note 18, at 28.
108. Id. at 3-4.
110. The first study mandated by section 208 of SARA addressed "the availability of insurance for individuals who may be liable for the release of hazardous substances into the environment." See INSURANCE AVAILABILITY, supra note 18, at 14.
111. Id. at 2, 17.
risks, and only two reinsurers of pollution insurance. A number of other companies offered pollution insurance as an accommodation to their existing clients. In addition, the report identified five participant-owned and operated risk pools that provide insurance for catastrophic general liability losses and for sudden (but not gradual) pollution releases. Generally, commercial insurers told the GAO that they had withdrawn from the pollution insurance market because of the "uncertainties created by potentially enormous claim payouts and unfavorable legal trends." More importantly, insurers were pessimistic about reentering the pollution insurance market, even as the general liability insurance industry had begun to recover from its earlier financial crisis.

In a followup report published in October 1988, the GAO provided further evidence of a dramatically contracted insurance market. The number of insurers writing pollution insurance, the number of policies written, and the total pollution liability coverage written had de-

112. Id. at 17, 20. The GAO found that only AIG, a holding company for approximately 110 member companies, actively marketed pollution insurance. While "a number of other companies may occasionally write pollution insurance as an accommodation to their clients[,] AIG... is the only commercial insurance source we could identify that offers pollution insurance on a monoline basis (that is, without requiring the insured to carry any other AIG insurance)." Id. at 20.

113. Id. at 20. Reinsurers are companies that assume a portion of the potential liability risks that insurance companies underwrite in return for a share of the premium. Id. The availability of reinsurance for pollution liability risks has declined sharply since 1984, when foreign reinsurers began leaving the market. Id. at 23.

114. The coverage provided by a few insurers to a select number of existing clients was "limited, expensive, and may be available to only relatively low-risk operations." Id. at 17. The Pollution Liability Insurance Association (PLIA), a consortium of 18 insurance companies, offers only the minimum RCRA liability coverage required for sudden releases: $1 million per occurrence and $3 million annually. Id. at 22.

115. Id. at 24. Catastrophic coverage is so named because of the high level at which the coverage begins, usually above $25 million or more in losses, and because of the high levels of coverage that can be purchased, up to $140 million. Id. This coverage extends to general liabilities not specifically excluded under the excess coverage endorsement. Id.

116. Id. at 17; see also id. at 24 (citing Bus. Ins., Mar. 30, 1987) (describing the number and industry participation of the risk pools).

In an effort to fill this void, two new risk pools had been formed to provide pollution insurance for both sudden and nonsudden releases of hazardous wastes. See generally id. at 17, 25-26 (describing the efforts of new risk-retention groups). Because those groups were still in their formative stages at the time of the study, the GAO was unable to assess their effectiveness in meeting the insurance needs of their members. Id. at 17. The report did note, however, that "risk-retention groups targeting other areas, such as medical malpractice and product liability, have been slow to develop and have drawn criticism for not having sufficient capitalization to meet potential liabilities." Id. at 23.

117. Id. at 22.

118. See id. at 26.

119. POLLUTION INSURANCE, supra note 18.

120. Id. at 15. Although the number of insurers providing sudden and accidental coverage rose from 35 in 1982 to 42 in 1984, that number declined to 31 in 1986. Id. Similarly, the number of insurers providing gradual pollution coverage rose from 7 in 1982 to 19 in 1984, but then dropped to 12 in 1986. Id.

121. For example, the number of separate gradual pollution insurance policies written be-
creased rapidly after 1984. At the same time, the cost of sudden accidental release coverage increased during this period to six times the 1982 level, while the cost of gradual release coverage increased elevenfold.

Insurers who continued to write pollution insurance took other steps to limit their exposure by restricting the scope of their coverage. Responding to the unpredictable scope of retroactive liability, insurers replaced traditional occurrence-based coverage with new claims-made insurance policies. Under the latter, the insurer is liable only for claims that are filed during the policy period, usually one year. In addition, the coverage extends only to damage that occurred during the policy period or within a finite period of time before the policy became effective—the so-called retroactive period. Such policies exclude claims that arise from incidents predating the retroactive date of the policy. Thus, depending on the length of this retroactive period, claims-made policies do not cover prior releases of hazardous wastes. Perhaps more importantly, claims-made policies exclude all claims filed after the coverage is cancelled, regardless of when the injury or exposure occurred. Recovery by the insured (or, more precisely, the injured third party) therefore depends on whether the insurer continuously renews the policy. Thus, although the claims-made policy solves some of the problems associated with unpredictable retroactive liability, it is inadequate to deter accidents or to provide compensation for long-latent harms.

between 1982 and 1984 grew more than fivefold, but then declined just as rapidly between 1984 and 1986 to levels below those reported for 1982. Id. at 16-17.

Hazardous waste operators whose insurers had left the pollution insurance market were often unable to obtain substitute policies. For example, according to the GAO report, one insurer wrote 20 gradual insurance policies in 1985 but only 1 in 1986, which expired early in policy year 1986 and was not renewed. Of the other 19 policies, only 4 were picked up by different insurers in 1986. Id. at 16.

122. The total annual coverage rose from slightly less than $3 billion in 1982 to $5 billion in 1984, but then declined sharply to less than $1.4 billion in 1986. Id. at 17.

123. Id. at 19.


125. Abraham, supra note 17, at 131.

126. INSURANCE AVAILABILITY, supra note 18, at 71.

127. See D. Stever, supra note 97, § 5.06[3][e][ii] & n.477.

128. Since claims-made policies effectively do not cover nonsudden damages, insurers do not need to worry about injuries that surface years after the causal accident. See id. § 5.06[3][e][ii].

129. Note, supra note 11, at 418; see also Abraham, supra note 17, at 140 ("[I]nstead of promoting internalization of the costs of current activities, the claims-made approach shirks the task until these costs begin to manifest themselves.").
An even more dramatic reduction in coverage is evident in so-called fronting policies now used by some firms. These policies actually provide no primary insurance against loss because the facility operator's deductible is equal to the amount of "coverage" provided by the insurer. Insurers further limit their risk by requiring the insured company to provide a letter of credit equal to the level of coverage. A fronting policy is of limited value to the insured who receives no reduction in potential liability. Fronting policies are primarily useful as a source of funds for tort claimants if the insured is insolvent.

Thus, the market for environmental liability insurance has been constrained not only by the scarcity and high price of insurance, but also by a reduction in the scope of available coverage. Companies that still write environmental liability insurance do so only because they have managed to substantially reduce their exposure to liability. With the outlook for the supply of environmental liability insurance still uncertain, many hazardous waste management firms are relying on alternative financial mechanisms to satisfy the financial responsibility requirements. Others, particularly small firms, have been forced out of the waste treatment market altogether.

B. The Shift to Self-Insurance

The GAO's most recent survey concluded that the tighter pollution insurance market has caused an increasing number of facility owners to rely on their own assets to meet RCRA's financial responsibility requirements. From 1982 to 1984, approximately two-thirds of hazardous waste land disposal facilities used insurance, either alone or in combination with the financial test (usually for purposes of a deductible), to demonstrate adequate liability coverage. By 1986, only 40% of the firms surveyed used insurance. The remaining facilities self-insured by demonstrating company assets sufficient to pass the financial test. As a result, the majority of TSDF's have only their balance sheets to show

131. Id.
132. Id.
133. Id.
134. See id.
135. *Insurance Availability,* supra note 18, at 23.
138. Id.
139. The GAO restricted its analysis to insurance and the financial test because until 1986 these were the only mechanisms authorized under the financial responsibility regulations. See *id.* at 13.
financial responsibility for the potentially enormous costs of an accident involving hazardous wastes.

In addition, EPA's current regulatory scheme, coupled with the tightened insurance market, has skewed the competition in the hazardous waste treatment industry in favor of larger companies and has forced many smaller companies out of the hazardous waste business altogether.\textsuperscript{140} Approximately one-third of the facility owners who responded to the GAO survey reported that they had left the hazardous waste land disposal business since 1982.\textsuperscript{141} Both large and small companies reported having had difficulty obtaining pollution coverage.\textsuperscript{142} The impact of this scarcity, however, was not felt equally. Although smaller companies ceased operating at about the same rate as large companies, smaller companies cited the unavailability of insurance as the most important reason for their decision to cease land disposal activities.\textsuperscript{143} Larger companies, on the other hand, rated their desire to avoid regulation under RCRA as the most important factor and ranked insurance-related problems below all other considerations.\textsuperscript{144} These different reasons cited for discontinuing land disposal activities reflect the disproportionate economic burden imposed by the financial responsibility requirements in the current insurance market.

The author's examination of financial responsibility statements for California TSDF's indicates similar trends.\textsuperscript{145} In California, the State Department of Health Services compiles statements of financial responsibility for all hazardous waste management facilities.\textsuperscript{146} There are more

\textsuperscript{140} See id. at 4.
\textsuperscript{141} Approximately one-third of 644 facilities responding to the GAO study cited insurance problems as the primary reason for leaving the hazardous waste disposal business. Id. at 4, 12-13.
\textsuperscript{142} Id. at 21.
\textsuperscript{143} Id. at 21 & app. II.
\textsuperscript{144} Id. There was no correlation between the size of the facilities and groundwater monitoring or paperwork requirements, or other business-related reasons to go out of existence. Id.
\textsuperscript{145} Figures and data analysis in this section were derived from the author's personal evaluation of data gathered by state agencies. This information was collected during the week of March 20, 1989 in Sacramento from the financial responsibility statements on file at the State Department of Health Services.
than 400 facilities currently in operation in California subject to RCRA's financial responsibility requirements for sudden accidental occurrences. Approximately one-fourth of those are land disposal facilities that must also meet the financial responsibility requirements for nonsudden or gradual occurrences. The following data is taken from the financial responsibility statements of 284 TSDF's, including 56 land disposal firms.

The author's analysis of this data yields several interesting patterns in the choice of instruments used to meet the financial responsibility requirements (see table 1). First, firms are more likely to self-insure against the risk of third-party liability than to purchase commercial insurance. Among non-land disposal facilities, 47% of the firms used the financial test, while only 28% submitted evidence of insurance. Only 2 firms out of a sample of 228 used insurance in combination with the financial test. Fully 24% of non-land disposal facilities were in violation of the requirements and were the subject of compliance orders or civil actions, or had declared bankruptcy. Preference for the financial test is especially notable among large companies. Eighty-one percent of large non-land disposal firms currently operating TSDF's rely on the financial test, while only 14% purchased insurance.


California has the oldest and one of the most advanced hazardous waste management programs in the country. The state's manifest system became operational in 1974 and may have served as a model for EPA's regulations. Cohen, New Developments in State Hazardous Waste Legislation, 9 CAP. U.L. REV. 489, 491-92 (1980). Ironically, before California can obtain final authorization pursuant to RCRA section 3006(b), the state must rewrite its own regulations to conform to EPA's guidelines. See 40 C.F.R. pt. 271 (1989). The state is now in the process of completely rewriting title 22 of its administrative code to make the statute more closely parallel to the federal regulations.

147. Unlike under federal regulations, California requires firms to demonstrate the required levels of financial assurance for each facility. See CAL. ADMIN. CODE tit. 22, §§ 67027-67028 (1985). For the sake of clarity, however, the following data is represented according to the federal regulations: figures are for the number of companies operating hazardous waste facilities, not the total number of those facilities.

148. This number represents the number of companies operating one or more land disposal facilities, not the number of facilities in operation. Thus, these 56 operate a total of 111 land disposal facilities in California.

149. As indicated in table 1, the vast majority of firms not in compliance with the regulations were small firms.

150. For the purposes of this analysis, companies are classified as large if they, or their parent company, are included in the Fortune 500 list. See The Fortune 500, FORTUNE, April 24, 1989, at 398-99 (based on 1988 figures). Three companies that were included in the 1989 Fortune 500 list but were not in the 1990 list because they had been acquired by a nonpublic company, are nevertheless classified as large. All other companies are considered small.
TABLE 1

Financial Instruments for Meeting Third-Party Liability Requirements

<table>
<thead>
<tr>
<th>Financial Instruments</th>
<th>Financial</th>
<th>Both</th>
<th>Noncompliance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insurance</td>
<td>Test</td>
<td>Noncompliance</td>
</tr>
<tr>
<td>Non-land Disposal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sudden Accidental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large firms</td>
<td>9 (14%)</td>
<td>52 (81%)</td>
<td>0</td>
</tr>
<tr>
<td>Small firms</td>
<td>55 (34%)</td>
<td>56 (34%)</td>
<td>2 (1%)</td>
</tr>
<tr>
<td>All firms</td>
<td>64 (28%)</td>
<td>108 (47%)</td>
<td>2 (1%)</td>
</tr>
<tr>
<td>Land Disposal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sudden Accidental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large firms</td>
<td>3 (17%)</td>
<td>14 (78%)</td>
<td>1 (6%)</td>
</tr>
<tr>
<td>Small firms</td>
<td>5 (13%)</td>
<td>14 (37%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>All firms</td>
<td>8 (14%)</td>
<td>28 (50%)</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Nonsudden Accidental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large firms</td>
<td>3 (17%)</td>
<td>13 (72%)</td>
<td>1 (6%)</td>
</tr>
<tr>
<td>Small firms</td>
<td>5 (13%)</td>
<td>12 (32%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>All firms</td>
<td>8 (14%)</td>
<td>25 (45%)</td>
<td>2 (4%)</td>
</tr>
</tbody>
</table>

Among firms with land disposal facilities, the difference between use of commercial insurance and the financial test is similarly dramatic. While 45% of all firms rely on their own assets to insure against nonsudden or gradual occurrences, only 14% purchased commercial insurance. The distribution for sudden accident coverage is similar: 50% of all firms use the financial test in comparison to only 14% using insurance. Again, these figures are even more lopsided among large companies that can afford to self-insure. Seventy-eight percent of large firms relied on the financial test for sudden accidents whereas only 17% used commercial insurance. Similarly, 72% of large firms used the financial test for nonsudden occurrences while 17% purchased insurance. Also, the proportion of large firms that relied on their own assets to cover the risks of sudden and nonsudden accidents was in each case more than double the corresponding proportion of small firms that had self-insured. Apparently unable to afford commercial insurance, the remaining small firms which had neither self-insured nor purchased commercial insurance typically were not in compliance with the financial responsibility requirements.\(^{152}\)

\(^{151}\) Represents all firms not in compliance, regardless of the reason.

\(^{152}\) An astonishing 50% of small firms were not in compliance with the nonsudden liability coverage requirements and 45% were not in compliance with the sudden accident coverage.
Second, small firms are more likely to purchase insurance where it is required only for sudden accident liabilities (as with non-land disposal facilities) than where it is also required for nonsudden occurrences (as with land disposal facilities). Whereas 34% of small non-land disposal facilities purchased insurance for sudden accidents, only 13% of small land disposal facilities had insured against the risk of both sudden and non-sudden accidents. By contrast, large firms purchased insurance for the two types of risk at approximately the same rate (14% and 17% respectively).

Third, firms purchased more than the minimum amounts of required coverage only infrequently, and a high percentage of firms were not in compliance with the financial responsibility requirements at all. Only nine firms purchased surplus coverage; all of those were large. Moreover, approximately one-half of all land disposal firms and approximately one-third of all non-land disposal firms were not in compliance with RCRA's financial responsibility requirements. This suggests that RCRA's financial responsibility requirements are essential to maintaining even minimal levels of financial responsibility for hazardous waste management.

These results support the two principal conclusions reached in the GAO report. First, the unusually high price of pollution liability insurance has encouraged an increasing number of TSDF's, particularly large operations, to rely on the financial test to meet the financial responsibility requirements. Second, the severely tightened insurance market has forced some smaller facilities out of the hazardous waste business altogether. Firms that must rely upon an option other than the financial test face severe economic burdens in order to comply. EPA's efforts to minimize this burden through such means as surety bonds and letters of credit have largely been unsuccessful, as is evident from the comparatively small percentage of firms that use mechanisms other than insurance or the financial test. The next section of this Comment considers the policy disadvantages of the shift toward self-insurance.

III
THE PITFALLS OF EPA'S CURRENT REGULATORY APPROACH

The reduced availability of pollution insurance and the shift toward self-insurance have frustrated several goals of the financial responsibility requirements.

153. While approximately the same percentage of small non-land disposal firms used the financial test to cover sudden accidents as did land disposal firms (34% and 37% respectively), a much larger proportion purchased commercial insurance (34% compared with only 13%).

154. Although not represented in table 1, this statistic was gathered by the author in his study of Department of Health Services files.
requirements. In addition, some safely managed and technologically competent firms that were unable to self-insure or to meet the financial responsibility requirements through an alternative mechanism have been forced to close. This trend is likely to have adverse consequences on the nation’s capacity to safely manage and dispose of an increasing volume of hazardous wastes.

These developments raise doubts as to the adequacy of EPA’s response to the problems created by the constrained insurance market. This section first analyzes the drawbacks, from a public policy standpoint, of the financial test. Although the financial test adds flexibility to EPA’s financial responsibility regulations, it does so at substantial cost. This section then argues in favor of insurance-based financial responsibility requirements. In contrast to the financial test, liability insurance furthers both the compensatory and the regulatory goals underlying RCRA’s financial responsibility requirements.

A. The Weaknesses of the Financial Test

EPA has long maintained that alternative financial tests should adequately serve the original goals of RCRA’s financial responsibility requirements. As early as 1978 EPA suggested a financial test as an alternative to liability insurance. In 1982, when adopting the financial test in its current form, the Agency stated:

By meeting the test, owners or operators demonstrate that they are capable of using their current assets to pay for damages up to the amounts of annual aggregate coverage required by the regulations. Therefore the public is still afforded reasonable assurance that funds will be available to compensate for damages which might result from the operation of their

155. See generally Schwartz & Souk, supra note 136, at 636.

156. Insurance Availability, supra note 18, at 35. For example, approximately 60 land disposal facilities, or 11% of the disposal facilities operating at the time, failed to certify compliance with the financial responsibility requirements by the November 8, 1985 loss-of-interim-status deadline imposed by section 208 of HSWA and were therefore forced to close. RCRA Deadline, supra note 86, at 1256. EPA specifically noted that those facilities were required to close solely because they were unable to meet the financial responsibility requirements, not because they failed to meet requisite safe management standards. Id.

157. "[I]t seems reasonable to assume that capacity has diminished with diminishing insurance availability.” Pollution Insurance, supra note 18, at 28.

158. Hazardous Waste Guidelines, supra note 63, at 59,007. This “proposal” was premature. EPA did not request comments on whether a financial test should be adopted to satisfy the liability requirements until it published interim final regulations on Jan. 12, 1981. Consolidated Permit Regulations, supra note 15, at 2828. The Agency adopted the financial test in its current form in a revised interim final rule published on April 16, 1982. Liability Requirements, supra note 15, at 16,546.

The first proposed financial test differed in a number of respects from the current version, but it contained similar basic components, such as a minimum equity to liability ratio for self-insurers and minimum tangible net worth. See Consolidated Permit Regulations, supra note 15, at 2826 (describing the financial test for closure and postclosure cost estimates, upon which it was based).
hazardous waste management facilities. Hence, the main objective of the liability requirements is satisfied.\textsuperscript{159}

This conclusion, however, is not justified for a number of reasons related both to the reliability of the test and its effect on the regulatory goals of the financial responsibility requirements.

EPA's financial test is not a sufficiently reliable indicator of financial strength to guarantee that, at some time in the future, money will be available to compensate victims of an industrial accident or to pay for the closure and postclosure maintenance of a TSDF. Minimum net worth and liquidity requirements ensure only that a firm has the capacity to pay a limited amount of its present liabilities. They do not guarantee funds for contingent liabilities that are not likely to be assessed for several years, due for example to the long latency of illnesses caused by chemical exposure and the lengthy litigation process required to obtain a judgment. Although a healthy balance sheet offers some indication that injured victims will receive compensation, it by no means provides the degree of assurance that compulsory insurance and surety mechanisms provide.

Additionally, EPA's financial test suffers from several weaknesses that undermine the regulatory objectives of the RCRA financial responsibility requirements. First, allowing a firm to rely on the strength of its balance sheet to meet the financial responsibility requirements creates weaker cost internalization than do compulsory insurance requirements.\textsuperscript{160} Unlike an insurance payment or other current expense, contingent liability claims are not reflected in a facility's current production costs, income statements, or balance sheets.\textsuperscript{161} Furthermore, while liability insurance, surety bonds, and letters of credit assign prices to risks in competitive markets, and therefore more accurately assess the cost of future accidents, the efficacy of the financial test "depend[s] ultimately on shareholders' concerns about risks to corporate assets as a check on management safety decisions."\textsuperscript{162} Decisionmakers primarily interested in maximizing short-term profits will be tempted to economize on avoidance costs that would reduce total costs only in the long run.\textsuperscript{163} Thus, as

\begin{itemize}
\item \textsuperscript{159} Liability Requirements, supra note 15, at 16,546.
\item \textsuperscript{160} M. KATZMAN, supra note 21, at 44. For a thorough description of this public risk management principle, see generally id. at 5-7, 151-54; Abraham, supra note 17, at 125-34.
\item \textsuperscript{161} M. KATZMAN, supra note 21, at 42.
\item \textsuperscript{162} Note, supra note 11, at 406 n.9.
\item \textsuperscript{163} See, e.g., id. at 405 & n.5 (offering an illustrative numerical example). One of the primary purposes of financial responsibility requirements is to combat this very tendency. In the hazardous waste management industry, however, profit-maximizing firms are not likely to invest adequately in safety for two reasons. First, such firms grossly underestimate the risk of accidents and therefore the correct marginal cost of accidents. M. KATZMAN, supra note 21, at 134 (interviews with risk managers suggest that low probability risks are considered negligible and thus are ignored in loss-prevention and loss-protection decisions). Second, and more importantly, a single liability judgment for an accident involving hazardous wastes is likely to
a result of weaker cost internalization, the financial test provides less deterrence than does compulsory insurance.164

Second, EPA necessarily relies on self-reporting to monitor use of the financial test. As with any self-administered test, EPA depends on the accuracy and truthfulness of documents supplied by the firm's chief financial officer and an independent certified public accountant to determine whether the firm meets the required criteria.165 EPA's direct oversight is minimal; it (or a qualified state agency) only verifies that the self-insurer annually updates all required information.166

Third, heavy reliance on the financial test, particularly among larger firms, will continue to hinder the development of a competitive insurance market.167 Larger firms, which are more likely to utilize the financial test, would otherwise comprise a major segment of an insurance market.168 This departure of large firms from the pollution insurance market compounds the problems faced by smaller firms that have been unable to obtain coverage.169

Finally, the increasing reliance on self-insurance and decreasing use of commercial insurance diminish the potential for surrogate regulation. EPA's tolerance for self-insurance frustrates the congressional policy of using the insurance underwriting process as a means of promoting safety among TSDF operators.170

B. The Case for Insurance-Based Safety Incentives

Commercial pollution liability insurance can provide a powerful and efficient market-based tool for environmental regulation and public risk management.171 First, in addition to providing a more certain source of compensation for accident victims, pollution liability insurance internalizes the cost of hazardous waste management and thereby produces a
more optimal level of investment in risk control technology. Second, a pollution liability insurance requirement enlists commercial insurers as surrogate regulators in the effort to police the hazardous waste management industry.

1. Cost Internalization and Victim Compensation

A liability insurance requirement facilitates the internalization of costs involved in hazardous waste management and promotes efficient levels of accident deterrence by "imposing current internal costs that are proportional to future external risks." Pollution liability insurance achieves these results by imposing on the hazardous waste manager a proportionate amount of the costs that would otherwise fall on third parties. Financial responsibility requirements in general, and liability insurance in particular, also prevent insolvency from undermining the accident deterrence and cost-internalization effects of ordinary liability rules.

At the same time, insurance policies serve their usual purpose: they provide a reliable source of funding for paying the compensation, abatement, and transaction costs that are covered under the terms of the policy. Thus, if owners and operators of TSDF's are required to meet financial responsibility requirements through insurance, then accident victims are more likely to be fully compensated for their losses, closure

172. See Abraham, supra note 17, at 124. But see C. Heimer, Reactive Risk and Rational Action: Managing Moral Hazard in Insurance Contracts 35-36 (1985) (arguing that insurance weakens deterrence by transferring risk from insureds to insurers). The counterargument was reflected, for some time, in provisions of New York insurance law that prohibited the issuance of nonsudden, nonaccidental pollution insurance except where required to meet the financial responsibility requirements of state or federal law. N.Y. Ins. Law § 46(13)-(14) (McKinney 1985) (current version at § 1113(13)-(14)), amended and repealed in part by 1982 N.Y. Laws ch. 856, §§ 2029-2030.

173. Those costs are avoidance costs, abatement costs, compensation costs, and transaction costs. See Kunzman, supra note 17, at 478; Note, Allocating the Costs of Hazardous Waste Disposal, 94 Harv. L. Rev. 584, 585-87 (1981).

174. M. Katzman, supra note 21, at 5. Effective cost internalization requires the insurer to revise periodically the cost of liability insurance to reflect the insured's liability record. Abraham, supra note 17, at 126. Ideally, the market will raise premiums until it becomes unprofitable for the hazardous waste facility to operate at less than optimal levels of safety.

175. See Note, supra note 11, at 405; see also M. Katzman, supra note 21, at 138 (stating that the same argument holds true for other out-of-pocket financial assurance mechanisms such as surety bonds and letters of credit). It should be emphasized that environmental liability insurance does not function independently of underlying liability rules. Tort law provides the structure of relative liabilities that are then allocated by insurance mechanisms. See Ralston, Pollution Liability and Insurance: An Application of Economic Theory, 46 J. Risk & Ins. 497, 505-06 (Sept. 1979).

176. See, e.g., Consolidated Permit Regulations, supra note 15, at 2827 ("EPA believes liability insurance is the most appropriate mechanism for assuring the public that there will be a pool of funds available from which third parties can seek compensation for claims arising from the operations of hazardous waste management facilities.").
and postclosure costs are more likely to be paid, and risk managers should follow a socially optimal policy of accident avoidance.

The effectiveness of insurance-based safety incentives, however, depends on certain conditions. At the outset, insurers must be able to determine the cost of expected claims in order to set appropriate premiums. Several obstacles, however, stand in the way of accurate pricing. First, insurers do not have access to sufficient information concerning the properties of toxic wastes or safe methods of toxic waste disposal. "Technology in this area appears to be in its infancy. Thus, an insurer cannot be certain whether the present storage or handling practices are safe, even if they are commensurate with the state-of-the-art technology." Pricing difficulties are compounded because future liability costs are so uncertain. There are at least two reasons for this. First, insurers have not had sufficient claims experience in the hazardous waste industry to derive statistically reliable loss data that would otherwise form the basis of rate-setting practices. Instead, premiums are based more upon an underwriter's judgment and conjecture than upon knowledge derived from past experience with the industry. Second, the unusually long latency period between exposure to or release of toxic chemicals and manifestations of disease or discovery of environmental harm makes accurate predictions of future liability very difficult. This is the so-called long-tail-of-liability problem, where liability for injuries caused by events during a particular policy period may not be discovered or manifested until after coverage expires. The considerable uncertainty in this area is traceable to developments in the law of toxic torts, which not only have greatly expanded insurers' exposure to liability, but also have imposed liability retroactively.

177. See Note, supra note 11, at 403 (insurers must be able to monitor insureds' safety practices at reasonable cost, and applicable liability standards must allow insurers to predict liability on the basis of safety practices).

178. See Abraham, supra note 17, at 128 & n.24 (citing N. DOHERTY, INSURANCE PRICING AND LOSS PREVENTION 18 (1976)).

179. Id. at 127 (noting the lack of knowledge concerning carcinogenic properties of toxic chemicals, the synergistic effects of chemicals that have been mixed together during storage, and the latency period between exposure to chemicals and manifestations of disease).

180. Kunzman, supra note 17, at 481.

181. Abraham, supra note 17, at 128-29.

182. M. KATZMAN, supra note 21, at 90.

183. Id.; Abraham, supra note 17, at 128-29 & n.25 (quoting L. Cheek, Hazardous Substance Liability Insurance for Vessels and Facilities 17 (1981) (unpublished manuscript) (premiums "are based on a combination of judgment, guesswork, prayer, and the ancient principle of charging what the traffic will bear").

184. Abraham, supra note 17, at 127.

185. See generally Light, supra note 66 (discussing the shortcomings of present financial responsibility requirements in dealing with the costs of the long-tail-of-liability problem).

186. See id. at 194-96. Claims-made coverage is, of course, the insurance industry's response to the long-tail-of-liability problem. Id. at 190-93.
While the difficulties involved in accurately pricing these risks cannot be ignored, they are not insurmountable. The companies that still write pollution insurance presumably have found ways to cope with these issues (or have discounted their importance). Moreover, the lack of empirical data should diminish progressively as claims experience accumulates with respect to ongoing operations, closure, and postclosure management. In sum, these problems do not indicate that insurance requirements should be abandoned.

2. Surrogate Regulation

In addition to ensuring that a pool of funds is available to compensate injured third parties and that the costs of hazardous waste management are internalized, compulsory insurance can serve as an important adjunct to public regulatory efforts. In its simplest form, the theory of surrogate regulation suggests that insurers can encourage careful and responsible management of hazardous waste facilities through use of premium costs and policy conditions. Under a regime of mandatory insurance coverage, insurers have a considerable amount of leverage over their policy holders. This stems primarily from an insurer's right to contractually limit the scope of its coverage and to refuse to cover uninsurable risks. Thus, at one extreme, owners and operators of hazardous waste facilities that employ unsound disposal methods will be unable to obtain insurance and therefore will be unable to obtain a final operating permit. As a matter of public policy, this is a desirable result. Firms that are uninsurable in a competitive market pose a risk to public health and the environment, a risk which presumably is not justified by the firms' social utility. Such firms should be forced to close.

While this screening function is important, it by no means exhausts the potential benefits of insurer regulation. Equally important for risk

187. See Abraham, supra note 17, at 139-47.
188. Coverage exclusions and other policy defenses are the standard regulatory tools of the insurance industry. See id.; cf. Cheek, supra note 7, at 151 (identifying contractual defenses and insurers' ability to deny coverage as crude quasi-regulatory tools). Although the compensatory objective of the financial responsibility requirements favors restricting insurers' freedom to contractually limit their coverage, see, e.g., Note, supra note 11, at 404, insurers require some means of directly influencing their insureds' behavior if they are to fulfill their role as surrogate regulators. Abraham, supra note 17, at 143-45.
190. An insurer's power to put individual firms out of business is problematic only where the qualifications established by insurers diverge from those intended by government. Abraham, supra note 17, at 144 & n.71 (citing Pfennigstorf, Insurance of Environmental Risks: Recent Developments, in A.B.A. ENVTL. L. SYMPOSIUM 31-32 (1982)).
191. Unfortunately, while this approach is sound in an active, healthy insurance market, it operates unfairly where insurance is unavailable for other reasons, including high premium costs, and withdrawal of companies from the field. See POLLUTION INSURANCE, supra note 18, at 21.
reduction is the ongoing oversight that the insurance industry provides through routine site inspections and other forms of monitoring of insured operations. When coupled with the appropriate safety incentives, this type of oversight can be very effective.

In the field of government-administered environmental regulation, incentives normally are provided by a system of regulatory standards enforced by fines and the threat of permit revocation. Alternatively, the public sector can encourage a socially optimal level of activity by levying a tax upon undesirable levels or kinds of pollution. The polluter may then determine the best method of waste reduction and pollution control to optimize its net profits.

In theory, private insurance contracts can also provide both direct regulation (e.g., policy conditions) and market incentives (e.g., premium schedules) that will encourage insureds to operate at an optimal level of risk. The insurance contract will typically include policy conditions designed to force the insured to implement certain methods of production or to adopt more efficient pollution control technologies. Contract provisions also often require adherence to specified safety practices. When combined with the threat of cancellation, nonrenewal or premium increase upon the expiration of coverage, or the denial of coverage for accidents caused by the activities for which coverage is excluded, such provisions create quasi-regulatory incentives for the insured to follow risk-reducing practices.

Similarly, premium schedules that reflect differences in expected losses provide a direct economic incentive to invest in superior methods of accident avoidance. "Risk-reducing actions will be proportionately

192. This is an example of so-called command and control regulation: the legislature sets standards applicable to the private sector that are enforced by administrative or executive agencies. Abraham, supra note 100, at 954-55.

The RCRA minimum technology requirements for TSDF's serve as a good example. See 40 C.F.R. pt. 264 (performance standards for TSDF's); RCRA § 3008(a)-(c), 42 U.S.C. § 6928(a)-(c) (1982 & Supp. III 1985) (authorizing EPA to issue a compliance order, which may include an administratively issued civil penalty, suspension or revocation of a permit, or either injunctive relief or a civil penalty issued in federal court).

193. See Kunzman, supra note 17, at 480.

194. Id.

195. See M. Katzman, supra note 21, at 89; Abraham, supra note 100, at 954. Such provisions often go beyond typical noncompliance exclusions, which prohibit coverage if the insured does not comply with applicable environmental laws and regulations.

196. See Abraham, supra note 100, at 954-55 ("[T]he costs the insurer can impose on the insured in the event that risk management advice is not followed are likely to create significant incentives for the insured to manage risk as directed by the insurer."); see also Note, supra note 11, at 406.

197. See N. Doherty, supra note 178, at 16-21. See generally Ehrlich & Becker, Market Insurance, Self-Insurance, and Self-Protection, 80 J. Pol. Econ. 623 (1972) (challenging the concept that "moral hazard" is an inevitable consequence of market insurance, by demonstrating that under certain conditions market insurance may reduce the probability of hazardous events).
rewarded by reductions in premiums.” Alternatively, because premiums are adjusted to represent the actual risk—and therefore the true cost—of engaging in a particular activity, insurers can use the premium as a type of use tax to reduce the level of that activity to a socially optimal level. Stated somewhat differently, high premiums act as an economic disincentive to engaging in particularly risky activities.

In addition, ongoing risk assessments provide (to both insurer and insured) the information necessary to identify the most cost-effective method of overall risk management. The process of risk assessment begins prior to the issuance or renewal of a policy. Virtually all environmental impairment liability (EIL) insurers now require a risk analysis, performed by an independent engineering firm, of the prospective insured’s activities. Site inspections are designed to identify both the unique features of the applicant’s operations and those characteristics that it shares with other facilities of the same type. The inspections then form the basis of the insurer’s evaluation of the risks posed by the firm’s activities. Furthermore, the risk assessment itself has positive regulatory effects that supplement regulatory provisions and the economic incentives of premiums. Because a favorable risk assessment is a prerequisite to insurance coverage, any firm seeking to obtain or renew such coverage has an initial as well as an ongoing incentive to follow recom-

198. M. KATZMAN, supra note 21, at 153.
199. This is a corollary to effective cost-internalization. If the cost of today’s premium (and other compliance costs) fully internalizes the (discounted) future costs that society may have to bear from accidents involving hazardous wastes, then, presumably, the price of services and products that produce such wastes will rise. Higher prices will, in turn, reduce demand and encourage reuse or recycling. See M. KATZMAN, supra note 21, at 41-42.
200. “By applying its skills in actuarial science and safety engineering, the insurance industry will assist polluters in identifying cost-effective risk-reducing actions.” M. KATZMAN, supra note 21, at 152; see also Katzman, supra note 171, at 616.
201. In the initial application, a prospective insured is usually required to describe the general nature of the risks to be covered. A typical applicant must indicate: the type and volume of hazardous material handled; characteristics of containment facilities; site geology; corporate environmental policies; monitoring, control, and response capabilities; and general site security. M. KATZMAN, supra note 21, at 87; see also Smith, supra note 189, at 341.
202. Insurers developed the EIL policy in response to judicial uncertainty about the scope of liability under the more traditional comprehensive general liability (CGL) policy. The distinguishing characteristic of the EIL policy is its claims-made, as opposed to occurrence-based, feature. See M. KATZMAN, supra note 21, at 85-86; Abraham, supra note 17, at 130-34.
203. See Abraham, supra note 100, at 954 (citing ALL-INDUSTRY RESEARCH ADVISORY COUNCIL, POLLUTION LIABILITY: THE EVOLUTION OF A DIFFICULT INSURANCE MARKET 26-29 (1985)). The typical risk analysis is an imperfect tool, however, as it is generally dependent on crude categorizations of hazards. M. KATZMAN, supra note 21, at 153.
204. Abraham, supra note 100, at 954 (citing ADVISORY COMMITTEE ON ENVT'L. LIAB. INS., NAT'L ASS'N OF INS. COMM'RS, ENVIRONMENTAL LIABILITY INSURANCE IV-4 (1986) (describing engineering surveys)).
mended management practices. Finally, competitive pressures in insurance markets produce more accurate methods of risk analysis.

The hypothesis that insurers can assist the public sector in regulating risks, however, is based on several assumptions relating to both the regulated industry and the insurance market. For instance, it is assumed that the insurance market can adequately control accident costs, that regulation can reflect long-term latent risks, and that regulation can adapt to changes in the industry. Critics suggest that these assumptions are largely inapplicable to the hazardous waste management industry generally, and to the current pollution insurance market in particular. Therefore, critics claim, the premise underlying the policy of surrogate regulation is invalid, making the policy itself unworkable under current circumstances.

In addition to the problems outlined above associated with accurate insurance pricing, critics posit several other policy concerns. First, they argue that the insurance industry exists to maximize profit—a goal that is not necessarily consistent with broader social welfare goals. "Reduction in claim frequency and severity (loss prevention) is an incident to profitable underwriting, [but] not a major objective in itself." This argument assumes, however, that competitive forces among insurers will necessarily relegate considerations of safety and loss prevention to a secondary position. That assumption is questionable, since avoidance costs are generally much lower than cleanup costs. Also, the suggestion

205. Abraham, supra note 100, at 954. An underwriter may update the initial risk analysis at regular intervals, such as at policy renewal dates, or require additional risk assessments of the insured’s facilities as a condition of renewal. M. Katzman, supra note 21, at 88.

206. See Note, supra note 11, at 406 n.9.

207. See Note, supra note 11, at 407-09; Katzman, supra note 171, at 616.

208. See, e.g., Cheek, supra note 7, at 154-60.

209. Whether the policy is fatally flawed is still the subject of some debate. Compare Cheek, supra note 7, at 154-60 (arguing that the policy is flawed because it fails to address the difficulties in casting insurers as risk-eliminators) with Abraham, supra note 17, at 139-47 and M. Katzman, supra note 21, at 152-53 (stating that the policy objective is effective in identifying risk-reducing behavior). Whether insurers should be risk managers or regulators as well as risk spreaders is more complicated than the dichotomy would suggest. The question is one of degree; insurers have historically served as an important complement to public sector regulation. See James, Accident Liability Reconsidered: The Impact of Liability Insurance, 57 Yale L.J. 549, 560-61 & n.33 (1948) (attributing dramatic safety improvements in elevators, steam boilers, industrial machinery, and aircraft to insurers’ research and inspection programs); C. Heimer, supra note 172, at 61-66 (describing reductions in fire losses achieved by Factory Mutual insurance groups). It remains to be seen, of course, whether insurers can continue to play that role in the hazardous waste management industry.


211. Cheek, supra note 7, at 175.

212. See, e.g., Note, supra note 173, at 585-86 (citing estimated costs associated with the hazardous waste dump at Love Canal: avoidance costs of $4 million compared to abatement
that insurers will “waive enforcement of expensive loss prevention rules for a minor increase in the premium” seems equally improbable. It assumes that firms in the business of measuring, controlling, and spreading long-term risks will imprudently forsake that orientation for quick gain.

The second criticism of surrogate regulation is one of equity; it has been referred to as “the problem of underregulation.” Large companies that can afford to self-insure avoid the additional regulatory and economic burdens imposed on smaller firms that must obtain commercial insurance. Large firms therefore operate with an obvious competitive advantage over their smaller counterparts. Critics argue, therefore, that “financial responsibility requirements pose a formidable barrier to competition.” That argument, however, cuts both ways. The inequity is due as much to the self-insurance alternative available only to larger firms as it is to the financial responsibility requirements in general. So, while it is clear that the regulatory burden should be spread evenly, it does not follow that insurers should not play a part toward achieving that end.

The third policy argument against insurer regulation is that this sort of delegation of EPA’s regulatory duties is not cost effective and that it dilutes the overall effectiveness of Congress’ regulatory scheme under RCRA. Insurers argue that “financial responsibility requirements do not reduce regulation and its attendant costs; they merely impose them indirectly, and therefore less effectively.” To the extent that insurers must duplicate functions formerly performed only by the government, such as site inspections, the delegation is inefficient. Moreover, the government must regulate the private regulators in addition to the regulated industry. These arguments, however, greatly exaggerate the degree of inefficiency occasioned by insurer regulation. Insurers do not begin to replace or significantly duplicate the regulatory functions of EPA or a state agency, nor do they perform any of the uniquely governmental regulatory functions that are necessary, such as promulgating and enforcing

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213. Cheek, supra note 7, at 175.
214. See Kunzman, supra note 17, at 484. This somewhat oversimplifies the facts. In some cases, large firms are self-insured only for a large deductible or retention, and purchase insurance for comparatively high levels of risk. Id. at 487.
215. Id. at 484; Cheek, supra note 7, at 175-76. As might be expected, the large oil, chemical, and waste management firms—many of which are self-insured for far more than the minimum amounts set by EPA—are the strongest advocates of financial responsibility requirements. Cheek, supra note 7, at 175-76.
216. Cheek, supra note 7, at 175.
217. Id. at 176.
218. Id.
219. Id.
regulations or processing permit applications.\textsuperscript{220} Regardless, a minimal duplication of oversight is justifiable, given the widespread nature of the problems associated with managing hazardous wastes, and the comparatively limited public resources available to address these problems. In many cases, insurers are probably better situated to monitor, inspect, and impose restrictions on their insureds' operations than is a government agency.\textsuperscript{221}

Despite the limitations discussed above, environmental liability insurance can serve risk management goals as well as risk-spreading goals. Insurers of risks associated with toxic wastes can supplement public regulatory efforts, principally through risk assessments, premium schedules, and contract provisions.\textsuperscript{222} Furthermore, insurers retain the freedom to deny or refuse to renew coverage for objectively uninsurable facilities.\textsuperscript{223} It is equally clear, for the reasons discussed above, that mandatory insurance requirements cannot serve as a substitute for direct public sector regulation. The primary purpose of insurance is and should remain compensation. The deterrence objectives of safety and loss prevention, while incidents to profitable insurance underwriting, are necessarily of secondary importance. Controlling unwarranted risk should be the primary (but not exclusive) function of direct government regulation.

It is clear that the potential benefits of surrogate regulation have not been realized because of the limited availability and the high costs of environmental impairment liability coverage. Although EPA allows the use of a variety of alternative financial mechanisms under current regulations, only self-insurance and the corporate guarantee are cost effective for most firms.\textsuperscript{224} Neither of these mechanisms, however, provides sufficient assurance of compensation or an optimal level of deterrence. The next section briefly considers several possible reforms that could refocus RCRA's financial responsibility requirements to better serve Congress' original goals.

\textsuperscript{220} See id. at 174-75.
\textsuperscript{221} See Kunzman, supra note 17, at 485 (insurers enjoy greater freedom of movement and are less susceptible to bureaucratic red tape than their government counterparts). Kunzman does not presuppose that such a system will be more efficient; he merely urges that its benefits should be fully considered.
\textsuperscript{222} Policy defenses, such as exclusions for injuries resulting from breach of existing regulatory requirements or the insurer's own safety standards, undermine the compensatory goals of financial responsibility requirements. See Abraham, supra note 17, at 143-45; Note, supra note 11, at 404.
\textsuperscript{223} See 40 C.F.R. §§ 264.151(i), 265.151(i) (1989) (insurers may deny or refuse to renew coverage for uninsurable facilities, subject to a 60-day notice requirement).
\textsuperscript{224} See, e.g., Cohen & Derkics, supra note 42, at 516-18. Both self-insurance and the corporate guarantee depend upon the financial test. Therefore, although the discussion that follows is framed in terms of the financial test, its conclusions are applicable to both alternative financial assurance mechanisms.
IV
SUGGESTED CHANGES TO EPA'S CURRENT REGULATIONS

The RCRA financial responsibility requirements clearly are designed to serve important compensatory and regulatory objectives. Both purposes have been frustrated, however, by the withdrawal of commercial insurers from the pollution insurance market. Ironically, EPA's reliance on the insurance industry to provide a reliable source of funding and to aid the Agency's efforts to reduce the risks associated with the hazardous waste industry has proven to be the Achilles' heel of an otherwise sound management policy. The benefits of pursuing that policy, however, warrant new efforts to strengthen the currently moribund insurance market.225

Many recent proposals aimed at reviving the pollution insurance market have focused on tort reform.226 Essentially, these would modify, through legislation, the legal doctrines that have caused the greatest degree of uncertainty surrounding insurer liability for hazardous waste cleanup. Examples include elimination or modification of joint and several liability, elimination of the collateral source rule, and limiting recovery for punitive and noneconomic damages and attorneys' fees.227 In addition to reform of the underlying liability rules, the availability of pollution liability insurance will depend on more uniform and predictable judicial interpretations of the relevant coverage provisions of insurance policies.228 Adverse decisions involving the scope of the pollution exclusion clause in a typical comprehensive general liability policy, or the scope of an environmental impairment liability policy, have significantly hindered the pollution insurance market.229

225. Some observers have predicted that the contraction in the pollution insurance markets will be short lived, see, e.g., Shapiro, New Markets for EIL Risks Emerging, BUS. INS., Feb. 13, 1989, at 15-16, even if EPA fails to tighten coverage requirements and to expand their scope. See Responses to Comments on Federal Register Notice Concerning RCRA Financial Assurance Requirements for Liability, 50 Fed Reg. 33,902 (1985).


227. See INSURANCE AVAILABILITY, supra note 18, at 50-51 (as of 1987, 24 states had modified or abolished joint and several liability, although 9 made exceptions for pollution damages; 12 capped noneconomic damages such as damages for pain and suffering and emotional distress; 4 capped attorneys' contingency fees; and 17 states limited punitive damages); Abraham, supra note 100, at 976-88. Commentators have suggested a variety of other reforms that are well documented in the literature but are beyond the scope of this Comment.

228. This subject has also received a substantial amount of scholarly attention. See, e.g., Abraham, supra note 100, at 960-61.

Independent of these and other structural efforts to strengthen the pollution insurance market, there are at least four regulatory steps that EPA can take almost immediately to help ameliorate the current problem. First, EPA should substantially revise its regulations governing use of the financial test to more closely approximate the beneficial effects of a mandatory insurance requirement. Self-insuring firms should be required to obtain “stop loss” insurance in the commercial market for coverage in excess of the presently established maximums, in order to provide coverage against catastrophic losses.\(^1\) In other words, owners and operators of TSDF’s could self-insure up to a point (in effect using the financial test as a large deductible), but would be required to obtain liability insurance beyond that amount. This approach would put an upper limit on the impact of an insured’s insolvency and thus help assure that victims would receive much if not all of their compensation. It would also capture the benefits of the additional oversight provided by the insurer. Also, assuming the amount of the deductible is large in proportion to the total amount of liability coverage, the additional cost to the insured would be modest. This proposal would have the added advantage of further encouraging expansion of the insurance market.\(^2\)

In addition, the financial test should be modified so that it is more sensitive to a firm’s financial well-being.\(^3\) Unless the financial test accurately reflects a firm’s solvency, it cannot serve as a reliable measure of that firm’s ability to pay damages.

Finally, firms using the financial test should be required to establish an internal capital reserve, segregated from the company’s operating capital, that would be used to fund closure and third-party liability costs.\(^4\) This proposal would simply require a minimum level of prudence. As such, it is a rough compromise between the otherwise too lax financial test and the too costly trust fund. The amount of the required reserve therefore would be pegged at some reasonable fraction of the current third-party liability limits. The reserve should be placed in trust or otherwise isolated from the assets of the company so that it is beyond the

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\(^1\) See Schwartz & Souk, supra note 136, at 638.

\(^2\) The potential effect on the pollution insurance market of a mandatory insurance requirement is difficult to assess at this point because EPA has never imposed such a requirement. Although under EPA’s proposed interim final TSDF regulations insurance coverage was the only means of satisfactorily demonstrating financial responsibility for third-party liabilities, see Consolidated Permit Regulations, supra note 15, at 2802-97, those regulations were not enforced until 1985, by which time EPA had approved the alternative financial test. 40 C.F.R. §§ 264.147(f), 265.147(f) (1989).

\(^3\) See supra p. 605. EPA has recognized the weaknesses in the financial test’s ability to predict future solvency and has begun the process of revising the test. RCRA Subtitle C, Financial Test Criteria (Revision), 54 Fed.Reg. 17,298 (1989) (notice of proposed rulemaking) (“Currently the test does not function optimally; many financially viable and stable firms cannot pass the test whereas numerous firms that go bankrupt are able to ‘pass’ the test.”).

\(^4\) See Schwartz & Souk, supra note 136, at 638-41.
reach of secured creditors, and unsecured trade creditors, in a bankruptcy proceeding.

As a second regulatory step, EPA should require occurrence-based coverage for third-party liability claims. Current regulations permit facilities using commercial insurance to meet the third-party liability coverage requirement with so-called claims-made policies instead of occurrence-based policies. Because claims-made policies apply only to claims filed during a specified policy period—usually one year—and can be cancelled at the end of that period, they fail adequately to deter accidents or to provide compensation for long-latent harms. By contrast, occurrence-based coverage promotes internalization of accident costs and victim compensation; such policies cover damages caused by activities that occurred during the policy period regardless of when they are discovered.

Failing that, EPA should require that claims-made policies used to meet the financial responsibility requirements provide broader coverage than is available under current contracts. Given that in the current legal environment, claims-made coverage is likely to be the only type of policy available, EPA should permit facility owners and operators to use only claims-made policies that provide longer retroactive and discovery periods. An additional three- to five-year manifestation period, for example, would promote better internalization of the costs of current activities. While such a short period might not be enough to make a difference in every case, given the extraordinarily long latency periods of some injuries, it represents a compromise that would better serve the compensatory goals of the financial responsibility requirements, if not the deterrence objectives.

Third, EPA should reexamine the required levels of liability coverage in light of evidence that the current coverage limits are not only too low, but also inequitable. The amounts of coverage required for both sudden and for nonsudden occurrences, should be revised substantially upward. The goals of deterrence and victim compensation are severely compromised under the current regulations because the required

234. Note, supra note 11, at 424. But see Abraham, supra note 17, at 141 (arguing that such action would be unwise because current market forces seem to indicate that "the allocation of responsibility produced by claims-made coverage is economically optimal at present" and because it would force insurers to take unwarranted risks).

235. 40 C.F.R. §§ 264.147, 265.147 (1989); see supra notes 124-129 and accompanying text.

236. For a general discussion of claims-made policies, see D. Stever, supra note 97, § 5.06[3][e][ii]; Abraham, supra note 17, at 130-34, 140-41; Light, supra note 66, at 190-93.

237. Note, supra note 11, at 418; see also Abraham, supra note 17, at 140 (stating that "instead of promoting internalization of the costs of current activities, the claims-made approach shirks the task until these costs begin to manifest themselves").

238. The desire to fully internalize liability costs must be tempered somewhat by concerns about the effects that increased disposal costs could have on the incidence of illegal dumping.
levels of liability coverage grossly underestimate potential third-party damages. EPA's first group of proposed regulations required liability coverage of $5 million per sudden or nonsudden accident ($10 million annually) for permitted facilities and $1 million per occurrence ($2 million annually) for interim status facilities. In response to comments that $5 million was too high and did not reflect the risks posed by operators with no land disposal facilities, EPA reduced the required levels of coverage for permitted facilities to $1 million per occurrence ($2 million annually) for sudden accidental occurrences and $3 million per occurrence ($6 million annually) for nonsudden occurrences. These reduced levels do not reflect an accurate assessment of potential risk. Although EPA did not state a reason for retreating from its proposed amounts of required liability insurance, the Agency was clearly concerned with the high price and widespread unavailability of pollution insurance. Higher liability limits, however, have only a minimal effect on the cost and availability of insurance; risk factors and actual loss experience are more important determinants of cost. Therefore, the lower coverage limits cannot be justified on those grounds. EPA should increase its required levels of liability coverage to reflect recent claims experience more accurately.

See Note, supra note 11, at 421.

As noted earlier, the high level of coverage, by itself, is not likely to affect the availability of insurance. Where the risk of loss is not purely speculative, insurance companies are willing to offer insurance with very high limits for the right price. See, e.g., id. at 423 n.89 (citing CONGRESSIONAL RESEARCH SERV., 99TH CONG., 1ST SESS., INSURANCE AND THE COMMERCIALIZATION OF SPACE 3-10 (Comm. Print 1985) (detailing development of coverage for satellites, including casualty coverage exceeding $100 million per launch and liability coverage as high as $750 million per launch, despite extremely limited experience base)).

239. Hazardous Waste Guidelines, supra note 63, at 58,995.


242. EPA stated only that the higher coverage amounts "may be too high in many instances," Consolidated Permit Regulations, supra note 15, at 2828, and that the lower levels of coverage were "based on a review of damage cases, typical levels of [existing] coverage, and state insurance requirements for hazardous waste facilities." Id.


244. For example, if the limit is set at $5 million and actual claims average $500,000, insurers are likely to charge less and be more willing to accept risks than if the limit is $1 million and is consistently exceeded by claims. See Comment, supra note 241, at 709 & nn.110-11.

245. At the time of its revised rulemaking, EPA indicated that it would revise the coverage limits if claims experience or inflation justified such revisions. Consolidated Permit Regulations, supra note 15, at 2828.
In addition, EPA should require different levels of financial responsibility for facilities that pose different levels of risk. Sufficient information is now available to permit the Agency to quantify relative risks based on very general, but nevertheless predictive, risk factors. The so-called variance provisions in EPA's regulations, ostensibly designed to permit the Agency to make upward adjustments to the level of required coverage for facilities that pose higher than usual risks, are rarely used for that purpose. Instead, variance provisions represent a pro forma administrative mechanism designed to give only the appearance of flexibility. Likewise, the variance provisions are rarely used to make downward adjustments to required levels of liability insurance, in order to ameliorate the disproportionate impact of the financial responsibility requirements on smaller firms. The burden of proof required to obtain a downward variance is insurmountable in practice.

Finally, EPA must send a stronger signal to both the regulated industry and the insurance market that liability coverage is an essential feature of the RCRA management scheme. Enforcing the financial responsibility requirements could go a substantial distance toward creating and sustaining a strong insurance market. Moreover, facility owners faced with sharply increasing premium costs will be inclined to externalize accident costs rather than reduce risks as long as they are permitted to do so. EPA should encourage compliance by requiring facilities operating without adequate financial assurance to close.

CONCLUSION

This Comment has argued that financial responsibility requirements, particularly compulsory liability insurance requirements, can play an important role in hazardous waste management policy. To some extent, achieving these objectives will depend on the revival of the pollution insurance market. As insurers gain technical expertise in the field of haz-

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246. See Cohen & Derkics, supra note 42, at 514.

247. Some examples of such factors are the type and variety of wastes being handled at the facility and the relative toxicity of that waste; the techniques used to treat, store, or dispose of such wastes; the volume of materials handled at the facility; the proximity of the facility to population centers or other sensitive areas due to land use patterns or wildlife populations; the quantity and use of groundwater underlying the facility; site characteristics such as soil permeability, depth to bedrock, and groundwater proximity to surface water; and overall waste management practices such as site security, containment procedures, past violations, and claim history. EPA already employs these factors to assess risk for the purposes of granting or denying a variance. Consolidated Permit Regulations, supra note 15, at 2828.

248. See id. ("EPA expects that very few facilities will be eligible for such a variance. . . . [V]ariations in degree and duration of risk will be reflected in the premiums charged by insurance companies.").

249. See M. Katzman, supra note 21, at 37 ("An EPA enforcement officer indicates that abatements of financial responsibility requirements are virtually never granted in practice because operators can never conclusively prove that their hazards are less than usual.").
ardous wastes, they will be able to more accurately evaluate risk exposure. In the meantime, however, EPA’s ambivalent attitude toward a mandatory insurance requirement threatens to undermine the effectiveness of the safety incentives that first inspired the RCRA financial responsibility requirements. So far, the insurance industry has made only a minor contribution to cost-effective risk management at hazardous waste treatment, storage, and disposal facilities. Unless EPA reverses the trend toward use of the alternative, self-monitoring financial test, the potentially beneficial effects of surrogate regulation will be lost.