

Chapter 6: Superfund at 40: Unfulfilled Expectations

*Katherine N. Probst**

I. Introduction

The Comprehensive Environmental Response, Compensation, and Liability Act¹ (CERCLA), better known as “Superfund,” was signed into law by President Jimmy Carter on December 11, 1980, in the waning days of his presidency. Superfund filled a major gap in the nation’s environmental laws by providing funding and authority for the U.S. Environmental Protection Agency (EPA)² to respond to releases of hazardous substances at sites across the country.³ In December of 2020, the program will celebrate its 40th birthday.

CERCLA was a direct response to the problems at the Love Canal site in upstate New York and growing awareness among Members of Congress, EPA, and the White House that there were in fact many such sites across the country. In the late 1970s, local residents at Love Canal, horrified by the thick black substances oozing into their basements and concerned about pos-

* Katherine N. Probst is an independent consultant who has written widely about the Superfund program. The author wishes to acknowledge the help of the many Superfund experts she spoke to in writing this chapter. They are too numerous to name here, but they include current and former U.S. Environmental Protection Agency (EPA) and U.S. Department of Justice (DOJ) staff, members of the private bar, and independent experts. All were extremely generous with their time and expertise; some provided their recollections of how the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) came about, while others described the evolution of the cleanup and enforcement programs over the past 40 years as well as where the program stands today. Without their help, this chapter would not have been possible. Any errors or omissions are those of the author.

1. Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Pub. L. No. 96-510, 94 Stat. 2767 (1980).
2. CERCLA generally assigns authority to the President, and that authority is then delegated through Executive Order 12580 to various federal departments and agencies. For the issues addressed in this chapter, the authority has mostly been delegated to EPA. For ease of reading, we refer throughout to EPA rather than the President.
3. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §104(a)(1). Note that while CERCLA liability under section 107 attaches to hazardous substances as defined by the law and subsequent EPA regulation, under section 104(a)(1)(B), the language for when EPA can use its own authority to take action (i.e., use federal appropriations or Hazardous Substance Response Trust Fund (Trust Fund) monies) is slightly different as it adds “pollutant or contaminant” to hazardous substances.

sible health effects, sought help from state and local health officials. Residents began asking questions about what kinds of wastes were buried in their community and wanted information on the risks these substances presented.⁴ State and local agencies did not have the resources to clean up the contamination and neither did the federal government.⁵ Traditional federal environmental laws such as the Clean Water Act and the recently enacted Resource Conservation and Recovery Act (RCRA) provided little help.

Nor did state tort law provide a workable approach for citizens seeking cleanup of hazards or compensation for harm *now*, not years or decades in the future. The major tort claims typically employed to redress harm—nuisance, trespass, negligence, and strict liability for ultra-hazardous activities—typically take years to litigate and require a high bar to establish culpability and causation.⁶ The path to redressing harm through state tort law was long, difficult, challenging, and unpredictable.

It became clear to Congress, EPA, and the White House that new legislation was needed to provide the federal government with the authority and funding to address contaminated sites across the country—especially those where contamination was the result of decades-old waste disposal from companies that were no longer in business.

CERCLA's focus is unusual for environmental legislation. Most of the nation's environmental laws focus on regulating ongoing industrial activities and empower EPA to issue and enforce regulations that limit pollution or control how wastes or substances are managed.⁷ In contrast, Congress fashioned Superfund to facilitate cleanups rather than regulate existing practices. As such, it served as a legislative solution to a challenging societal problem that neither existing laws nor the courts were able to address.

The Superfund law created a two-pronged approach to address the challenge of cleaning up sites contaminated with hazardous substances. First, CERCLA created a powerful liability system. Under the law, liable parties at a site—referred to as “potentially responsible parties” or PRPs—include current and past owners and operators of a facility, generators of the hazardous substances at the site, parties that arranged for the disposal or trans-

4. ADELIN GORDON LEVINE, *LOVE CANAL: SCIENCE, POLITICS AND PEOPLE* ch. 2 (1982).

5. New Jersey enacted the Spill Compensation and Control Act in 1976, which is widely credited to be the first such law in the nation and likely a model for CERCLA. The New Jersey law prohibited the discharge of hazardous substances, provided for cleanups, and created a spill-compensation fund. Spill Compensation and Control Act, N.J. STAT. ANN. 58 §§10-23.11-10-50 (2019).

6. Ronald G. Aronovsky, *Federalism and CERCLA: Rethinking the Role of Federal Law in Private Cleanup Cost Disputes*, 33 *ECOLOGY L.Q.* 1, 9-12 (2006).

7. Under many of the major environmental laws, implementation and enforcement is delegated to the states.

port of hazardous substances, and transporters of hazardous substances that selected the site where the hazardous substances were brought. These parties can pay for site response activities either by implementing cleanup activities themselves or by paying for cleanup activities implemented by the federal government.⁸

Second, CERCLA created a designated trust fund—the Hazardous Substance Response Trust Fund (the Trust Fund)—to pay for site studies and cleanups.⁹ Trust Fund monies can be used to remediate “orphan” sites where the responsible parties are bankrupt or out of business as well as to pay for cleanup when liable parties are recalcitrant and will not agree to pay for or conduct the work themselves. The law authorized new taxes on petroleum and chemical feedstocks to serve as the primary source of monies in the Trust Fund.

CERCLA also required EPA to create a list of national priority sites, known as the National Priorities List (NPL), and to update that list at least annually.¹⁰ The NPL is the cornerstone of the Superfund program. Progress cleaning up NPL sites is the most visible metric for evaluating the program’s success. While the statute authorizes EPA to engage in short-term “removal” actions¹¹ or bring enforcement actions at any site contaminated with hazardous substances, the Agency cannot fund a longer-term “remedial action” unless a site is listed on the NPL.

After the authorization to collect the taxes levied under CERCLA expired at the end of 1985, the Trust Fund began to run out of money. The need to reauthorize the Superfund taxes, as well as congressional frustration with the first few years of EPA’s implementation of the law, led to over two years of hearings about what kinds of changes should be made to the legislation.

In 1986, Congress enacted major amendments to the law, the Superfund Amendments and Reauthorization Act, known as SARA.¹² These changes included authorizing a more than five-fold increase in annual program funding, the creation of a new “corporate environmental income tax” to help pay for this increase, tools to encourage private parties to settle with the govern-

8. Technically, the law addresses the “release or threatened release” of hazardous substances not “sites.” For ease of reading, this chapter—and most articles and discussions—refer throughout to “contaminated sites,” or sites contaminated with hazardous substances.

9. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §221.

10. *Id.* §105(8)(B).

11. Removal actions are defined under section 102(23) of CERCLA. Many NPL sites have removal actions as well as remedial actions. While removal actions can be implemented by either EPA or PRPs, the majority of removal actions at non-NPL sites are implemented by EPA.

12. Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613 (1986).

ment to conduct cleanup, and the addition of much more specific criteria for how remedies are to be selected, among other changes.

SARA also made clear that facilities that are owned or operated by federal agencies must comply with CERCLA to the same extent as those owned and operated by private parties. The cost of federal facility cleanup is borne by each federal agency, not by the Trust Fund.

One of the most significant changes in the amendments was language that barred the pre-enforcement review of site remedies, which effectively eliminated the ability of PRPs to challenge EPA's selected remedy at a site until after the remedy was implemented or enforced.¹³ Since the 1986 amendments, there have been only relatively minor changes to the liability and cleanup provisions of Superfund.

The authorization to collect the taxes that stocked the Trust Fund expired at the end of 1995. The majority of annual program funding now comes from general revenues. While there have been sporadic and somewhat cursory attempts to reinstate the taxes over the years, most have been half-hearted, and none have been successful.

At the end of September 2019, a total of 1,757 sites had been placed on the NPL over the life of the program.¹⁴ Twenty-four percent (424) of these sites have been deleted from the list, meaning that all cleanup goals at those sites have been achieved. The remaining 76% of sites on the NPL require more work before they can be deleted. Nearly 40 years after the program's inception, Superfund continues to be asked to address new environmental challenges as new types of industrial contamination come to public attention and new contaminants of concern are identified, such as per- and polyfluoroalkyl (PFAS) chemicals.

This chapter focuses on two key elements of the Superfund law and program: funding and liability. There are many other issues not addressed here, such as the role of the states, the removal program, remedy selection, public involvement, and citizen suits, to name but a few. The sections that follow include a description of the key provisions of the original CERCLA legislation, why Congress enacted major revisions to the funding and liability schemes in 1986, and a brief overview of the Superfund program. The final two sections of the chapter address some of the strengths and weaknesses of the funding and liability system and concludes with current challenges to program success.

13. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §113(h).

14. *Number of NPL Sites of Each Status at the End of Each Fiscal Year*, ENVTL. PROT. AGENCY, <https://www.epa.gov/superfund/number-npl-sites-each-status-end-each-fiscal-year> (last visited May 19, 2020) [hereinafter *NPL Sites End of Each Fiscal Year*].

II. The Need for Superfund

A. The Problem

On August 7, 1978, President Carter declared a national state of emergency at Love Canal in Niagara Falls, New York. Just days earlier, the New York State Health Commissioner had declared a health emergency and recommended that pregnant women and children under two years old be evacuated from the area.¹⁵ Fear and panic ensued for those living in the community.¹⁶ These declarations came years after local residents filed concerns with the Niagara County Health Department and pleaded with local and state health agencies to address the contamination at Love Canal.¹⁷

The Hooker Chemical and Plastics Corp. (Hooker), which manufactured industrial chemicals, fertilizer, and plastics,¹⁸ had used the canal as a disposal site for years. By 1952, it had deposited more than 21,800 tons of hazardous chemicals in the canal. When Hooker sold the property to the Niagara School Board in 1953, the deed included a disclaimer of responsibility should any harm result from the buried chemicals. A public elementary school was built on the property, and homes for residents were built nearby. When there were heavy rains, the canal overflowed, and toxic chemicals leached into residents' basements and the walls of the school.¹⁹ Hazardous chemicals littered the site, and early studies by the New York State Health Department found birth defects, miscarriages, headaches, and other negative health impacts among local residents.²⁰ Over the years since then, there have been myriad health studies, most with uncertain results. A 2008 study conducted by the New York Public Health Department concluded there was an association between exposure at Love Canal and several negative reproductive outcomes, such as low birth-weight babies, pre-term births, and congenital malformations.²¹

Love Canal was not the only contaminated site that burst into public consciousness in the late 1970s. At the Valley of the Drums, a 17-acre site

15. *A Chronology of Love Canal*, N.Y. TIMES, May 21, 1980, at B6 [hereinafter *A Chronology of Love Canal*].

16. ENVTL. PROT. AGENCY, SUPERFUND 25TH ANNIVERSARY ORAL HISTORY PROJECT: LOIS GIBBS.

17. *Id.*

18. SAMUEL S. EPSTEIN ET AL., HAZARDOUS WASTE IN AMERICA 92 (1982).

19. Colin Dabkowski, *A History of the Love Canal Disaster, 1893 to 1998*, BUFFALO NEWS, Aug. 4, 2018, <https://buffalonews.com/2018/08/04/a-history-of-the-love-canal-disaster-1893-to-1998/>; *A Chronology of Love Canal*, *supra* note 15.

20. It is extraordinarily difficult to document a cause and effect relationship between contaminants at a site and human health impacts.

21. DIVISION OF ENVTL. HEALTH ASSESSMENT, CTR. FOR ENVTL. HEALTH, N.Y. STATE DEP'T OF HEALTH, LOVE CANAL FOLLOW-UP HEALTH STUDY 2-4 (2008).

near Louisville, Kentucky, hazardous chemicals oozed from almost 100,000 steel drums piled on an illegally operated waste dump.²² In April 1980, in the midst of the congressional debate about Superfund, the Chemical Control Corp. warehouse—a waste storage facility in Elizabeth, New Jersey—burst into flames, providing a stark reminder of the need to address waste disposal sites. The fire burned for 10 hours, sending smoke and ash over a 15-mile area and closing nearby schools.²³

According to a 1979 article by Michael Brown, a reporter for *The Niagara Falls Gazette* credited with bringing much-needed local and national attention to Love Canal, “indiscriminate dumping, dumping whatever wherever, has been a national way of life. Though American manufacturers of plastics, pesticides, herbicides and other products that produce huge amounts of toxic wastes are beginning to deposit them in centralized landfill sites[,] . . . the common practice has been to dispose of residues and forget about them.”²⁴ A 1977 study prepared for EPA estimated that the number of sites containing hazardous wastes ranged from 30,000 to 50,000 sites, with 1,200 to 2,000 of these sites having the potential to present significant health or environmental threats.²⁵

Half of the contaminated sites were thought to be abandoned, meaning that the federal government would need to find money to pay for their clean-up.²⁶ The contaminated sites were often the result of illegal disposal and improper dumping of hazardous substances, poorly designed landfills and surface impoundments, and hazardous substance spills.²⁷ At many sites, the contamination was the result of activities that took place years if not decades before, and the parties responsible had long since gone out of business and disappeared, creating orphan sites. The estimated cost of cleanup was huge—\$26.2 to \$44.1 billion.²⁸

22. John Filiatreau & Margot Hornblower, *Kentucky Hunts Cleanup Funds for Valley of the Drums*, WASH. POST, Feb. 4, 1979, <https://www.washingtonpost.com/archive/politics/1979/02/04/kentucky-hunts-cleanup-funds-for-valley-of-the-drums/ea2fabcc-ccb4-4d1c-8c85-b9d3b58fe7d4>.

23. *Superfund History—Printable Version*, ENVTL. PROT. AGENCY, <https://www.epa.gov/superfund/superfund-history-printable-version> (last visited May 3, 2020); EPSTEIN ET AL., *supra* note 18, at 211.

24. Michael H. Brown, *Love Canal, U.S.A.*, N.Y. TIMES, Jan. 21, 1979, <https://www.nytimes.com/1979/01/21/archives/love-canal-usa-love-canal-usa.html>.

25. 1 CONG. RESEARCH SERV., A LEGISLATIVE HISTORY OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980, 91–92 (1983) (97-14) (statement of Thomas C. Jorling, Assistant Administrator, Water and Waste Management, Environmental Protection Agency) [hereinafter CERCLA LEGISLATIVE HISTORY].

26. *E.P.A. Sees a Cost of \$50 Billion for Cleanup of Chemical Dumps*, N.Y. TIMES, Mar. 3, 1979, at A11.

27. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at 89.

28. *Id.* at 61 (statement of Thomas C. Jorling).

And the risk to human health and the environment was frightening. According to Thomas Jorling, the EPA Assistant Administrator for Water and Waste Management at the time:

The types of hazardous waste which are being improperly disposed of include pesticides and highly toxic organic chemicals, other organic chemicals whose toxicity is unknown, inorganics such as heavy metals, and explosives and flammables. These wastes are capable of producing the full range of toxic effects in humans, including acute poisoning and such chronic responses as carcinogenicity, mutagenicity, and promotion of miscarriages and birth defects.²⁹

According to EPA, improper waste disposal was known to threaten drinking water supplies and cause fish kills, among other risks. Personal injuries from fire or explosions were another threat.³⁰

The problem of cleaning up active or abandoned waste disposal sites and contamination from spills of toxic chemicals fell through the cracks of the nation's environmental laws. EPA could do little to address the problems at Love Canal or other sites because the federal government lacked both the legal authority and the funding to clean up sites contaminated with hazardous substances or relocate residents where necessary.

Existing federal laws were inadequate. Section 311 of the 1972 Clean Water Act provides funding to clean up oil spills and some chemical spills, but it can only be used for spills into navigable waters.³¹ This limitation rendered it of little use for most of the contaminated sites of concern, where toxic chemicals had leached into land and groundwater. Section 7003 of RCRA was also limited in scope, applying only to facilities that treated, stored, and disposed of solid and hazardous wastes.³² Many of the future Superfund sites were not regulated treatment, storage, or disposal facilities, and the hazardous substances at many contaminated sites fell outside of the scope of RCRA authority. In addition, RCRA did not have a fund to address contamination at orphan sites and thus provided no resources for cleanup where sites were abandoned.

B. *The Search for a Legislative Solution*

Faced with a growing environmental crisis unfolding in major newspapers across the country, on television, and—of course—in people's backyards, Congress held multiple hearings on what to do about the problem. The

29. *Id.* at 90.

30. *Id.*

31. 33 U.S.C. §1321.

32. 42 U.S.C. §6973.

Carter Administration responded by committing to develop legislation to fill the void in EPA authority. EPA took the lead: it created a task force to identify the scope of the problem and identify legislative approaches that would give the federal government the authority and funding needed to address the problem. It had become clear that the cost of cleaning up Love Canal and other contaminated sites far outstripped available federal resources, and at many of the sites, the party responsible was nowhere to be found or lacked the financial resources to pay for cleanup.

In June of 1979, President Carter submitted proposed legislation to Congress to provide “a comprehensive system of notification, government response, enforcement and liability, for past hazardous waste disposal practices as well as compensation for oil and hazardous substance spills.”³³ The Administration’s legislative proposal called for creating a \$1.6 billion fund financed 80% from a fee on chemical feedstocks and 20% from general revenues. The fund would be used for federal emergency responses to oil spills, hazardous substance spills, and leaks from old dump sites and the proposal would impose strict and joint and several liability.³⁴ A key goal of the liability scheme was to provide an incentive to improve the standard of care of toxic chemicals in addition to providing a mechanism for EPA to recover funds from responsible parties for response actions. While the final CERCLA legislation differed in important ways, some of its fundamental elements were presaged in the Administration bill.

While there was bipartisan agreement in Congress that some kind of legislation was needed, there was much less agreement on exactly what that legislation should look like, and there were committee jurisdictional disputes as well. Some of the most contentious issues included:

- Should the legislation address oil spills as well as hazardous substance spills and contamination from waste disposal sites?
- Where should funding come from? Should funding come from a dedicated fee related to the cause of the contamination, some other tax on companies, or general revenues?
- What kind of liability scheme was appropriate?
- Should a provision requiring victim compensation be included?

33. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at 86 (statement of Thomas C. Jorling).

34. HAROLD C. BARNETT, TOXIC DEBTS AND THE SUPERFUND DILEMMA 59–60 (1994).

Each of these issues and many others were the subject of discussion and debate in Congress in 1979 and 1980.³⁵ From March through September of 1979, the Senate Environment and Public Works Committee held 11 days of hearings with 74 witnesses testifying.³⁶ A number of bills were introduced in both the House and Senate in the period between the initial Carter Administration proposal and the adoption of final legislation, often with quite divergent answers to each of the above questions.³⁷

The Carter Administration argued that any new legislative authority should address oil spills, hazardous substance spills, and abandoned waste sites in one bill. Then EPA Administrator Doug Costle argued that spills often involved both chemical and oil substances and that these issues would be more efficiently addressed from a bureaucratic standpoint if all were under one piece of legislation, something that the chemical industry—represented by the Chemical Manufacturers Association (CMA)—opposed, as did the National Association of Manufacturers (NAM).³⁸ Both CMA and NAM argued that any new legislation should only address abandoned sites.

The Carter Administration, EPA, and environmental groups all supported the imposition of a chemical feedstocks tax to fund the cleanup of abandoned sites.³⁹ There were a number of rationales in support of this approach: it placed the cost of cleanup on the industry that had profited most directly from the production of hazardous chemicals (i.e., the “polluter-pays” principle), the actual fee was quite small and could be passed on to consumers, and, because the tax was being levied on a specific targeted set of companies it would be relatively easy to administer and have low administrative costs.

Not surprisingly, the chemical industry was strongly opposed to the chemical feedstocks tax. Robert A. Roland, President of CMA, argued that, as the public benefited from the many products made with industrial chemicals, the public should pay to clean up sites contaminated with chemical wastes, and that funding for the program should come from general revenues.⁴⁰ There were also differences of opinion on the number of sites likely

35. BARNETT, *supra* note 34, EPSTEIN ET AL., *supra* note 18, and *Congress Clears “Superfund” Legislation*, 36 CONG. Q. ALMANAC (1980), <https://library.cqpress.com/cqalmanac/document.php?id=cqal80-1175061> [hereinafter CONG. Q. ALMANAC] provided much of the information in this section regarding the initial Carter Administration bill and the description of the proposals and positions taken by various interest groups in the development of CERCLA. Rather than cite throughout this section, the author so notes here and adds additional sources used as appropriate.

36. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at vi, 308.

37. For a detailed description of the various proposals, see generally BARNETT, *supra* note 34; EPSTEIN ET AL., *supra* note 18; CONG. Q. ALMANAC, *supra* note 35.

38. BARNETT, *supra* note 34, at 61.

39. *Id.* at 63.

40. EPSTEIN ET AL., *supra* note 18, at 206.

to require cleanup and the attendant costs. The chemical industry thought EPA's estimate of the number of sites needing remediation and likely costs were too high; CMA thought response costs would be in the millions—not billions—of dollars.⁴¹

From the beginning, the Carter Administration looked to Section 311 of the Clean Water Act as the model for Superfund liability.⁴² There was general agreement among EPA, environmental groups, and states that liability in the new law should be strict as well as joint and several. Strong liability provisions were deemed essential for two reasons: first, so that EPA could recover any response costs it incurred from responsible parties, and second, to provide a deterrent to encourage responsible parties to implement a higher standard of care in how they managed and disposed of hazardous substances in the future.⁴³ CMA was aghast at the proposed liability scheme, as were manufacturers and the waste management industry.

Among the most contentious issues was whether the legislation should include a provision for victim compensation—something the environmental community strongly supported.⁴⁴ It was clear that including such a provision could greatly increase the cost of the program, whether to the Trust Fund or to liable parties. Industry representatives did not want such a provision, as they were extremely worried about the resulting costs.⁴⁵ The Carter Administration did not include victim compensation in its proposed bill, arguing, “Given limited funds, the administration believes that the first priority must be to prevent exposure of people to toxic chemicals at hundreds of sites, as opposed to compensating damaged third parties at a few sites.”⁴⁶ In addition, EPA and the Carter Administration believed that including such a provision would overwhelm EPA and the nascent program.

C. Superfund Is Enacted

At times, it looked as if there was little chance that Superfund would be enacted before the end of the 96th Congress. Many of the provisions in the Administration's initial proposal, as well as in earlier proposals from both the House and Senate, were scuttled and the scope of the legislation

41. BARNETT, *supra* note 34, at 62–63.

42. The 1976 New Jersey Spill Compensation and Control Act is often cited as a model for CERCLA as well.

43. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at 67–69 (statement of Thomas C. Jorling).

44. See EPSTEIN ET AL., *supra* note 18, at 206; see generally CONG. Q. ALMANAC, *supra* note 35.

45. Philip Shabecoff, *Waste Cleanup Bill Approved by House*, N.Y. TIMES, Sept. 24, 1980, at A16.

46. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at 62.

was cut dramatically.⁴⁷ Congress ultimately decided not to address contamination from oil spills in CERCLA and explicitly excluded contamination from oil products from CERCLA liability.⁴⁸ This exclusion is widely believed to be a *quid pro quo* by the oil industry for acquiescing to the tax on petroleum products.⁴⁹

On November 4, 1980, national elections were held that would result in a transition in Congress from a Democratic to a less-supportive Republican majority in January 1981. With this impending change, a major breakthrough occurred on November 20, when Irving Shapiro, Chief Executive Officer (CEO) of DuPont Co., announced his support for the House compromise bill and urged its passage, breaking with the rest of the chemical industry and CMA.⁵⁰

At the 11th hour, in order to ensure passage of the legislation, the size of the proposed Trust Fund in the leading Senate bill, S. 1480, was dramatically reduced from \$4.1 billion to \$1.6 billion, and the provision to provide medical compensation was eliminated.⁵¹ Environmentalists called the elimination of the victim compensation provision a “tragic loss.”⁵²

On December 2, 1980, senators Robert Stafford and Jennings Randolph sent a poignant letter to New Jersey Congressman James Florio, Chairman of the House Transportation and Commerce Subcommittee, pleading with him to support the compromise bill that had been passed by the Senate days earlier so that *some* legislation would be enacted that session. The two senators wrote:

That the bill passed at all is a minor wonder. Only the frailest, moment-to-moment coalition enabled it to be brought to the Senate floor and considered We know that some Members of the House are dissatisfied with the Senate-passed bill. But it was the best bill we could pass The Senate has passed a bill. It is not what we would have wanted under other circumstances, but it was the best we could do at the time. In fact, it was the only bill we could pass at the time and we do not believe it could be passed again.⁵³

Congressman Florio and other members of the House of Representatives decided to support the compromise bill, President Carter signed it, and the

47. *See id.* at 308.

48. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §101(14).

49. Although the authority for the petroleum tax has expired, the exclusion continues to protect releases of oil from CERCLA liability.

50. EPSTEIN ET AL., *supra* note 18, at 220; ENVTL. PROT. AGENCY, SUPERFUND 25TH ANNIVERSARY ORAL HISTORY PROJECT: THOMAS JORLING 11 [hereinafter JORLING ORAL HISTORY].

51. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at vii.

52. CONG. Q. ALMANAC, *supra* note 35.

53. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at 774–75.

Comprehensive Environmental Response, Compensation, and Liability Act was born. On December 11, 1980, CERCLA was enacted.

III. CERCLA of 1980: Key Provisions and the Early Years

CERCLA's primary objective was to give EPA⁵⁴ the authority to identify and clean up sites contaminated with hazardous substances and to assign the cost of cleanup directly to those parties—referred to as “potentially responsible parties” or “PRPs”—who had some documented connection to the sites. To accomplish these goals, CERCLA put in place an extremely powerful liability system to hold a broad set of parties responsible for the cost of cleanup and created the Superfund Trust Fund to give EPA the resources to clean up sites itself when the PRPs at a site could not be found, were not financially viable, or were uncooperative.⁵⁵

A. The Liability Scheme

The liability scheme embodied in CERCLA is almost unprecedented. It was based on the liability regime in section 311 of the 1972 Clean Water Act that addresses oil and hazardous chemical spills.⁵⁶

Under Superfund:

- Liability is *retroactive*, meaning that it applies to actions that took place before CERCLA was enacted;
- Liability is *strict*, meaning that a party is liable even if its actions were not negligent; and
- Liability is *joint and several*, meaning that when the harm at the site is not divisible,⁵⁷ the government can hold one or more parties at the site liable for the full cost, even if there are other liable parties at the site.

54. As noted earlier, the law gives authority to the federal government, which has been delegated mostly to EPA.

55. This chapter focuses on a few key features of the Superfund program: the Trust Fund, the taxes that stocked the Trust Fund, and the liability system. Many other elements of the program are not addressed, such as the remedial and removal programs, the criteria for selecting cleanup remedies, and health assessments.

56. See JORLING ORAL HISTORY, *supra* note 50, at 8.

57. Harm is “divisible” and can be apportioned when “there is a reasonable basis for determining the contribution of each cause to a single harm.” RESTATEMENT (SECOND) OF TORTS §433A(1)(b) (AM. LAW INST. 1963/64). Under CERCLA, if a PRP can show that the harm it caused is divisible—that it can be separated from the harm caused by other PRPs—then its liability can be apportioned with the result that it cannot be held jointly and severally liable.

The goal of the liability system was to ensure that the polluter pays. To this end, CERCLA identifies four categories of PRPs who are liable at a site:

- Current owners and operators of a facility;
- Past owners and operators of a facility at the time hazardous substances were disposed;
- Generators and parties that arranged for the disposal or transport of the hazardous substances; and
- Transporters of hazardous substances that selected the site where the hazardous substances were brought.⁵⁸

Under CERCLA, these parties are liable whenever there is a release or threatened release of a hazardous substance into the environment that results in response costs being incurred.⁵⁹ The law provides three limited defenses against liability: if contamination was caused by an act of God, act of war, or an act/omission of a third party with whom a PRP has no contractual relationship.⁶⁰

The liability scheme was intended to ensure that those responsible for creating the circumstances causing threats to human health and the environment pay the cost of the response actions. Many decried the liability scheme as unfair—it was retroactive, meaning that PRPs could not have known at the time what to do to comply. Some PRPs could have (and often had) been in compliance with the disposal laws at the time, and some PRPs could (and did) find themselves paying for cleaning up contamination caused by other now-bankrupt parties. However, it was clear from Love Canal and other contaminated sites that the federal government needed to be able to take action to address the very real problems at these sites, and the funds had to come from somewhere. Ultimately, Congress decided it was more appropriate for cleanups to be paid for by parties with some connection to the sites rather than the taxpayer, that is, with general revenues. All refer to the liability scheme as extremely powerful, some refer to it as draconian.

The liability scheme had a second goal. By eliminating the need for the government to prove that a PRP was negligent or to determine each PRP's specific contribution to a site, the liability scheme made it easier, cheaper, and faster for EPA to hold PRPs liable, thus reducing government transac-

58. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §107(a)(1–4).

59. *Id.* §107(c)(2).

60. *Id.* §107(b). Over time, a number of liability exclusions have been added to CERCLA, each applying to a particular set of circumstances. A description of these exclusions is beyond the scope of this chapter.

tion costs and—it was hoped—accelerating the enforcement process. The statute also gave EPA the authority to compel PRPs to implement needed actions at a site and impose costly penalties if they do not, including punitive treble damages.⁶¹ Under the law, EPA can file a judicial complaint against PRPs seeking not only to recover the costs incurred by the government for the response actions but also separately, impose punitive damages up to three times the amount of the costs incurred as a result of their noncompliance.

CERCLA's reach is extremely broad. CERCLA liability applies to an expansive list of hazardous substances and a very flexible definition of "facility." Under CERCLA, hazardous substances include all hazardous wastes defined under RCRA as well as hazardous substances defined under other major environmental laws such as the Clean Water Act, the Clean Air Act, and the Toxic Substances Control Act.⁶² In addition, EPA may designate additional hazardous substances as necessary.⁶³

Unlike a typical regulatory statute, CERCLA does not include a specific definition of the types of facilities that can be addressed under the law. Instead, a site is defined as "any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located."⁶⁴ Under this expansive definition, NPL site boundaries are not constrained by the definition of a facility or ownership. Instead, EPA can define a site based on the location and the possible spread of contamination. EPA can also change the site boundaries after a site is listed on the NPL if more information on the nature and extent of contamination is discovered.

Because of this expansive definition, sites listed on the NPL include contaminated areas with no industrial facility on the site, an evolving range of different types of industrial and waste management operations, and areas where toxic chemicals were disposed of on the "back 40." The types of sites added to the NPL have changed over time as new contaminants of concern are identified as well as when new contamination is discovered with—for example—increasing development of once rural areas.

The law created a hybrid system for cleanup financing. Site response activities can be paid for and implemented directly by PRPs, or, alternatively, EPA can implement and pay for cleanup activities and then later seek to recover its costs from PRPs after the fact.⁶⁵ One of the rationales for allowing PRPs

61. *Id.* §§106(b)(1), 107(c)(3).

62. *Id.* §101(14).

63. *Id.* §102(a).

64. *Id.* §101(9).

65. As will be discussed later, the process is actually much more complex than this, especially in the later years of the program.

to implement cleanup activities themselves was to harness the efficiency and expertise of the private sector.

In addition to ensuring that responsible parties pay for site cleanup, another important goal of the liability scheme was to encourage companies to implement a higher standard of care for how they managed and disposed of hazardous substances. Making PRPs liable for the cost of cleanup sent a clear signal to CEOs about the high price of failing to properly manage hazardous substances. Thus, while liability is retroactive, it has a powerful prospective effect as well.

CERCLA also made PRPs liable for natural resource damages (NRD).⁶⁶ Congress authorized those parties it defined as NRD trustees—agencies of the federal government as well as state and tribal governments—to hold PRPs liable for damages to natural resources from hazardous substances.⁶⁷ The statute allows the government to recover the cost of restoration or replacement of injured or destroyed natural resources, compensation for any interim lost value, and the cost of assessing NRD. As EPA is not a natural resource trustee and as NRD is a wholly separate program it is not addressed in this chapter.⁶⁸

B. *The Trust Fund and Annual Program Appropriations*

CERCLA created the Hazardous Substance Response Trust Fund and authorized total funding of \$1.6 billion for the program over a five-year period, or \$320 million in annual appropriations.⁶⁹ The majority of the funds (86%) were to come from new fees on petroleum products and on 42 chemical feedstocks, with the remainder (14%) coming from general revenues.⁷⁰

I. Taxes

The new Superfund taxes that stocked the Trust Fund were designed to be relatively easy to administer and to provide a stable funding source. The 42

66. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §§101(6), 107(a)(4)(C).

67. Damages to natural resources resulting from the release of petroleum products are addressed under the Oil Pollution Control Act (OPA). See 33 U.S.C. §§2701–61.

68. ALLISON RUMSEY & MICHAEL DANEKER, *SUPERFUND DESKBOOK* 69 (2d ed. 2014).

69. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §221; Katherine Probst, *Superfund at 25: What Remains to Be Done*, RESOURCES FOR THE FUTURE, Nov. 14, 2015, <https://www.resourcesmag.org/common-resources/superfund-at-25-what-remains-to-be-done/>.

70. See Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §§201–32. The Hazardous Substance Response Revenue Act of 1980, included in CERCLA as title II, imposed a tax of 0.79 cents per barrel on crude oil. *Id.* §4611(a)(1). The statute also imposed taxes ranging from \$0.24 to \$4.87 per ton on 42 different chemical feedstocks. *Id.* §4661(b).

chemical feedstocks to be taxed were selected to apply to substances that were high volume, highly toxic, and frequently spilled.⁷¹ While some point to the unfairness of the fact that a tax on petroleum products was being used to fund a program that—by statute—could not be used to clean up sites contaminated by petroleum products, the general understanding is that the oil industry agreed to the tax on petroleum products as a *quid pro quo* for excluding petroleum products from the definition of “hazardous substances” and from CERCLA liability.⁷² In addition to revenues from the dedicated taxes, funds received from cost recovery actions and CERCLA fines and penalties are credited to the Trust Fund, as is interest on the Trust Fund balance.

2. Appropriations

Each year, as part of the annual appropriations process, Congress determines the total Superfund appropriations for that year and how much of these funds come from Trust Fund revenues and how much from general revenues. Annual appropriations are not tied to the Trust Fund balance. While Superfund monies are often referred to as “Trust Fund dollars,” the reality is that once Congress appropriates funds to EPA for Superfund, there is no distinction between Trust Fund monies and general revenues—all are federally appropriated funds for the Superfund program.

Annual appropriations to EPA for Superfund serve three purposes. First, the funds are used to pay for the costs associated with cleanups at orphan sites—those sites where the PRPs have either gone bankrupt or where it is not possible to identify the parties responsible. Second, annual appropriations are used to pay for the cleanup of sites where the PRPs—though known and financially viable—are recalcitrant; that is, they either refuse to pay and conduct site response activities or drag their feet in endless negotiations or site studies, delaying cleanup. Third, Superfund dollars pay for all other Superfund program elements, including the “removal” program to address shorter-term risks, the salaries of technical, legal, and administrative staff at EPA Headquarters and in the 10 regional offices, as well as staff at the U.S. Department of Justice (DOJ) and many other Superfund program elements.⁷³ Adequate funding of each of these distinct functions is critical to the program’s success.

71. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at 104 (statement of Thomas C. Jorling).

72. See ENVTL. PROT. AGENCY, SUPERFUND 25TH ANNIVERSARY ORAL HISTORY PROJECT: CURTIS MOORE 13–14.

73. See KATHERINE N. PROBST ET AL., SUPERFUND’S FUTURE: WHAT WILL IT COST? 222–24 tbl.G-1 (2001), for a list of all major Superfund budget elements.

C. Superfund's Early Years

The Superfund program got off to a rocky start. Under the leadership of Reagan appointees EPA Administrator Anne Gorsuch and Assistant Administrator Rita Lavelle the program quickly became a lightning rod for criticism due to the slow pace of cleanups and accusations of mismanagement and political favors to industry. The public had expected that with funds finally in hand, EPA would promptly start cleaning up sites.

Instead, there was little visible progress as EPA decided to conserve Trust Fund monies, both as a way to balance the budget deficit and to fend off the need for the program to be reauthorized. EPA was also reticent to use its newly given enforcement authority to compel PRPs to clean up sites, preferring a more voluntary approach.⁷⁴ Congress was furious. At one point, there were six congressional committees investigating the management of the program.⁷⁵ There were charges that EPA was making sweetheart deals with companies, letting them off the hook for cleanup costs they were liable for under the new law.⁷⁶ Both DOJ and the Federal Bureau of Investigation were brought in to investigate allegations of wrongdoing.⁷⁷ Assistant Administrator Lavelle, who was subsequently convicted of perjury and served jail time, was forced out of the Agency in February of 1983, and Administrator Gorsuch departed soon thereafter.

In Superfund's early years, PRP litigation contesting EPA's newfound authority also delayed cleanup progress. Some PRPs were horrified at EPA's view that CERCLA liability was retroactive, strict, and joint and several. The result was protracted litigation as PRPs sought to overturn EPA decisions in court. Ultimately, district courts in a variety of jurisdictions upheld CERCLA's liability scheme, and retroactive, strict, and joint and several liability became accepted law.⁷⁸

74. See generally BARNETT, *supra* note 34, at 83–86.

75. ENVTL. PROT. AGENCY, SUPERFUND 25TH ANNIVERSARY ORAL HISTORY PROJECT: LEE THOMAS 2 [hereinafter THOMAS ORAL HISTORY].

76. Philip Shabecoff, *Forecast for EPA Was Stormy From the Start*, N.Y. TIMES, Feb. 20, 1983, §4, at 2.

77. David Hoffman & Mary Thornton, *2 Officials Forced Out in "Fresh Start" at EPA*, WASH. POST, Feb. 24, 1983.

78. *United States v. Olin Corp.*, 107 F.3d 1506, 1506 (11th Cir. 1997) (holding that CERCLA's response cost liability regime applies retroactively to disposal occurring before CERCLA's enactment); *United States v. Mottolo*, 695 F. Supp. 615, 631 (D. N.H. 1998) (holding that CERCLA retroactively applies to response costs incurred by plaintiffs); see also Kyle E. McSllarrow et al., *A Decade of Superfund Litigation: CERCLA Case Law From 1981–1991*, 21 ELR 10367, 10383 (July 1991) (citing several cases that held liability was strict and joint and several).

After the departures of Gorsuch and Lavelle, William Ruckelshaus and Lee Thomas⁷⁹ were appointed as EPA Administrator and Assistant Administrator, respectively. With their arrival, the program strategy changed course. No longer was the policy to preserve Trust Fund monies. The new approach called for cleaning up sites as quickly as possible through use of the Trust Fund and using the powerful enforcement tools that the statute provided to recover costs from PRPs.⁸⁰

In addition to the chaos at the top of the Agency, there was a lot of work to be done to create the framework and regulatory underpinnings of the new program. CERCLA required EPA to publish a revised national contingency plan (NCP)—the regulatory blueprint for implementing CERCLA—within six months from the date of enactment, and, within one year, the Agency was charged with publishing a list of at least 400 of the “highest priority” sites needing attention, the National Priorities List.⁸¹ Neither of these deadlines were met. In retrospect, the deadlines were probably unrealistic. Congressional frustration with the lack of action by Reagan appointees triggered accusations of delay and mismanagement and helped set the stage for congressional reform of the program in 1986.

IV. SARA: The 1986 Amendments to Superfund

Cleanup progress in the first few years of CERCLA implementation was agonizingly slow. Congress’ lack of trust in how the Reagan Administration had administered the program resulted in a major overhaul of many aspects of the program. While there was general agreement in Congress that the law should be reauthorized and that increased funding was needed, it took three years of often acrimonious debate before the Superfund Amendments and Reauthorization Act (SARA), was passed.

Stakeholder views fell along expected lines.⁸² Environmental organizations wanted to maintain Superfund’s liability scheme and argued that any increased revenues for the Trust Fund should come from the existing taxes on the chemical and oil industries, keeping true to the polluter-pays element of the original CERCLA tax scheme. They also sought, again, to have victim compensation included in the law.

79. Thomas actually held a number of different titles at that point. THOMAS ORAL HISTORY, *supra* note 75, at 2.

80. JOEL A. MINTZ, ENFORCEMENT AT THE EPA: HIGH STAKES AND HARD CHOICES 66 (2d ed. 2013).

81. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §105(8)(B).

82. BARNETT, *supra* note 34, at 200–31 (the summary of stakeholder views is based largely on this source).

The oil and chemical industries were opposed to any increase in the scope of the program and fought against increased reliance on the petroleum and chemical feedstocks taxes. They argued that any new revenues should come from a tax on the amount of waste generated (i.e., a waste-end tax), a broad-based tax, or general revenues. Many, including the Reagan Administration, supported a waste-end tax as this would provide a disincentive to generate waste. There were, however, concerns about whether a waste-end tax would generate a predictable revenue stream. The Atlantic Richfield Co. (ARCO) suggested that a new broad-based corporate tax be levied to generate additional revenues. This new tax would ensure that private industry was still responsible for generating the majority of Trust Fund revenues but would not place an increased financial burden specifically on the petrochemical industry.

For PRPs, who found Superfund's liability scheme unfair, the reauthorization debate provided an opportunity for them to try to gut or diminish retroactive, strict, and joint and several liability. While this level of dramatic change did not occur, the industry lobbied for increased fairness in allocating liability, which did result in some changes in the law to make allocation of financial liability "more fair" and to make entering into a settlement with the government more attractive, as discussed later.

EPA and DOJ sought changes that they believed would both codify some of their existing practices and streamline the enforcement process. Key among these were changes to the settlement process and a bar to the pre-enforcement review of remedies, also detailed below.

In the end, Congress sought to accelerate the pace of cleanup by increasing the size of the Trust Fund (and annual program appropriations), strengthening EPA's enforcement authority, and providing incentives for PRPs to pay for and implement cleanups themselves.⁸³ The amendments made some changes regarding other issues as well. For example, the original law included little guidance on the criteria site remedies should meet. Concern that EPA was not requiring protective cleanups led to one of the most dramatic changes in the law: Congress added specific criteria for remedy selection, including an explicit preference for permanent treatment.⁸⁴

83. A summary of all the changes in SARA is beyond the scope of this chapter. For a summary of major provisions, see *Summary: H.R. 2005—99th Congress (1985–1986)*, CONGRESS.GOV, <https://www.congress.gov/bill/99th-congress/house-bill/2005> (last visited May 7, 2020) and Timothy B. Atkeson et al., *An Annotated Legislative History of The Superfund Amendments and Reauthorization Act (SARA)*, 16 ELR 10360, 10360–419 (Dec. 1986).

84. 42 U.S.C. §121(b).

As with the original law, the enactment of SARA was a last-minute affair and almost did not happen. President Reagan had said he would veto the compromise legislation due in large part to the inclusion of a new corporate environmental income tax to provide funding for a greatly expanded Trust Fund.⁸⁵ In August of 1985, EPA Administrator Thomas informed Congress that he was slowing or halting cleanups at some Superfund sites due to dwindling funds.⁸⁶ By late September of the following year, Administrator Thomas upped the ante by informing key Committee chairs that if Superfund was not reauthorized by October 1, 1986, EPA would have to send termination notices to EPA cleanup contractors, and in December he would start the process of furloughing federal employees working in the Superfund program.⁸⁷

Faced with the prospect of a complete halt to the Superfund program, President Reagan signed the legislation on October 17, 1986, saying, “My overriding concern has been the continuation of our progress to clean up hazardous waste sites that endanger the health and safety of our citizens. All Americans can expect no less from their government.”⁸⁸

A. *A Greatly Expanded Trust Fund and a New Tax*

One of the most noteworthy changes in SARA was the more than quintupling of the size of the Trust Fund and the levying of a third tax to generate increased Trust Fund revenues. Authorization for the original taxes expired at the end of 1985 and the program limped along with supplemental congressional appropriations until the 1986 amendments were enacted.⁸⁹

There was much discussion and debate about how much to increase the size of the Trust Fund and how the increased revenues should be generated. The Administration proposed a \$5.3 billion Trust Fund, arguing that they could not spend more than \$1 billion a year effectively.⁹⁰ The House Ways and Means Committee recommended that the Fund be increased to \$10 bil-

85. Atkeson et al., *supra* note 83, at 10366–67.

86. United Press Int'l, *EPA Fears Fund Shortage, Slows Cleanups of Dumps*, L.A. TIMES, Aug. 17, 1985, <https://www.latimes.com/archives/la-xpm-1985-08-17-mn-2072-story.html>.

87. 132 CONG. REC. H9561-03 (daily ed. Oct. 8, 1986) (letter from Lee M. Thomas, Administrator, Environmental Protection Agency, to Rep. John D. Dingell, Chairman, House Committee on Energy and Commerce, of September 22, 1986).

88. Philip Shabecoff, *Reagan Signs Renewal of Toxic Waste Project*, N.Y. TIMES, Oct. 18, 1986, at 8.

89. MARK REISCH, CONG. RESEARCH SERV., SUPERFUND: A SUMMARY OF THE LAW 3 (2003) (RL31154).

90. Atkeson et al., *supra* note 83, at 10413; *Executive Session on S. 51, Superfund Financing: Hearing Before the S. Comm. on Finance*, 99th Cong. 8 (1985).

lion.⁹¹ Most of the discussion centered on total funding of \$8 billion over five years—close to the amount agreed to in the final legislation.

More controversial than the level of funding was the question of how the additional revenues should be generated. A number of alternatives were discussed, including:

- Raising all funds from the two existing taxes on petroleum and chemical feedstocks—an approach that the oil and chemical industries lobbied against;
- Instituting a waste-end tax, as proposed by the Administration, which had the benefit that the tax had some nexus to the problem but the drawback that if the tax resulted in a substantial decrease in the amount of waste generated, it would not provide a stable source of funding; and
- Instituting a corporate environmental tax, which is a broad-based tax that would be levied on a much larger group of companies, reflecting the presence of hazardous chemicals in many products and spreading the financial burden among many industry sectors.

Once amended, the Trust Fund was set at \$8.5 billion for a five-year period, with authorized annual appropriations of \$1.7 billion.⁹² SARA added a new tax—the corporate environmental tax—to the two taxes already in the law—the taxes on petroleum and chemical feedstocks.⁹³ The broad-based corporate environmental tax, which applied to all corporations with a modified alternative minimum taxable income of \$2 million or more, was a tax of 0.12% (\$12 per \$10,000) on taxable income in excess of \$2 million.⁹⁴ And, it had the virtue of not being opposed by the petrochemical industry.

Authorization for the three taxes expired at the end of 1991. Congress reauthorized the taxes once, through the end of 1995.⁹⁵ They have not been reauthorized since. When the taxing authority expired in 1995, there were still some tax revenues in the Trust Fund, which continued to be appropriated to the Superfund program until they ran out. While much attention has been paid to the Trust Fund balance, annual appropriations by Congress determine how much money EPA is given to administer the program each

91. Atkeson et al., *supra* note 83, at 10414.

92. *Id.* at 10413.

93. There were also some minor changes to the petroleum and chemical feedstocks tax schemes under SARA that are not detailed here.

94. REISCH, *supra* note 89, at 5. SARA also included minor adjustments to the petroleum and chemical feedstocks taxes. KATHERINE N. PROBST ET AL., FOOTING THE BILL FOR SUPERFUND CLEANUPS: WHO PAYS AND HOW? 56–57 (2010).

95. This was accomplished in the Omnibus Reconciliation Act of 1990. REISCH, *supra* note 89, at 3.

year—not the balance in the Trust Fund. In fact, even though SARA authorized annual appropriations of \$1.7 billion, not once has Congress given EPA this much in funding—even when the Trust Fund was flush with money. The largest appropriations for the program were in fiscal years (FYs) 1991 and 1992, when Congress appropriated \$1.62 and \$1.6 billion, respectively.

Although the taxing authority expired at the end of 1995, the Trust Fund continues to have a positive balance as revenues from enforcement actions (i.e., from cost recovery actions, fines, and penalties) as well as interest on the Trust Fund balance continue to be credited to the Trust Fund.

B. Encouraging PRPs to Pay for and Implement Cleanups

SARA included a new section 122 of the law, entitled “Settlements” that contained provisions to encourage PRPs to enter into voluntary settlement agreements with EPA and to make it less attractive for PRPs to “hide in the weeds” and wait for EPA—or other PRPs—to come after them for their share of cleanup costs. Most critically, the provisions of section 122 were designed to moderate the effect of strict and joint and several liability and inject a modicum of fairness into the allocation of liability among responsible parties without changing the underlying liability scheme. The new provisions also sought to reduce transaction costs by providing buyout opportunities for parties that contributed small (i.e., “*de minimis*”) amounts of hazardous substances to sites. Many of the provisions resolved issues that had been the subject of litigation by PRPs seeking to upend some EPA policies and interpretations of the law.

I. Mixed funding

SARA allows EPA, at its sole discretion, to enter into a “mixed funding” agreement with a PRP (or PRPs) whereby the government reimburses PRPs for a portion of the costs of a remedial action at a site where some of the PRPs are recalcitrant, not financially viable, defunct, or unknown.⁹⁶ This provision was intended to introduce an element of fairness into the allocation of financial responsibility and thereby speed up the settlement process. EPA would then be able to recover the mixed-funding amount from the recalcitrant parties.

96. Superfund Amendments and Reauthorization Act of 1986 §122(b)(1).

2. Special accounts

The special accounts provision⁹⁷ authorizes EPA to set up site-specific special accounts that are funded by PRPs under a settlement agreement at a specific site. EPA can then use these funds to pay for future site response work at that site, thus preserving Trust Fund (federal) dollars. The monies typically come from PRPs who decide to “cash out” their liability—that is, pay their share of financial liability plus a premium up front to be released from future liability—rather than perform work at the site.⁹⁸

3. Non-binding allocation of responsibility

Congress gave EPA a tool designed to facilitate the allocation process by allowing EPA to develop a “nonbinding preliminary allocation of responsibility” (NBAR).⁹⁹ The NBAR was envisioned as a mechanism EPA could use to promote settlement by providing a neutral non-binding estimate of what an allocation of responsibility would look like based on the volume, toxicity, and mobility of the hazardous substances contributed to a site; the strength of the evidence connecting a PRP to a site; ability to pay; and other factors.¹⁰⁰

4. Right to contribution

SARA made clear that PRPs have the right to seek contribution—payment for an equitable share of response costs—from other PRPs at a site.¹⁰¹ When one PRP at a site sues another PRP at the site that is referred to as a “third-party contribution claim” as the claim is not between the government and a PRP but rather between two PRPs (third parties). Those PRPs who settle with EPA often—though not always—seek to recover some of their costs by suing non-settling PRPs at the site. This provision has resulted in a bevy of litigation as PRPs have sought to defray their response costs.

97. *Id.* §122(b)(3).

98. *Superfund Special Accounts*, ENVTL. PROT. AGENCY, <https://www.epa.gov/enforcement/superfund-special-accounts> (last visited Aug. 26, 2019).

99. Superfund Amendments and Reauthorization Act of 1986 §122(e)(3).

100. Request for Public Comment, Superfund Program; Non-Binding Preliminary Allocations of Responsibility, 52 Fed. Reg. 19919 (May 28, 1987).

101. Superfund Amendments and Reauthorization Act of 1986 §113(f)(1).

5. Contribution protection

To provide an incentive for PRPs to settle with EPA, SARA, in addition to explicitly authorizing third-party contribution claims (just above) provides that PRPs who enter into a settlement agreement with EPA may not be held liable for contribution by another PRP who has *not* entered into a settlement with the government.¹⁰² Thus, PRPs who enter into settlement agreements with EPA are protected from third-party contribution actions from PRPs who have not yet settled with the government.

6. *De minimis* contributors

New language in SARA allowed—and indeed encouraged—EPA to enter into settlements with PRPs who made only a minimal contribution by amount and toxicity to the response costs at a site, called *de minimis* parties.¹⁰³ By allowing *de minimis* PRPs to settle their liability, this provision enables parties whose contributions had little to do with the overall cost of cleanup to pay an equitable portion of cleanup costs, releases them from any further involvement at the site, and, gives them protection from contribution litigation from other PRPs. The goal of this provision was to facilitate settlement, thus speeding cleanup, and reducing transaction costs for both the *de minimis* parties and for EPA. Usually, funds paid by *de minimis* settlers are placed into EPA special accounts.

7. Covenants not to sue

The covenant not to sue provision allows EPA—under certain circumstances—to provide PRPs that settle with the government a release from liability for paying any additional costs (other than those already agreed to) for the remedial action covered by the settlement agreement.¹⁰⁴ The covenant not to sue applies to a particular remedial action at a site, which may be one of multiple remedial actions to be implemented at the site. Typically, a covenant not to sue does not apply to other remedial actions at the site, nor to an entire site, and therefore does not provide a complete release from future liability. In addition, EPA settlement agreements almost always include a provision for “reopeners,” discussed below.

102. *Id.* §113(f)(2).

103. *Id.* §122(g).

104. *Id.* §122(f)(1), (3–5).

The criteria for offering the protection afforded by a covenant not to sue are that: (1) it is in the public interest; (2) it would expedite a response action; (3) the PRP is in full compliance with the order or settlement agreement; and (4) the response action has been approved by EPA. The legislative language made clear that, when deciding whether or not to grant a covenant not to sue, EPA should take into account the long-term effectiveness and reliability of the remedy and whether there would likely be risks remaining at the site after the remedy was fully implemented.¹⁰⁵ In other words, SARA directed EPA not to provide a release from liability for remedial actions that are not likely to be protective in the long term.¹⁰⁶

8. Reopeners

SARA directed that all settlement agreements that include a covenant not to sue must also include a reopener clause.¹⁰⁷ This language states that EPA may reopen the agreement or sue the PRP to address any site conditions that were not known at the time the covenant not to sue was agreed to. If EPA finds new, previously unknown contamination at a site, PRPs are still liable for the related response costs, even if the contamination was found at a part of the site that was covered by a prior remedial action and covenant not to sue.

C. *Other Key Provisions Related to Superfund Enforcement*

While there are many other provisions in SARA that relate to the Superfund enforcement program, three deserve mention here.

I. Bar to pre-enforcement review of site remedies

A new provision in SARA barred any legal challenge to a remedy or response action selected under CERCLA until after the remedy has been fully implemented or enforced—and even then, the basis for a challenge is quite narrow.¹⁰⁸ In the early years of the program, some PRPs sought to overturn EPA's selected remedy through litigation; this new provision banned such actions. This was (and continues to be) a controversial provision. The goal was to make sure that litigation over the selected remedy is not used to delay cleanup and it was another key element in SARA aimed at encouraging PRPs

105. *Id.* §122(f)(4).

106. Section 122(f)(2) defined criteria for when EPA may grant a “special covenant” not to sue, which as it is less common, is not addressed here.

107. Superfund Amendments and Reauthorization Act of 1986 §122(f)(6).

108. *Id.* §113(h).

to settle with EPA to undertake response actions, as it eliminated what could otherwise have been a major source of delay.

2. Public comments on settlement agreements

SARA also introduced broad new requirements for public participation regarding cleanup plans.¹⁰⁹ This was in part to ensure that EPA did not enter into sweetheart deals with industry. The law now required an opportunity for public comment on the remedy proposed by EPA and also required an opportunity for public comment on plans included in voluntary settlement agreements with PRPs. EPA is required to review and analyze all public comments and to publish a written response to those comments.

3. Federal agencies as PRPs

Section 120 of SARA made clear that sites owned and operated by federal agencies are subject to CERCLA liability.¹¹⁰ These sites are referred to as “federal facilities.” Federal agencies are PRPs under the law in the same manner as private parties when they have caused a release of hazardous substances. While the remedial cleanup process at federal facilities differs in some important ways from the process at private sites, federal agencies are responsible for cleaning up their own contamination and complying with the provisions of CERCLA. Importantly, the EPA Administrator has final remedy selection authority at federal facility sites.¹¹¹ Cleanup costs for federal facilities come out of each agency’s own budget, they are not paid for with Trust Fund (EPA) dollars. The enforcement process is different for federal facility sites on the NPL than for private sites. EPA cannot sue another federal agency and thus cannot bring a judicial enforcement action against a federal agency to compel action at a Superfund site. Federal agencies can also be PRPs at privately owned sites. There are some important nuances when a federal agency is a PRP at an otherwise private NPL site that are not discussed here.

V. Superfund Program Overview

This section provides a brief overview of the NPL and the enforcement tools at EPA’s disposal that can be used to encourage—or compel—PRPs to remediate contaminated sites.

109. *Id.* §117.

110. *Id.* §120.

111. *Id.* §120(e).

A. The National Priorities List

While CERCLA liability can apply to any release of a hazardous substance in the United States, the NPL is the list of releases—commonly referred to as “sites”—that warrant federal attention, whether for federal enforcement, federal funding, or both. In order for a remedial action (the construction of a remedy) to be paid for with Trust Fund monies, a site must be on the NPL.¹¹²

EPA developed the hazard ranking system (HRS) to determine which sites should be included on the NPL.¹¹³ The HRS is a screening tool to assess whether the threat to human health and the environment posed by a release or threatened release of hazardous substances at a site warrants a federal response.¹¹⁴ In general, only sites with an HRS score of 28.5 or above are considered for inclusion on the NPL.¹¹⁵ HRS scores are not numerical representations of actual risks and cannot be used to compare the relative risk among sites.

Under the HRS, each release to the environment may be evaluated according to four potential pathways of exposure to humans or the environment: groundwater migration, surface water migration, soil exposure and subsurface intrusion, and air migration.¹¹⁶ While the highest possible HRS score is 100, scores are typically much lower because all pathways are *not* scored for all sites. For each pathway that is scored, the release receives a score regarding:

- The likelihood of exposure—that is, the likelihood that a site has released or threatens to release a hazardous substance into the environment;
- Waste characteristics such as toxicity, persistence, and the quantity of the hazardous substance; and

112. To be eligible for federally funded remedial actions, the site must be a *final* NPL site; proposed NPL sites are not eligible for EPA-funded remedial actions.

113. National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. pt. 300 app. A (2018) [hereinafter National Contingency Plan].

114. See *Introduction to the Hazard Ranking System (HRS)*, ENVTL. PROT. AGENCY, <https://www.epa.gov/superfund/introduction-hazard-ranking-system-hrs> (last visited May 3, 2020); ENVTL. PROT. AGENCY, OVERVIEW OF THE PRESENT HAZARD RANKING SYSTEM, <https://semspub.epa.gov/work/HQ/174041.pdf>. Although the latter document has *not* been updated to include the 2017 addition of the subsurface intrusion pathway, it provides a clearer description of the HRS than the former document.

115. There are two other mechanisms that—while less often used—can be employed to add a site (or release) to the NPL that do not require an HRS score of 28.5 or above: (1) states or territories may each add one site to the NPL; most states have already used this opportunity, and (2) and the Agency for Toxic Substances and Disease Registry (ATSDR) may add a site to the NPL as long as certain conditions are met. National Oil and Hazardous Substances Pollution Contingency Plan, 55 Fed. Reg. 8666, 8845 (Mar. 8, 1990) (codified at 40 C.F.R. pt. 300).

116. The subsurface intrusion pathway was added in 2017 in an amendment to 40 C.F.R. pt. 300. Addition of a Subsurface Intrusion Component to the Hazard Ranking System, 82 Fed. Reg. 2760 (Jan. 9, 2017) (codified at 40 C.F.R. pt. 300).

- Targets—that is, the number of people or the sensitive environments actually or potentially exposed.

The HRS site score is obtained by combining the pathway scores. Any site scoring 28.5 or greater is eligible for placement on the NPL, and most sites with a score of 28.5 or above are proposed for the NPL. Once EPA decides to add a site to the NPL, a notice proposing the site for inclusion on the NPL is published in the *Federal Register* and is available for public comment. Most but not all proposed sites become final NPL sites. Only those sites that are final NPL sites are eligible for EPA-financed remedial actions.

In the early years of the program, the majority of NPL sites were waste management sites. In the 1990s, the majority of sites added to the NPL were manufacturing sites.¹¹⁷ While few mining sites were added to the NPL before FY 2000,¹¹⁸ some of the most challenging and notorious mining sites—Tar Creek, Bunker Hill, Leadville, Summitville, and Iron Mountain—were listed in the early years of the program. The cost of cleanup varies dramatically among sites depending on the type of contaminants, the media contaminated, and the extent of contamination. Cleanup costs can range from a few million dollars to hundreds of millions of dollars. Some sites such as the Hudson River PCBs site in New York have estimated cleanup costs of over \$1 billion.¹¹⁹

B. The Remedial Cleanup Process

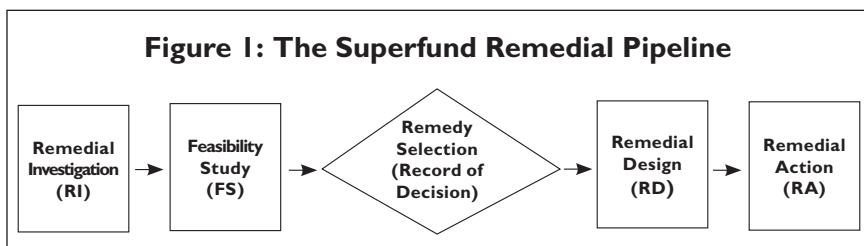
Sites on the NPL are typically divided into multiple projects or phases, referred to as “operable units” (OUs). Each OU goes through the same process, called the “remedial pipeline,” as shown in Figure 1 (next page). As many sites have more than one OU, most sites go through this process more than once.

The remedial investigation (RI) and feasibility study (FS) are usually conducted concurrently and are referred to as the “RI/FS.” The RI involves collecting data to characterize site conditions, determine the concentration level of contaminants, and assess the risk posed to human health and the environment. The FS focuses on the identification and initial evaluation of possible remedial alternatives and establishes preliminary remedial action objectives

117. For data on types of sites listed on the NPL over time, see KATHERINE N. PROBST, *SUPERFUND 2017: CLEANUP ACCOMPLISHMENTS AND THE CHALLENGES AHEAD* App. D. (2017).

118. This definition of mining sites includes sites where mining is the primary activity. Sites with mining-related activities are included under two other broad site types: manufacturing and waste management. *See id.* at 12 n.27.

119. *Superfund 35th Anniversary: Region 2*, ENVTL. PROT. AGENCY, https://19january2017snapshot.epa.gov/superfund/superfund-35th-anniversary-region-2_.html#hudson (last visited May 3, 2020) (archived snapshot of the page as of January 19, 2017).



for specific contaminants and pathways. After the RI/FS is completed, EPA issues a proposed plan setting forth the preferred remedial alternative, which is open for public comment typically for 30 or 60 days. EPA issues the final selected remedy in a record of decision (ROD), which is the formal end of the RI/FS process. After the remedy is selected, the next step is the remedial design (RD), or the engineering design of the remedy. The final step in the process, the remedial action (RA) is the construction of the actual remedy.

All these steps *except* remedy selection can be conducted by either EPA or by PRPs; it is not unusual for the lead for response activities to go back and forth between the two, with some steps in the process implemented by EPA and others by PRPs. EPA conducts oversight of all PRP activities, and PRPs are responsible for reimbursing EPA for oversight costs. Remedy selection—where the remedy for the operable unit at a site is selected and detailed in the ROD—is solely the province of EPA.

Once all remedies at a site have been implemented, the site is “construction complete.” Remedy implementation does *not* mean that cleanup goals for the site have been met—in fact, this is rarely the case. Most NPL sites will require years (if not decades) of long-term response and/or operation and maintenance (O&M) activities before cleanup goals are achieved. Once all cleanup goals—or remedial action objectives in Superfund parlance—are achieved, a site can then be deleted from the NPL.

The number of sites that are construction complete and deleted are two of the primary metrics of cleanup progress. Until 1990, the only measure of progress for NPL sites was whether a site was deleted from the NPL (or not). As it became clear that getting sites deleted was taking a very long time, EPA added the “construction complete” measure as an interim progress indicator.¹²⁰ Since then, additional performance measures have been added as well.

Although in theory site investigation, design, and cleanup at an NPL site can be implemented either by PRPs, EPA, or by a combination of the two,

120. 40 C.F.R. §300.425(d)(6).

EPA's ability to finance response actions at sites—whether they are orphan sites or sites with recalcitrant or slow-moving PRPs—is constrained by the amount of funds it receives each year as part of the annual appropriations process. Program success is predicated on a hybrid program, with PRPs picking up the tab for the majority of site response activities and EPA paying for the cost of truly orphan sites and for response activities at sites where PRPs are recalcitrant or not financially viable.

At some NPL sites, all phases of the cleanup process are paid for and implemented by EPA. These sites are referred to as “EPA-lead” or “Fund-lead.”¹²¹ At other sites, all phases in the process are paid for and implemented by PRPs, referred to as “PRP-lead sites.” And, at many if not most sites, some phases of the process are paid for and implemented by EPA (typically the earlier site study and investigation phases), and other phases by PRPs. A fourth possible scenario is that EPA implements a remedial pipeline action with funds obtained from PRPs.

When a remedial action is paid for with EPA funds, state governments are responsible for paying 10% of the remedial action cost and 100% of any subsequent O&M costs.¹²² At NPL sites that are owned or operated by a state, states are responsible for 50% of the cost of the remedial action(s). While not addressed here, the state cost burden is an issue of great concern to state agencies.

C. Enforcement Tools

While the strategy for when to use EPA dollars and when to pursue PRPs has evolved over time, the Agency has mostly pursued an “enforcement first” strategy since SARA was enacted.¹²³ Under this approach, EPA seeks to find PRPs to pay for and implement response activities before using EPA appropriations. The goal is to ensure that those who are liable at the site pay for cleanup (i.e., that the polluter pays) and preserve federal dollars for truly orphan sites.

The statute provides many incentives for PRPs to settle with the government. Only those PRPs who have entered into a settlement agreement with

121. For many years, until the Trust Fund was depleted, these actions were always referred to as “Fund-lead.” EPA stopped using this term, and now refers to EPA-lead actions; however, many still use the term Fund-lead to denote actions paid for by EPA.

122. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §104(c)(3).

123. *Superfund Program: Status of Cleanup Efforts: Hearing Before the Subcomm. on Superfund, Waste Control, & Risk Assessment of the S. Comm. on Environment & Public Works*, 106th Cong. 13 (2000) (statement of Lois J. Schiffer, Assistant Attorney General, Environment and Natural Resources Division, U.S. Department of Justice).

the government are eligible to receive the benefits Congress put in place in 1986—most notably, contribution protection, contribution rights, and covenants not to sue. Although SARA also provided for formal mixed-funding agreements, this provision is not often used. However, EPA can defray PRPs' site costs as an inducement for parties to settle by:

- Agreeing to pay or perform part of the work itself;
- Forgiving past or future costs to cover the cost of defunct or insolvent parties; or
- Agreeing to use funds from special accounts to help cover future costs.¹²⁴

EPA's authority to compel PRP action is another incentive for PRPs to enter into a voluntary settlement agreement. Under section 106 of CERCLA, EPA has the authority to compel a PRP to take action if there is an "imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance."¹²⁵ If PRPs are issued such an order, called a "unilateral administrative order" (UAO), they will not receive any of the benefits or protections enumerated earlier. Most PRPs—especially those familiar with CERCLA liability—find it more advantageous to settle with the government than to be on the receiving end of a UAO or the litigation that may follow. Under the statute, PRPs who did not comply with a UAO were subject to penalties of up to \$25,000 a day, and in the worst case, they could be found liable for treble damages.¹²⁶ (As of this writing, the daily penalty, which is adjusted annually, was \$57,317.)¹²⁷ The threat of treble damages—though rarely used—provides a powerful incentive to comply with orders issued by the government.

Another incentive for PRPs to conduct site study and cleanup work themselves is because it gives the PRPs greater control over the process. For example, some PRPs prefer to conduct the site investigation (RI/FS) themselves rather than have EPA do it because they can retain more control over the investigation and try to ensure that no new sources of contamination are dis-

124. ENVTL. PROT. AGENCY, CERCLA ENFORCEMENT OVERVIEW 5 (2018).

125. 42 U.S.C. §9606(a).

126. *Id.* §9607(c)(3).

127. Section 9606(b)(1) of title 42 of the U.S. Code called for a daily penalty of \$25,000. This amount is adjusted annually for inflation. Memorandum from Kenneth Patterson, Director, Regional Support Division, Office of Site Remediation Enforcement, Environmental Protection Agency, to Regional Superfund Legal Branch Chiefs on 2019 Revised Penalty Matrix for CERCLA §106(b)(1) Civil Penalty Policy (Apr. 11, 2019). This daily penalty will likely be adjusted again in 2020 and each year thereafter.

covered later in the process, which would make them vulnerable to reopeners. In addition, when PRPs conduct the RI/FS, they assemble the data and information that forms the basis for the selection of the remedy, even though the actual choice of remedy remains with EPA.

This incentive for PRPs to take the lead is a double-edged sword. While it may result in PRPs conducting more RI/FSs, thus preserving government funds, it provides an incentive for PRPs to conduct overly detailed and time-consuming site studies and investigations, potentially delaying site-cleanup progress.

The major steps in the enforcement process are outlined below.

I. PRP search and identification

Once a site is listed on the NPL, the first step in the process is to identify the PRPs at the site.¹²⁸ EPA staff examine federal and state site records, conduct title searches, and investigate current and past site operations to develop a list of PRPs. EPA also sends information request letters to known PRPs at the site to ask them for information to help identify additional parties.

At this early stage in the process, the goal is not only to identify as many PRPs as possible but also to gather information about each PRP regarding the nature of their involvement at the site. Key questions to be addressed include: Who are the current or former owners of the site? Who are the generators who sent waste to the site? What was the amount of waste or hazardous substances each PRP contributed to the site? What are each PRPs' financial resources—are they likely to be able to pay for the cost of response actions? This information is used to develop the enforcement strategy for each site.

If EPA determines that there are no financially viable PRPs, then the site is classified as Fund-lead, and all response actions are implemented and paid for by EPA. At some sites, one or more of the operable units may have no financially viable parties and these may be carved out for EPA-financed actions, while other operable units may have financially viable PRPs who can bear some or all of the cleanup costs.

For those sites where there are financially viable PRPs, the enforcement process can proceed along a number of different paths. First, EPA can enter into a work settlement agreement with PRPs to perform (and pay for) site studies and cleanup activities. Second, EPA can enter into a settlement agreement with PRPs to pay a specified amount up front to cash out their liabil-

128. See *Finding Potentially Responsible Parties (PRP)*, ENVTL. PROT. AGENCY, <https://www.epa.gov/enforcement/finding-potentially-responsible-parties-prp> (last visited May 3, 2019).

ity at the site. Third, EPA can use section 106 authority to order PRPs to perform work at the site. In many cases, PRPs choose to comply with and implement work under a UAO. If a PRP does not comply with a section 106 order, EPA then has two choices: it can take enforcement action to try to force the PRP to conduct the work, or it can conduct response actions using EPA-appropriated funds and recover its costs from PRPs under section 107 authority. However, EPA's ability to pursue this latter approach depends on the availability of federal funds to pay for the response actions. If funding is constrained, as is currently the case, EPA cannot employ the strategy of paying for cleanup up front and recovering costs from PRPs later.

In some cases, PRPs agree to reimburse EPA for past costs under a settlement agreement; in other cases, EPA sues a PRP to recover those costs. If there is remaining work at the site (for example, at a different operable unit), EPA may be able to place cost recovery funds into a special account to perform further cleanup actions at that site. In many cases, however, cost recovery funds are not placed in a special account but are credited to the Trust Fund. Increases in the Trust Fund balance do not lead directly to increased EPA Superfund resources, however, as EPA funding is determined each year by Congress as part of the annual appropriations process. Thus, while successful cost recovery is of course a good thing, it does not actually increase the amount of money that EPA has at its disposal to pay for site cleanups and other Superfund response activities unless these funds are put into a site-specific special account.

At any individual site, some combination of these approaches may be used—especially at sites with multiple PRPs and multiple operable units.

2. Negotiating a settlement agreement

Once EPA has reviewed the information that has been collected about potentially responsible parties at a site, the Agency sends the PRP a “General Notice Letter” informing the PRP of their potential liability and explaining the process for negotiating with EPA.¹²⁹ General Notice Letters can also include a request for information. “Special Notice Letters” are sent out later in the process and describe the basis for EPA’s conclusion that a PRP is a liable party and informs the PRP that EPA would like them to enter into

129. General Notice Letters are issued under section 104 of CERCLA. See ENVTL. PROT. AGENCY, FACT SHEET, THE SUPERFUND ENFORCEMENT PROCESS: HOW IT WORKS (1988), [hereinafter SUPERFUND FACT SHEET]; *Superfund “Notice of Liability” Letters*, ENVTL. PROT. AGENCY, <https://www.epa.gov/enforcement/superfund-notice-liability-letters> (last visited May 3, 2020) [hereinafter *Superfund “Notice of Liability” Letters*].

an agreement with the government to conduct specific response activities at the site, such as a remedial investigation/feasibility study or—later in the process—a remedial design or remedial action.¹³⁰

EPA has developed model settlement agreement documents, and the negotiation begins with these documents.¹³¹ The preferred outcome is a “work” settlement agreement, where the PRPs agree to perform site studies and cleanups. The settlement agreements usually include an estimated dollar value of the work to be performed. Sometimes, as part of a settlement agreement, PRPs also agree to reimburse EPA for past costs.

PRPs with relatively small financial exposure can also enter into a cash out settlement agreement with EPA, where they pay a specific amount towards future site response activities and are then released from future liability at a site (assuming no previously unidentified contamination is later identified). Funds received from cash outs usually are put into site-specific special accounts and are used by EPA to pay for future work at the site. As of the end of the third quarter of FY 2019, \$7.7 billion in PRP funds had been deposited in site-specific special accounts.¹³²

When EPA believes that PRPs are acting in good faith and the Agency wants to encourage PRPs to submit a settlement offer, as noted above, they will send the PRPs a Special Notice Letter which triggers a 60-day negotiation period, which can later be extended, during which EPA commits to not bring any kind of enforcement action.

The process of negotiating a settlement agreement can take from one to a few years. At sites that are complex, have many PRPs, or are extremely expensive, the process of reaching an agreement can take much longer. At some NPL sites, these negotiations contribute to long cleanup durations.

From a practical standpoint, there are typically multiple settlement agreements at any one NPL site. The first round of negotiation often addresses the RI/FS phase, while a second round addresses the RD/RA phases.¹³³ When

130. Special Notice Letters are issued under section 122(e) of CERCLA, 42 U.S.C. §9622(e); SUPERFUND FACT SHEET, *supra* note 129; Superfund “Notice of Liability” Letters, *supra* note 129.

131. See, e.g., Memorandum from Cynthia L. Mackey, Director, Office of Site Remediation Enforcement, Environmental Protection Agency, to Regional Counsels & Superfund National Policy Managers (Sept. 29, 2016).

132. ENVTL. PROT. AGENCY, SPECIAL ACCOUNTS QUARTERLY MANAGEMENT REPORT—3RD QUARTER FY 2019 (2019). Money deposited in special accounts is included in the total cost recovery and settlement dollar amounts.

133. Recently, EPA has been experimenting with separating the negotiations for settlement from those for the remedial design from those for the remedial action. The goal is to accelerate the overall time line by allowing the remedial design, which is less costly, to proceed, and to hold separate settlement negotiations for the remedial action work, which is the most expensive phase of the process.

there are multiple OUs, there are often separate settlement agreements for each individual OU, sometimes with different PRPs.

Settlement agreements that address a remedial action are required by statute to be enshrined in a consent decree, published in the *Federal Register* for a 30-day comment period, and then be approved by a federal district court judge after review of the public comments. Consent decrees for remedial actions are enforceable in court and contain a schedule for the work to be performed, financial assurance requirements, and penalties if the work is not done in a timely fashion. DOJ is involved in all consent decrees, as they represent EPA in federal court.

3. Recalcitrant PRPs

At some sites, there are PRPs who do not agree to settle with the government. In this case, EPA may issue a UAO to order the PRP to implement a specific action at the site. If the PRP refuses to implement the action, EPA has two options: EPA can seek to enforce the order in court (in which case, DOJ would be involved) or EPA can decide to clean up the site with EPA funding and then seek reimbursement from the PRP to recover its costs under section 107 of CERCLA. EPA can also ask a court to assess daily penalties for non-compliance and seek treble damages if a PRP does not comply with a UAO.

In reality, each of these approaches can be problematic. If the government (i.e., EPA and DOJ) chooses to enforce the UAO, the bar to pre-enforcement review is lifted. This exposes EPA to possible litigation over the selected remedy and whether it properly identified PRPs at the site. If the court determines that the government's actions were arbitrary and capricious and that the actions taken were not in accordance with the NCP, the court can require EPA to reimburse the PRPs for their costs.¹³⁴ Thus, enforcing a UAO can lead to a morass of litigation and a depletion of EPA resources.

Successful use of the second option, where EPA decides to clean up a site with EPA funds rather than wait on PRPs, requires EPA to have adequate funds available to pay for site response actions itself. As EPA appropriations have decreased in the last 20 years, the possibility that EPA would take over cleanup responsibility from PRPs has greatly diminished, and thus the threat of EPA takeover has become much less credible. While there are a few sites where EPA does decide to fund actions itself even where there are viable PRPs, the Agency lacks sufficient funds to do this at many sites especially at costly ones.

134. 42 U.S.C. §§106(b)(2), 113.

4. A dynamic process

Conceptually, the path to cleanup is relatively straightforward. In reality, however, EPA may need to draw on all of its enforcement tools—information request letters, work settlements, cash outs, cost recovery, UAOs, and penalties—at an individual NPL site. This is especially true if the site has multiple PRPs, some of whom decide to work cooperatively with the government, while others do not. PRP strategies when negotiating with EPA vary, depending on whether a PRP has prior experience with CERCLA liability, whether the cleanup is likely to be extremely expensive, whether PRPs believe they are being treated fairly, and whether the PRPs agree with the EPA-selected remedy, among other factors.

At some sites, the PRPs form one or more committees and work together collaboratively. At other sites, a subset of PRPs works constructively with EPA, while the remaining PRPs refuse to cooperate. At sites with multiple PRPs, an additional factor that influences the dynamics of settlement negotiations is whether the PRPs believe that EPA has brought in all the PRPs that should—in their view—be held liable at a site. Even though a PRP who settles with the government can bring a third-party contribution action against non-settling PRPs to try to spread liability and obtain funding for cleanup, that is a costly option for them to pursue. They would much prefer the federal government took on this responsibility.

Some PRPs see an advantage to implementing the RI/FS themselves, as it gives them a great deal of information about the nature of the contamination, which allows them to be more effective advocates for their preferred remedy. Other PRPs prefer to sit out the initial phases of the remedial process and wait until there is more information on the likely remedy and expected costs before agreeing to undertake work at the site.

EPA is faced with a constant tension between seeking to settle with a subset of PRPs, as this is likely to be more efficient in terms of the Agency's time and resources, or casting a wider net for PRPs, which—while it may be perceived as more equitable—will likely take more government resources and longer to accomplish. A similar tension exists regarding EPA's powerful UAO authority; if PRPs do not comply, there are drawbacks to enforcing the order and limited funds for EPA to use if it wants to take over site cleanup itself.

VI. Strengths and Weaknesses

The decision by Congress in 1980 to create a dedicated Trust Fund to pay for the day-to-day operations of the Superfund program and federally funded cleanups on one hand, and PRP liability and direct financial responsibility for remediating contaminated sites on the other, has in many ways, been successful. EPA has the authority and funds to remediate contaminated sites and many cleanups are being implemented and paid for by PRPs. The drain on the federal treasury is much less than it would have been if PRPs were not liable for response costs.

It is, however, taking years if not decades to complete the construction of cleanups at many NPL sites. And at many sites, even though site remedies have been fully built, it will be decades before cleanup goals are achieved.

While the contamination at some sites is intractable, some of the delay is due to a lack of EPA funds and to long and drawn-out negotiations with PRPs. Inadequate funding not only slows cleanup at orphan sites but also greatly decreases the likelihood that EPA will take over the work at sites with slow-moving or recalcitrant PRPs, as the Agency simply does not have the funds to do so. The threat of EPA taking over work at an NPL site was a crucial element of the original law; it was designed to encourage PRPs to implement site activities expeditiously. With this threat no longer credible, that incentive is now severely diminished—most likely further delaying work at PRP-lead sites.

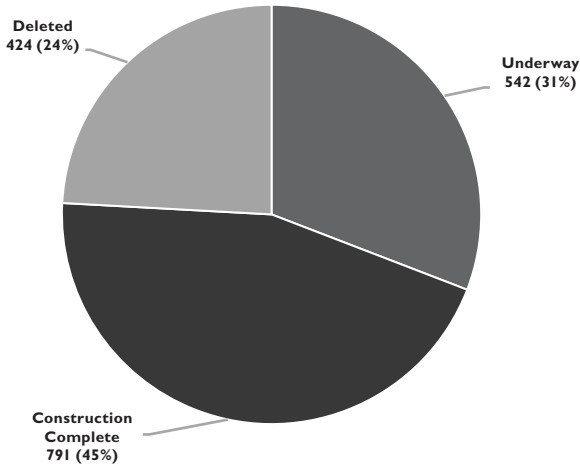
Concern about the slow pace of cleanup is not new. Almost every Presidential administration over the past 30 years has sought to accelerate Superfund cleanups by issuing a package of administrative reforms—changes that require neither congressional action nor new regulations.¹³⁵ The substantive recommendations in each set of reforms are surprisingly similar: streamline the cleanup process, accelerate the process for reaching settlements with PRPs, and use CERCLA's enforcement tools more effectively. And yet none of the reforms have proven successful in the long term, as evidenced by the repetitive nature of each successive attempt.

A. *The NPL Today: A Snapshot*

Of course, the primary benefit of the Superfund program is the protection of human health and the environment. At many sites across the country,

135. There were major administrative reforms initiated under Administrator William Reilly, under the Clinton Administration, and most recently, under the Trump Administration.

Figure 2: Status of 1,757 Final and Deleted NPL Sites, End of Fiscal Year 2019



Source: <https://www.epa.gov/superfund/number-npl-sites-each-status-end-each-fiscal-year>.

Notes: Sites identified as construction complete are construction complete but not deleted. All but four of the deleted sites are also construction complete. The four deleted sites that are not construction complete were deferred to another authority.

the Superfund removal program has eliminated immediate threats to public health by providing alternative sources of drinking water, removing leaking drums, and installing fences to keep people from coming into contact with hazardous substances, among other actions. The task of the remedial program is to address longer-term threats to public health and the environment, a much more difficult, lengthy and expensive task.

As shown in Figure 2, at the end of FY 2019, just under a quarter (424) of the 1,757 sites that had been added to the NPL since 1980 had been deleted, meaning that all cleanup goals at these sites were achieved.¹³⁶ At that time, 45% (791) of all final and deleted NPL sites were categorized as “construction complete” but had not yet been deleted.¹³⁷ At these sites, the physical remedy

136. *NPL Sites End of Each Fiscal Year*, *supra* note 14. According to data provided by U.S. EPA, at over 40% of these sites (176 of 424) there was no remedial action implemented, either because contamination was addressed through a removal action (or actions) or because EPA determined, upon further investigation, that a remedial cleanup was not needed. It is likely that these “false positives” were added to the NPL in the early years of the program.

137. *Id.* All but four of the deleted sites are also construction complete, but for ease of understanding the current status of the NPL, sites that are deleted are categorized separately from those that are construction complete but not deleted.

has been constructed, but the cleanup objectives set for the site have not yet been met. It could take years or decades before cleanup goals are achieved and these sites can be deleted from the NPL. The remaining 31% of sites (542) are either awaiting action or are in some part of the remedial pipeline process. Needless to say, this is a daunting workload.

Just under 10% (174) of all sites added to the NPL by the end of FY 2019 are federal facilities—sites owned or operated by federal agencies (primarily the U.S. Department of Defense and U.S. Department of Energy). Only 11% of the federal facility sites (17) had been deleted from the NPL as of the end of FY 2019.¹³⁸

In addition to tracking cleanup progress, EPA evaluates each NPL site to determine whether current human exposure at the site is under control and whether risks at the site fall within levels specified as safe by the Agency. As of the end of FY 2019, 8% of the sites currently on the NPL (those 1,333 sites that had not been deleted) did not have human exposure under control; at another 11% of these sites, there is insufficient data to determine whether human exposure is under control (or not), according to EPA.¹³⁹ Thus, almost 20% of NPL sites may present some kind of health risk to people living or working near the site. Exposure can be through direct contact with contamination or other pathways of exposure.

Although Congress gave EPA powerful tools to remediate contaminated sites, the legislation did not guarantee adequate funding, nor ensure proactive implementation and enforcement.

B. The Trust Fund and Program Funding

The creation of a Trust Fund financed primarily with corporate taxes had three key advantages. First, it created a dedicated source of funding for the program. Second, it reduced reliance on general revenues. Third, financing the program primarily from corporate taxes, especially those levied on petroleum and chemical feedstocks, satisfied the demand that the “polluter,” not the public, should pay for cleanup. While it was not tied to hazardous substances, the addition of the broad-based corporate environmental tax in 1986 continued the policy of placing much of the financial burden on corporate America.

138. *Superfund: NPL Site Totals by Status and Milestone*, ENVTL. PROT. AGENCY, <https://www.epa.gov/superfund/npl-site-totals-status-and-milestone> (last visited Oct. 21, 2019) [hereinafter *NPL Site Totals*].

139. *Superfund Human Exposure Dashboard*, ENVTL. PROT. AGENCY, <https://www.epa.gov/superfund/superfund-human-exposure-dashboard> (last visited Oct. 1, 2019).

From the inception of CERCLA through the end of FY 1998, the three Superfund taxes generated \$13.5 billion in Trust Fund revenues, as shown in Table 1.¹⁴⁰ Although authorization for the taxes expired at the end of 1995, some tax revenues continued to be collected from FY 1996 through FY 1998.

Table 1: Taxes Paid Into the Superfund Trust Fund by Source, Fiscal Years 1981–1998
(Dollars in Millions)

Tax Source	FY 1981 – FY 1986 Tax Revenues (Pre-SARA)	FY 1987 – FY 1998 Tax Revenues (Post-SARA)	FY 1981 – FY 1998 Tax Revenues (Total)
Crude and Petroleum	\$177 (15%)	\$5,046 (41%)	\$5,223 (39%)
Chemical Feedstocks	\$977 (85%)	\$2,376 (19%)	\$3,353 (25%)
Corporate Environmental	n/a	\$4,914 (40%)	\$4,914 (36%)
Total	\$1,154	\$12,336	\$13,485

Source: U.S. GOV'T ACCOUNTABILITY OFFICE, GAO/RCED-00-25, SUPERFUND: INFORMATION ON PROGRAM'S FUNDING AND STATUS 5 tbl.1 (1999).

Note: Totals may not add due to rounding.

Under the original set of taxes authorized by CERCLA, from FY 1981 through FY 1986, the chemical feedstocks tax generated the vast majority (85%) of all tax revenues, while the oil and petroleum tax generated only 15%. Total revenues during this period totaled just over \$1.1 billion.

In the post-SARA years, from FY 1987 through FY 1998, tax revenues totaled over \$12 billion. During this period, the largest source of tax revenues was the oil and petroleum tax at 41%, followed closely by corporate environmental tax revenues of 40%, with the chemical feedstocks tax generating just under 20%.

Although the Superfund taxes generated stable revenues for the first 15 years of the program, they were criticized as an inefficient means of generating a relatively small amount of revenue in terms of the overall federal budget. Each of the three taxes required individual corporate reporting and paperwork and thus imposed an administrative burden (and cost) on companies and on the U.S. Department of the Treasury to administer. From

140. U.S. GOV'T ACCOUNTABILITY OFF., SUPERFUND: INFORMATION ON THE PROGRAM'S FUNDING AND STATUS 5–7 (1999).

a transaction cost standpoint, one taxing scheme would have been more efficient than three, and obtaining the revenues from an existing corporate tax would have been even more efficient.

In addition, while the environmental community and many in Congress referred to the taxes as polluter-pays taxes, the taxes were not—and could not be—targeted specifically at bad actors. There was no way to tax only the worst offenders or companies and no way to levy taxes on companies that had gone bankrupt or were insolvent. Although the taxes fell directly on companies, the increased cost of the taxes were almost certainly passed on to consumers in the form of higher prices for goods and services.¹⁴¹

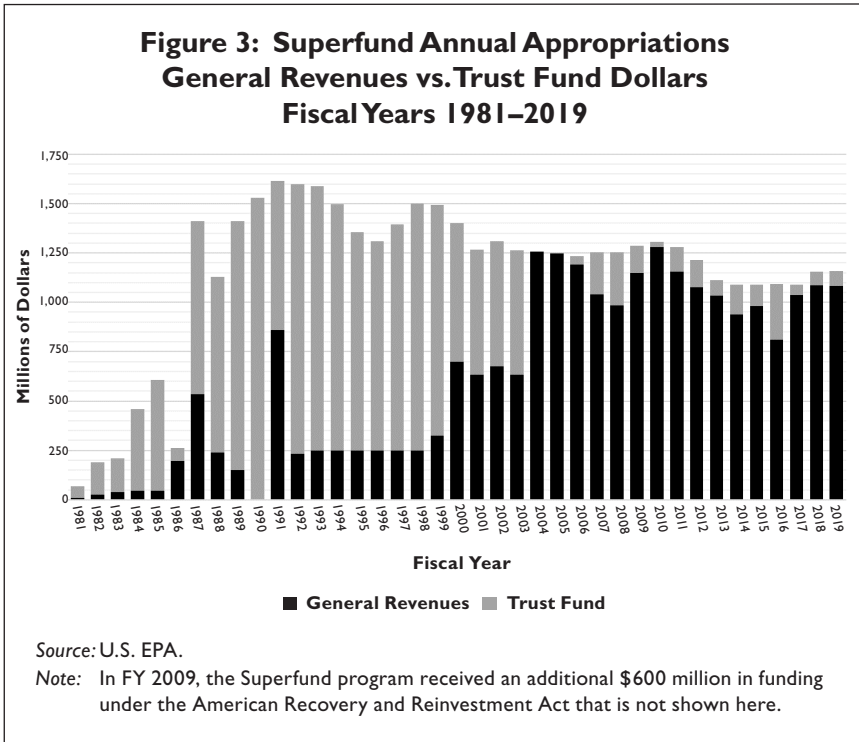
Many companies thought the taxes unfair and lobbied against them whenever the need to reinstate them arose, leading to bruising reauthorization debates. Some companies paying the chemical feedstocks tax pointed out that they were paying for cleanup three times over: they had paid to dispose of their waste before Superfund was enacted in accordance with the practices at the time, they were paying the feedstocks tax to cover costs at orphan sites, and they were paying to clean up NPL sites where they were a PRP. Industry repeatedly argued that as everyone benefits from the goods and services produced with chemicals, funding for the program should come from general revenues.

The major weakness of the taxing scheme was the need to reauthorize the dedicated taxes every five years. Each time the taxing authority expired, action was required on the part of Congress to reinstate it. This opened up the taxing scheme—and the legislation—to partisan debate. In both 1986 and 1991, there were lapses in the taxing authority when Congress failed to reinstate the taxes before the prior authority expired. In both cases, EPA had to slow cleanup activities and took steps to begin shutting down the program in case the program ran out of money.

When the taxing authority expired at the end of 1995, there was no appetite in Congress for renewing it. There is still a positive Trust Fund balance each year due to credits from penalties and cost recoveries obtained by the enforcement program, as well as interest on the Trust Fund balance. Although annual Superfund appropriations are not directly related to Trust Fund revenues—they are determined by Congress each year—concern about insufficient funding has been much more pronounced since the taxes expired.

For 17 of the first 19 years of the program (from FY 1981 through FY 1999) the majority of Superfund annual appropriations each year came from

141. PROBST ET AL., *supra* note 94, at ch. 4.



the Trust Fund, as shown in Figure 3. The two years where this was not the case—FYs 1986 and 1991—were years when the taxing authority temporarily lapsed, causing increased reliance on general revenues. Since FY 2000, as the balance in the Trust Fund has decreased, the overwhelming majority of annual program funding has come from general revenues. This was not Congress’ intent. Both the original CERCLA legislation in 1980 and the 1986 amendments included authorization for dedicated industry taxes and explicitly called for industry—not the general public—to foot the bill for the majority of costs associated with implementing the Superfund program.

C. CERCLA’s Liability Scheme

Superfund’s liability scheme has been effective in many ways, but the approach has had drawbacks as well.

The liability scheme has been extremely successful as a mechanism to fund cleanups. There is little doubt that, absent Superfund liability, far less would

have been accomplished in terms of cleaning up sites contaminated with hazardous substances than would have been the case with the same level of annual appropriations for the program.

Under the liability scheme, PRPs have paid for response costs at hundreds of contaminated sites across the country. From the program's inception through the end of FY 2019, PRPs have committed to almost \$38 billion (\$51.9 billion in 2019 dollars) in work at Superfund sites, and EPA has recovered an additional \$7.4 billion (\$10.1 billion in 2019 dollars) in past costs from PRPs, for a total of almost \$62 billion in 2019 dollars.¹⁴² Unfortunately, there is no way to determine how much money PRPs have actually spent for work at NPL sites or how this compares with EPA's cleanup expenditures. While each PRP settlement with EPA has a dollar value, that value is an estimate of future costs, and PRPs are not required to report actual expenditures to EPA.

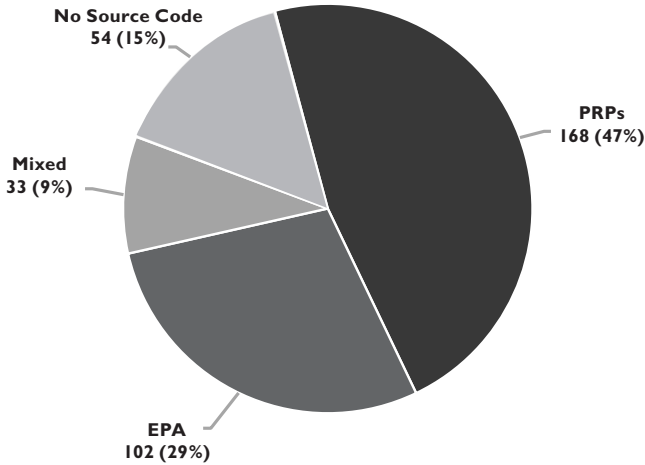
Every dollar paid by PRPs for site studies and cleanups is a dollar that does not have to come out of the Trust Fund or from general revenues. Superfund liability has dramatically reduced the amount of federal dollars needed to clean up sites on the NPL and stayed true to the principle established in CERCLA that parties with a nexus to the contamination should pay for cleanup. Absent PRP involvement, Congress would either have had to appropriate much more in funding (and the number of Superfund staff would have needed to be much larger) to achieve the same results, or there would have been many fewer response activities undertaken and fewer completed cleanups at NPL sites.

The 1986 amendments put in place both "carrots" and "sticks" to encourage PRPs to pay for site cleanups. The carrots include provisions whereby those PRPs who voluntarily settle with EPA obtain a variety of protections and benefits. These positive incentives combined with the sticks of EPA's authority to issue unilateral orders to PRPs, which if ignored can result in penalties and punitive damages, has led many PRPs to settle with EPA rather than face litigation to clean up sites. That said, in recent years, some PRPs see it as in their best interest to contest site settlement agreements and remedies or to delay signing settlement agreements.

The majority of remedial action projects underway at NPL sites are being paid for by PRPs, either through voluntary agreements with EPA to perform site work, through settlements where PRPs cash out their liability, or under

142. U.S. EPA provided data in nominal dollars. Nominal dollars have been converted to constant 2019 dollars by the author using the deflator at http://stats.areppim.com/calc/calc_usdlrxdeflator.php [hereinafter *GDP Deflator*].

Figure 4: Source of Financing for 357 Remedial Action Projects at Final and Deleted Non-Federal NPL Sites



Source: U.S. EPA, data as of October 11, 2019.

Notes: Non-federal NPL sites are those sites on the NPL that are not owned or operated by a federal agency. Federal facilities are not included. Projects categorized as financed by PRPs include remedial action projects that are paid for by PRPs through direct financing or with special account funds. Projects categorized as financed by EPA are paid for completely with EPA appropriations. Projects categorized as mixed financing include remedial actions that are funded by a combination of EPA and PRP funding sources. No source code means that there is no funding source for these remedial actions in the Superfund data-management system (SEMS).

a UAO. As shown in Figure 4, of the 357 remedial action projects¹⁴³ that were underway on October 11, 2019, 47% were being paid for by PRPs and 29% by EPA. Nine percent of the remedial action projects were classified as “mixed funding”—that is, the actions were being paid for with a combination of PRP and EPA dollars. For 15% of the projects, the EPA data system did not have information about the funding source. Unfortunately, this information tells us nothing about the amount of money PRPs are actually spending on NPL response actions, nor on how their expenditures compare to the initial cost estimates (i.e., the value of work) in their settlement agreements with EPA.

143. EPA tracks who pays for remedial actions at NPL sites at the project level. Thus, the data provided is for RA projects—not for remedial actions per se. It is not possible from the data provided to link the RA projects to sites.

Another benefit of Superfund's liability scheme, by design, is that it reduces government transaction costs. Transaction costs are those costs that do not contribute directly to cleanup but are incurred in the process of determining liability among the various parties at a site.¹⁴⁴ For Superfund, these parties include EPA, DOJ, PRPs, and also insurers and reinsurers. Transaction costs include the cost of negotiation and litigation among these parties and occur in various combinations: EPA/DOJ-PRP negotiations and litigation; intra-PRP negotiations allocating financial responsibility; litigation over contribution actions; PRP-insurer litigation over insurance coverage; and insurer-reinsurer disputes over reinsurance coverage.

The imposition of strict and joint and several liability eliminates the need for the government to determine the precise liability of each PRP or to prove negligence, greatly reducing the administrative burden on EPA. In addition, the imposition of joint and several liability gives PRPs an incentive to identify other PRPs at a site in the hope of spreading the cost among a greater number of parties. This too reduces EPA's administrative costs.

When Congress added a legislative bar on pre-enforcement review of remedies at NPL sites in 1986, it eliminated a potential source of delay. Absent the bar, some PRPs would have sought to overturn EPA's selected remedy when they did not agree with the remedy chosen, delaying the implementation of cleanup actions.

Finally, while more difficult to document, the draconian nature of CERCLA's liability provisions led many companies to improve the way they manage and dispose of hazardous wastes and hazardous substances—an explicit goal of Congress. For example, where in the past companies may have selected the lowest bidder for their waste disposal needs, once they understood the implications of Superfund liability many companies re-evaluated their waste disposal practices. Some companies even had waste disposal trucks secretly followed to make sure their waste was going to permitted landfills and not being dumped by the side of the road. Strict and joint and several liability provide a powerful incentive for companies to take steps now to reduce future Superfund liability exposure.

That said, a number of aspects of the liability scheme have been problematic. One drawback of relying on PRPs to pay for cleanups is that PRP inaction delays progress at some sites. It can take years for PRPs to agree to a financial allocation among themselves, and EPA-PRP negotiations add a

144. Much of the data on transaction costs come from research conducted by the RAND Corp. in the early 1990s. See generally Lloyd S. Dixon, *The Transaction Costs Generated by Superfund's Liability Approach*, in *ANALYZING SUPERFUND: ECONOMICS, SCIENCE, AND THE LAW* 171 (Richard L. Revesz & Richard B. Steward eds., 1995).

year or more to the remedial process. While the authors of CERCLA clearly intended for EPA to cleanup first and recover costs later in those cases where PRPs are slow to act, constrained funding has made this the exception, rather than the rule. Thus, one of the fundamental concepts of the original statute has been greatly hindered by inadequate funding.

In addition, many PRPs view the liability scheme as unfair. To this day, PRPs are offended by the notion that CERCLA liability is referred to as polluter pays as—at least for some (or many) of the companies still in business—their waste disposal practices were legal at the time the waste was disposed of. Anger and resentment on the part of PRPs almost certainly has resulted in them dragging their feet at some sites.

Unfairness can result from the way EPA implements the law as well. PRPs complain in particular that EPA often picks a subset of PRPs to target with a notice letter and ask to enter into a settlement at a site. From the government's perspective, there are obvious benefits to working with fewer PRPs, and to working with PRPs who clearly have the financial wherewithal to pay for response actions and are familiar with the Superfund program, rather than working with many PRPs or with PRPs who may not have adequate funds to pay for cleanups. However, from the PRP perspective, when EPA chooses not to involve what they perceive to be *all* PRPs, that reeks of unfairness. While under the law those PRPs who settle with the government can seek third-party contribution costs, this imposes additional litigation costs on the PRP. This tension is embedded in the law.

High transaction costs incurred as a result of time-intensive Superfund-related negotiations and litigation was a major criticism of CERCLA in the first 10-15 years of the program.¹⁴⁵ Transaction costs have generated significantly less criticism since then.

One problem that continues to plague the program is that the process of allocating financial responsibility among PRPs can take a long time; at expensive multi-party sites, it can take years. As PRPs are unlikely to sign a settlement agreement without knowing their financial exposure, delays in figuring out the allocation of financial responsibility among PRPs can delay the negotiation of a settlement agreement, and thus cleanup. The difference between being held responsible for 1%, 10%, or 25% of a \$1 billion cleanup is potentially huge. Although Congress gave EPA a tool to facilitate cost allocation, the NBAR process has been little used. It is not attractive to PRPs in part because for the process to be successful they would have to provide more information to EPA regarding their involvement at a site,

145. *See, e.g., id.* at 183.

something they are reticent to do. Finding a way to reduce the time to reach a settlement would benefit the cleanup program.

A major weakness of CERCLA is that the liability scheme is not clearly articulated in the statute. Nowhere in the law do the words “strict” or “joint and several” appear, and the lack of a conference report means there is no official documentation of legislative intent.¹⁴⁶ In the early years of the program, this lack of clarity led to time-consuming litigation and delays as PRPs sought to curtail the government’s broad definition of Superfund liability. While the fundamental aspects of the liability scheme have been repeatedly upheld in the courts since then, absent clear legislative language and specific legislative intent, the liability scheme continues to be open to erosion as a result of future litigation designed to undermine the law. Some experts believe this is already happening, as evidenced by the U.S. Supreme Court’s decision in *Cooper Industries v. Aviall Services Inc.*, which limited the sections of the law under which contribution claims could be brought, and the Supreme Court’s decision in *Burlington Northern and Santa Fe Railroad Company v. United States*, which placed some limits on joint and several liability.¹⁴⁷

VII. Conclusions

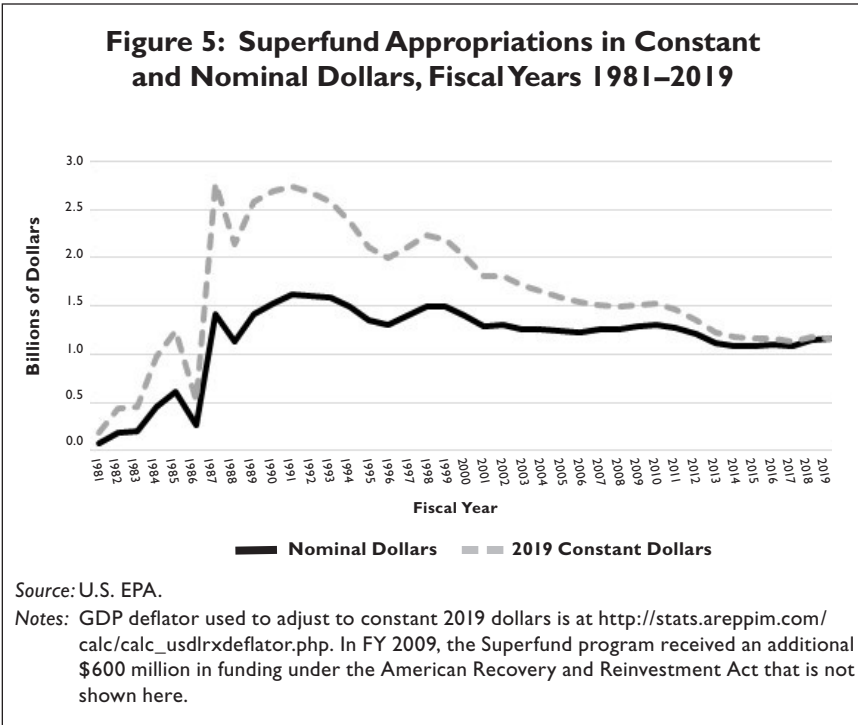
As the Superfund program nears the end of its 40th year, it faces some major challenges. While the underlying statute provides powerful tools to address contaminated sites across the country, the law is only as good as its implementation. Successful implementation depends on adequate funding, effective program management, and strong enforcement. The current level of annual appropriations, the pace of cleanup, and the number of NPL sites where there are current risks to public health, all raise concerns about the future success of the program.

A. Program Funding Is Inadequate

Annual appropriations for the Superfund program have decreased markedly over the past decade in constant dollars—that is, when adjusted for infla-

146. CERCLA LEGISLATIVE HISTORY, *supra* note 25, at vii.

147. *Burlington Northern and Santa Fe Ry. Co. v. United States*, 556 U.S. 599 (2009) (holding that joint and several liability is applicable only to sites where the harm is not divisible or otherwise capable on a reasonable basis of apportionment); *Cooper Indus., Inc. v. Aviall Servs., Inc.*, 543 U.S. 157 (2004) (holding, contrary to prior district and circuit court decisions, that contribution claims brought under section 113(f)(1) could only proceed during or following a suit under sections 106 or 107(a) or after liability is resolved).

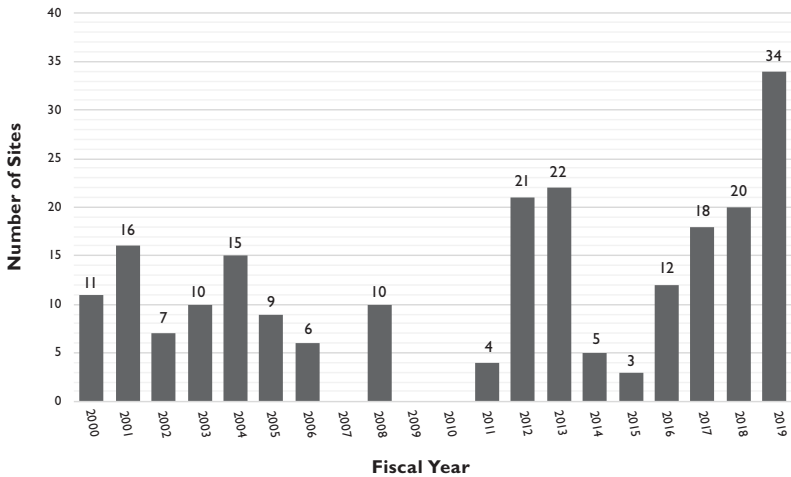


tion. As shown in Figure 5, from FY 1987, after the SARA amendments were enacted, through FY 2000, annual Superfund appropriations were above \$2 billion in constant dollars for all years and were at \$2.5 billion or more in constant dollars for six of these 14 years. Since FY 2000, however, annual appropriations have decreased in real terms, from \$2.02 billion in FY 2000 to \$1.16 billion in FY 2019. Funding in FY 2019 was \$860 million less in constant dollars than in FY 2000, a decrease of 43%.

Appropriated funds pay for all aspects of the Superfund program: the costs of Fund-lead actions at NPL sites, the costs of all Superfund staff, the costs of staff at EPA and DOJ who work on Superfund enforcement, the costs of the removal program, as well as many other components of the Superfund program not addressed here. Inadequate funding can slow cleanup progress in a number of different ways.

Lack of funds has resulted in EPA being unable to pay for all Fund-lead actions in a timely and cost-effective manner. For the past 20 years, at the end of each fiscal year EPA has made public the number of NPL sites with one or more construction projects ready to go that EPA could not move for-

Figure 6: Number of NPL Sites With Construction Projects Not Funded at the End of the Fiscal Year, Fiscal Years 2000–2019



Source: U.S. EPA.

ward that year, due to lack of funds.¹⁴⁸ As shown in Figure 6, EPA has had to delay the start of cleanups at some number of NPL sites in 17 of the past 20 years.¹⁴⁹ There were 34 sites with unfunded construction projects at the end of FY 2019—the highest number since EPA began tracking this information.

Funds for these kinds of projects come out of the remedial program budget, which decreased from \$791 million in constant 2019 dollars in FY 2004 to \$572 million in FY 2019, a reduction of 28%.¹⁵⁰ Two of the three years when EPA did not have to delay any remedial action construction starts were in years the program received supplemental stimulus funding under the American Recovery and Reinvestment Act, which boosted Superfund funding by \$600 million. Unfunded cleanup projects are proof of inadequate

148. This information does not include NPL sites owned or operated by federal agencies because funds for federal facility sites do not come from EPA appropriations, and thus are not affected by EPA funding constraints.

149. See *Superfund Sites with Unfunded New Construction Projects*, ENVTL. PROT. AGENCY, <https://www.epa.gov/superfund/superfund-sites-unfunded-new-construction-projects>. Some of the information on the EPA website is not accurate; however, the data herein is current information that was provided by EPA to the author.

150. Data provided by U.S. EPA in nominal dollars. Adjusted to constant 2019 dollars by author using *GDP Deflator*, *supra* note 142.

funding. The lack of remedial program funding has almost certainly affected other phases of the remedial process as well, likely delaying completion of site studies and other cleanup activities.

Limited funding also means that at expensive Fund-lead sites EPA has to parcel out partial funding year after year, slowing cleanup. For example, cleanup at the New Bedford Harbor site in Massachusetts is expected to cost over \$300 million. For many years, all the work was paid for by EPA. Due to funding constraints, EPA allocated approximately \$15 million per year to the site and estimated that it would take 30-40 years to complete the work.¹⁵¹ After EPA and the Commonwealth of Massachusetts reached a settlement agreement with the primary PRP, AVX Corp., EPA estimated that it would take fewer than 10 years to implement the remedy. Incremental funding of major construction projects not only means that it takes longer to complete the work but also that the work is not implemented in the most cost-effective manner, thus raising total costs and potentially increasing site risks to human health and the environment.

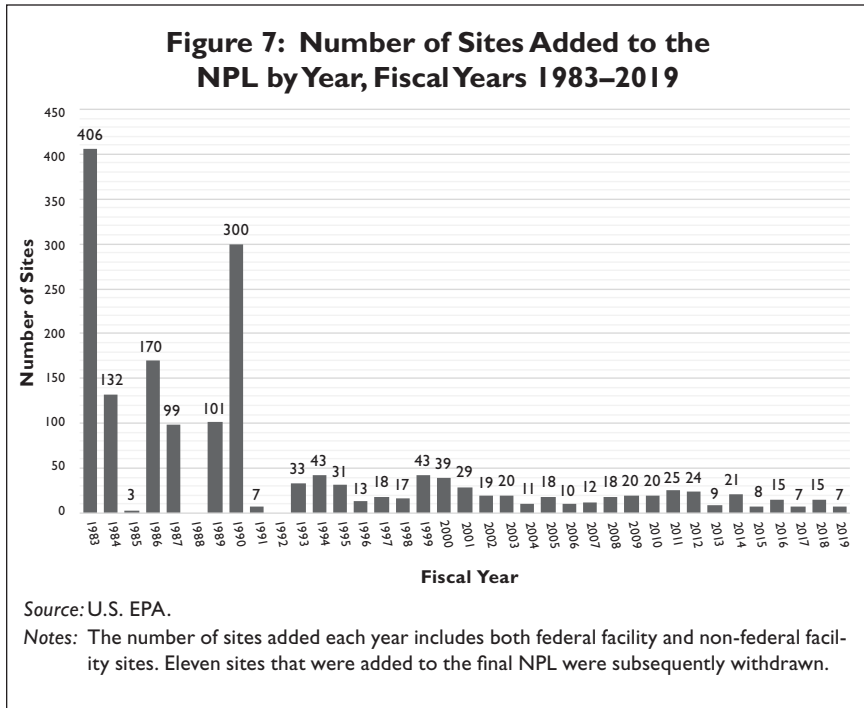
Lack of funding has implications for the enforcement program as well. At current funding levels, EPA does not have the funds to take over cleanups and pay for response costs at sites where there are viable PRPs who are dragging their feet—especially at expensive sites. The concept that EPA could and would pay for site response actions when PRPs were slow to do so and then recover its costs from PRPs, was one of the seminal elements of the statute. As then-EPA Administrator William K. Reilly stated in *A Management Review of the Superfund Program*, “Of course, aggressive enforcement will induce responsible parties to bear more of the load, but only if the Fund itself remains sufficiently robust to pose a credible resource for direct Federal action.”¹⁵² While there are sites where EPA decides to move forward with Fund-lead actions even though there are financially viable PRPs, this is rare given constrained funding.¹⁵³

Another effect of constrained funding is a disincentive to add new sites to the NPL. Faced with funding constraints, EPA may decide not to add new NPL sites, knowing it does not have the funds to remediate them. EPA may also be reticent to list sites with few if any financially viable PRPs—exactly the kind of sites that CERCLA was designed to address. There is no way to know, externally, if funding constraints are affecting the number and types

151. PROBST, *supra* note 117, at 24; see also *General Information About the New Bedford Harbor Cleanup*, ENVTL. PROT. AGENCY, <https://www.epa.gov/new-bedford-harbor/harbor-cleanup> (last visited May 3, 2020).

152. ENVTL. PROT. AGENCY, *A MANAGEMENT REVIEW OF THE SUPERFUND PROGRAM* 5 (1989).

153. The Gowanus Canal site in Brooklyn is an example of this.



of sites being added to the NPL, but it is more than likely. To the extent this occurs, the responsibility for addressing contaminated sites falls to the states, which also lack resources to remediate sites without financially viable PRPs.

Fewer and fewer sites have been added to the NPL over time, as shown in Figure 7. The vast majority of NPL sites—over 1,200 (69%)—were added in the first 10 years of the program’s existence, from FY 1983 through FY 1990. The number of sites added each year since then has numbered 43 or fewer. Over the most recent decade, from FY 2010 through FY 2019, an average of 15 sites were added each year; in FY 2019, just seven sites were added to the NPL.

Finally, inadequate funding affects the number of employees who work in the Superfund program—in EPA Headquarters in Washington, D.C., in its 10 regional offices, and at DOJ. To the extent that funding constraints lead to reduced enforcement and remedial program staff, a lack of funding negatively affects program operations and accomplishments. As an example, funding for Superfund enforcement decreased by 27% in constant dollars from a

high of \$195 million in FY 2004 to a low of \$143 million in FY 2019.¹⁵⁴ Less money for the Superfund enforcement program means fewer enforcement staff. Fewer staff results in fewer enforcement actions and settlement negotiations and lengthier time frames to achieve results. As the enforcement program is responsible for negotiating agreements critical to ensuring response actions at many NPL sites, diminished enforcement results in real delays in cleanup and the protection of public health.

In sum, lack of adequate funding undermines the fundamental goal of Superfund to ensure the timely and effective cleanup of releases of hazardous substances into the environment.

B. Cleanups Take too Long

The Superfund program has been criticized for a lack of cleanup progress for decades—almost since its inception. While long cleanup durations are due in part to the intractable nature of the contamination at some sites, some of the slow progress is the result of a lack of funds and a lack of robust enforcement. In addition, the bureaucratic structure desperately needs to be reorganized and re-energized to put a premium on getting sites cleaned up more quickly. As the program has aged, there is a palpable lack of urgency in Agency actions to address current risks at sites, bring PRPs to the table, and get sites to construction complete. Resources and staff need to be reallocated to put a priority on those tasks directly linked to protecting human health and the environment.

Progress cleaning up NPL sites has been agonizingly slow. When CERCLA was enacted, the expectation was that NPL sites could be cleaned up and deleted from the NPL in a few years. While this was wildly unrealistic, few would have predicted that some of the sites added to the NPL in 1983 would still be undergoing cleanup in 2020, and yet this is the case. Part of the problem is the sheer magnitude of the task. Over 1,200 sites were added to the NPL in the first decade of the program, creating a huge workload for the nascent program. At the end of FY 2019, there were 1,333 NPL sites still on the NPL; just over 40% of these sites (542) were either awaiting action or somewhere in the site study or cleanup process, a daunting workload.¹⁵⁵

By the end of FY 1999—20 years after CERCLA's enactment and 17 years after work at sites truly began—a total of 200 sites had been deleted from the NPL and 670 sites had all remedies fully constructed, for an average of 12

154. Data provided by U.S. EPA. Nominal dollars converted to constant 2019 dollars by author using *GDP Deflator*, *supra* note 142.

155. *NPL Sites End of Each Fiscal Year*, *supra* note 14.

sites deleted each year and 39 sites per year reaching construction complete status. As shown in Table 2, these averages increased slightly from FY 2000 through FY 2009, and have since decreased. Over the last decade, from FY 2010 through FY 2019, the average number of sites deleted each year was nine, and the average number of sites that reached construction complete per annum was 13.¹⁵⁶ At this rate, with over 500 NPL sites not yet construction complete, it will be 40 years before all sites currently on the NPL are construction complete, much less deleted.

Table 2: Average Number of NPL Sites Deleted and Construction Complete Each Year in Three Time Periods

Time Period	Average Number NPL Sites Deleted Each Year	Average Number NPL Sites Construction Complete Each Year
Fiscal Years 1983–1999	12	39
Fiscal Years 2000–2009	14	41
Fiscal Years 2010–2019	9	13

Source: <https://www.epa.gov/superfund/number-npl-site-actions-and-milestones-fiscal-year>.

Many factors have likely contributed to the struggle to achieve these key site metrics. One major factor is almost certainly that the easiest sites were addressed first, thus leaving the larger, more expensive, and more complex sites that will take longer to address on the list. In addition, almost 16% (176) of the 1,113 final and deleted non-federal NPL¹⁵⁷ sites that were classified as construction complete at the end of FY 2019 never had a remedial action implemented, suggesting that some of the progress in the early years was illusory.¹⁵⁸ Contamination at these sites was either addressed through the Superfund removal program, or the site was found not to require a response. Most likely, these sites were added to the NPL in the early years of the program.

While most external critics focus on the number of sites that are deleted each year, given the long durations of the remedial pipeline process, this is

156. *Number of Site Actions and Milestones by Fiscal Year*, ENVTL. PROT. AGENCY, <https://www.epa.gov/superfund/number-npl-site-actions-and-milestones-fiscal-year> (last visited May 19, 2020). Fiscal Year 1983 is the first year EPA achieved any major site milestones, thus the accomplishments from FY 1983–FY 1999 are averaged over 17 years.

157. This number—1,113—is only for *non-federal* NPL sites; it does not include federal facilities on the NPL. This is why it is different from the *total* number of 1,333 construction complete NPL sites that appears elsewhere in the chapter.

158. Data provided by U.S. EPA.

not the most meaningful program metric. Instead, evaluation of Superfund accomplishments should focus on metrics more in EPA's control: eliminating current health threats, bringing contamination under control, and completing the construction of site remedies. That said, the lack of cleanup progress suggests the statute is not fully achieving its goals; the question is, why and what can be done about it?

There are many possible factors that can lead to cleanups taking so long. Some factors would be addressed by increased funding, while others would not. Some of the long durations are likely due to the nature and complexity of the contamination to be remediated and the dearth of effective cleanup technologies; at these sites a lack of funding is likely not the major constraint. At some sites, however, delay is the result of the fact that EPA does not have adequate funds to expeditiously pay for Fund-lead actions at orphan sites; nor does EPA have adequate funds to pay for response activities at sites where PRPs are recalcitrant or dragging their feet.

The slow pace of cleanup presents two major challenges. First, and most importantly, it raises the question of whether CERCLA is achieving its main purpose of protecting human health and the environment in a timely manner. Second, a lack of cleanup progress undermines the credibility of the program and invites criticism.

C. *Increased Oversight and Accountability Are Needed*

Over the past two decades there has been little external oversight of the Superfund program by Congress and even less attention paid to the program by national environmental groups and industry. The fact that the program has received little external scrutiny means that it is not being held accountable for effectively deploying the full panoply of tools at its disposal to protect public health and the environment.

Congress has failed to investigate why cleanups are taking so long and why some sites continue to pose risks to those living and working near them. Funding needs must also be investigated. Previously, EPA issued an annual estimate of funds needed to complete cleanup of all sites currently on the NPL, called the "out-year liability model."¹⁵⁹ This report provided Congress and the general public with an estimate of the funds needed to complete cleanup of all sites currently on the NPL and likely progress in future years. It also provided a basis for an informed discussion about future annual appro-

159. See, e.g., U.S. ENVTL. PROT. AGENCY, AN OVERVIEW OF THE OUTYEAR LIABILITY MODEL (1993).

priations and the implications of various funding levels on program accomplishments. This analysis has not been made public in many years.

Diminishing oversight and external accountability can be attributed in part to the fact that Superfund is a mature program, with newer issues such as climate change receiving more attention. Nevertheless, the program warrants continued scrutiny and increased attention from Congress, the Administration, and others. At the end of FY 2019, there were over 1,300 NPL sites where cleanup goals had not yet been achieved and between 100 and 300 where human exposure was not under control—yet the program receives over \$1 billion annually in funding.

Making the Superfund program more effective requires taking on thorny issues that few in Congress or the executive branch are eager to address. Critical questions that should be addressed include:

- What can be done to reduce the number of sites where the risk to human health is not under control?
- How much money is needed to implement the program in the most efficient and cost-effective manner?
- Should the government make more aggressive and pro-active use of CERCLA's enforcement tools?
- Does EPA have the necessary funds to take over cleanups at sites where PRPs are delaying settlement?
- Why are cleanups so slow, and do the factors that lead to lengthy cleanup durations differ for PRP vs EPA-lead actions (or sites)?
- Is EPA adding all sites that need federal attention to the NPL?
- Are fundamental changes needed in how the remedial and enforcement programs are organized and implemented?
- Are Superfund staff and resources deployed in the most effective manner?

If Congress wants to ensure that Superfund achieves its goals, consistent and constructive oversight is critical to success. Front and center are whether annual appropriations for Superfund are adequate and whether the powerful enforcement tools in the statute are being fully deployed.