Superfund: Conscripting Industry Support for Environmental Cleanup

INTRODUCTION

The dramatic growth in development and production of chemicals in recent decades has yielded a myriad of benefits, though arguably many of these benefits are beyond our actual needs. Whatever its value, the price of such material affluence may be high. Frequent reports of life-threatening chemical waste dumps or spills and of injuries from chemically-caused explosions, poisoning, and disease indicate that hazardous chemical substances and the wastes resulting from their production and use have been improperly handled and disposed, thus...

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2. Congressional debate on proposals for Superfund recounts numerous instances of abandonment of hazardous waste sites, uncontrolled dumping into streams and onto land, contamination of groundwater, accidental spills and explosions, improperly maintained storage sites, and, in the worst instances, personal injuries or diseases resulting from improper handling of hazardous waste. See, e.g., 126 Cong. Rec. S14,965, S14,972, S14,980, S14,983 (daily ed. Nov. 24, 1980). The most widely publicized of these incidents occurred at Love Canal in New York, where local residents were exposed to hazardous chemicals deposited years before in an old canal over which their homes had been built. These people suffered from a variety of ailments and diseases and were finally evacuated from the area. See M. Brown, Laying Waste: The Love Canal and the Poisoning of America (1980); Fisher, The Toxic Waste Dump Problem and a Suggested Insurance Program, 8 B.C. Envt'l Aff. L. Rev. 421, 428-33 (1980). In addition to the Love Canal incident, the more infamous incidents have included the discovery of the Valley of the Drums in Kentucky, the explosion of improperly stored hazardous wastes at Elizabeth, New Jersey, and the release of kepone into the James River in Virginia. See generally Subcomm. on Oversight and Investigations of the House Comm. on Interstate and Foreign Commerce, 96th Cong., 1st Sess., Hazardous Waste Disposal 3-6 (Comm. Print No. IFC31 1979); 126 Cong. Rec. S14,963 (daily ed. Nov. 24, 1980) (remarks of Sen. Randolph); id. at S14,971 (remarks of Sen. Bradley); Environmental Law Institute, Six Case Studies of Compensation for Toxic Substances Pollution: Alabama, California, Michigan, Missouri, New Jersey, and Texas 15-58 (1980) (for Senate Comm. on Environment and Public Works) [hereinafter cited as Six Case Studies].

3. The broad range of substances that can be considered hazardous is indicated by the definition of "hazardous waste" in the Resource Conservation and Recovery Act, § 1004(5), 42 U.S.C. § 6903(5) (1976):

A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may—

(A) cause, or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible, illness; or

(B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Solid waste includes solid, liquid, semisolid, or contained gaseous material. Id. § 1004(27), 42 U.S.C. § 6903(27) (1976).
jeopardizing public health and safety.

Hazardous substances can cause injury or damage in several ways, including direct exposure to skin or lungs, migration into groundwater or surface drinking water supplies, and explosion and fire.4 These harms can result from transportation accidents, sudden releases from holding ponds, seepage from ditches or fields where wastes have been improperly disposed, and gradual migration from inadequately contained disposal sites.5

A study commissioned by the Environmental Protection Agency (EPA) estimated that 32,000 to 50,000 waste disposal sites contain some hazardous wastes.6 Of these sites, 1000 to 34,000 may contain significant quantities of such wastes.7 EPA admits that these estimates are very rough;8 the chemical industry has charged that the estimates are exaggerated and unsupportable.9 The rash of incidents that have surfaced in recent years10 indicates, however, that the hazardous waste problem is very serious. Production of chemicals and hazardous wastes is increasing,11 and the supply of satisfactory hazardous waste sites is inadequate.12 EPA estimates that approximately ninety percent of cur-

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5. Id. Such incidents are referred to in Superfund as "releases." Superfund, § 101(22), 42 U.S.C.A. § 9601 (1980 Laws Special Pamphlet). More sudden releases are commonly referred to as "spills." See Hazardous and Toxic Waste Disposal: Joint Hearings on S. 1341 and S. 1480 Before the Subcomm. on Environmental Pollution and Resource Protection of the Senate Comm. on Environment and Public Works, 96th Cong., 1st Sess., pt. 4 at 38-41 (statement of Thomas Jorling, EPA) [hereinafter cited as Senate Environment Comm. Hearings]. Two examples of spills are sudden releases from transportation accidents such as train derailments, Six Case Studies, supra note 2, at 26, and the spraying of contaminated oil on fields, id. at 35. More gradual releases include leaching through soil into groundwater aquifers, id. at 20, 47, contamination of surface water, id. at 15, and volatilization of chemicals into the air, id. at 43. The distinction between sudden and gradual releases is not sharp, however, and some releases could be characterized as either a spill or a release. See, e.g., Toxic Substances Strategy Comm., Toxic Chemicals and Public Protection: A Report to the President 2 (1980) [hereinafter cited as Strategy Comm. Report]. For this reason, a unified approach to all releases is justified. S. Rep. No. 848, 96th Cong., 2d Sess. 3, 5 (1980).
7. Id.
9. Id. at 431-33 (statement of Jackson B. Browning, Chemical Manufacturers Association).
10. See note 2 supra.
11. Superfund Task Force Report, supra note 4, at 3. The U.S. chemical industry produced 565 billion pounds of chemicals in 1979, 347 billion of which were classified as hazardous. S. Rep. No. 848, 96th Cong., 2d Sess. 3 (1980). Chemical production is growing at 7.6% per year. Id. EPA estimates that 57 million metric tons of hazardous waste are produced each year in this country and that production is growing at 3.5% per year. Id.
12. Subcomm. on Oversight and Investigations of the House Comm. on Inter-
rently produced wastes are disposed in an environmentally unsound manner.13

The hazardous substance problem is largely a result of the failure of the free market to impose the cost of proper waste disposal on chemical manufacturers.14 Consequently, manufacturers have little economic incentive to dispose of wastes safely. For various reasons, neither common law nor statutory mechanisms have been adequate to charge the responsible industries with these costs or to provide any other means of encouraging safe handling and disposal of hazardous substances.

Although existing legislation regulating handling and disposal of hazardous substances should prevent many hazardous waste accidents,15 a mechanism is needed to address the problems created by past practices and future hazards that occur despite this regulation. Proposals in Congress for such a mechanism took the name "Superfund" from the proposed fund, supported by federal appropriations or taxes on industry, to finance cleanup efforts and other costs of hazardous substance accidents. Congress passed a Superfund bill, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980,16 in the waning hours of the Ninety-sixth Congress.

This Development will examine the problems addressed by Superfund. Part I will briefly describe the major provisions of the Act. Part II will discuss previously available remedies, both common law and statutory, for hazardous-substance related injuries and the deficiencies of those remedies that Superfund was intended to address. Finally, Parts III and IV of the Development will consider some of the problems that the Federal Government may encounter in implementing the new legislation.

13. S. REP. No. 848, 96th Cong., 2d Sess. 3 (1980). Examples of improper disposal sites include an operating site with inadequate containment, see, e.g., SIX CASE STUDIES, supra note 2, at 47; a landfill containing hazardous wastes, see S. REP. No. 848, 96th Cong., 2d Sess. 19 (1980) (radium in Florida subdivision); and abandoned disposal site, id. (old radioactive waste in Denver); and a section of countryside where wastes have been dumped without regard for containment, id. (waste oil dumped on roads in Texas).


SUMMARY OF THE ACT

As adopted by Congress, Superfund establishes a $1.6 billion federal program to monitor hazardous substances and clean up waste spills, but provides no remedies for personal injury or property damage. This Part describes Superfund’s administrative program, its provisions for cleaning up waste spills, and the fund’s financing.

Two federal agencies share responsibility under Superfund for monitoring storage, disposal, and spills of hazardous substances. Owners or operators of facilities that treat, store, or dispose of a minimum quantity of hazardous substances must notify the Environmental Protection Agency (EPA) of the existence of the facilities within 180 days after passage of the Act, and operators must notify EPA immediately of any hazardous substance release. The Agency for Toxic...
Substances and Disease Registry, created by Superfund, will maintain a record of serious diseases, a library of toxic substances information, and a listing of persons exposed to toxic substances and areas closed because of toxic contamination. It will also provide medical care and testing to persons exposed to toxic substances and investigate the harms from such exposure.

Authority to respond to hazardous waste spills is given not to EPA but to the President. The President may attempt to force a site owner or operator to take corrective measures by issuing, without the need for court approval, “such orders as may be necessary to protect public health and welfare” if there “may be an imminent and substantial endangerment” to public health or the environment. Anyone violating a Presidential order may be fined up to $5,000 per day, and the Government may recover from the violator punitive damages of up to three

will then notify other government agencies and the Governors of affected states. Superfund, § 103(a), 42 U.S.C.A. § 9603(a) (1980 Laws Special Pamphlet). A report is not required for continuous releases that have been previously reported or come from a storage or disposal facility of which the government has been notified. Id. § 103(1)(2), 42 U.S.C. § 9603(1)(2) (1980 Laws Special Pamphlet). Failure to comply with this notification requirement is punishable by a fine of up to $10,000 and one year in prison. Id. § 103(b), 42 U.S.C. § 9603(b) (1980 Laws Special Pamphlet).

22. Superfund, § 104(i), 42 U.S.C. 9604(i) (1980 Laws Special Pamphlet). This Agency is to be part of the Public Health Service. Id.

23. Id. § 104(i)(1), 42 U.S.C. § 9604(i)(1) (1980 Laws Special Pamphlet). While the registry may have been intended to include only serious diseases related to hazardous substances, the Act mentions only “serious diseases.” Id.

24. Id. § 104(i)(2), (3), (1980 Laws Special Pamphlet).


27. Id. § 106(a), 42 U.S.C. § 9606(a) (1980 Laws Special Pamphlet). The President may also take direct action. Id. § 104, 42 U.S.C.A. § 9604 (1980 Laws Special Pamphlet); see text accompanying notes 131-40 infra. Under § 104, the President may act when there is a “release or substantial threat of release,” while § 106 provides that Presidential orders may be issued only if there “may be an imminent and substantial endangerment” to public health or the environment. 42 U.S.C.A. § 9604, 9606 (1980 Laws Special Pamphlet). Even if this slight difference were to be significant in practice, the President might find the authority to issue orders under § 104, with its lower threshold requirement, as alternative to the obvious authority in § 106.

Section 104, although not specifically authorizing such orders, provides that the President may “take any other response measure consistent with the national contingency plan which [measure] the President deems necessary to protect the public health or the environment.” Id. § 104(a)(1) (1980 Laws Special Pamphlet). Further, the provision authorizing treble damages for violations of Presidential orders refers to such orders as “pursuant to section 9604 or 9606.” Id. § 107(c)(3), 42 U.S.C.A. § 9607(c)(3) (1980 Laws Special Pamphlet).

times the expenditures required by the violation.29 As an alternative to a Presidential order, the Attorney General may seek injunctive relief in the federal district court.30 In cases where a financially responsible party can be found, Presidential orders and injunctive relief enable the President to ensure that hazardous wastes are cleaned up without depleting the fund.

The most important power bestowed on the President by Superfund is the authority to take direct action. The President may provide for removal31 and other remedial action32 for any release or substantial threat of release of substances defined as hazardous under the Act,33 unless the President determines that the responsible party will carry out the necessary action.34 The President may also respond to releases or threatened releases of "any pollutant or contaminant" not listed as hazardous if the release "may present an imminent or substantial danger to the public health or welfare."35 The Federal Govern-

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31. Id. § 104(a)(1), 42 U.S.C.A. § 9604(a)(1) (1980 Laws Special Pamphlet). Removal includes containment, disposal, and other actions to minimize danger to public health or the environment. Removal may also include limiting access to sites, providing alternate water supplies, and temporarily evacuating threatened persons. Id. § 101(23), 42 U.S.C.A. § 9601(23) (1980 Laws Special Pamphlet).
32. Id. § 104(a)(1), 42 U.S.C.A. § 9604(a)(1) (1980 Laws Special Pamphlet). Remedial actions may include, where cost-effective, permanent relocation of residents, businesses, and community facilities. There is a presumption in favor of onsite treatment of hazardous substances: offsite transport is authorized only when the President determines it to be necessary or cost-effective. Id. § 101(24), 42 U.S.C.A. § 9601(24) (1980 Laws Special Pamphlet).
33. Id. § 104(a)(1), 42 U.S.C.A. § 9604(a)(1) (1980 Laws Special Pamphlet). When a substance defined in the Act as hazardous is spilled, the President may act without determining that the particular spill presents a danger to public health or welfare. For Superfund's definition of hazardous substance, see note 19 supra.
34. Id. It is uncertain whether this requires the President to demand cleanup by the responsible party before the Federal Government may act.
35. Id. § 104(a)(1)(B), 42 U.S.C.A. § 9604(a)(1)(B) (1980 Laws Special Pamphlet). "Pollutant or contaminant" is defined to include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism . . . will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions . . . or physical deformations in such organisms or their offspring.

Id. § 104(a), 42 U.S.C.A. § 9604(a) (1980 Laws Special Pamphlet). This provision effectively extends coverage of Superfund to any conceivably hazardous substance, though for listed substances the Government may respond automatically at any actual or threatened
ment may act itself or pay state or local governments to carry out the remedial action. Before the Government may take remedial measures other than removal, the President must consult with affected states and receive guarantees from the state in which the release first occurs that the state will continue remedial actions and provide disposal facilities. The state must also assure payment of ten percent of the costs of remedial action or at least fifty percent of the costs of responding to a release if the facility is owned by a state or local government.

Superfund establishes two funding mechanisms. The most significant is the $1.6 billion Hazardous Substance Response Trust Fund, which is designed primarily to finance responses to hazardous substance releases and restoration of damaged natural resources. This fund will be supported by up to $220 million in federal revenues authorized for fiscal years 1981-85 and up to $1.38 billion in taxes on petroleum products and certain inorganic chemicals that constitute feedstocks for most chemical production. In addition to these release while response to a pollutant or contaminant requires that the minimal threshold of endangerment be met.

36. Government action must be consistent with the national contingency plan for responding to hazardous substance emergencies, development of which is mandated by Superfund. Id. § 104(a)(1), 42 U.S.C.A. § 9604(a)(1) (1980 Laws Special Pamphlet); id. § 303, 42 U.S.C.A. § 9653 (1980 Laws Special Pamphlet). This plan is to specify methods for locating facilities containing hazardous substances, strategies for cleaning up site and spills, appropriate roles in cleanup efforts for federal, state, and local governments, criteria for establishing cleanup priorities, and priority response targets ranked according to these criteria. This list of targets is to include, if practical, 400 sites, including at least one site in each state. Id. § 105, 42 U.S.C.A. § 9605 (1980 Laws Special Pamphlet). The national contingency plan will be a revision of the contingency plan for removal of oil and hazardous substances under the Clean Water Act, § 311, 33 U.S.C. § 1321 (Supp. III 1979) and must be published within 180 days after December 11, 1980, the date the Act was signed into law. Superfund, § 105, 42 U.S.C.A. § 9605 (1980 Laws Special Pamphlet).


40. Id.


42. Id. § 111(a)(1), (2), 42 U.S.C.A. § 9611(a)(1), (2) (1980 Laws Special Pamphlet).

43. Id. § 111(c)(1), (2), 42 U.S.C.A. § 9611(c)(1), (2) (1980 Laws Special Pamphlet).

The fund cannot be used to finance the rehabilitation of natural resources damaged prior to Superfund's enactment, id. § 111(d)(1), 42 U.S.C.A. § 9611(d)(1) (1980 Laws Special Pamphlet) and may not finance remedial actions at federal facilities other than restoration of natural resources. Id. § 111(e)(3), 42 U.S.C.A. § 9611(e)(3) (1980 Laws Special Pamphlet).


45. These taxes will be levied only until September 30, 1985, or until $1.38 billion is collected. Id. § 211(a), 26 U.S.C.A. § 4611(d) (1980 Laws Special Pamphlet). The taxes will not be levied in fiscal years 1984 and 1985 if the fund's balance at the beginning of the fiscal year is over $900 million and is expected to remain above $500 million until the end of the year. Id. § 211(a), 26 U.S.C.A. § 4611(d) (1980 Laws Special Pamphlet).


47. Id. § 211(a), 26 U.S.C.A. §§ 4661-4662 (1980 Laws Special Pamphlet). The lowest tax of 22 cents per ton applies to potassium hydroxide, while the highest tax of $4.87 per ton applies to several substances, including acetylene and butane. Other taxed substances in-
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sources, financing for cleanup will come from any generators, transporters, or disposers found to be liable under the Superfund's strict liability standards.\(^4\) Even though such damages from responsible parties may in many cases be the ultimate source of funds for cleanup, the existence of the fund will enable federal response to begin immediately after a release is discovered.\(^4\) The fund will also cover cleanup costs if no solvent responsible party can be found or if costs exceed the liability limits of responsible parties.\(^5\) The fund may also be used to compensate private parties who incur "necessary response costs" while carrying out the national contingency plan.\(^5\)

The second fund created by Superfund is the smaller Post-closure Liability Trust Fund.\(^5\) This fund will assume the liability of an owner or operator of a hazardous waste disposal facility that has been closed in accordance with the Solid Waste Disposal Act.\(^5\) When hazardous


\(^{50}\) The Act authorizes the Federal Government to use the fund to cover the costs of government cleanup of hazardous substance spills. Id. § 111(a)(1), 42 U.S.C.A. § 9611(a)(1) (1980 Laws Special Pamphlet). The Government may recover these costs from parties responsible for the spill. Id. § 107(a), 42 U.S.C.A. § 9607(a) (1980 Laws Special Pamphlet). But see id. § 107(b), (d), (f), 42 U.S.C.A. § 9607(b), (d), (f) (1980 Laws Special Pamphlet). The fund will also cover "reasonably necessary" administrative costs. Id. § 111(a), (c), 42 U.S.C.A. § 9611(a), (c) (1980 Laws Special Pamphlet).

\(^{51}\) Id. § 111(a)(2), 42 U.S.C.A. § 9611(a)(2) (1980 Laws Special Pamphlet). Private parties must first present claims to the party responsible for the release. Id. § 112(a), 42 U.S.C.A. § 9612(a) (1980 Laws Special Pamphlet). If the responsible party fails to satisfy the claim or is unknown, the claim may be asserted against the fund or the claimant may bring an action against the responsible party. Id. § 112(a), (b)(2)(B), 42 U.S.C.A. § 9612(a), (b)(2)(B) (1980 Laws Special Pamphlet). The President may settle the claim, pay it, or submit it to an arbitration board. Id. § 112(b)(2)(B), (3), 42 U.S.C.A. § 9612(b)(2)(B), (3) (1980 Laws Special Pamphlet). The claimant, if not satisfied with the arbitration award, may appeal to the federal district court. Id. § 112(b)(4)(G), 42 U.S.C.A. § 9612(b)(4)(G) (1980 Laws Special Pamphlet). When the fund pays any claim, the claimant must subrogate to the Federal Government any claim against parties responsible for the release, id. § 112(c)(1), (2), 42 U.S.C.A. § 9612(c)(1), (2) (1980 Laws Special Pamphlet), and the Government may bring an action against the responsible parties to recover the amount of the award paid to the claimant. Id. § 112(c)(3), 42 U.S.C.A. § 9612(c)(3) (1980 Laws Special Pamphlet).

\(^{52}\) Id. § 232, 42 U.S.C.A. § 9641 (1980 Laws Special Pamphlet).

wastes migrate from a closed site, the Post-closure fund will pay for cleanup and restoration of natural resources necessitated by the release.\textsuperscript{54} This fund will be financed by a tax on hazardous wastes\textsuperscript{55} to be collected from disposal site operators beginning September 30, 1983.\textsuperscript{56}

II

LEGAL MECHANISMS FOR HAZARDOUS SUBSTANCE CLEANUP: BEFORE AND AFTER SUPERFUND

A. Common Law Remedies

Private suits brought under common law have not provided an adequate solution to the problem of improper handling and disposal of hazardous substances. The substantive requirements for most common law actions are so demanding that they will often prevent plaintiffs from obtaining full compensation for injuries resulting from hazardous waste accidents. Even if individual plaintiffs recover for their injuries, private suits will not ensure that responsible parties clean up hazardous substance releases.

Common law trespass and private nuisance claims could provide remedies for plaintiffs suffering injuries from hazardous spills, but these theories protect only plaintiffs with possessory interests and not those who are injured on land not in their possession.\textsuperscript{57} Thus, nuisance and trespass theories provide no remedy for many economic harms.\textsuperscript{58}

Negligence theory appears to protect the broadest class of potential plaintiffs because it allows any foreseeably injured party to recover for damages resulting directly from defendants' actions.\textsuperscript{59} The rule precluding vicarious liability for acts of independent contractors\textsuperscript{60} may limit plaintiffs' ability to recover against generators of hazardous waste where releases occur during transport or disposal. Some courts have created an exception to the independent contractor rule when dangerous activities are involved.\textsuperscript{61}

\begin{itemize}
\item \textsuperscript{54} Superfund, § 111(j), 42 U.S.C.A. § 9611(j) (1980 Laws Special Pamphlet).
\item \textsuperscript{56} \textit{Id.} § 231(a), 26 U.S.C.A. § 4682(d) (1980 Laws Special Pamphlet). The tax will not be collected in any fiscal year in which the fund's balance at the beginning of that year exceeds $200 million. \textit{Id.}
\item \textsuperscript{57} \textit{Restatement (Second) of Torts} § 157 (1964); \textit{id.} § 821E (1977).
\item \textsuperscript{58} \textit{Superfund Task Force Report, supra} note 4, at 16-25; \textit{Six Case Studies, supra} note 2, at 481. \textit{See generally,} Rice, \textit{Pollution as a Nuisance: Problems, Prospects, and Proposals,} in \textit{Toxic Torts} 342, 345 (P. Rheingold, N. Landau & M. Canavan eds. 1977) [hereinafter cited as \textit{Toxic Torts}].
\item \textsuperscript{59} \textit{W. Prosser, Law of Torts} § 30 (4th ed. 1971).
\item \textsuperscript{60} \textit{id.} § 71.
\item \textsuperscript{61} See note 138 \textit{infra} and accompanying text.
\end{itemize}
Plaintiffs in negligence actions, as well as in trespass and nuisance cases, must show that defendants’ actions were the cause in fact of plaintiffs’ injuries.\textsuperscript{62} Because the injuries that can result from exposure to hazardous substances often will not be manifest until long after initial exposure and frequently will have resulted from a combination of causes,\textsuperscript{63} proof of a direct causal relationship between any one exposure to a chemical and an injury may be difficult and require extensive testing and expert testimony.\textsuperscript{64}

Plaintiffs who can prove that defendants’ actions injured interests protected under common law may also be hampered by liability standards that enable courts to balance the gravity of harm against the social utility of the conduct causing it. In negligence cases, for example, courts must find that defendants’ actions were “unreasonable.”\textsuperscript{65} Similarly, in private nuisance actions, the invasion must have been caused either by unreasonable or “abnormally dangerous” activity.\textsuperscript{66}

The doctrine of strict liability, if applicable, would eliminate many of the impediments to recovery posed by other common law doctrines. Strict liability has been applied in cases in which defendants’ activities are “abnormally dangerous” or “ultrahazardous” and where the danger of such activities is “unduly great . . . even though the enterprise is conducted with every possible precaution.”\textsuperscript{67} Under strict liability, anyone injured by defendants’ actions can sue, and plaintiffs need not prove fault.\textsuperscript{68}

Not all jurisdictions have adopted strict liability for ultrahazardous activities,\textsuperscript{69} and in those that have it is unclear whether the doctrine applies to generation and disposal of hazardous substances.\textsuperscript{70} Moreover, because common carriers are not subject to strict liability, plaintiffs may not be able to recover damages for transportation incidents even in those jurisdictions that characterize hazardous substance disposal as an ultrahazardous activity. Because common carriers are generally obliged to accept cargo proffered for hauling, the common law treated this activity as a public duty for which it would be
unjust to find a party liable without fault.71 Recent cases indicate, however, that courts may abandon this common law exception to strict liability in hazardous substance cases.72

The difficulties of proving causation in tort cases are compounded in cases where there are multiple defendants. Where two or more persons or entities have separately contributed to plaintiffs' injuries, plaintiffs have the burden of apportioning damages among defendants, and each defendant will be held liable only for the portion of damages for which it can be proven responsible.73 Thus, in order to obtain full compensation, plaintiffs must sue all parties contributing to the hazardous substance release and prove which damages were caused by each.74

The rule of joint and several liability provides a common law solu-


The assumption of these cases that common carriers have a duty to carry hazardous materials is contrary to the common law rule that a carrier need not accept dangerous goods for transport. United States v. Pryba, 502 F.2d 391 (D.C. Cir. 1974) (common carrier's right to refuse dangerous articles is basis for right to inspect packages); Chicago, R.I. & P. Ry. Co. v. Lawton Refining Co., 253 F. 705, 707 (8th Cir. 1918) (no duty to accept fuel oil, because of its dangerous nature; court also relied on alternative ground that carriers are not normally required to furnish tank cars); California Powder Works v. Atlantic & P.R. Co., 113 Cal. 329, 45 P. 691 (1896) (no duty to carry explosive powder); T. Michie, A Treatise on the Law of Carriers § 362 (1915). A duty to carry might arise if the carrier held itself out to carry dangerous articles. If a carrier were to accept a duty voluntarily, however, there would be no reason to except it from strict liability. This argument was rejected in Pecan Shoppe of Springfield, Mo., Inc. v. Tri-State Motor Transit Co., 573 S.W.2d 431, 433-34, 438-39 (Mo. 1978).

The court in Pope v. Edward M. Rude Carrier Corp., 138 W. Va. 218, 75 S.E.2d 584 (1953), excepted from strict liability a contract carrier, as opposed to a common carrier, which did not have a duty to accept the hazardous material, but was only authorized to do so. The justification for such a rule is unclear: perhaps the court felt that the authorization was a public expression that the dangerous activity is not antisocial and, hence, is condoned. Chavez v. Southern Pac. Transp. Co., 413 F. Supp. 1203, 1209-10 (E.D. Cal. 1976). A caveat to the Restatement formulation of the exception warns that the American Law Institute takes no position on activity carried out without public duty but authorized or sanctioned by legislation. Restatement (Second) of Torts § 521 (caveat) (1977).

72. Chavez v. Southern Pacific Transp. Co., 413 F. Supp. 1203, 1213-14 (E.D. Cal. 1976). A similar result was reached in a recent Washington case holding a carrier strictly liable for damage caused by a spill of gasoline, though the court failed to mention the common carrier exception at all. Siegler v. Kuhlman, 502 P.2d 1181 (Wash. 1972), cert. denied, 411 U.S. 983 (1973). For an approving discussion of these cases and their rejection of the common carrier exception, see Comment, Common Carriers and Risk Distribution: Absolute Liability for Transporting Hazardous Materials, 67 Ky. L.J. 441 (1978-79). The rule retains some vitality, however, as it was followed in Pecan Shoppe of Springfield, Missouri, Inc. v. Tri-State Motor Transit Co., 573 S.W.2d 431 (Mo. 1978), though that case also relied on the alternative holding that the carrier should not be strictly liable for the results of criminal acts of a third person.


74. W. Prosser, supra note 59, § 52, at 317-18.
tion to the problem of apportioning damages among defendants. Under a joint and several liability rule, each defendant is held responsible for the entire harm caused by all defendants.\textsuperscript{75} This doctrine traditionally is not applicable when the harm caused is theoretically divisible, whether or not division is practical.\textsuperscript{76} Contributions to a single harm that are "severable in quantity, percentage, or degree" are deemed theoretically capable of division.\textsuperscript{77} Environmental damage, such as pollution of a stream by several manufacturers, has been held to be theoretically divisible thus precluding application of joint and several liability.\textsuperscript{78} The theory of joint and several liability may therefore provide no assistance to victims of improper handling or disposal of hazardous substances.

The difficulties of proving fault and causation and apportioning damages between defendants will often impede recovery by plaintiffs injured by exposure to hazardous substances. The limited classes of plaintiffs and injuries redressable under common law theories\textsuperscript{79} is another limit on recovery. The effectiveness of common law litigation as a solution to the hazardous waste problem is limited by institutional as well as doctrinal impediments to recovery. The high cost of litigation will prevent many potential plaintiffs from seeking legal redress, particularly if the harm suffered by the individual is low.\textsuperscript{80} Thus piecemeal private suits may not provide a sufficient incentive for those responsible for hazardous substance injuries to clean up a spill or alter their practices to prevent future releases. Moreover, private actions provide no remedy where dumping sites have been abandoned or defendants are judgment proof. Furthermore, if few of these suits ever reach formal judgment, the development of doctrines more appropriate to damages from "toxic torts" will be very slow. In short, because of doctrinal and practical impediments, the common law cannot offer a comprehensive and effective solution to the problems caused by the release and improper disposal of hazardous substances.\textsuperscript{81}

\textsuperscript{75} Id.
\textsuperscript{76} Id. at 313-20; Six Case Studies, supra note 2, at 491-92.
\textsuperscript{77} W. Prosser, supra note 59, § 52, at 317.
\textsuperscript{78} Id. A few courts have departed from this tradition to apply joint and several liability to pollution cases where damage, though theoretically susceptible of division, was practically indivisible. See Michie v. Great Lakes Steel Div., Nat'l Steel Corp., 495 F.2d 213 (6th Cir. 1974); Phillips Petroleum Co. v. Hardee, 189 F.2d 205 (5th Cir. 1951); Velsicol Chem. Corp. v. Rowe, 543 S.W.2d 337 (Tenn. 1976); Landers v. East Texas Salt Water Disposal Co., 151 Tex. 251, 248 S.W.2d 731 (1952). See also notes 150-154 and accompanying text infra.
\textsuperscript{79} See text accompanying notes 57-72 supra.
\textsuperscript{80} R. Stewart & J. Krier, Environmental Law and Policy 316-22 (2d ed. 1978).
\textsuperscript{81} Cf. Hines, Nor Any Drop to Drink: Public Regulation of Water Quality, 52 Iowa L. Rev. 186, 197 (1966).
B. Statutory Remedies

State and federal legislation prior to Superfund failed to correct the shortcomings of the common law as a solution to the hazardous waste problem. State programs are few and weak, and federal laws have covered a limited scope of substances and incidents. Superfund establishes a national program and expands the scope of substances and incidents covered and the Federal Government’s authority to respond directly to hazardous waste problems.

1. State statutes

Few state programs address the problem of abandoned waste sites and other releases of hazardous substances. Those that have been adopted often are funded at low levels, and some of the more ambitious programs do not cover all hazardous substances. Even if state programs were more widely established, parties that handle or produce hazardous substances may move to states with less comprehensive programs. Further, the effects of releases may cross state lines, and states may not have the authority or the desire to clean up releases that will primarily affect other states.

Superfund, in contrast, establishes a national program financed by a uniform federal tax on chemical feedstocks. The Act also purports to preempt state authority to establish programs similar to Superfund; thus, states may not require contributions to any fund designed to compensate for damages, claims, or response costs that may be compensable under the federal Act, and no person can receive compensation for a single claim under both Superfund and another state or federal law. As a practical matter, however, precluding such double recovery is the only significant constraint on development of state funding mech-

82. See generally Superfund Task Force Report, supra note 4, at 27-40.
83. As of the June 1979 Superfund Task Force Report, supra note 4, only three states—Florida, New Jersey, and New York—had ambitious programs for dealing with releases of hazardous substances that provide some compensation for private damages as well as funds for cleanup. (New York’s program applied only to spills of petroleum.) Fewer than twenty others had limited funding efforts applying only to cleanup costs and, occasionally, restoration of damaged natural resources. Id. at 27-30.
84. For example, the Task Force Report found that, of the 20 states with limited compensation programs, only seven had funds with balances maintained over $100,000. Id. at 30.
85. Id. at 28. Superfund, by contrast, covers a broad range of substances. See note 19 supra.
86. Id. at 31. This situation would result in the anomaly of providing the least protection to persons with greater risk of exposure.
87. For example, releases may contaminate large interstate aquifers. See Mosher, A Host of Pollutants Threaten Drinking Water from Underground, 12 Nat’l J. 1353 (1980).
88. See text accompanying notes 41-56 supra.
89. Superfund, § 114(c), 42 U.S.C.A. § 9614(c) (1980 Laws Special Pamphlet).
90. Id. § 114(b), 42 U.S.C.A. § 9614(b) (1980 Laws Special Pamphlet).
anisms. States may use general revenues for compensation of any such costs. Moreover, states may require industry contributions to finance the cost of preparing to respond to hazardous substance releases. Finally, according to the chairman of the Senate committee that considered Superfund, states may use their own industry-derived funds to pay for actions that are compensable under the federal Act but that the Federal Government chooses not to finance, and actions for which a state will later seek reimbursement from the federal fund.

Superfund also preserves the states' rights to impose additional requirements or liability, beyond those imposed by Superfund, on parties that release hazardous substances, such as liability for personal injuries or personal property damage.

2. Federal statutes

Federal statutes have provided incomplete coverage of hazardous waste problems. The major pollution control provisions of the Clean Water Act and Clean Air Act do not address isolated releases of unusually hazardous substances. Other than a few limited programs providing compensation for oil spills, section 311 of the Clean Water Act was the only statutory provision for dealing with emergency spills prior to Superfund. Section 311 applies only to oil and a limited

91. *Id.* § 114(c), 42 U.S.C.A. § 9614(c) (1980 Laws Special Pamphlet). Such preparation for response actions may include the "purchase or prepositioning of hazardous substance response equipment." *Id.*


95. Limited compensation for costs from oil spills is provided under three statutes: the Deepwater Ports Act, 33 U.S.C. § 1517(c) (1976) (liability fund for oil spills in deepwater ports); the Outer Continental Shelf Lands Act, 43 U.S.C. § 1333(b) (Supp. III 1979) (fund to finance cleanup costs and compensate personal injuries, property losses, lost profits, and natural resources damage caused by certain vessels and facilities operating on the outer continental shelf); and the Trans-Alaska Pipeline Authorization Act, 43 U.S.C. § 1653(b) (1976) (right-of-way holders must pay for total removal of any pollutant threatening wildlife or property within right-of-way).


97. Section 311 confers on EPA the authority to respond to releases of specified sub-
number of hazardous substances with acute aquatic toxicity, however.\textsuperscript{98} Also, that provision applies only to releases in navigable waters,\textsuperscript{99} even though hazardous substance spills may affect land, groundwater, and air as well.

The Resource Conservation and Recovery Act of 1976 (RCRA) provides for the identification and tracking of hazardous wastes from the waste generator through the transporter\textsuperscript{100} and requires disposal site operators to treat and contain the wastes properly.\textsuperscript{101} RCRA covers more substances than does the Clean Water Act,\textsuperscript{102} but it does not cover threats posed by nonwaste hazardous substances.\textsuperscript{103} Most significantly, RCRA operates only prospectively to prevent hazardous wastes from being improperly disposed and thus does not eliminate threats posed by existing sites.\textsuperscript{104}

Superfund authorizes response to a long list of hazardous substances\textsuperscript{105} and any other "pollutant or contaminant."\textsuperscript{106} Oil, however,
is specifically excluded from the coverage of the Act.\textsuperscript{107} The President may respond to any release or threatened release at any stage of transportation, storage, or disposal, regardless of whether the substance is released into the air or water or onto land.\textsuperscript{108}

Several environmental protection statutes contain emergency powers provisions allowing the Federal Government to seek injunctive relief whenever a release or threat of release poses imminent and substantial danger to public health and welfare.\textsuperscript{109} This remedy is limited, however, to cases where responsible parties can be identified and have sufficient resources to undertake the necessary action.\textsuperscript{110} More-
over, the time required to bring separate actions may preclude quick cleanup under these statutes. Though Superfund includes such an emergency powers provision as an alternative authority, its main program allows the Federal Government to use the $1.6 billion fund to clean up spills if a responsible party cannot be found. If a responsible party is later found, the Government may bring an action to recover the cleanup costs.

III
LIABILITY CREATED BY SUPERFUND

Superfund is financed primarily by general revenues and a tax on chemical feedstocks. Congress also provided, however, that those responsible for hazardous substance problems should reimburse the fund for cleanup costs, even if they had contributed to the fund by paying the feedstock tax. Imposing financial liability on “wrongful dumpers” will punish those contributing to waste site problems, encourage improved waste handling, and provide revenue for the fund. This Part discusses the standard of liability imposed by the Act, the potential defendants, and apportionment of damages among multiple defendants.

A. Standard of Liability Imposed by Superfund

In congressional debates over the several Superfund proposals, the Chemical Manufacturers Association argued that operators should be liable only if their actions departed from current regulations or accepted industry practices. Most of the proponents of Superfund, however, argued for a standard of strict liability. Congress agreed and provided in section 107 that certain enumerated parties “shall be liable for” cleanup costs, other necessary costs, and damages to natural


111. In addition to its main fund-supported response program, Superfund contains a similar emergency powers provision that authorizes EPA to publish guidelines for coordinating all of the emergency powers provisions under EPA’s administration in accord with Superfund’s national contingency plan. Superfund, § 106(a), (c), 42 U.S.C.A. § 9606(a), (c) (1980 Laws Special Pamphlet).

112. See text accompanying notes 31-40 supra.

113. See note 48 supra.

114. See note 47 supra.


118. See text accompanying note 126 infra.
The Act provides several exceptions to liability. No liability is imposed for damages caused solely by an act of God, an act of war, or an act or omission of a third party. The third party defense does not apply, however, unless the defendant exercised due care to prevent damaging consequences of foreseeable acts or omissions by the third party. Even more significantly, the defense does not apply if the defendant has had a contractual relationship, direct or indirect, with the third party (excepting relations with common carriers). This defense should protect defendants from liability for damages resulting from vandalism or negligence of a stranger, but not from liability for acts of contract disposers and transporters other than common carriers. Superfund also does not impose liability for releases permitted under any other provision of federal law; recovery for such releases must be based on “existing law in lieu of this section,” which includes the common law. The common law exception to strict liability for common carriers will not be available under Superfund: the Act expressly includes common carriers among the parties to be held liable.


120. Id. § 107(b), 42 U.S.C.A. § 9607(b) (1980 Laws Special Pamphlet).

121. Id.

122. Id. § 107(j), 42 U.S.C.A. § 9607(j) (1980 Laws Special Pamphlet). This permits those who discharge polluting substances to have some certainty that by reducing emissions to legally prescribed levels they have satisfied the requirements of federal law. To the extent that even controlled emissions cause harm, the Government could still seek to recover under the common law or other statutory law as specifically preserved in the statute. Prosser argues that compliance with regulations precludes recovery at common law unless “there are unusual circumstances, or increased danger beyond the minimum which the statute was designed to meet.” W. PROSSER, supra note 59, § 36, at 204. Rodgers, however, in a more detailed discussion of the question, indicates that, although the question is not settled, courts generally are reluctant to hold that compliance with a statute necessarily precludes common law relief for damage that occurs notwithstanding compliance. W. RODGERS, ENVIRONMENTAL LAW § 2.10 (1977).


124. See text accompanying notes 71-72 supra.
for damages.\textsuperscript{125}

\section*{B. Potential Defendants}

Superfund imposes liability for cleanup costs on the following parties:

\begin{itemize}
  \item[(1)] the owner and operator of a vessel (otherwise subject to the jurisdiction of the United States) or a facility,
  \item[(2)] any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of,
  \item[(3)] any person who by contract, agreement, or otherwise arranged for disposal or treatment or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility owned or operated by another party or entity and containing such hazardous substances, and
  \item[(4)] any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities or sites selected by such person, from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance.\textsuperscript{126}
\end{itemize}

Despite this seemingly comprehensive list of potential defendants, not all parties connected with hazardous substances are subject to liability under the Act. Transporters who are independent contractors\textsuperscript{127} are liable as owners or operators of facilities (their vehicles) only while they are hauling hazardous substances, unless they select the storage or disposal site.\textsuperscript{128}

Waste generators are apparently liable for cleanup costs if they dispose of hazardous substances at a facility that they own or operate or if they arrange for disposal of hazardous substances anywhere else.\textsuperscript{129} Generators, however, may claim that they have so little causal connection with releases at sites not owned by them that Congress could not have intended to make them liable for cleanup costs at those sites. One of the Superfund proposals did limit liability to those parties whose contributions was a “significant factor” in a release.\textsuperscript{131} The “sig-
significant factor” limitation was not, however, designed to protect generators from liability because production of wastes alone was “insignificant,” but rather to prevent imposition of the entire liability for cleanup of a site when a generator’s quantitative contribution to the substances released was insignificant. In any case, Superfund as enacted contains no such limitation.

Generators might also raise two policy arguments in opposition to strict liability: first, that Superfund’s goal of spreading the cost of hazardous waste cleanup is better served by using the fund, which taxes uniformly across the industry, than by charging an entire incident against a relatively faultless generator; and second, that the Act’s goal of reducing the hazardous substance problem would be better served by imposing liability on disposers and transporters, who are in the best position to prevent releases. As to the first of these arguments, it can be rebutted by invoking a theory of enterprise liability, which holds generators responsible for all the dangers and costs associated with substances that are inherently hazardous and that they, in the course of their profit-making operations, bring into existence. A more pragmatic consideration is that compensation won from individual generators replaces what would otherwise be a drain on a fund of limited size and thus increases the amount of cleanup the government can undertake. The second argument against strict liability essentially concerns the effectiveness of incentives, and although the actions of disposers and transporters are likely to be closer in time and proximity to the actual incidents of releases, an equally compelling argument can be made that the economic power of generators places them in such a dominant position that they can enforce safer practices when faced with the threat of liability. In any case the clear language of the Act imposes liability on those who dispose or arrange for disposal.

Hearings, supra note 119, at 5. An earlier proposal imposed liability on anyone who “caused or contributed” to a release. H.R. 7020, § 4, 96th Cong., 2d Sess., 126 Cong. Rec. H9436 (daily ed. Sept. 23, 1980). The intent of this bill was to require causation beyond “the mere act of generation or transportation of hazardous waste, or the mere existence of a generator’s or transporter’s waste in a site.” H.R. Rep. No. 1016, 96th Cong., 2d Sess., pt. 1, at 33-34. The language of Superfund as enacted, however, is more similar to that of S. 1480, which contemplated holding generators liable qua generators.


133. The empirical evidence to resolve this argument is not readily available. Certainly, many chemical generators are powerful firms. For example, the defendants in one recent case included Dow Chemical Co., Ethyl Corp., Allied Chemical Corp., Rubicon Chemicals, Inc., Foster Grant Chemical, Inc., and two divisions of Exxon Corp. Ewell v. Petro Processors, 364 So. 2d 604 (La. App. 1978). The size and strength of waste disposal companies, however, has increased in recent years as that industry becomes more concentrated. Telephone communication with Ann Allen, Attorney, Hazardous Waste Enforcement Task Force, EPA (Mar. 20, 1981). This may be, in part, a result of new RCRA regulations, see note 101 supra, that impose requirements of safe disposal that smaller operators are unable to meet.
Even if generators are held not subject to liability under Superfund for disposing or arranging for disposal, they may still be liable under the common law for some hazardous substance releases. If employees who dispose of hazardous substances are held liable under common law theories of negligence, nuisance, or trespass, their generator-employers would be vicariously liable for any damages. Most disposers, however, are independent contractors, and employers are generally not liable for damages caused by independent contractors absent direct control by the employer. Several exceptions to this rule might make generators liable for the acts of independent contractors. First, an employer may be held liable if it was negligent in choosing the contractor to perform any work that poses a risk of physical harm to others. Thus a waste generator might be held liable for arranging for disposal at a facility without properly inquiring about disposal practices. Second, employers are liable for the actions of independent contractors when engaged in “dangerous activities.” This rule may not, however, apply to hazardous wastes. One of the few recent cases involving hazardous wastes restricted the exception to work so dangerous that no precautions could render it safe.

C. Apportionment of Damages Among Multiple Defendants

Plaintiffs in pollution cases against multiple defendants have often

134. See Part II.A supra.
135. Under the doctrine of respondeat superior, employers are liable for the negligent actions of their employees committed in the course of employment. See Restatement (Second) of Agency §§ 219, 220 (1957); W. Prosser, supra note 59, § 52, at 315, § 70; Glos, Master’s Liability for the Torts of the Servants, 10 S. Tex. L.J. 21 (1968); James, Vicarious Liability, 28 Tul. L. Rev. 161 (1954); Note, Vicarious Liability—A Limited Application of Respondeat Superior to Political Compaigning, 29 Case W. Res. L. Rev. 856, 856-860 (1979).
136. Restatement (Second) of Torts § 409 (1964); W. Prosser, supra note 59, § 71. The Restatement imposes a duty on employers to exercise reasonable care to inquire about the contractor’s practices and reputation and indicates that the care required in selection should be commensurate with the danger posed by the activity. Restatement (Second) of Torts § 411, Comment a, Illustration 2 (1964).
137. If the activity involves a special risk unless precautions are taken, the employer can be held liable for negligently failing to specify such precautions in the contract. The employer can also be held vicariously liable even if the precautions are specified, if the contractor fails to take such precautions. Id. § 413. This rule has been applied in cases involving pesticide application. Boroughs v. Joiner, 337 So.2d 340 (Ala. 1976); Alexander v. Seaboard Air Line R. Co., 221 S.C. 477, 71 S.E.2d 299 (1952); McKennon v. Jones, 219 Ark. 671, 244 S.W.2d 138 (1951); Miles v. A. Arena & Co., 23 Cal. App. 2d 680, 73 P.2d 1260 (1937); S.A. Gerrard Co. v. Fricker, 42 Ariz. 505, 27 P.2d 678 (1933). In order to hold an employer liable for the acts of an independent contractor, the abnormally dangerous activity need not be so dangerous as to qualify for the abnormally dangerous strict liability standard. W. Prosser, supra note 59, § 71, at 472. Hazardous waste may meet the stricter standard as well. See S. Rep. No. 848, 96th Cong., 2d Sess. 14 (1980) (quoting testimony of James Moorman, Assistant U.S. Attorney General for Land and Natural Resources; id. at 31-33; 126 Cong. Rec. H9642 (daily ed. Sept. 23, 1980) (remarks of Rep. Gore).
been hampered by the requirements that they prove what portion of the
damage was caused by each defendant and that they absorb damages
caused by absent or insolvent defendants.\(^\text{140}\) If, however, the defend-
ants cause damage which is indivisible, they may be held jointly and
severally liable. Once the plaintiff shows that a defendant has contrib-
uted to an indivisible harm and is liable under the appropriate substan-
tive standard, the defendant is liable for all the damages.\(^\text{141}\) Although
Superfund does not provide clear support for imposing joint and sev-
eral liability, defendants in Superfund actions will probably be subject
to joint and several liability under the common law.

Superfund lists the potentially liable parties in the conjunctive,
stating that they “shall be liable” for all costs of cleanup and damage to
natural resources.\(^\text{142}\) While this might be interpreted as a statement of
joint and several liability, it also might be interpreted as a list that does
not relieve the government of the burden of proving the respective pro-
portion of harm caused by each defendant. The legislative history is
also susceptible of competing interpretations. It could be argued that
the enacted bill does not establish joint and several liability because
explicit language to that effect was deleted from an earlier bill.\(^\text{143}\) On
the other hand, direct statements were made by the managers of the bill
in both Houses of Congress that “the terms joint and several liability
[were] deleted with the intent that the liability of joint tortfeasors be
determined under common or previous statutory law.”\(^\text{144}\)

Superfund defines the term “liable” as used in section 107 to be
“the standard of liability which obtains under” section 311 of the Clean
Water Act.\(^\text{145}\) Section 311, however, is of limited assistance in inter-
preting the treatment of joint tortfeasors under Superfund. First, there
are basic differences in the statutes that make a comparison on this
issue difficult. Section 311 applies to “owners or operators” while
Superfund lists a broader class of defendants joined by the conjunc-
tive.\(^\text{146}\) Second, oil spills, which are covered by section 311, are much
less likely to involve the number of parties that could be involved with
a large dumping site to which Superfund would apply. Where owners
and operators are joined in a single enterprise, however, section 311
does “clearly contemplate” the imposition of joint and several liabil-

\(^{140}\) See text accompanying notes 73-74 \textit{supra}.  
\(^{141}\) See text accompanying note 75 \textit{supra}.  
\(^{143}\) S. 1480, 96th Cong., 2d Sess. § 4(a) (1980), reprinted in Senate Finance Comm. Hear-
ings, \textit{supra} note 119, at 5.  
ity, and this fact could have strong precedential value if similar situations occur under Superfund.

Because Superfund is unclear, the treatment of multiple parties who do not participate in a single enterprise will depend on the interpretation of common law doctrines that are not well settled. As a general rule, defendants may be held jointly and severally liable for distinctly independent contributions to a harm when one defendant is employed by the other. A principal cannot, however, be held liable for the actions of an independent contractor, though this rule has a well-established exception for dangerous activities that might apply to the handling of hazardous substances.

Defendants who have contributed to the same harm will be held jointly and severally liable if it is theoretically impossible to apportion the harm among the defendants, even though they have not acted in concert. The requirement that damages be theoretically indivisible has been weakened by several cases that have imposed joint and several liability in pollution cases involving multiple defendants. These courts held that joint and several liability is appropriate whenever the injury cannot in practice be apportioned, even though it might be possible in theory to apportion the damages.

The effect of this developing doctrine is to shift the burden of apportioning damages from the plaintiff to the defendants. Any time a plaintiff cannot trace the proportion of the damaging pollutants attributable to each defendant, the defendants must prove the extent of their respective liabilities. If they cannot do so, the injury is by definition


148. See note 135 supra.


150. W. PROSSER, supra note 59, § 52, at 315.

151. Michie v. Great Lakes Steel Div., Nat’l Steel Corp., 495 F.2d 213 (6th Cir. 1974); Phillips Petroleum Co. v. Hardee, 189 F.2d 205 (5th Cir. 1951); Velsicol Chem. Corp. v. Rowe, 543 S.W.2d 337 (Tenn. 1976); Landers v. East Tex. Salt Water Disposal Co., 151 Tex. 251, 248 S.W.2d 731 (1952). Kansas and Oklahoma were the only states to adopt this as the prevailing rule prior to the cases cited above. See, e.g., Kansas City v. Slangstrom, 53 Kan. 431, 36 P. 706 (1894); Prairie Oil & Gas Co. v. Laskey, 173 Okla. 48, 46 P.2d 484 (1935). For a discussion of the development of the recent trend, see Note, Torts—Joint Tortfeasors—Liability and Contribution for Indivisible Injury, 45 TENN. L. REV. 129 (1977); Comment, Michie v. Great Lakes Steel Division, National Steel Corp.—The Emergence of Joint and Several Liability in a Common Law Environmental Action, 1974 UTAH L. REV. 603.

152. Michie v. Great Lakes Steel Div., Nat’l Steel Corp., 495 F.2d 213, 218 (6th Cir. 1974); Note, supra note 151, at 139-40. RESTATMENT (SECOND) OF TORTS § 433B (1965) explicitly provides for such a shift in the burden of apportioning damages. According to Comment d to § 433B: “In such a case the defendant may justly be required to assume the
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indivisible, and joint and several liability is imposed. This shift of burden is supported by the theory that the defendants are most likely to be in control of any information from which apportionment can be determined, such as records of quantities of pollution emissions.153

The assignment of joint and several liability does not, however, necessarily mean that the defendant from whom the plaintiff chooses to collect must bear the entire loss. The defendant usually can obtain contribution from other defendants. Indeed, the gradual development of the rule allowing such contribution is a strong argument supporting the imposition of joint and several liability, because the inequitable result of one defendant being required to bear the entire burden of liability no longer is likely.154

It should be noted, however, that the justification for imposing joint and several liability is not as strong when the government, rather than a private individual, is plaintiff. One of the main justifications for shifting the burden of apportionment to the defendants is that the economic burden on the plaintiff in such cases is too heavy. The Federal Government, however, is obviously in a better position to marshall the resources necessary to prove the respective contribution of several defendants than is the typical hazardous waste victim. Joint and several liability is also justified because the common law often leaves the plaintiff in the inequitable position of bearing the loss when a defendant is financially insolvent. In the case of Superfund, however, the plaintiff itself—the fund—is an even better vehicle for distributing the unassignable costs through the industry as a whole. Nevertheless, the difficulty of apportioning damages, as well as the fact that the fund's resources are limited, still argues for imposition of joint and several liability.

153. See Comment, supra note 151, at 609-10 (these principles for shifting the burden of apportionment in multiple-defendant pollution cases are similar to those involved in res ipsa loquitur cases).

154. Velsicol Chem. Corp. v. Rowe, 543 S.W.2d 337, 339-41 (Tenn. 1976). The old rule against allowing contribution among joint tortfeasors developed from the mistaken application by American courts of the English rule that such contribution was prohibited in the case of intentional torts. This rule has been abandoned in forty of the fifty states. See Conley & Marsh, Apportionment of Liability Among Concurrent Tortfeasors Based on Comparative Fault, 29 FED’N INS. COUNSEL Q. 123, 123-26 (1979).

Unlike the proportional liability that results from a successful apportionment, contribution is most commonly effected on a pro rata basis. Id. The modern trend, however, would allow the courts to assign proportional liability in awarding contribution. Id. Because the harm in pollution cases cannot be apportioned, pro rata assignment of liability may in any case be the most equitable allocation, but the minority rule would probably allow proportional assignment on the basis of size or production when the defendants vary so widely that pro rata assignment appears inequitable.
IV
CONSTITUTIONALITY OF THE FEE SYSTEM

Despite its success in weakening Superfund in the final days before its enactment, the chemical industry may still challenge the Act's constitutionality. The industry may argue that the fee system is retroactive and therefore violates the constitutional guarantee of due process. As the following discussion concludes, however, Superfund does not violate principles prohibiting retroactive legislation or other due process principles.

Considered separately, both the tax on petrochemical feedstocks and the authorized spending program are constitutional. If the tax were enacted separately and it contributed to general revenues, it would be upheld because it is uniform throughout the states and is in the form of a revenue-raising measure. Superfund's spending authority is valid because the important goal of reducing risks to public health from hazardous substances is within the Federal Government's broad spending power.

The chemical industry has argued that Superfund's tax and spending provisions together comprise an integrated program that retroactively taxes the industry to pay for the consequences of past acts. The industry has also argued that the tax is not tied closely enough to incidents of improper disposal and that the bill unfairly singles out the

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155. For example, while claims for personal injuries suffered as a result of a hazardous substance incident were covered by the original Senate Superfund bill, § 1480, 96th Cong., 2d Sess. § 4(a)(2), reprinted in Senate Finance Comm. Hearing, supra note 119, at 5, personal injuries are not covered by the enacted bill. Superfund, § 111, 42 U.S.C.A. § 9611 (1980 Laws Special Pamphlet).
157. See notes 45-47 supra and accompanying text.
158. See notes 42-43 supra and accompanying text.
159. U.S. CONST., art I, § 8; Sonzinsky v. United States, 300 U.S. 506 (1937); United States v. Doremus, 249 U.S. 86 (1919). A revenue-raising measure is valid under the taxing power of the Constitution even if it also has a regulatory effect or if Congress had motives other than raising revenue. United States v. Sanchez, 340 U.S. 42, 44-45 (1950); Sonzinsky v. United States, 300 U.S. at 513-14. This is true even if little revenue is to be raised. City of Pittsburgh v. Alco Parking Corp., 417 U.S. 369, 375 (1974); Sonzinsky v. United States, 300 U.S. at 513-14. Superfund is a revenue raising measure, designed to produce $1.38 billion over four years. Superfund, § 303 42 U.S.C.A. § 9653 (1980 Laws Special Pamphlet).
160. The Constitution authorizes Congress to spend for the "general welfare," which has been broadly defined, and is not limited to the other enumerated powers. United States v. Gerlach Livestock Co., 339 U.S. 725, 738 (1950) (congressional power to spend for water project not limited to federal jurisdiction over navigable waters); United States v. Butler, 297 U.S. 1, 65-66 (1936). As a result, a "spending program will be upheld so long as its substantive provisions do not violate a specific check on federal power." J. NOWAK, R. ROTUNDA, & J. YOUNG, CONSTITUTIONAL LAW 170 (1978).
chemical industry when others have contributed to the problem.\textsuperscript{162}

The chemical industry, in challenging the Superfund tax, can claim no interest more compelling than its economic interest in doing business. When a plaintiff alleging a due process violation has no more than an interest in access to business income, the courts will defer to legislative judgment\textsuperscript{163} unless Congress has acted in an arbitrary or irrational manner.\textsuperscript{164} Retroactive legislation can violate this standard of minimum rationality by imposing a particularly "harsh and oppressive" burden on the complaining party.\textsuperscript{165} The burden imposed by a statute may be assessed by observing that legislation's effect on the past free choice of the complaining party.\textsuperscript{166}

This way of measuring the burden considers the extent to which a

\textsuperscript{162} Id.

\textsuperscript{163} The due process inquiry is less deferential to the legislative judgment when the complaining party's interest is more important than access to business income. These more important interests include racial equality, Bolling v. Sharpe, 347 U.S. 497 (1954); marital privacy, Griswold v. Connecticut, 381 U.S. 479 (1965); control over one's body, Roe v. Wade, 410 U.S. 113 (1973); freedom from uncompensated taking of property, Goldblatt v. Hempstead, 369 U.S. 590, 594 (1962); and the interest in vested contractual arrangements. United States Trust Co. v. New Jersey, 431 U.S. 1 (1977). The chemical industry can claim no such special interest.


\textsuperscript{165} Welch v. Henry, 305 U.S. 134, 147 (1938) (retroactive application of state income tax to dividends earned two years prior not harsh and oppressive, hence valid). The Court seems to have inquired more into the effects of a statute alleged to be harsh or oppressive because retroactive than is usual under the test of minimum rationality. The results in these cases, however, have been the same: a high level of harshness is permissible, and few statutes are ever invalidated on these grounds. A recent example of the Court's inhospitality to claim of impermissible retroactivity is United States v. Darusmont, 101 S. Ct. 549 (1981), in which the Court upheld the application of an amendment to the "minimum tax" provisions of the federal income tax to a transaction that took place prior to the amendment. One exception to this inhospitality is Untermeyer v. Anderson, 276 U.S. 440 (1928), in which a retroactive estate tax was held to be grossly unfair because it removed the ability to dispose of one's property with consideration of the tax consequences of the distribution.

\textsuperscript{166} Hochman, \textit{The Supreme Court and the Constitutionality of Retroactive Legislation}, 73 HARV. L. REV. 692, 706 (1960); Slawson, \textit{Constitutional and Legislative Considerations in Retroactive Lawmaking}, 48 CALIF. L. REV. 216, 221-25 (1960). Cases in which the effect on choice is articulated as a significant factor in judging retroactive legislation include Usery v. Turner Elkhorn Mining Co., 428 U.S. 1, 17 n.16 (1976); Welch v. Henry, 305 U.S. 134, 147 (1938). The due process concerns in this area are analogous to those involved in the constitutional bar against ex post facto laws and impairment of contracts. U.S. CONST. art. 1, § 9, cl. 3; \textit{id.} § 10, cl. 1. This explicit prohibition applies only in the case of the criminal laws. United States Trust Co. v. New Jersey, 431 U.S. 1, 17 n.13 (1977). The element of knowing choice to act in a manner censured by society is a prerequisite to the moral condemnation of criminal sanction, according to Slawson. In civil actions, Slawson goes on to argue, choice is not a prerequisite to imposition of burdens by legislation because the burdens do not include any moral sanction premised on free choice. The regulation of commerce and other non-criminal activity generally includes no condemnation of burdened or proscribed activity as morally bad, but simply a judgment that regulation is necessary for protection and enhancement of the public welfare. Thus, the question of choice in the civil context is best handled by the flexible concept of fairness to be applied when considering due process. Slawson, \textit{supra}, at 221-22.
statute changes the consequences of a choice of action, or nonaction, made by the complaining party before enactment of the statute in reliance on then-prevailing legal rules.\textsuperscript{167} If the party might have chosen differently with forewarning of the statute's effect, the statute may work such surprise and unfairness that it violates due process.\textsuperscript{168} When the law is unlikely to have affected the party's decision, due process is not violated.\textsuperscript{169}

In the case of Superfund, no prior decision whether to engage in the taxed activity can be affected because the tax is based only on future chemical production.\textsuperscript{170} The only decision that the tax could arguably affect is the choice of methods of production or disposal, assuming that a tax might not have been imposed if the industry had chosen better handling and disposal methods and thus avoided or mitigated the hazardous substance problem. It is doubtful, however, that prior knowledge of the tax "consequence" would have induced safer practices because neither tort liability nor moral duty has done so. In any case, the consequence of this decision is not as concrete or direct as is normally required to constitute impermissible unfairness.\textsuperscript{171}

A key factor in determining whether a statute is invalid because retroactive is the relative importance of the right that the complainant alleges has been infringed.\textsuperscript{172} The only right infringed by the Superfund tax is the freedom to engage in less safe disposal practices, and this interest is not worthy of protection because it threatens public

\textsuperscript{167} Slawson, supra note 166, at 225.

\textsuperscript{168} This surprise factor is critical in judging retroactive legislation. Hochman, supra note 166, at 696. An example of a statute that so unfairly affected the consequences of a prior choice as to violate due process is Untermeyer v. Anderson, 276 U.S. 440 (1928). See also authorities cited at note 166 supra.

\textsuperscript{169} Usery v. Turner Elkhorn Mining Co., 428 U.S. 1, 17 n.16 (1976) (noting that in Welch v. Henry, 305 U.S. 134 (1938), the Court upheld a statute despite its retroactive effect because the stockholder would have continued to receive corporate dividends even if he knew the dividends would subsequently be taxed); Hochman, supra note 166, at 706-07; Slawson, supra note 166, at 219 (a tax applied on previously earned income would not be impermissible despite its retroactive effect because a person will invariably earn as much income as possible regardless of the amount of tax he or she must pay).

\textsuperscript{170} Although Slawson prefers an independent analysis of the effect on choice, other commentators view statutes whose operation depends on past events as most likely to work the surprise and unfairness that violate due process. Slawson, supra note 166, at 216-20. Examples are a tax determined according to the amount of income earned, Welch v. Henry, 305 U.S. 134 (1938), or the amount of a gift given, Untermeyer v. Anderson, 276 U.S. 440 (1928), before the statute's enactment. Superfund's tax is not based on past events; the amount of the tax is determined by current production of chemicals. See notes 45-47 supra and accompanying text.

\textsuperscript{171} Decisions that have been held sufficiently concrete to merit protection from unfair retroactive laws typically have involved acquisition or disposition of property affected by tax law changes. See, e.g., Welch v. Henry, 305 U.S. 134 (1938) (tax applied to previous year's earned income); Untermeyer v. Anderson, 276 U.S. 440 (1928) (tax applied to prior decision to make gift).

\textsuperscript{172} Hochman, supra note 166, at 697.
health. The Supreme Court has upheld retroactive statutes in other cases where the alleged preexisting right is not supported by substantial equity.\textsuperscript{173}

Even if a party's choice would have been affected by knowledge of the consequences, the statute may still be constitutional if it is rational and based on an important public interest.\textsuperscript{174} Superfund is the product of Congress's realization that there is an urgent need to respond to the hazardous waste problem.\textsuperscript{175} Such urgency may provide a sufficiently strong public interest as in the case of emergency legislation, which has consistently been upheld despite its retroactivity.\textsuperscript{176} In another analogous situation, occurring in the recent case of \textit{Usery v. Turner Elkhorn Mining Co.},\textsuperscript{177} the importance and rationality of spreading the cost of compensation for disabled miners among the industry that profited from their labor justified the statute's possible retroactivity.\textsuperscript{178} The Supreme Court upheld the statute despite the possible unfairness of requiring operators to compensate their employees for black lung disease that may have developed when the operator did not know of the risk of disease or was relying on then-prevailing law, which imposed no liability.\textsuperscript{179}

In addition to allegations that Superfund's tax is impermissibly retroactive, the chemical industry has argued that the tax is unfair because it is not specifically related to incidents that caused the damage being compensated out of the fund.\textsuperscript{180} Although the Supreme Court in \textit{Turner Elkhorn} upheld the challenged statute, it suggested that requiring mine operators to make payments not directly tied to damage to

\textsuperscript{173} Randall v. Krieger, 90 U.S. (23 Wall.) 137 (1875) (reliance on technical invalidity of prior agreement permitted to be frustrated by subsequent statute validating such agreements, on grounds of insubstantial equity in favor of such reliance); McFaddin v. Evans-Snider-Buel Co., 185 U.S. 505 (1902) (reliance on local law permitting violation of right of mortgagor because of status as nonresident was of insubstantial equity to prevent recovery by mortgagor after legislation retroactively validated mortgages held by nonresidents). \textit{See} Hochman, \textit{supra} note 166, at 720-22.

\textsuperscript{174} Hochman, \textit{supra} note 166, at 697.


\textsuperscript{178} 428 U.S. at 18-19.

\textsuperscript{179} \textit{Id.} at 17-18.

\textsuperscript{180} \textit{See} Senate Finance Comm. Hearings, \textit{supra} note 119, at 263 (statement of Dr. Louis Fernandez, Chemical Manufacturers Association). This objection is independent of retroactivity. If the legislation imposes a burden on an industry member who is not rationally related to the injury being addressed, whether the injury occurred before or after the passage of the Act is irrelevant. Thus, this challenge is that the legislation does not meet the traditional standards of minimal rationality under the due process clause.
former employees would violate due process.\textsuperscript{181}

This statement implies that fairness requires legislatures, when imposing the burden of remedying past damage on a case-by-case basis as did the statute challenged in \textit{Turner Elkhorn}, to impose it according to rules calculated to ensure that the injury to be compensated was caused by the party on whom the burden is imposed.\textsuperscript{182} When the case-by-case approach is abandoned in favor of a tax, however, fairness is provided by the uniformity of the tax, and the requirements of specificity should not apply. Indeed, the Court in \textit{Turner Elkhorn} stated that a tax on current members of industry would be more fair than the case-by-case system upheld in that case.\textsuperscript{183}

Superfund imposes a uniform tax.\textsuperscript{184} Even though this tax might be assessed against some companies that did not contribute to the problem, the deferential standard of due process\textsuperscript{185} should require only that there be some conceivable relationship between the burdened industry and the problem to be solved that justifies holding the industry collectively responsible. This requirement is satisfied by the facts that the chemical industry is a prime contributor to the problem,\textsuperscript{186} and that the uniform tax is easily administrable and burdens all current operators on an equal basis to avoid setting any particular class of firms at a competitive disadvantage.\textsuperscript{187}

The industry may also argue that the tax violates equal protection\textsuperscript{188} because the class burdened by the tax is too narrowly or arbitrarily defined. Legislation need not burden all possibly relevant parties equally, however, if there is some conceivable rationale for imposing a greater burden on a particular class.\textsuperscript{189} Although other industries have contributed to the hazardous substance problem,\textsuperscript{190} it is

\begin{itemize}
\item \textsuperscript{181} 428 U.S. at 24-25.
\item \textsuperscript{182} Under the statute challenged in \textit{Turner Elkhorn}, individual miners would present their claims for compensation to the U.S. Secretary of Labor and would be paid by their employers. 428 U.S. at 9.
\item \textsuperscript{183} \textit{Id.} at 18-19.
\item \textsuperscript{185} See text accompanying notes 163-164 \textit{supra}.
\item \textsuperscript{186} \textit{See, e.g.}, S. REP. No. 848, 96th Cong., 2d Sess. 15, 101-03 (1980).
\item \textsuperscript{187} \textit{See, e.g.}, \textit{id.} at 19-20, 102-03; \textit{SUPERFUND TASK FORCE REPORT}, \textit{supra} note 4, at 93-102.
\item \textsuperscript{188} U.S.CONST., amend. V. Although the fifth amendment does not contain the phrase "equal protection" found in the fourteenth amendment, which applies to the states, the Supreme Court has held that the due process clause of the fifth amendment includes a guarantee of equal protection. Bolling v. Sharpe, 347 U.S. 497 (1954).
\item \textsuperscript{189} Railway Express Agency v. New York, 336 U.S. 106 (1949) (banning advertisements only on vehicles not owned by advertiser not a violation of equal protection, even though distinction was irrelevant to legislative purpose of reducing visual congestion). \textit{See} Welch v. Henry, 305 U.S. 134, 144 (1938) (taxing dividends at different rate than other income not a violation of equal protection).
\item \textsuperscript{190} According to the Chemical Manufacturers Association, EPA identified 17 indus-
conceivable that the chemical industry is the most responsible, or at least the most concentrated or accessible. Thus, Superfund should withstand equal protection objections.

Finally, while the Superfund funding mechanism is a relatively recent innovation, it does have some direct legislative, if not judicial, precedent. Since Turner Elkhorn, Congress has enacted an industry-wide fee to compensate workers for black lung injury and established a similar fee and fund to finance the reclamation of abandoned strip mines. Neither of these funding schemes has been tested in court. Given the deferential nature of the due process inquiry, however, and the other arguments articulated above, these mechanisms and Superfund's tax on industry should withstand constitutional challenge.

CONCLUSION

Superfund has the potential to be one of the nation's most effective environmental statutes. It is, regrettably, limited in scope, covering only cleanup actions and resulting costs. This new statute, had it been in effect at the time, would have provided no compensation to the victims of the Love Canal disaster that inspired the legislation.

Precisely because of these and other limits to its scope, however, Superfund may be effective in what it does undertake. It focuses on the specific problems of improper past waste disposal and sudden releases...
of currently-handled chemicals. It will apply to individual incidents, with the fairly unambiguous goal of cleaning up each release. This application is specific enough to yield tangible results. The statute's provision for broad governmental authority to take direct action and its case by case approach to response and cleanup should prevent the Government from becoming bogged down in unending regulation and continual efforts to induce industry compliance.

The new Act is, of course, susceptible of varying interpretations, perhaps the more so because of the discretion inherent in its case by case application and authority for direct action. It is to be hoped that the threat from hazardous chemicals is so unanimously acknowledged that even an administration skeptical of the efficacy of vigorous environmental protection will not retreat from the full potential of its authority to relieve that threat. The administration especially must establish a comprehensive reporting system, develop a calculated program for identifying and systematically cleaning up existing hazardous sites, and organize a physical response capability in a network of federal, state, local, and private cleanup forces. The judiciary will have its chance as well to interpret the liability provisions in a manner consistent with the goals of the Superfund legislation. If the courts accept the arguments noted in this Development, waste generators will be subject to full strict liability despite their distance from the ultimate releases, joint and several liability will be imposed in cases of multiple responsible parties, and the statutory scheme will withstand constitutional challenge.

Superfund is notable in its clear attempt to charge the costs of environmental damage to those commercial interests that contributed to the damage. This approach should be a particularly attractive one in the current climate of fiscal austerity in government. Perhaps more significantly, it reflects a realization that the benefits of our technologically productive society have attendant costs that, if not paid as environmental precautions, must be paid in cleanup costs, property damage, and disease. Superfund declares the producing industry to be the appropriate place for at least some of these costs to fall.

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