
Superfund

Superfund Progress — Aficionado's Version

*Prepared by EPA's Office of Solid Waste and Emergency Response
Superfund Program*

Progress as of June 30, 1992

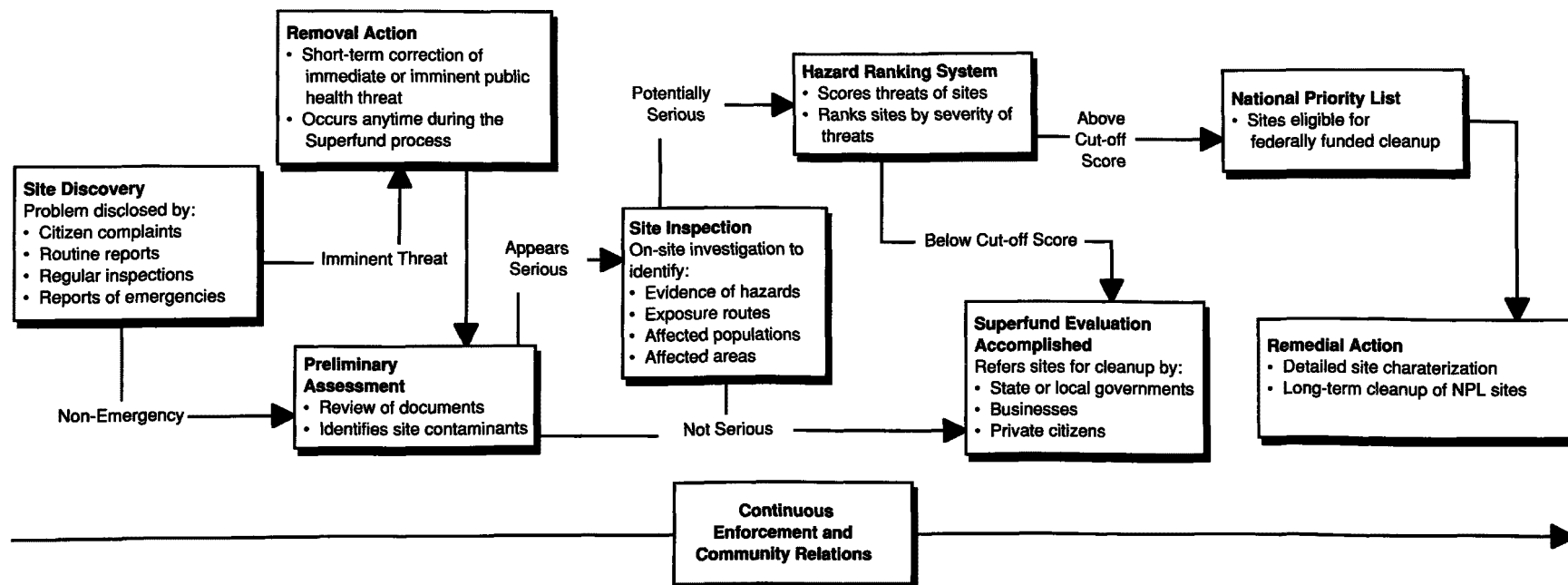
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Introduction and Overview

Superfund is the nation's program for cleaning up uncontrolled hazardous waste sites. Established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, Superfund is in many ways two programs. The **Removal Program** responds quickly to emergencies where hazardous materials are, or may be, released. The **Remedial Program** is dedicated to long-term cleanup of hazardous waste sites that pose the greatest threat to public health or the environment. Removals can occur anywhere, at any time. Federally funded remedial actions are limited to sites on the National Priorities List (NPL).

The Superfund process is rigorous and detailed. It has to be to ensure that the greatest protection is afforded the public and the environment, while at the same time the rights of Potentially Responsible Parties (PRPs) and other participants are protected. The flow chart below shows the Superfund cleanup process. The major steps in the process are:

- Site discovery and investigation.
- EPA evaluation of possible hazards from site contaminants and, if warranted, addition of the site to the NPL. Sites ineligible for federal cleanup are referred to state or local government, business, or individuals for cleanup.



- Negotiations to compel Responsible Parties (RPs) to pay for cleaning up the hazardous waste problems they helped create.
- On-going community relations.
- Thorough studies to develop detailed site characterization in order to determine which cleanup methods may be most effective, given the contaminants present and their potential harm to public health or the environment.
- Selection, design, and implementation of a cleanup plan, including periods of public comment on proposed cleanup techniques.
- Follow-up to ensure cleanup is effective.

EPA records in its CERCLIS database every hazardous waste site considered for a Superfund cleanup and every site where a removal action is performed. (CERCLIS stands for the Comprehensive Environmental Response, Compensation, and Liability Information System.) The system tracks the identification, evaluation, and, if necessary, cleanup of hazardous waste sites. Whether a site requires a short- or a long-term cleanup is determined by the oil and hazardous materials National Contingency Plan. The Remedial Project managers in each EPA Region, who oversee cleanup efforts, add information about the sites they manage to CERCLIS. Currently, there are 36,319 sites in CERCLIS. The *Superfund Site Tally* shows the current status of each CERCLIS site.

More than 90 percent of the sites in CERCLIS have been evaluated to determine whether they pose immediate threats to public health or the environment. Emergency removals have been, or are being, taken where warranted. NPL sites are inspected at least once every two years to determine if changing conditions mean a removal action is required.

The hazardous waste sites on the NPL are the nation's worst. They are eligible for federally funded cleanup, although Superfund's "enforcement first" policy means that Responsible Parties (RPs) pay for as much of the cleanup work as possible. But no matter who pays for, or performs, the cleanup work, EPA is in charge of selecting cleanup methods, setting, cleanup levels, and overseeing site work to make sure sites are safe and people and the environment are protected.

	NPL	Site Evaluation	CERCLIS
Construction Completed	180		
Remedial Actions	367		
Remedial Designs	215		
RODs	79		
RI/FS	425		
Removals Only	15		
Awaiting Action	74		
Total NPL Sites	1,275		
Site Evaluation Accomplished		20,193	
PA/SI Completed			30,368
Total Awaiting PA/SI			5,604
Sites with Removal only			347
TOTAL SITES IN CERCLIS			36,319

The NPL currently stands at 1,275 sites, including federal facility sites. Clean-up construction has been completed at 100 sites, and surface cleanup only has been completed at 196 sites. In addition:

- Remedial Actions are occurring at 367 sites (29%).
- Remedial Designs are underway at 215 sites (17%), and have already been completed at 405 sites for a total of 620 sites.
- Records of Decision have been signed for 725 sites (57%).
- Remedial Investigations/Feasibility studies are underway or have been completed at 1,146 sites (90%).
- And 74 sites (6%) are awaiting action.

The map on page 6 shows the distribution of current NPL sites nationwide.

This report documents the progress Superfund is making in fulfilling its mission of protecting people and the environment from exposure to hazardous waste. The *Superfund Progress Report* on this page summarizes these activities, and the sections that follow detail the progress EPA is making at each step in the Superfund process.

It is important to note that those 1,275 NPL sites have been placed on the list in phases with the most recent addition of 30 proposed sites in FY 92. Sites are not eligible to receive long-term funds until they are listed on the NPL.

Superfund Progress Report

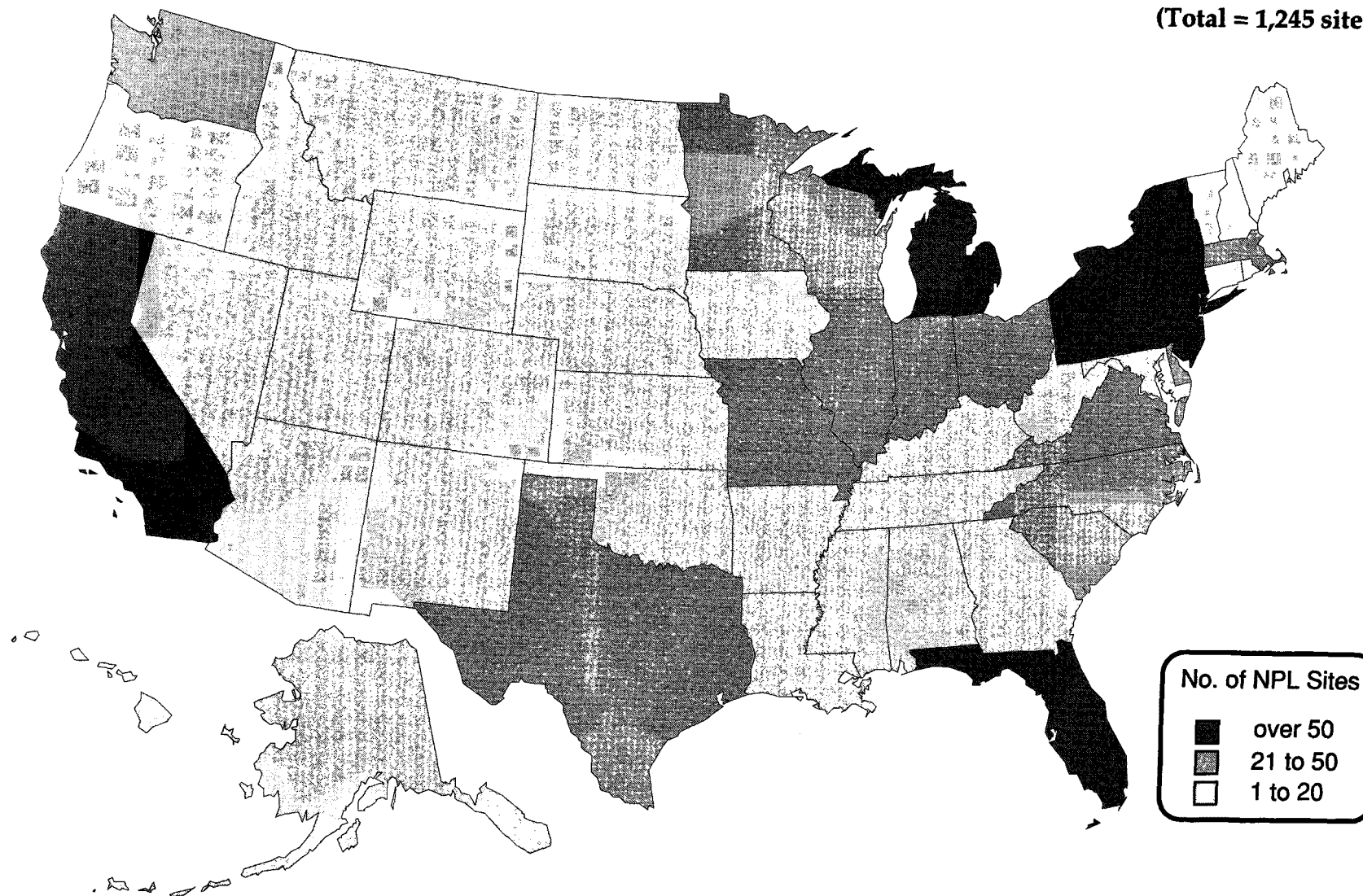
(Fund and Enforcement Projects, excluding Federal Facilities)

(Inventory = 36,319 Sites)

Actions at Sites	Current Quarter		Total FY 1992		FY 1980 to Date	
	CPs	Sites	CPs	Sites	CPs	Sites
Removals Started	103	59	240	195	2,941	2,337
Sites Awaiting PAs	-	-	-	-	-	2,223
PAs Completed	-	370	-	940	-	33,749
Sis Completed	-	150	-	889	-	15,309
Site Evaluation Accomplished	-	-	-	-	-	20,193
Sites Proposed for NPL	-	24	-	24	-	43
Total NPL Sites	-	1,148	-	1,148	-	1,148
RI/FSs Started	27	18	57	26	1,610	1,047
RDs Completed	30	19	72	41	564	389
RDs Started	62	31	120	64	967	597
RAAs Started	26	15	44	26	605	409
						100
						40

NPL Site Distribution

(Total = 1,245 sites)



Puerto Rico has 9 Superfund sites, Guam has 2, and the U.S. Virgin Islands has 1.

Emergency Removal

The Superfund Removal Program responds to short-term emergencies that involve hazardous materials and threaten public health. By law, they can take up to a year to finish and can cost as much as \$2 million. However, exemptions to this can be granted. By law, EPA's removal activities can include:

- Evacuating, if necessary, people living near a hazardous materials emergency.
- Removing the hazardous substances from the area to be disposed of properly.
- Supplying clean drinking water to people whose water has been contaminated by hazardous materials: and
- Posting warning signs and taking other precautions to keep people and animals away from hazardous waste sites.

A single hazardous waste site or accidental spill may require more than one removal action if more than one pollutant is present. The removal of pollutants that pose different hazards and require different cleanup techniques could be considered separate actions. Each action is known as a **clean-up project (CP)**.

While Responsible Party cleanup is desirable, the key is quick response. PRPs are encouraged to participate in the Removal Program wherever possible, provided EPA's ability to respond quickly is not limited.

Emergency Removal Program (Excluding Federal Facilities)

	Total FY 1992		FY 1980 to Date	
	Sites	CPs	Sites	CPs
Total Removals Started	195	240	2,337	2,941
Total Removals Completed	160	208	1,954	2,431
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Non-NPL Removals Started	167	191	1,858	2,095
Non-NPL Removals Completed	137	160	1,542	1,724
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NPL Removals Started	28	49	479	846
NPL Removals Completed	23	48	412	707

A Preliminary Assessment (PA) is the first step in determining whether a hazardous waste site requires long-term cleanup. EPA or the State reviews site reports and documentation to identify what hazardous materials may be at the site and how they may spread. They also identify who may be harmed by the chemicals. If a PA indicates that a site is dangerous, EPA will conduct a more detailed inspection called a Site Inspections (SI).

Sites determined by the PA to warrant further inspection become the subject of Site Inspections. In a typical SI, a Regional EPA staff member visits a site to collect

information about its soil types, the streams or rivers that flow through or near it, the local weather, the people who live nearby and the site's owner(s). Air, soil, and water samples taken on and off the site help investigators determine whether hazardous materials have traveled away from a site.

Usually, the PA or SI shows that a Superfund cleanup action is not warranted. This does not mean, however, that the site is safe. It just means that this particular site is unlikely to qualify for a Superfund cleanup. Instead, other federal programs, or state or local governments, companies, or private citizens become responsible for cleaning up these sites.

Preliminary Assessments/Site Inspections (Excluding Federal Facilities)

	Total FY 1992	FY 1980 to Date
	Sites	Sites
PA's Completed	940	33,749
Site Inspections Completed	889	15,309

Disposition of Preliminary Assessments/Site Inspections

Site Evaluation Accomplished	20,193
Sites Awaiting Preliminary Assessments	2,223
Sites Awaiting Site Inspection	3,381

National Priorities List (NPL)

EPA uses the Hazard Ranking System (HRS) to evaluate the public health and environmental threats posed by hazardous waste sites considered for a Superfund cleanup. Each site receives a numerical score based on the likelihood that people will be exposed to hazardous materials on or off the site. Sites that score at least 28.50 on the Hazard Ranking System's 100-point scale are eligible for the National Priorities List (NPL) of Superfund sites. (The 28.50-point cutoff has its origins in the 1980 law that established Superfund.)

National Priorities List (NPL) (Includes Federal Facilities)		
	Total FY 1992	FY 1980 to Date
	Sites	Sites
Sites Proposed for NPL	30	52
Sites Removed From Proposal	4	79
Sites Deleted From NPL	2	40
Total NPL		1,275

Sites that rank lower than 28.50 also may be potentially dangerous and should be considered as candidates for cleanup by state or local government.

EPA also can place on the NPL sites that score less than 28.50 if (1) the Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a public health advisory that recommends people be moved from the site, (2) EPA determines that the site poses a significant threat to public health, and (3) EPA anticipates that a remedial cleanup would be more cost effective than a removal action.

The NPL is EPA's list of the nation's worst hazardous waste sites. Sites on the NPL are eligible for federally funded cleanups. Between 5 percent and 10 percent of the sites EPA evaluates using the HRS eventually are placed on the NPL.

Currently, more than 1,200 sites are on the NPL, three times more than Congress envisioned in 1980, when Superfund began. EPA lists sites on the NPL by state and indicates whether a site is a federal facility. About 100 sites are added to the NPL each year, and EPA expects the NPL to grow to more than 2,000 sites by the end of the century.

Each NPL site has been assessed to determine if an emergency removal is necessary to protect neighboring populations. And every NPL site is re-assessed at least every two years to determine if conditions have changed to warrant an emergency removal.

NPL sites are considered for long-term cleanup of their contamination problems under the Superfund program. The cleanup process has two major phases. The first is the Remedial Investigation/Feasibility Study (RI/FS). It

includes a detailed review of site conditions and a listing and evaluation of the possible courses of action that could correct problems at the site. An RI/FS can begin even before a site is given an HRS score. On average, an RI/FS costs \$1 million and takes 18 to 30 months to perform. Wherever possible EPA negotiates with Responsible Parties to conduct these studies, but ultimately it is EPA's responsibility, with public input, to choose the long-term cleanup method.

Because many sites have more than one contamination problem—and even a single problem has more than one aspect—EPA often breaks down the RI/FS and subsequent steps into **clean-up projects (CPs)**. Each clean-up project is tantamount to a phase of a particular activity. The most common CPs are the “source control clean-up project” and the “management of migration clean-up project.” The former is concerned with problems associated with the source of site contamination; the latter is concerned with controlling the source of contaminants. Each step in the long-term cleanup of a Superfund site may be performed separately for each clean-up project.

Remedial Investigation/Feasibility Study (RI/FS) (Excluding Federal Facilities)						
	Total FY 1992			FY 1980 to Date		
	Sites	(CPs)	% RP/Site Lead	Sites	(CPs)	% RP/Site Lead
RI/FSs Started	26	57	42%	1,047	1,610	37%

Record of Decision (ROD)/Remedial Design (RD)

After EPA determines the best of several alternatives for site cleanup, it solicits public input. Based on that input and data collected, EPA decides how a site will be cleaned up and issues a Record of Decision (ROD). The ROD

discusses the various cleanup techniques that were considered and explains why a particular course of action was selected. If a site has more than one CP, a ROD for each CP may be issued. The selection process solicits public involvement, and the ROD also contains EPA's responses to public concerns regarding cleanup options for a site. Even if responsible parties have conducted the RI/FS, it is EPA's responsibility to select the most cost-effective cleanup method that will meet EPA cleanup goals.

Sometimes EPA determines that no cleanup activity is necessary; for example, a chemical may be so diluted in ground water that the water meets national or state safety standards. (Or an Emergency Removal Action took care of the problem before the ROD phase was reached.) In such cases where no cleanup activity is required, EPA may issue a "no-action ROD." (The term is a bit of a misnomer, however, for monitoring or other activities will be performed even if no cleanup is performed.)

Once EPA chooses a clean-up remedy, it must fit the technique to the site conditions. This adaptation, called the Remedial Design (RD), kicks off the second phase of a cleanup. A Remedial Design can take 12 to 18 months and cost an average of \$1 million. If Responsible Parties are conducting the design, it is EPA's responsibility to approve final plans and specifications for the actual cleanup.

This stage, in conjunction with the actual site cleanup, is the most costly, and Responsible Party participation in this effort is essential. Thus, EPA negotiates with Responsible Parties to conduct the Remedial Design and Remedial Action. Given current resource levels, EPA would be unable to achieve the progress it has without Responsible Party participation.

Records of Decision (RODs)/Remedial Designs (RDs) (Excluding Federal Facilities)						
	Total FY 1992			FY 1980 to Date		
	Sites	(CPs)	% RP/Site Lead	Sites	(CPs)	% RP/Site Lead
RODs Completed	28	42	N/A	686	945	N/A
RDs Started	64	120	78%	597	967	54%
RDs Completed	41	72	66%	389	564	49%

The actual clean-up work at a Superfund site is done during the Remedial Action phase. This is when the earth-moving equipment arrives and when necessary structures are built to treat contaminants on site. Depending on the contaminants involved, and the treatment techniques used to clean them up, this phase may take as long as six years to complete. If contaminated ground water must be cleaned up, the work may continue for decades.

Remedial Actions (RAs)						
	Total FY 1992			FY 1980 to Date		
	Sites	(CPs)	%RP/Site Lead	Sites	(CPs)	%RP/Site Lead
RAs Started	26	44	81%	409	605	50%
RAs Completed	34	48	74%	209	285	45%

The cost of Remedial Actions averages \$25 million. Thus, Responsible Party participation in this phase of the project is most important. If Responsible Parties are conducting this phase, EPA conducts extensive oversight to ensure that the remedy is implemented consistent with the ROD and the design specifications and that protective cleanup levels are achieved.

Enforcement

Whenever possible, EPA begins looking for PRPs before beginning any clean-up work paid for out of the Superfund Trust Fund. PRPs are liable for all costs incurred by the Federal Government. The search for PRPs can be lengthy, and site cleanup often begins before all PRPs are identified. In any event, the search for PRPs and the negotiations to get the site cleaned up will not delay work to reduce imminent threats to public health.

Once PRPs and RPs are identified, EPA will attempt to negotiate consent decrees with them. These documents specify the duties and responsibilities of each RP regarding a cleanup. If consent negotiations fail, EPA can issue a unilateral administrative order for cleanup. The Agency also may begin cleaning up the site, then sue the RPs to recover its costs.

EPA can refer to the United States Department of Justice for prosecution cases against RPs who fail to comply with federal cleanup orders. Under the Superfund law, EPA can recover its cleanup costs plus triple that amount in damages for those that fail to comply with these orders.

Enforcement In Superfund				
ACTIVITY	Total FY92		Program-To-Date*	
	Actions	Value (M)	Action	Value (M)
Total RP Response Settlements**	135	\$765.8	1,673	\$6,434.0
RD/RA Settlements	58	\$645.5	391	\$4,266.5
Total Unilateral Orders Issued***	75	\$292.0	743	\$1,686.5
UAOs Issued for RD/RA	30	\$262.5	164	\$1,551.0
Total AOCs Signed	59	\$3.6	1,010	\$1,331.6
AOCs for RD (only)	3	\$1.7	15	---
Cost Recovery Referrals to DOJ	30	\$46.8	471	\$822.4
Total Cost Recovery Settlements	126	\$49.0	1,176	\$618.7
Total Cost Recovery Collections	---	\$115.0	---	\$474.0
* Thru FY91 ** Does not include State Lead Settlements, and Federal Facilities Inter-Agency Agreements. Includes RD/RA Settlements below. *** Includes UAOs issued for RD/RA.				
			Source: CERCLIS	
			Full Date(s): 11/18/91 - FTD data 04/07/92 - FY92 data	