

Superfund Liability

Is it too strict ?

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August 1998

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Summary

Reauthorization of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), more commonly known as Superfund, lost much momentum in the 105th Congress under the weight of political disagreement. A comprehensive approach to reauthorization suffers from a few controversial issues. A major political schism erupted between Republicans and Democrats over when, how, and who should be responsible for cleanup costs. Skepticism continues to grow with much debate and few legislative days remaining.

Obstructing reauthorization, the liability scheme possesses a plethora of controversy. Flooded with litigation, the legal system slows cleanups to a lethargic pace. Reauthorization is as complicated as the problems that it was intended to correct, and the severely lacking system in place today necessitates immediate attention. Adding more chaos to the confusion, potentially responsible parties (PRPs) may drag any party possible into CERCLA's strict, and joint and several liability. PRPs attempt to distribute cleanup costs and challenge CERCLA's fairness.

Despite the Superfund Amendments and Reauthorization Act's distinction between response action contractors (RACs) and PRPs, CERCLA's broad liability mechanisms allow PRPs to attack RACs under the strict liability clause. Liability issues foster litigation, which slows cleanups and raises costs. The current system encourages PRPs and enforcement agencies to hire lawyers rather than engineers. Remedial business has been decreasing as a result of liability and potential attack by PRPs. Liability also hinders implementation of innovative technologies because risk and uncertainty outweigh benefits.

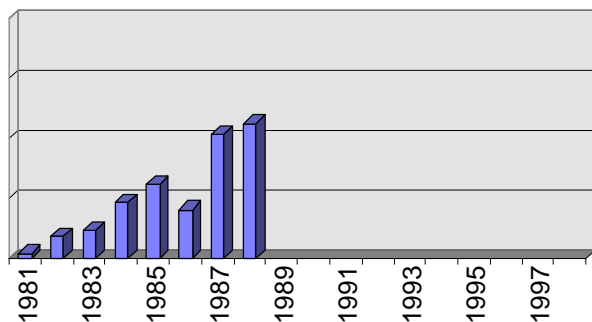
Comprehensive reauthorization of Superfund seems highly unlikely in the 105th Congress, and the future could be filled with just as much controversy. S 2180 has taken a piecemeal approach at solving Superfund, but it only targets recycling. Other important issues, such as renewing the trust fund, RAC liability relief, and implementation of innovative technologies, should not suffer from a few controversial areas.

ISSUE DEFINITION

CERCLA has been criticized for its liability scheme, as well as for its political and remedial inefficiency. Individuals from all professional and political angles tend to agree on at least one part of Superfund - the need for major reform. Criticized as slow, inefficient, and even unfair, Superfund faces numerous problems.

With a \$1.5 billion, annual budget in recent years, the economic power of CERCLA catches attention from government, industry, and even the public. During Superfund's 18 year life span, appropriations have changed significantly, as shown in figure 1. The second decade required much higher appropriations than the first, but remained fairly constant after 1990.

Figure 1¹



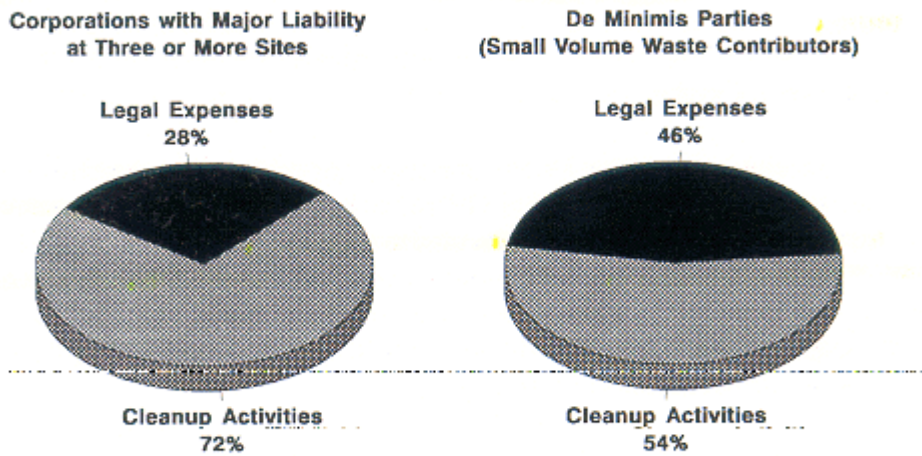
Cleanup durations have more than doubled in the past ten years. Prior to 1989, the average site took 3.9 years to remediate, but by 1996, the figure changed drastically to 10.6 years for completion, after being listed on the National Priorities List (NPL).² This increase stems mainly from intense litigation among PRPs. Litigation also raises costs for PRPs. For small volume waste contributors, legal expenses comprise almost half of the total costs at Superfund sites. For corporations with multiple liability, the legal expenses are slightly less, but are still a large share of total costs (see figure 2).

¹ Bearden, David M. and Reisch, Mark. "Superfund Fact Book," Washington, DC: CRS Report for Congress. March 3, 1997. 6.

² Superfund: Times to Complete the Assessment and Cleanup of Hazardous Waste Sites (GAO/RCED-97-20, Mar. 31, 1997).

Figure 2³

Legal Expenses as a Share of Total Costs at Superfund Sites



Prepared by CRS with data from GAO. Superfund: Legal Expenses for Cleanup-Related Activities of Major U.S. Corporations. GAO/RCED 95-46. December 1994. p. 5-6.

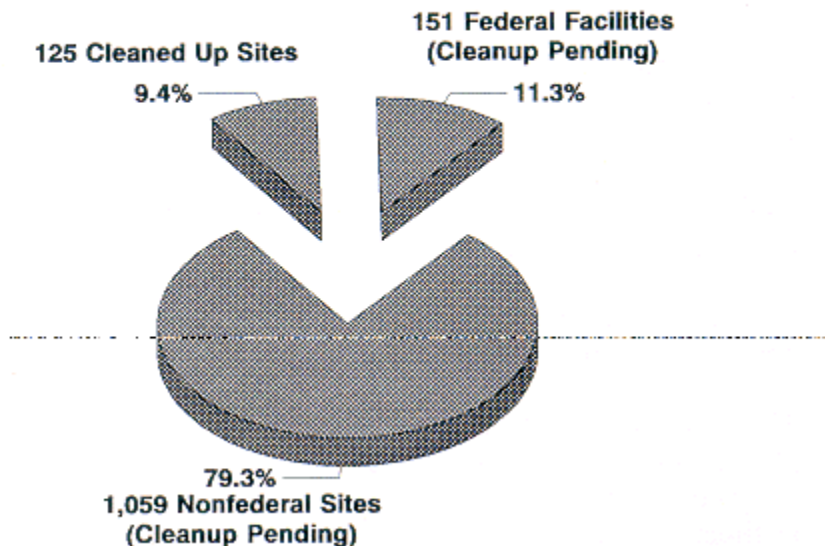
Even Superfund's effectiveness is criticized. From 1983 to 1996, only 9.4 percent of the 1335 sites placed on the NPL were completed. Figure 3 shows the status of Superfund sites on the NPL. Opponents of CERCLA, such as the Competitive Enterprise Institute, criticize the inefficiency of CERCLA. Opponents question how over \$15 billion of Superfund appropriations has succeeded in completing only 9.4 percent of sites over 13 years. In addition, responsible parties have been required to contribute even more money to remediation efforts; in the first 17 years, private and public expenditures were approximately \$32 billion.⁴

³ Bearden and Reisch, "Superfund Fact Book," 20.

⁴ "Superfund Reform Still Stuck in Political Morass," National Underwriter. August 3, 1998. 36.

Figure 3⁵

Status of the National Priorities List as of December 23, 1996
Total Sites Listed Since September 8, 1983 = 1,335



Prepared by CRS with data from EPA. Federal Register. December 23, 1996. p. 67657.

Another criticism is the fairness of the liability scheme, which includes powerful mechanisms such as joint and several, strict, and even retroactive liability. Litigation runs rampant because the potential costs of remediation could devastate a PRP financially; the average cost of cleanup at a Superfund site is more than \$25 million.⁶ The primary reason for such harsh mechanisms is the lack of proof in connecting guilty parties to contamination, and even further in assigning contributions of pollution. Although science contributes proof of contamination and what substances are present, most sites involve numerous parties and pollution from long ago. The contamination not only migrates, but can also react or decompose with time. Fingerprinting the contamination and determining the amount disposed of by each party may prove technically impossible. CERCLA's broad liability side-stepped these problems, but inadvertently created excessive litigation and detracted from cleanup actions.

Response action contractors (RACs) enter the liability arena through exposure to litigation, even in cases solely involving remediation. "Defensive engineering" emerges as the safest way to remediate, but such mentality hinders the evolution of remedies and severely limits application of innovative technologies.⁷ Risk and uncertainty defeat potential success of new methods because RACs have no "safe harbor" from CERCLA. Some contractors will incur excessive costs, achieve unnecessary cleanup standards, or even avoid contracts because of liability issues. Contractors are even involved in liability for cleanups completed many years prior, and regardless that conditions change unpredictably with time.

⁵ Bearden and Reisch, "Superfund Fact Book," 10.

⁶ Bearden and Reisch, "Superfund Fact Book," 18.

⁷ Superfund: Provide liability relief for response action contractors," NSPE issue brief. December 1, 1997.

Reauthorization incorporates opposing opinions and numerous factions: lawmakers, the Environmental Protection Agency (EPA), state regulatory agencies, various industries, and the public. Legislators have a difficult role. They need to reauthorize the law, deal with industry and polluters, defend public health, find solutions, compromise between political parties, and balance their political image among all parties. Industry is affected significantly from annual, billion-dollar taxation of petroleum, chemicals, and corporate income. Companies liable for cleanups are severely affected from negative publicity and economic punishment. Often overlooked, Superfund sites pose a continuing danger to public health, while reauthorization is delayed.

Economic, environmental, and social consequences demonstrate the severity and importance of Superfund. Economically, many PRPs will be punished through cleanup costs and litigation fees; industry will also suffer from taxes. Environmentally, Superfund strives to restore harmony and remove dangers to public health and the ecology near sites. Social consequences center on political conflict, as well as real and imagined health issues in communities adjacent to sites. The public does not react well to living near a hazardous site - the potential for harm and the unknown propagate fear, which demands political attention and consolation. In addition, response time plays a strategic role; immediate attention could save money, and human and environmental health.

Many problems envelope CERCLA's original purpose to remediate the nation's worst hazardous waste sites, and the corrective measures fuel the fury of discombulation.

BACKGROUND

CERCLA was created in 1980, in order to remediate the worst hazardous waste sites in the country and delegate liability. Severe environmental and health dangers, such as Love Canal near Niagara Falls, caught much public attention and demonstrated the need for legislation. The law of 1980 needed to be reauthorized because its taxation privileges expired in 1985. In 1986, the Superfund Amendments and Reauthorization Act (SARA) reauthorized Superfund, and it attempted to correct inadequacies in the program.

SARA stressed using permanent remedies and new technologies, and used cleanup standards from other state and federal regulations. Enforcement authority and state involvement were increased. A greater focus on human health and citizen participation was developed. SARA increased the trust fund to \$8.5 billion. Generated by industrial taxes, the trust fund finances cleanup for insolvent or non-existent parties, also called orphan shares. CERCLA follows a "polluter pays" policy, where PRPs pay for cleanup. The trust fund obtains money from excise taxes, rather than general governmental taxes.

CERCLA's powerful liability mechanisms overcome the lack of concrete proof. The liability provisions for Superfund remediation under CERCLA are:

- **"Strict Liability"** means the government needs to prove only involvement at a waste site, not negligence. Under CERCLA, proof of strict causation is not necessary.
- **Joint and several liability** indicates that any involved party can have the legal responsibility for cleaning up the entire site, regardless of its degree of involvement, unless there is a reasonable basis for apportioning liability.
- **Retroactive liability** means that parties can be held liable for releases resulting from actions prior to when Congress enacted CERCLA in 1980."⁸

A potentially responsible party refers to any company or individual that may be connected to pollution at a Superfund site. The liability scheme arranges PRPs in four categories:

- Owner of a site (at any time contamination was present)
- Operator of a site (previous and present)
- Transporter of a hazardous substance to a site
- Arranger (commonly referred to as generator) of a hazardous substance⁹

A hazardous site is judged according to the hazard ranking system (promulgated in 1982), which evaluates potential risks to the public and the environment. Mobility, intensity, and danger of a potential release of a hazardous substance determine a site's score. If its score exceeds a set limit of 28.5 out of 100, it is placed on the national priorities list. Once remediation is fully achieved, the Superfund site enters the construction completion list (activated in 1991) and is later removed from the NPL.¹⁰

~~The EPA's Superfund Fact Book (SFFB) is the primary source of information on-~~

Table 1¹¹ Five States With The Most Superfund Sites

<i>State or</i>	<i>Non-</i>	<i>Federal</i>	<i>Total</i>	<i>Constructio</i>
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⁸ Bearden and Reisch, "Superfund Fact Book," 14.

⁹ Meltz, Robert. "Superfund Act Reauthorization Liability Issues," Washington DC: CRS Report for Congress. February 12, 1998. 2-3.

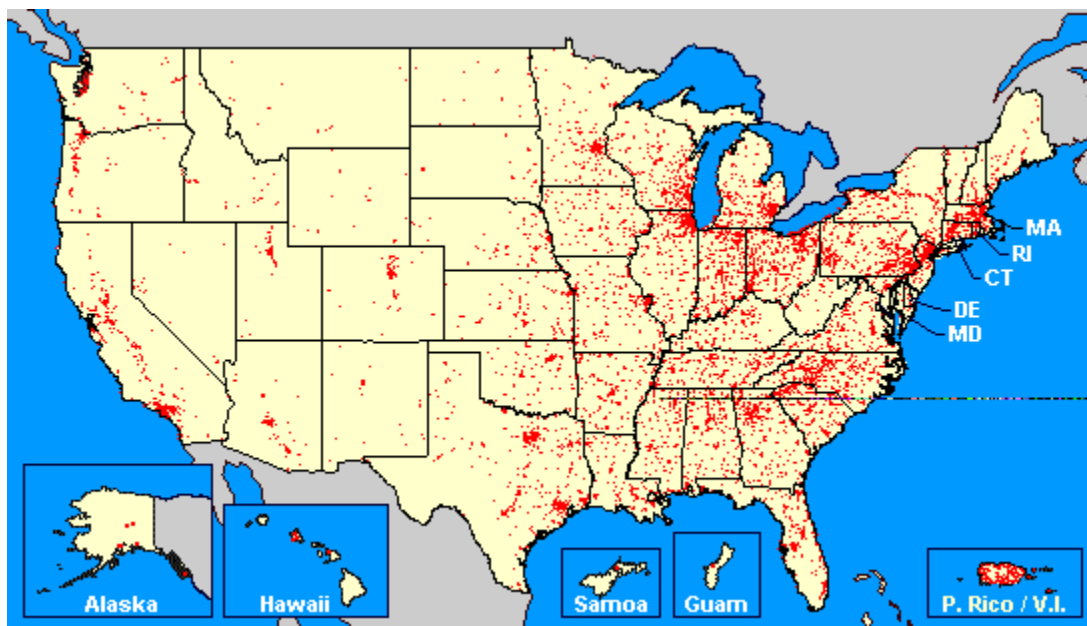
¹⁰ Bearden and Reisch, "Superfund Fact Book," 8-10.

¹¹ Bearden and Reisch, "Superfund Fact Book," 12.

<i>Territory</i>	<i>federal Sites</i>	<i>Sites</i>	<i>Sites</i>	<i>n Completions</i>
<i>New Jersey</i>	101	6	107	22
<i>Pennsylvania</i>	95	6	101	22
<i>California</i>	67	23	90	22
<i>New York</i>	74	4	78	7
<i>Michigan</i>	73	0	73	23

New Jersey has a particularly dangerous combination of small size, high population density, and the most Superfund sites in the nation. Lots of people and lots of waste in a small area endanger public health. As figure 4 shows, most sites lie in the eastern half of the United States near large populations. Clusters of sites are generally located near large cities and heavy industrial centers.

Figure 4¹² Map of Superfund Sites



CERCLA has experienced a great deal of political notoriety. Currently, Republicans and Democrats argue over who is to blame for the failure of reauthorization, and Superfund has become an issue for re-election. Superfund possesses a tainted past; even the EPA deteriorated Superfund's respectability. When the EPA Assistant Administrator, Rita Lavelle, was sent to jail for lying to Congress under oath about Superfund, it shows that CERCLA suffered from more than just technical issues.¹³

KEY CONFLICTS AND CONCERNS

¹² "US National Map," Scorecard, n.d., <<http://www.scorecard.org/env-releases/us-map.tcl>> (June 10, 1998).¹²

¹³ Hamilton, Jacqueline, "Superfund 'cures' may be worse than the disease," Natural Resources Defense Council.

- Catellus (California - 1992): Grading contractor that unknowingly moved contaminated soil around a construction site was held to be an "operator" of facility and "transporter" of hazardous waste under CERCLA. Kaiser Aluminum & Chemical Corporation v. Catellus Development Corporation, 976 F.2d 1338 (9th Cir. 1992).

Case 2:¹⁷

- Ganton (Illinois - 1993): Cleanup contractors were held liable as "operators" and for "disposal" under CERCLA citing Kaiser. Ganton Technologies, Inc. v. Quadion Corporation, 834 F. Supp. 1018 (N. D. Ill. 1993).

Present state and federal law do not provide adequate protection for RACs, which could promote faster, cheaper, and more innovative cleanups. Some PRPs simply look for "deep pockets" to help share in payment. Another constricting feature of CERCLA is the ability to be held liable for cleanup many years after completion. Technology changes with time, as well as the surrounding environment; RACs should be held liable for a period of time to ensure that remedial work was done properly, and not held liable for unpredictable and unforeseen forces that the future may hold. Cleanups could be significantly expedited, if engineers, scientists, and constructors involved only in remediation were shielded from unfair, future lawsuits. Small businesses avoid bidding on cleanup projects because potential revenues are often outweighed by risks. Another court case demonstrates RAC involvement (case 3), and appendix II lists additional court cases involving RACs.

Case 3:¹⁸

- Cullens (Georgia - 1994): Plaintiffs allege that seven Response Action Contractors and consultants, under contract to PRP at Superfund site, had duty to notify plaintiffs of the dangers of the cleanup site. Cullens v. Reichhold Chemicals, Inc., Case No. 94VS87151G, State Court of Fulton County, Georgia (1994). (RACs have been dismissed as a result of a partial settlement).

Innovative Technologies

Innovative technologies fall short of their potential incorporation into future remedies because the financial risk of CERCLA liability is too powerful. Researching, testing, and implementing new technologies could enhance Superfund cleanup. New technologies are more robust and economical, for example, a wide range of contaminants could be remediated more effectively.¹⁹ Some types of wastes are difficult to handle with current technologies. Other technical considerations are cross-media contamination and a preference for on-site cleanup.²⁰ Reducing cleanup costs and community accepted remedies are also potential areas to encourage. More long-term solutions should be developed. Greg Berjona, a chemical engineer with the environmental consulting firm CH2M Hill, studied the following technologies and found them promising:²¹

¹⁷ See appendix I.

¹⁸ See appendix I.

¹⁹ "AICHE Educates Capitol Hill on Superfund Cleanup Technologies," AICHEXtra. July 1998.

²⁰ "AICHE Educates Capitol Hill on Superfund Cleanup Technologies," AICHEXtra. July 1998.

²¹ "AICHE Educates Capitol Hill on Superfund Cleanup Technologies," AICHEXtra. July 1998.

- Bioremediation
- Chemical dechlorination
- In-situ vapor extraction
- Thermal desorption

Technologies help reduce the toxicity and mobility of hazardous substances, but not always to accepted standards. Although not perfect, reducing contamination is much safer and faster than waiting for natural attenuation to take place. Technologies can also be combined to effectively achieve desired results.



By supplying the organisms with optimal living conditions, their population and growth will greatly increase. Growth can be stimulated with the proper soil temperature, oxygen, and nutrients; with more organisms, the rate of consumption of contamination is increased. Bioremediation can occur under aerobic or anaerobic conditions, meaning with or without oxygen, and can be used to cleanup contaminated soil and water. Figure 5 displays the aerobic remediation process of how organisms "eat" contamination.

Figure 5 Aerobic Biodegradation



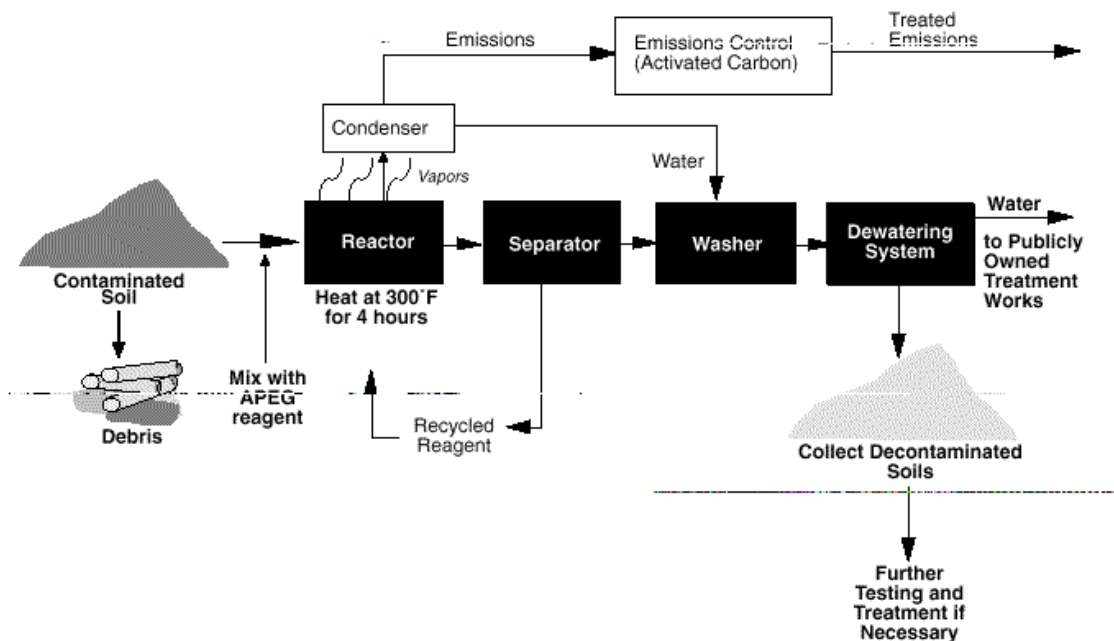
²² "A Citizen's Guide to Innovative Treatment Technologies," The Environmental Protection Agency, n.d., <<http://www.clu-in.com/citguide/innotech.htm>> (July 21, 1998).

²³ "A Citizen's Guide to Bioremediation," The Environmental Protection Agency, n.d., <<http://www.clu-in.com/citguide/biorem.htm>> (July 21, 1998).

This process removes halogens (chlorine, bromine, iodine, fluorine, etc.) from hazardous substances, in order to reduce toxicity. Halogenated aromatic organic contaminants, such as PCBs and dioxins, are typically treated by dehalogenation. Chemical dehalogenation is a transportable technology (on-site remediation), and involves heating and physically mixing polluted soils with reagents. Two common variations are glycolate dehalogenation and the base-catalyzed decomposition (BCD) process. Figures 6 and 7 provide a simple, overall visual of the processes. The BCD process does not require reactants to be removed from the treated soil, as in the glycolate process.

Figure 6

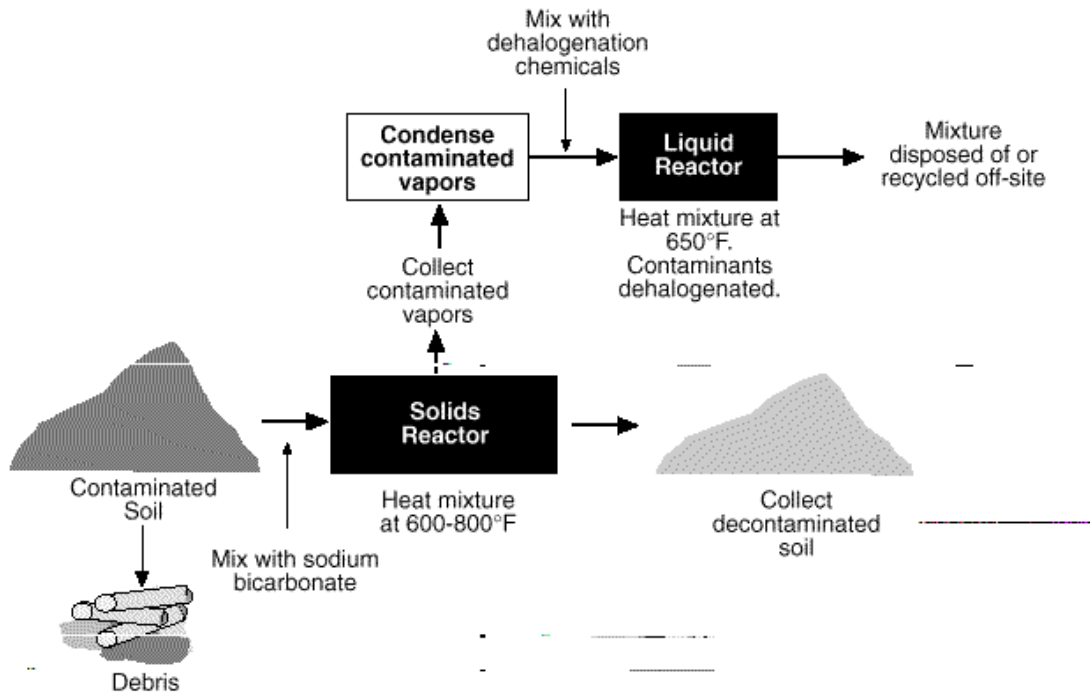
Glycolate Dehalogenation



²⁴ "A Citizen's Guide to Thermal Desorption," The Environmental Protection Agency. n.d., <<http://www.clu-in.com/citguide/dehalo.htm>> (July 21, 1998).

Figure 7

Base-Catalyzed Decomposition



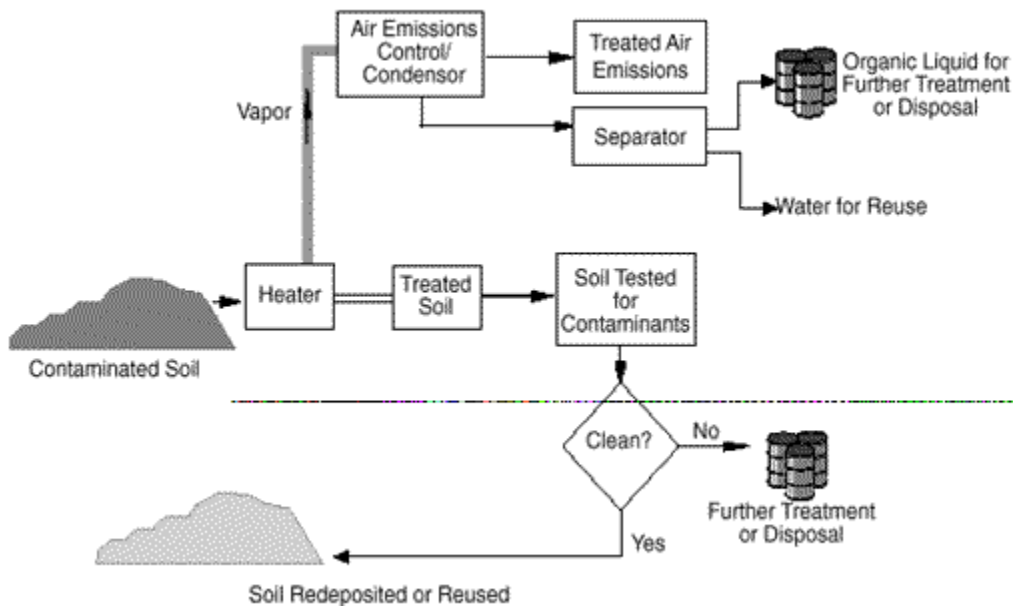
thermal desorption process separates hazardous substances from the soil by heating it up and

This treatment technology employs heat to physically separate rather than destroy (incinerate) contaminants. By heating soils to temperature range of 200 - 1000 °F, hazardous substances which have low boiling points are vaporized, collected, and treated; figure 8 provides a schematic of the overall process.

²⁵ "A Citizen's Guide to Thermal Desorption," The Environmental Protection Agency. n.d., <<http://www.clu-in.com/citguide/thermdsp.htm>> (July 21, 1998).

Figure 8

Thermal Desorption Process



Thermal desorption is most effective on volatile and semi-volatile organic components, and other organic substances, including polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons, and pesticides. The process separates organic contaminants from other wastes, such as refining, coal tar, wood-treatment, and paint waste; after separation, the individual pollutants can be more easily and cost-effectively remediated. Thermal desorption does not work well on metals, strong acids, wet or tightly packed soil, or soil with high silt/ clay content.

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This process consists of two parts, soil vapor extraction (SVE) and air sparging, which can be combined for even more effective remediation. SVE, the most common cleanup remedy, extracts contaminants from the soil in vapor form. The system works best for volatile and semi-volatile organic compounds in the unsaturated zone (above the water table). A vacuum draws air through underground wells up to the surface where it is treated. Air injection wells are often created to increase air flow. Air sparging pumps air into the saturated zone (where SVE is unable to reach) and bubbles up contaminants to the unsaturated zone. Figure 9 shows a diagram of both processes.

In Situ Vapor Extraction ²⁷

²⁶ "A Citizen's Guide to Soil Vapor Extraction and air sparging," The Environmental Protection Agency. n.d.,<<http://www.clu-in.com/citguide/sve.htm>> (July 21, 1998).

²⁷ "A Citizen's Guide to Soil Vapor Extraction and air sparging," The Environmental Protection Agency. n.d.,<<http://www.clu-in.com/citguide/sve.htm>> (July 21, 1998).

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Figure 9 Soil Vapor Extraction and Air Sparging

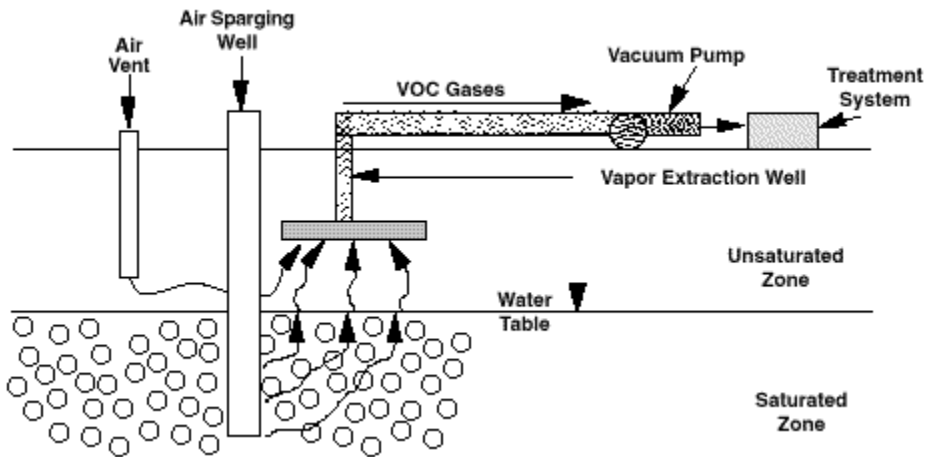


Figure 9 shows a diagram of both processes.

Problems

Industry opposes most aspects of CERCLA because they are generally most responsible for remediation. The trust fund receives money from a general corporate income, as well as specific taxes on petroleum and chemicals. Taxation involves most businesses, but petroleum and chemical industries face a higher degree of involvement. Not only are they faced with extra taxes, but frequently face cleanup responsibility for discharging hazardous substances. In effect, these businesses are paying twice for Superfund sites.

~~Rephrasing CERCLA liability to be strict liability for Superfund sites?~~

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Large corporations are sometimes seen as "deep pockets" and have the possibility of paying more than they contributed. Strict liability also faces opposition; PRPs may take advantage of its power and may drag any possible party into court. The degree of involvement, intention, and negligence are not considered under CERCLA liability.

~~Superfund liability is not strict liability for Superfund sites?~~

The drop in Superfund liability is a result of the Superfund liability a percentage of the average \$25 million per site to lawyers and paperwork and

²⁸ Kopel, David B, "Privileged Polluters," The Competitive Enterprise Institute March 1998. 2.

²⁹ Environment and Energy Email Update, "Appropriations Special Edition," <mike@eesi.org> 28 July, 1998, personal email (28 July, 1998).

³⁰ Jefferys, Kent, "Reinventing Superfund: the Clinton Reform Proposal and an Alternative," The Competitive Enterprise Institute <<http://www.cei.org/superfnd.html>> (July 24, 1998).

ascertains that millions of dollars are spent “. . . which produce no environmental or public health benefits.”³¹ The institute argues that resources should be diverted towards more pressing and beneficial expenditures, “. . . the program causes more fiscal harm than environmental good.”³²

Robert Smith (R-NH), co-sponsor of the Clinton reform proposal, is the Chairman of Senate Superfund Waste Control and Risk Assessment Subcommittee. Smith and Senate Environment and Public Works Committee Chairman John Chafee (R-RI) introduced S 8, one of the first bills in 105 Congress. When Smith is close to giving up, one knows that Superfund is under immense and irritating debate. Even Democrats that would vote in favor of their bill are under partisan pressure to stay away.³⁴

POLICY ALTERNATIVES

~~Table 2: Summary of Policy Alternatives~~

Table 2

Senate		
<u>Committee</u>	Environment and Public	

³¹ Jefferys, Kent, “Reinventing Superfund: the Clinton Reform Proposal and an Alternative,” The Competitive Enterprise Institute. <<http://www.cei.org/superfnd.html>> (July 24, 1998).
³² Jefferys, Kent, “Reinventing Superfund: the Clinton Reform Proposal and an Alternative,” The Competitive Enterprise Institute. <<http://www.cei.org/superfnd.html>> (July 24, 1998).
³³ Newman-Barnett, Pamela. “Smith Ready To Throw In Towel On Superfund Reform,” National Journal’s Congress Daily/A.M. June 24, 1998. 6.
³⁴ Newman-Barnett, Pamela. “Smith Ready To Throw In Towel On Superfund Reform,” National Journal’s Congress Daily/A.M. June 24, 1998. 6.

responsible for mistakes or errors in cleanup, and liable for damages caused by them.

As part of the Superfund reauthorization process, the House has passed HR 2727, and HR 3000. The key elements of their reform include:

- "Establishing clear cleanup goals that are focused on reducing risks at the site- identifying substances of concern early and utilizing a site-specific risk-assessment based on realistic assumptions- and that take into account the intended future use of the land.
- Determining meaningful cleanup priorities under a more flexible, timely, and cost-effective prioritization process and a system to categorize and assign sites for action based on the level of cleanup action necessary.
- Streamlining the remediation process by incorporating an engineering-based, results-oriented process that permits compression of the multiple study processes into a single feasibility study and identifies and implements a remedy in a timely manner.
- Assuring the availability of the right remediation technology through promotion of research, development, and implementation of new, innovative, and cost-efficient technologies that meet identified needs.
- Delegating responsibility for achieving cleanup goals to the parties doing the cleanups, with an appropriate level of oversight.
- Promoting community involvement throughout the cleanup using a "no surprises" approach."³⁷

RECOMMENDATIONS

Superfund reauthorization is severely needed in most areas, but political debate over a couple issues, such as liability, blocks the entire program. Political agendas should be de-emphasized and the importance of remediation stressed, which requires Republicans and Democrats to compromise and communicate more effectively.

Litigation is killing Superfund's efficiency and drastically increasing response costs. Expenditures should focus on remediation, rather than court fees. Exemptions could help reduce litigation while maintaining CERCLA's powerful liability scheme. Employing a third party to delegate responsibility between PRPs could reduce litigation and response costs. AIChE's "results-oriented" approach would enhance Superfund's efficiency;

³⁷ "Superfund," The Washington Report. June 1998. 7.

Cleanup times should be significantly expedited, while lowering remediation costs.

RAC liability relief is essential for supporting cleanup efforts and supporting positive changes in the program. Response action contractors should be exempted as PRPs, which will increase RAC activity, lower costs, and minimize risks. Innovative technologies will develop with less risk and without fear of CERCLA's liability, which will in turn allow for evolution of remedies. A statute of repose should be incorporated in RAC liability relief, in order to protect unfair litigation far in the future.

Perhaps an individual approach is the only way to proceed within the current political climate, analogous to Cass Ballenger (R-NC) and the OSHA reform package. Hopefully, lawmakers will not overlook other, immediate concerns. Response action contractors require immediate attention and should not be neglected. Recycling is important, but CERCLA's prime objective is remediating hazardous waste sites. RACs design and implement cleanup, which implies their importance for immediate protection to enhance the deteriorating Superfund situation. The Brownfields program should not be included in such a disputed Superfund environment because it runs the risk of not being implemented. RAC liability relief and the Brownfields program are only two of the many reforms that need to be addressed. Important and urgent issues should be addressed and solved now, not incorporated into highly controversial reauthorization that might take years to resolve.