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Progress Toward Implementing Superfund

Fiscal Year 1994

Report to Congress

Publication 9200.2-24

Progress Toward Implementing SUPERFUND

Fiscal Year 1994

REPORT TO CONGRESS

Required by
Section 301(h) of the
Comprehensive Environmental Response,
Compensation, and Liability Act (CERCLA) of 1980,
as amended by the Superfund Amendments and
Reauthorization Act (SARA) of 1986

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U.S. ENVIRONMENTAL PROTECTION AGENCY

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Notice

This Report to Congress has been subjected to the U.S. Environmental Protection Agency's (EPA's) review process and approved for publication as an EPA document. For further information about this Report, contact the Office of Program Management, Office of Emergency and Remedial Response at (703) 603-8710. Individual copies of the Report can be obtained from the U.S. Department of Commerce, National Technical Information Service (NTIS) by writing to NTIS, 5285 Port Royal Road, Springfield, VA 22161, or calling (703) 487-4650.

Foreword

The Environmental Protection Agency (EPA) continued its progress in protecting public health, welfare, and the environment through the Superfund program in fiscal year 1994 (FY94). As the Superfund program completed its fourteenth year, the Agency had begun work at 94 percent of the 1,355 sites on the National Priorities List (NPL), and completed construction on 278 of them. EPA is pleased to submit this Report documenting the fiscal year's achievements.

Through administrative improvements inplemented during the year, the Agency accelerated the pace of cleanup, enhanced the fairness of the Superfund program, reduced transaction costs, and expanded public involvement. The Agency also focused on these aspects of the program as it drafted legislative amendments introduced as the Superfund Report Act of 1994.

Section 301(h) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund), as amended by the Superfund Amendments and Reauthorization Act of 1986, requires the Agency to report annually on response activities and accomplishments and to compare remedial and enforcement activities with those undertaken in previous fiscal years. During the fiscal year, the Agency or portentially responsible parties (PRPs) started approximately 70 remedial investigation/feasibility studies, 110 remedial designs (RDs), and 120 remedial actions (RAs). PRPs began 75 percent of these RDs and RAs. Continuing its successful efforts to compel PRPs to undertake cleanup, EPA entered into 230 enforcement agreements worth more than $1.4 billion in response work. The Agency and PRPs have also now undertaken more than 3,660 removal actions, including approximately 310 during FY94. Federal facility accomplishments have shown dramatic increases; 129 of the 150 federal facility sites listed as final on the NPL are now covered by interagency agreements for clean-up activities. EPA also continued to encourage public involvement in the Superfund process, to enhance partnerships with states and Indian tribes, and to encourage the use and development of treatment technologies. These three aspects of the program were highlighted in the Agency's administrative improvement inititative.

In addition to providing an overall perspective on progress in the past fiscal year, this Report contains the information Congress specifically requested in Section 301(h) of CERCLA, including a report on the status of remedial actions and enforcement activity in progress at the end of the fiscal year and an evaluation of newly developed feasible and achievable treatment technologies. The Report also includes a description of current minority firm participation in Superfund contracts and EPA's efforts to encourage increased participation, as required by Section 105(f). The Report fulfills the requirement of Section 301(h)(1)(E) by providing an update on progress being made at sites subject to review under Section 121(c). Appendix D consists of a matrix that charts the progress of EPA and other government organizations in meeting Superfund-related statutory requirements. This Report also satisfies certain reporting requirements of CERCLA Section 120(e)(5), the *EPA Annual Report to Congress: Progress Toward Implementing CERCLA at EPA Facilities as Required by CERCLA Section 120(e)(5)*. The EPA Inspector General's report on the reasonableness and accuracy of the information in this Report, as required by CERCLA Section 301(h)(2), is included as Appendix E.

Appendix G is included to give an overall summary of the Superfund Program in fiscal years 1992 through 1994.

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Executive Summary

As the Superfund program entered its fourteenth year in December 1993, the U.S. Environmental Protection Agency (EPA or "the Agency") continued to fulfill the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) for protecting public health, welfare, and the environment. CERCLA requires that EPA update Congress each year on progress in the Superfund program. This Report fulfills the requirement.

EPA is committed to accelerating the pace of hazardous waste site cleanup. As part of this commitment, the Agency completed construction activities to place 61 National Priorities List (NPL) sites in the construction completion category during fiscal year 1994 (FY94). By the end of the fiscal year, work had occurred at more than 94 percent of the 1,355 sites proposed to, listed on, or deleted from the NPL, including a total of 278 sites (21 percent) that have achieved construction completion. Leaving a total of 1,226 sites currently listed on the NPL for fiscal year 1994. Reflecting the Agency's increasing emphasis on completing site cleanups, more than 78 percent of the construction completions have been achieved in the past three years.

The Agency also continued its successful efforts to encourage potentially responsible parties (PRPs) to undertake and finance clean-up efforts at Superfund sites. PRPs were leading more than 75 percent of remedial designs (RDs) and remedial actions (RAs) started during the fiscal year. Since the inception of the Superfund program, EPA has reached agreements worth more than $10.0 billion for PRP response work at Superfund sites, including $1.4 billion achieved this year.

This Report summarizes Superfund FY94 progress, highlighting accomplishments and initiatives to improve the program. Exhibit ES-1 presents a summary of FY94 accomplishments. Exhibit ES-2 provides a comparison of FY94 accomplishments with those of previous years and presents cumulative program accomplishments. FY94 accomplishments reflect the Agency's commitment to, and focus of resources on, activities required to complete site cleanups.

Fiscal Year 1994 Initiatives

In FY94, the Agency focused efforts on identifying possible legislative amendments that would improve the efficiency and equity of the program. The Agency solicited input from advisory committees, stakeholders, and Agency and inter-agency workgroups to draft the proposed Superfund Reform Act of 1994. The proposed legislation focused on enhancing community involvement, expanding the role of states, reforming the remedy selection process, pursuing liability reforms to reduce transaction costs and increase fairness, and creating a fund, titled the Environmental Insurance Resolution Fund, to resolve coverage disputes between PRPs and their insurers. The Superfund Reform Act of 1994 completed extensive hearings and mark-ups, but did not come up for a final vote on the House or Senate floor.

Working within the existing statutory and regulatory framework, the Agency also continued to implement the recommendations of the 1993 Superfund Administrative Improvements Task Force. The task force recommendations included implementation of nine new or enhanced initiatives

Exhibit ES-1
Summary of Fiscal Year 1994 Superfund Activities

Remedial Activities		
Percentage of National Priorities List Sites Where Work Has Begun		94%
Sites Classified as Construction Completions as of September 30, 1994		278
Sites with Remedial Activities in Progress on September 30, 1994		867
Records of Decision Signed [1]		99
Remedial Investigation/Feasibility Starts [2]		70
Fund-Financed		60%
Potentially Responsible Party-Financed		40%
Remedial Investigation/Feasibility Studies in Progress on September 30, 1994		873
Remedial Design Starts[2]		110
Fund-Financed		25%
Potentially Responsible Party-Financed		75%
Remedial Designs in Progress on September 30, 1994		447
Remedial Action Starts[2]		120
Fund-Financed		20%
Potentially Responsible Party-Financed		80%
Remedial Actions in Progress on September 30, 1994		447
Removal Activities		
Removal Action Starts[2]		310
Fund-Financed		70%
Potentially Responsible Party-Financed		30%
Removal Action Completions[2]		240
Fund-Financed		80%
Potentially Responsible Party-Financed		20%
Site Assessment Activities		
CERCLIS Sites Added[2]		1,100
Preliminary Assessments Conducted[2]		900
Site Inspections Conducted[2]		600
National Priorities List Site Activities to Date		1,355
Sites Proposed for Listing During Fiscal Year 1994		36
Sites Listed During Fiscal Year 1994		43
Sites Proposed for Deletion During Fiscal Year 1994		10
Sites Deleted During Fiscal Year 1994		13
Enforcement Activities		
Settlements for All Potentially Responsible Party Response Activities	230	($1.4 billion)[3]
Remedial Design/Remedial Action Settlements[4]	88	($960 million)
Unilateral Administrative Orders Issued (All Actions)	110	N/A
Cost Recovery Dollars Collected	N/A	($200 million)
Accomplishments at Federal Facility Sites		
Records of Decision Signed		60
Remedial Investigation/Feasibility Study Starts[2]		60
Remedial Design Starts[2]		50
Remedial Action Starts[2]		40

[1] Records of decision signed for Fund-financed and potentially responsible party-financed sites.
[2] Numerical values for accomplishments based on information from CERCLIS have been rounded.
[3] Estimated value of work potentially responsible parties have agreed to undertake.
[4] Remedial design/remedial action settlements include remedial design/remedial action consent decrees and unilateral administrative orders with which potentially responsible parties have stated their intention to comply.

Sources: CERCLIS; Office of Waste Programs Enforcement; Office of Emergency and Remedial Response; *Federal Register* notices through September 30, 1994. 51-044-21D

Exhibit ES-2
Summary of Program Activity by Fiscal Year

	FY80-86 Total	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	Total
Removal Completions[1,2]	810	230	320	260	290	270	340[6]	290	240	3,050
CERCLIS Sites[1]	25,200	27,600	30,000	31,900	33,600	34,200	36,400	37,500	1,100	38,600
PA Completions[1]	20,200	4,000	2,900	2,200	1,600	1,300	1,900	1,100	900	36,100
SI Completions[1]	6,400	1,300	1,200	1,700	1,900	1,900	1,300	700	600	17,000
National Priorities List Sites[3]	901	964	1,194	1,254	1,236	1,245	1,275	1,320	1,355	1,355
Remedial Investigation/ Feasibility Study Starts[1,2]	660	210	170	170	170	70	90[7]	60	70	1,670
Records of Decision Signed[2]	199	77	152	136	149	175	126	134	99	1,247
Remedial Design Starts[1,2]	120	110	120	180	130	160	170[8]	130	110	1,230
Remedial Action Starts[1,2]	70	70	70	110	80	100	110[9]	120	120	850
Construction Completions[4]	--	--	--	--	--	61	88	68	61	278
National Priorities List Deletions[5]	13	0	4	11	1	9	2	11	13	64

1 Numerical values for accomplishments based on information from CERCLIS have been rounded.
2 Includes Fund-financed and potentially responsible party-financed activities; excludes federal facility activities and state-lead activities where no Fund monies were spent.
3 The figures reported in this row represent the cumulative total of proposed, final, and deleted National Priorities List sites as of the end of each fiscal year.
4 Adopted as measure of program progress by 1991 30-Day Study Task Force. FY91 value represents FY80 through FY91.
5 FY93 deletions include 11 sites deleted because CERCLA clean-up objectives were met and one site deferred to another authority for clean-up.
6 The number for Removal Completions in FY92 was 342; it has been rounded for inclusion in the FY94 table so that figures will add properly. See also note 3.
7 The number for Remedial Investigation/Feasibility Starts in FY92 was 88; it has been rounded for inclusion in the FY94 table so that figures will add properly. See also note 3.
8 The number for Remedial Design Starts in FY92 was 172; it has been rounded for inclusion in the FY94 table so that figures will add properly. See also note 3.
9 The number for Remedial Action Starts in FY92 was 111; it has been rounded for inclusion in the FY94 table so that figures will add properly. See also note 3.

Sources: CERCLIS; Office of Emergency and Remedial Response; *Federal Register* notices through September 30, 1994.

51-044-22D

and the continuation of eight ongoing initiatives. The nine new initiatives center around five themes:

- Improving Clean-up Effectiveness and Consistency: EPA worked to streamline and expedite clean-up effectiveness and consistency by developing presumptive, or standard, remedies; standardizing non-site specific components of RDs; developing strategies for addressing the technical complexities associated with dense non-aqueous phase liquid (DNAPL) and lead contamination; and developing standardized soil screening levels (SSLs) to facilitate soil study and cleanup.
- Enhancing Community Involvement: EPA worked to promote earlier and increased community involvement in Superfund clean-up activities and decision-making. To this end, EPA facilitated public access to site information and site decision-makers, improved outreach materials, and used innovative techniques to involve and inform communities.
- Expanding the Role of the States: EPA worked to expand state involvement in Superfund cleanups to use limited resources more effectively and help accelerate the pace of cleanup. EPA has historically provided funding and technical assistance to support the development of state Superfund programs, and many states are cleaning up non-NPL-caliber sites under their own laws. During FY94, EPA developed draft deferral guidance for states, or other qualified governing bodies, for meeting criteria to conduct oversight of cleanups at NPL-caliber sites. Piloting the concept in seven states, EPA deferred 22 NPL-caliber sites to the states for oversight of the cleanup.
- Increasing Enforcement Fairness and Reducing Transaction Costs: EPA worked to reduce transaction costs and ensure equity in enforcement by promoting greater use of allocation tools, fostering more settlements with small-volume (*de minimis* and "de micromis") waste contributors, increasing fairness for owners of Superfund sites, and evaluating the use of mixed funding policy. As a result of the Agency's emphasis on earlier and increased use of *de minimis* settlements, for example, the Agency has reached 86 *de minimis* settlements in the last two years. While enhancing fairness to all involved PRPs by reducing transaction costs, the Agency also resolved the liability of more than 5,500 *de minimis* PRPs in these 86 settlements.
- Ensuring Environmental Justice: EPA worked to ensure that risks posed to low-income and minority populations in communities are adequately addressed by EPA's waste programs, including the Superfund program. Specifically, the Agency began implementing strategies to identify communities with potential environmental justice concerns and engaged in efforts to conduct outreach and address environmental hazards in these communities.

The eight ongoing initiatives included implementing the Superfund Accelerated Clean-Up Model (SACM), achieving construction completion at sites, strengthening contracts management, promoting enforcement first, accelerating cleanup at military bases slated for closure, promoting the development and use of innovative technologies, enhancing compliance monitoring, and improving the effectiveness of cost recovery. The Agency set and achieved a goal to implement most of the task force's recommendations by the end of FY94.

Site Evaluation Progress

EPA continued its progress in identifying and assessing newly discovered sites. At the end of FY94, there were more than 38,600 sites identified in the CERCLA Information System, the Superfund inventory of potentially hazardous waste sites. EPA had evaluated more than 94 percent of these sites for potential threats. The assessment activities included approximately 36,100 preliminary assessments and 17,000 site inspections. Based on these evaluations, EPA has determined that 1,355 of the sites should be proposed to, listed on, or deleted from the NPL. For a total of 1,226 remaining on the NPL for FY94. These sites include 46 proposed to, 43 listed on, and 13 deleted from the NPL during FY94. To date, a total of 64 sites have been deleted from the NPL.

To enhance site evaluation efforts, the Agency proceeded with ongoing efforts to address technical complexities associated with lead and radionuclide contamination, which could pose special hazards and problems. To address lead contamination, EPA continued to validate the Integrated Exposure Uptake Biokinetic Model and develop guidance for determining acceptable levels of lead in soil. The Agency also analyzed results from a three-city study on the affects of lead contamination in the blood-lead level of children exposed to the contaminant. To address sites with radioactive contamination, EPA continued to develop guidance, examined environmental fate and transport modeling, conducted clean-up technology demonstrations and evaluations, and provided technical support to the Regions.

Removal Progress

To protect human health and the environment from immediate or near-term threats, the Agency and PRPs started nearly 310 removal actions and completed 240 during FY94. More than 3,660 removal actions have been started and nearly 3,050 have been completed since the inception of the Superfund program.

Through SACM, the Agency continued its efforts to expand the use of removal authority for early actions to reduce risks more rapidly and expedite cleanup at NPL sites. Early actions may include emergency, time-critical, or non-time-critical removal responses or quick remedial responses. To support the use of early actions in FY94, EPA distributed set-aside funds to conduct nine early actions in six Regions.

The Environmental Response Team (ERT) continued to provide expert support for Superfund response actions. During the fiscal year, ERT conducted 103 removal actions and 79 RAs, responded to 10 oil spills and 2 international incidents, and conducted 203 training courses nationwide. Response to international incidents are not paid for using Superfund dollars.

Under the reportable quantities (RQ) regulatory program, the Agency promulgated final RQ adjustments for 62 hazardous substances and added 5 to the list. Also, the Agency continued to work on regulations to establish administrative reporting exemptions for naturally occurring radionuclide releases.

In other efforts, the Agency continued to develop the remaining volumes of the Superfund Removal Procedures Manual.

Remedial Progress

Remedial progress during the fiscal year reflects the Agency's continuing efforts to accelerate the pace of clean-up activities and complete cleanups at Superfund sites. At the end of FY94, work had occurred at 94 percent of the 1,355 sites proposed to, listed on, or deleted from the NPL, and construction activities had been completed to place 278 NPL sites (21 percent) in the construction completion category. During the year, the Agency and PRPs started nearly 70 remedial investigation/feasibility studies (RI/FSs), 110 RDs, and 120 RAs. EPA also signed 99 records of decision (RODs) for Fund-financed and PRP-financed sites. At the end of the year, 873 RI/FSs, 447 RDs, and 447 RAs were in progress at 867 sites.

As recommended by the 1993 Superfund Administrative Improvements Task Force, EPA continued several efforts to streamline remedial activities and increase the consistency and efficiency in Superfund cleanups. The Agency

- Demonstrated presumptive remedies developed for municipal landfills and sites contaminated with volatile organic compounds, while working to develop presumptive remedies for wood-treater, polychlorinated biphenyl, manufactured-gas-plant, grain storage, and polluted ground-water sites;
- Released draft soil screening levels (SSLs) for 100 chemicals commonly found at Superfund sites;
- Implemented guidance for addressing DNAPL contamination of ground water and for invoking the technical impracticability waiver where performance standards cannot be achieved.

In efforts to encourage the development and use of innovative treatment technologies to cleanup Superfund sites, the Agency took measures to demonstrate the technologies and provide information

about them to potential users. To this end, EPA continued the Superfund Innovative Technology Evaluation Program, sponsored seven technical support centers and the Superfund Technical Assistance Response Team, and provided access to information and training. Working together with other federal agencies, academics, and the private sector, EPA conducted technology transfer efforts that included conferences and forums, demonstration and evaluation of innovative technologies, preparation of reference materials, and development of training and continuing education opportunities.

Enforcement Progress

Enforcement progress for FY94 reflects the Agency's continued commitment to maximize PRP involvement in financing and conducting cleanup, and to recover Superfund monies expended for response actions. During FY94, EPA reached agreements with PRPs worth more than $1.4 billion in PRP response work. Through its FY94 cost recovery efforts, EPA achieved $206 million in settlements and collected more than $200 million for reimbursement of Superfund expenditures. Examples of significant enforcement actions are provided in Chapter 5 of this Report.

While continuing to promote "enforcement first" to secure PRP involvement in financing and conducting cleanups, the Agency also worked to ensure equity in the enforcement process and to seek ways to reduce transaction costs. To support these goals during FY94, the Agency focused on increasing the use of allocation tools such as alternative dispute resolution, encouraging early settlements with *de minimis* and "de micromis" parties, fostering greater fairness for owners and prospective purchasers of Superfund sites, and evaluating the increased use of mixed funding. The Agency also took steps to increase the effectiveness of compliance monitoring, improve cost recovery efforts, and expedite enforcement activities to support accelerated cleanups under SACM.

Federal Facility Cleanups

Federal departments and agencies are largely responsible for implementing CERCLA at federal facility sites. To ensure federal facility compliance with CERCLA requirements, EPA provides advice and assistance, oversees activities, and takes enforcement action where appropriate. At sites on the NPL, EPA must concur in remedy selection.

At the end of FY94, there were 1,945 federal facility sites identified on the Federal Agency Hazardous Waste Compliance Docket. Of the sites on the docket, 160 were proposed to or listed on the NPL, including 150 final and 10 proposed sites. During FY94, 10 sites were proposed to and 24 were listed on the NPL.

With the interagency agreements executed during the year, a total of 121 of the 150 federal facility sites had enforceable agreements for cleanup in place. Activity during the fiscal year at federal facility sites listed on the NPL, included starting approximately 60 RI/FSs, 50 RDs, and 40 RAs; signing 60 RODs; and achieving construction completion at 17 sites.

In FY94, the Agency, in conjunction with the Department of Defense (DOD), states, and local citizens, implemented the Fast Track Clean-Up Program to expedite cleanup and reuse of bases scheduled for closure under the Base Realignment and Closure (BRAC) Act. BRAC was enacted to promote economic recovery of communities near closing bases. EPA, DOD, and the states established BRAC clean-up teams (BCTs) at 75 bases in FY94.

Also during the fiscal year, EPA, DOD, and the Department of Energy (DOE) published guidance identifying SACM components that provide opportunities for speeding cleanup. In addition to the BCTs, EPA participated in several interagency forums to support federal facility cleanups; these included the Federal Facilities Environmental Restoration Dialogue Committee, the Federal Facility Policy Group, the Defense Environmental Restoration Task Force, and DOE's Environmental Management Advisory Board. Through the Federal Facilities Forum, Multisite Technology Confirmation Initiative, public-private partnerships, and the Develop On-Site Innovative Technologies Committee, EPA coordinated efforts to establish federal facilities as testing and development centers for innovative technologies.

CERCLA Section 120(3)(5) requires an annual

report to Congress from each federal department or agency on its progress in implementing Superfund at its facilities. EPA's progress at its sites is provided in Section 6.4 of this Report. Of the sites on the Federal Agency Hazardous Waste Compliance Docket at the end of FY94, 20 were EPA-owned.

Superfund Program Support Activities

EPA took measures in FY94 to enhance community involvement, public access to Superfund information, and EPA's partnership with states and Indian tribes. As required by CERCLA Section 105(f), the Agency also engaged in efforts to encourage minority firm participation in Superfund contracting.

In its community involvement efforts, EPA continued measures to tailor activities to the specific needs of individual communities and to identify ways to enhance community involvement efforts. The Agency emphasized the importance of effective community involvement in its administrative improvements and reauthorization efforts. The Agency also continued to provide technical outreach to communities, hold national conferences on community involvement, offer training and workshops, and facilitate community access to technical assistance grants (TAGs). To aid communities in obtaining technical assistance, EPA awarded 16 TAGs during the fiscal year, bringing the total number of TAGs awarded since FY88 to 151, for a total worth of more than $8.6 million.

To enhance public access to Superfund information, the Agency continued its partnership with the National Technical Information Service (NTIS), which provides Superfund document distribution services. During FY94, the Agency expanded the Superfund document collection available through NTIS, continued outreach to inform the public of the services available, and began implementing a communications and outreach plan using NTIS services.

To support state and tribal involvement in the Superfund response activities, EPA has awarded nearly $1.3 billion in cooperative agreements (CAs), including $79 million awarded in FY94 through site-specific CAs. With Trust Fund resources provided by EPA under these response agreements, states and Indian tribes were leading more than 75 RI/FSs, RDs, and RAs and enforcing more than 110 PRP responses at Superfund sites during the year. Continuing to assist states and tribes in developing comprehensive Superfund programs, EPA also granted Core Program CAs (CPCAs) worth nearly $16 million during the year, for a total of $103 million awarded to states and tribes in CPCA funding. To further support state and tribal Superfund programs, EPA engaged in outreach activities, provided technical assistance, and began developing guidance for a state deferral program for NPL-caliber sites.

To promote small and disadvantaged business participation in Superfund contracting in FY94, EPA, through direct and indirect procurement, awarded contracts and subcontracts valued at more than $32.2 million to minority contractors to perform Superfund work. Direct procurement involves any procurement activity in which EPA is a direct party to a contractual arrangement for supplies, services or construction. Under financial assistance programs (indirect procurement), EPA awards grants and/or cooperative agreements to States, local municipalities, universities, colleges, non-profit or profit-making institutions or firms, hospitals and individuals or otherwise known as recipients. This amount represents more than 4.3 percent of the total dollars obligated to finance Superfund work during the year. To help minority contractors become more successful in winning Superfund contracts and encourage them to participate in the Superfund program, EPA conducted training sessions, conferences, and seminars throughout the year.

Resource Estimate for Superfund Implementation

Under section 301(h)(1)(c) of CERCLA, EPA is required to estimate the resources needed to implement Superfund, and CERCLA requires that EPA provide the estimates in this Report. Since the enactment of CERCLA in 1980, Congress has

provided Superfund with $13.6 billion in budget authority (FY81 through FY94). This includes $1.7 billion for the pre-SARA period (FY81 through FY86) and $11.9 billion for the post-SARA period, FY87 through FY94.

Estimates of the long-term resources required to implement Superfund are based on the Outyear Liability Model (OLM). The OLM estimate of the cost of completing cleanup of current NPL sites is more than $17.4 billion for FY95 and beyond, bringing the total estimated cost for the program to $31.0 billion.

Organization of this Report

Information prepared for this Report is assembled in response to Congressional requirements specified in CERCLA. Exhibit ES-3 is a guide to the information required under CERCLA and its location in the Report.

Exhibit ES-3
Statutory Requirements for the Report

CERCLA Section	CERCLA Requirement	Report Section	Report Content
301(h)(1)	Annual report to Congress on the progress achieved in implementing Superfund during the preceding fiscal year	Chapter 1	Initiatives to improve the Superfund program
		Chapter 2	Site evaluation progress
		Chapter 3	Removal progress
		Chapter 4	Remedial progress
		Chapter 5	Enforcement progress
		Chapter 6	Federal facility cleanups
		Chapter 7	Community relations, state and Indian tribe, and public outreach activities
301(h)(1)(A)	Detailed description of each feasibility study (FS) at a facility	Section 4.4	Overview discussion of RODs signed during the fiscal year, including the number of treatment and containment remedies selected. [ROD summarizes and builds on the FS]
		Appendix C	List of RODs signed in the fiscal year
		ROD Annual Report	Abstracts of each ROD signed in the fiscal year
301(h)(1)(B)	Status and estimated date of completion of each FS	Appendix A	Status and estimated completion date of each ongoing FS in progress at the end of the fiscal year
301(h)(1)(C)	Notice of each FS which will not meet a previously published schedule for completion and the new estimated date for completion	Appendix A	Scheduled completion date published for the last fiscal year, the scheduled completion date recorded in CERCLIS as of end of the current fiscal year, and identification of schedule changes
301(h)(1)(D)	An evaluation of newly developed feasible and achievable permanent treatment technologies	Section 4.5	Evaluation of newly developed technologies through the Superfund Innovative Treatment Evaluation program
301(h)(1)(E) 121(c)	Progress made in reducing the number of facilities subject to review under CERCLA Section 121(c), which requires a report to the Congress a list of facilities for which a five-year review is required, the results of all such reviews, and any actions taken as a result of such reviews	Section 4.6	Annual update on progress being made on sites subject to review under CERCLA Section 121(c)

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Exhibit ES-3 (cont'd)
Statutory Requirements for the Report

CERCLA Section	CERCLA Requirement	Report Section	Report Content
301(h)(1)(F)	Report on the status of all remedial and enforcement actions undertaken during the fiscal year, including a comparison to remedial and enforcement actions undertaken in prior fiscal years	Executive Summary Section 4.2	Information on fiscal year remedial activity starts (including PRP involvement) with a comparison of fiscal year activities to those of previous years
		Section 5.2	Information on fiscal year enforcement activities with a comparison of fiscal year activities to those of previous years
		Appendix A	Information on the status of each RI/FS and RA in progress at the end of the fiscal year
		Appendix B	Information on the status of RDs in progress at the end of the fiscal year
301(h)(1)(G)	Estimates of the amount of resources, including the number of work years or personnel, which would be necessary for each department, agency, or instrumentality which is carrying out any activities to complete the implementation of all duties vested in the department, agency, or instrumentality	Sections 8.1 and 8.3	EPA resource estimates for completion of CERCLA implementation
		Section 8.4	Other federal agency's and department's estimates for completion of CERCLA implementation
301(h)(2)	Review by the Inspector General and submission of any report related to EPA's activities for reasonableness and accuracy	Appendix E	Review of the Inspector General on this Report
105(f)	Brief description of the contracts which have been awarded to minority firms under Superfund and the efforts made to encourage the participation of such firms in the Superfund program	Section 7.4	Information on minority contracting awards by EPA, states, Indian tribes, and other federal agencies using Superfund monies. EPA efforts to encourage increased minority contractor participation in the Superfund program
120(e)(5)	Annual report to the Congress concerning EPA progress in implementing remedial activities at its facilities	Section 6.4	Report on EPA progress in CERCLA implementation at EPA-owned facilities, including a state-by-state status report

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Chapter 1
Major Initiatives

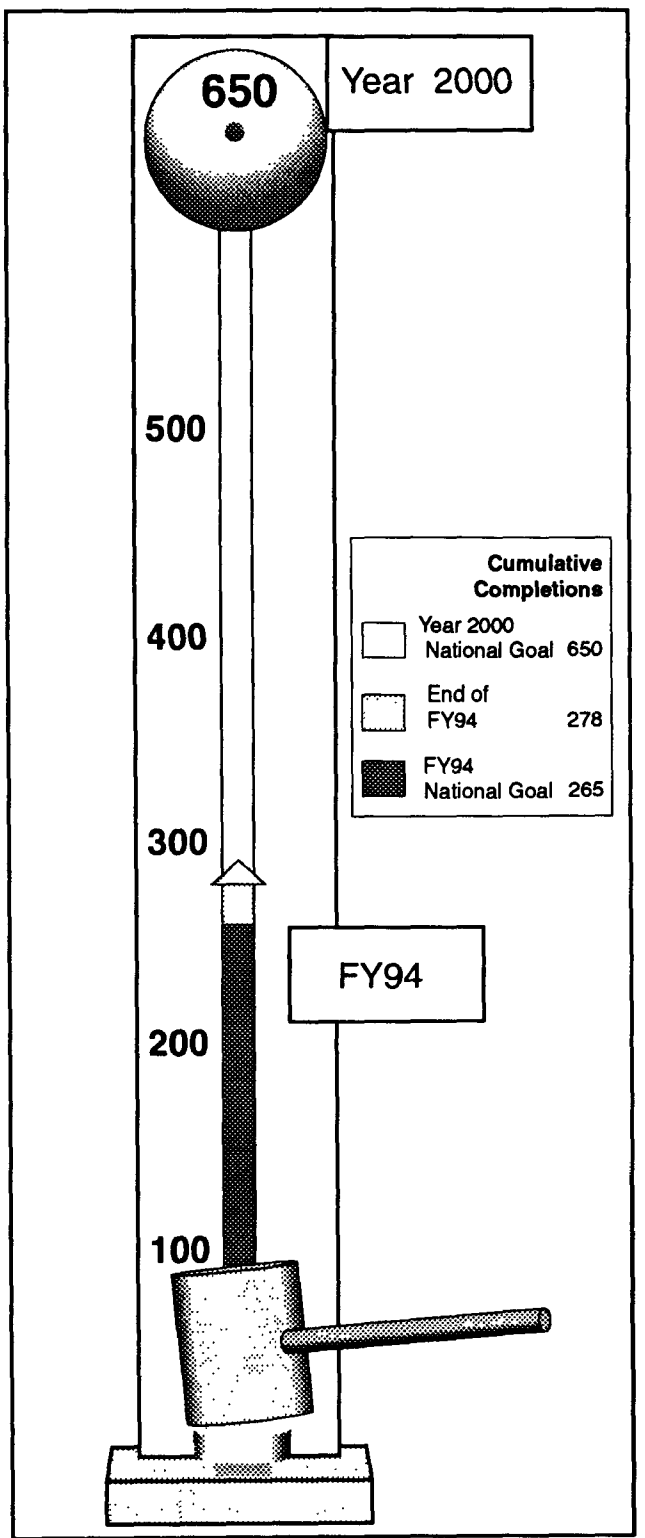
The Agency continued to achieve progress in remediating our nation's hazardous waste sites under the Superfund program. The Agency also focused efforts on the anticipated reauthorization of the CERCLA taxing authority by Congress and opportunities to provide suggestions for changing provisions of the CERCLA statute to enhance its efficiency and equity. Also, continuing to implement administrative changes proposed in June 1993 by the Superfund Administrative Improvements Task Force, the Agency implemented measures for

- Improving clean-up effectiveness and consistency;
- Expanding community involvement in cleanup;
- Expanding the role of states;
- Increasing enforcement fairness and reducing transaction costs;
- Ensuring environmental justice; and
- Continuing initiatives to streamline the clean-up process (e.g., the Superfund Accelerated Clean-Up Model (SACM)), achieve construction completions, strengthen contracts management, promote enforcement first, accelerate clean-up at closing military bases, promote the development and use of innovative technologies, enhance compliance monitoring, and improve the effectiveness of cost recovery.

The Agency's progress in these areas targeted by the Superfund Administrative Improvements Task Force is highlighted in this chapter. Most notably the Agency's progress during FY94 is evident in achieving construction completions, reaching enforcement agreements with potentially responsible parties (PRPs) for cleanup, and increasing use of settlement tools, such as early de minimis settlements which resolve the liability of small-volume contributors, to reduce transaction costs for all involved PRPs.

- Fulfilling its commitment to accelerate the pace of cleanup at Superfund sites, EPA completed construction activities to place 61 additional National Priorities List (NPL) sites in the construction completion category during FY94. As shown in Exhibit 1.0-1, this achievement brought the total number of NPL sites classified as construction completions to 278, exceeding the Agency's national target of 265. Because of the Agency's aggressive efforts,more than 78 percent of the total sites were placed in the construction completion category in the past three years.
- Through aggressive use of the enforcement authority provided in CERCLA and SARA, the Agency has reached agreements with PRPs to undertake more than $10 billion in response work at Superfund sites. Settlements for FY94 alone totalled over $1.4 billion.
- The Agency's emphasis on earlier and increased use of de minimis settlements has resulted in 86 de minimis settlements in the last two years; more de minimis settlements than were achieved in the previous twelve years of the Superfund program. While enhancing fairness to all PRPs by reducing transaction costs, the Agency also resolved the liability of more than 5,500 de minimis PRPs in these 86 settlements.

Exhibit 1.0-1
Progress in Classifying Sites as Construction Completions



Source: Office of Emergency and Remedial Response/ Office of Program Management and Hazardous Site Control Division.

1.1 Reauthorization Activities

With CERCLA's taxing authority set to expire after December 31, 1994, Agency efforts during FY94 focused on identifying aspects of the program where legislative amendments would improve the efficiency and equity of the program. Seeking to involve all Superfund stakeholders, EPA established a committee of the National Advisory Council on Environmental Policy and Technology (NACEPT) as a forum to solicit input from the public, state and local governments, and private industry. The Agency also initiated internal and interagency workgroups to deliberate on specific aspects of the program. Using the recommendations of these groups, the Agency and other Federal Agencies and Offices, drafted legislation to be introduced in the House and Senate.

1.1.1 National Advisory Council on Environmental Policy and Technology

The Agency created a committee of the NACEPT, an advisory committee to the Administrator, as a forum to solicit input on views and concerns about Superfund and other environmental policies. The committee members reflect the diversity of stakeholders in the Superfund program, with representatives from state and local governments, private industry, environmental groups, local community organizations, and academia.

NACEPT provided a forum for the Agency to gain further perspective on Superfund stakeholder's positions on various topics, such as community involvement, the role of states, liability of lenders, funding of "orphan shares," concerns associated with municipal landfills, and remedy selection. In the course of seven meetings held from June through November of 1993, the committee reviewed the current performance of the Superfund program and suggested options for administrative and legislative improvements. In addition, NACEPT proposed changes that would help foster increased state and local involvement in Superfund decisions and actions. NACEPT documented its findings in a report published in December 1993.

Public participation was a critical component of the NACEPT meetings. The NACEPT committee invited the public to submit papers for presentation during its meetings, and all seven committee meetings were open to the public. Also, the meeting on community involvement was broadcast to the ten EPA Regions so that local citizens could express their views and present their proposals for improvements.

1.1.2 Agency Workgroups

The Agency established a number of workgroups to analyze reauthorization proposals, prepare legislative proposals, and develop the Administration's position on Superfund reauthorization. Focusing on such issues as liability, remedy selection, community involvement, and the role of states, the workgroups developed materials for the Agency's Legislative Task Force, chaired by the Director of the Office of Waste Programs Enforcement. The workgroups also reported directly to the Deputy Administrator, who served as chairman of the Superfund Steering Committee. The steering committee was charged with overseeing Agency task forces in evaluating the Superfund program and developing legislative reform proposals.

1.1.3 Interagency Workgroups

The Agency provided NACEPT's report and legislative suggestions to the Interagency Policy Committee, which was established and chaired by White House personnel. The committee included agencies and departments with an interest in Superfund legislation, such as EPA, the Department of Defense (DOD), the Department of Energy (DOE), the Department of Agriculture, the Department of Interior, and the National Oceanic and Atmospheric Administration. Using the NACEPT report and the legislative suggestions, the Interagency Policy Committee developed the Administration's position on Superfund reauthorization. The committee's deliberations resulted in the Administration's bill, the Superfund Reform Act of 1994.

1.1.4 Legislative Activities

The Administration's proposed Superfund Reform Act of 1994 was introduced in Congress on February 3, 1994. It was referred to the House Commerce Committee's Subcommittee on Transportation and Hazardous Materials as H.R. 3800 and the Senate Environment and Public Works Committee's Subcommittee on Superfund, Recycling, and Solid Waste Management as S. 1834. The proposed legislation was intended to produce a faster, fairer, and more cost-effective Superfund program. Suggested amendments focused on enhancing community involvement, expanding the role of states, reforming the remedy selection process, pursuing liability reforms to reduce transaction costs and increase fairness, and creating a fund titled, the Environmental Insurance Resolution Fund, to resolve coverage disputes between PRPs and their insurers.

The proposed Superfund Reform Act of 1994 completed 16 legislative milestones between February 1994 and September 1994, including hearings and mark-ups, but the House Rules Committee did not clear the proposed legislation for a final vote on the House Floor. The Administration believes the reforms contained in the compromise House bill represent the best package of reforms for Superfund; the Agency will use the bill to measure the effectiveness of future reform efforts.

1.2 Administrative Improvements

In June 1993, EPA established the Superfund Administrative Improvements Task Force to examine and propose enhancements to the Superfund program that could be accomplished within the existing regulatory framework. During FY93 and FY94, the Agency implemented recommendations made by the task force; the Agency set and achieved its goal to implement most of the task force's recommendations by the end of FY94.

The Superfund Administrative Improvements Task Force proposed implementation of nine new or

enhanced initiatives and continuation of eight ongoing initiatives. The nine new or enhanced initiatives center around the five themes shown in Exhibit 1.2-1.

The eight ongoing initiatives include implementing the Superfund Accelerated Clean-Up Model (SACM), achieving construction completion at sites, strengthening contracts management, promoting "enforcement first," accelerating cleanup at military bases slated for closure, promoting the development and use of innovative technologies, enhancing compliance monitoring, and improving the effectiveness of cost recovery.

The Agency published quarterly reports during FY94 on its progress in implementing each initiative. The Agency also developed a close-out report to provide a description of each initiative, summarize accomplishments, describe the resultant benefits, and identify "lessons learned." Highlights of progress achieved in these initiatives are provided in the remainder of this chapter.

1.3 Improving Clean-Up Effectiveness and Consistency

Capitalizing on the experience gained during the 14 years of the program, the Agency examined the historical selection and performance of remedies to identify ways to standardize decision-making in remedy selection. Two of the most promising efforts are the development of presumptive, or standard, remedies and the development of soil screening levels (SSLs). Initial analysis of the results of presumptive remedy pilot efforts has already shown savings of time and money, as well as increased effectiveness and consistency in remedy selection.

1.3.1 Streamlining and Expediting the Clean-up Process

Following the recommendations of the Superfund Administrative Improvements Task Force, the Agency engaged in four specific efforts to streamline and expedite cleanup: developing presumptive remedies, standardizing remedial design (RD) specifications, enhancing strategies to address technical complexities encountered with dense non-aqueous phase liquid (DNAPL) contamination, and improving strategies for addressing lead contamination. Through these efforts, the Agency shared information among sites to eliminate duplication of effort, facilitate site characterization, and simplify analysis of clean-up options.

Developing Presumptive Remedies

The Agency evaluated historical patterns of selecting and implementing remedies to identify presumptive or standard remedies for specific types of sites. Through site demonstrations, the Agency began testing the presumptive remedies.

During FY94, the Agency conducted seven demonstration projects to pilot presumptive remedies developed for municipal landfill sites and for sites with volatile organic compounds in soil. Observed benefits from the use of presumptive remedies in these demonstrations include streamlined feasibility study analyses, streamlined negotiations leading to PRP acceptance, focused sampling and risk assessments for municipal landfills, and shortened RDs. At one of the municipal landfill demonstration sites, the Agency estimates that use of the presumptive remedy will cut three to six years from the period between the start of the remedial investigation/ feasibility study and construction of the remedy.

By the end of FY94, the Agency was examining additional presumptive remedies. These new remedies include presumptive remedies for wood-treater, ground-water, polychlorinated biphenyl (PCB)-contaminated, manufactured-gas-plant, and grain-storage sites.

Standardizing Specifications for Remedial Designs

Through an interagency agreement, EPA and the U.S. Army Corps of Engineers (USACE) developed standardized RD specifications for non-site-specific portions of remediation work. Throughout FY94, EPA and USACE produced 15 standardized design documents, including

standardized design components for air stripping systems, site clearing and grubbing, thermal treatment systems, and health and safety requirements. By using standardized specifications for these components, not only is the design process streamlined, but increased uniformity and consistency is achieved across projects. EPA has advertised the availability of the completed design specifications through the Agency's Engineering Forum.

Addressing DNAPL Contamination

Because of their complex fate and transport characteristics, DNAPLs in the ground water present difficulties in site characterization and cleanup. Reflecting advances in the understanding of these complexities, the Agency released two technical guidance documents on characterizing DNAPL sites and on providing technical impracticability (TI) waivers for sites where complete restoration is not feasible. The Agency's guidance on characterizing

Exhibit 1.2-1
Superfund Administrative Improvements: Highlights of New and Continuing Initiatives

Improving Clean-up Effectiveness and Consistency · Streamlining and expediting the clean-up process through the use of presumptive remedies and standardized remedial design specifications; · Enhancing strategies to address technical complexities encountered with DNAPL and lead contamination; and · Developing soil screening levels to provide more consistent standards for soil study and cleanup.
Enhancing Community Involvement · Pursuing activities for increased and earlier community involvement in clean-up actions; and · Facilitating public access to site information and site decision-makers.
Enhancing the Role of States · Expanding the role of states in Superfund cleanups, allowing more effective and efficient use of available federal and state resources; and · Deferring NPL-caliber sites to states for cleanup.
Increasing Enforcement Fairness and Reducing Transaction Costs · Increasing use of settlement tools such as ADR, early *de minimis* settlements, and mixed funding to reduce transaction costs and expedite settlements; and · Increasing fairness for owners of Superfund property, including prospective purchasers who will clean up the site and return it to productive use.
Environmental Justice · Ensuring health risks from environmental hazards are adequately addressed for low-income and minority populations; and · Improving communication with and involvement of communities in clean-up areas with environmental justice concerns.

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sites with DNAPL contamination presents a strategy for locating and evaluating the extent of the DNAPL contamination, and provides advice on initiating appropriate responses. The guidance for TI waivers addresses situations, such as are found at some DNAPL sites, where ground-water remediation will not achieve performance standards. Both guidance documents place special emphasis on early actions to prevent exposure, to contain contaminant ground-water plumes and DNAPL sources, and to prevent migration of DNAPLs. Implementation of the recommended strategies has resulted in better technical evaluations, more consistency among remedial approaches, and greater protection of public health and the environment due to better site management.

During FY94, the Agency conducted seminars involving more than 2,500 participants to further examine policy issues for addressing DNAPL contamination. The Agency also continued to encourage development of innovative technologies that can effectively address DNAPL contamination.

Improving the Strategy to Address Lead Contamination

EPA continued to work to assist risk managers in making accurate risk estimates and selecting effective clean-up methods for sites with lead contamination. Lead is a highly toxic metal that can adversely affect the nervous and reproductive systems, and can retard cognitive and behavioral development in children. It contaminates many Superfund sites, particularly large-area mine-tailing or smelting sites. Lead contamination is also a primary concern in urban areas not associated with Superfund sites. At such sites, lead exposure may result from inhalation or ingestion of lead in air, soil, dust, drinking water, or paint.

During FY94, the Agency issued a guidance document titled, Revised Interim Soil-Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities, to assist risk managers at lead-contaminated sites. This guidance considers the activities and requirements of Agency offices, such as the Office of Pollution Prevention and Toxics, which is working to promulgate health-based standards for lead in soil, paint, and dust. The guidance also reflects careful consideration of strategies for large-area lead sites and preliminary results from EPA's analysis, the Three City Study, that concerns blood-lead levels in children who were exposed to the contaminant in Baltimore, Boston, and Cincinnati.

1.3.2 Developing Soil Screening Levels

EPA continued to develop SSLs to address the need for more consistent standards in soil cleanup. Historically, soil clean-up levels for contaminants have been set on a site-specific basis, requiring a detailed examination of each Superfund site. By using established SSLs, EPA intends to streamline soil investigations, thereby reducing the time and cost to accomplish cleanup. The use of SSLs will also enhance consistency across soil cleanups.

SSLs identify contaminant levels below which there is no concern and above which further site-specific evaluation is warranted. Thus, the SSLs can be used to identify soils that pose little risk and soils that require additional study to determine the actions required for cleanup. During the fiscal year, EPA continued to develop draft guidance for developing risk-based, site-specific SSL values. The draft soil screening guidance, released in August 1994, provided SSLs for 100 common contaminants in soil.

As part of its effort to develop the draft SSL guidance, EPA solicited comments from Superfund stakeholders and initiated projects to evaluate the proposed exposure pathways and sampling methods used in establishing the SSLs. During the fiscal year, EPA completed a pilot study, involving ten sites, and determined that exposure pathways proposed in the soil screening guidance are sufficient to model exposure in a residential area. The Agency also initiated a SSL demonstration project to evaluate the proposed sampling methods.

1.4 Enhancing Community Involvement

Community awareness and involvement is often crucial for achieving effective and speedy implementation of Superfund clean-up actions and for ensuring that communities are satisfied with the results of these actions. Early involvement of communities in the process is important so that they can agree on the scope and nature of clean-up actions. Moreover, better informed communities can provide more input for site decision-making and, in many cases, enable clean-up efforts to take place earlier. To increase and enhance community involvement, the Agency improved public access to site information and site decision-makers, revised outreach materials, and used innovative techniques to involve and inform communities. As discussed later in this chapter, the Agency also expanded its commitment to, and efforts in, addressing environmental justice concerns at Superfund sites.

To make information more accessible to people near Superfund sites, EPA has worked with affected citizens to set up community advisory groups (CAGs) and participated in site-specific advisory boards at DOD sites. By the end of FY94, the Agency had selected 11 CAG pilot sites. CAGs and advisory boards, comprised of Regional environmental groups, PRPs, and city, county, and Regional planning boards, allow the stakeholders and regulating agencies to work together to understand each other's needs and requirements during site cleanup. Each CAG and advisory board is designed to fit the needs of the particular community.

The Agency also implemented simplified procedures for obtaining technical assistance grants (TAGs). TAGs provide funds that the communities can use to hire a technical advisor. To facilitate TAG awards to communities, EPA reduced the paperwork involved in obtaining a TAG and revised TAG materials and application forms to make them easier to use. During the fiscal year, EPA convened a series of community involvement focus groups, comprising community members, TAG recipients and applicants, and local government officials, to get direct feedback on the TAG program and on proposals for enhanced community involvement activities. Using footage from the focus groups, EPA began producing a video to summarize the main points made by the participants. The Agency completed the video during FY94 for distribution to the Regional community involvement offices for their use in community outreach.

To communicate the technical nature of the Superfund program in a way that all parties can comprehend, EPA also worked to improve its outreach materials.

- EPA revised a course that informs community members about the goals of the Superfund program and the stages a site must go through before cleanup is completed. The course is designed for community groups of less than 20 people. Initially designed by Region 6, it has been modified to apply to all Regions. The course also incorporates SACM and the Superfund administrative improvements initiatives.
- The Agency published fact sheets to explain Superfund topics in non-technical terms, answer commonly asked questions, and identify contacts at EPA Headquarters and Regional offices. One fact sheet series describes common contaminants, their health effects, and recommendations for protecting human health. Also, the Agency has developed fact sheets describing common treatment technologies and the site assessment process.
- EPA developed a short guide and 10-minute video about the Superfund program entitled, This is Superfund: A Citizen's Guide to EPA's Superfund Program. The guide and video were sent to the Regions for their use in community outreach.
- EPA translated numerous documents, guides, fact sheets, and site-specific materials into Spanish to increase the involvement of Spanish-speaking communities near Superfund sites. The Agency also translated site-specific materials into other languages, such as Vietnamese and Portuguese, to meet the needs of specific communities.

In other efforts, Regions continued to simplify the ways in which they interact with the public. Some Regions invited community members to short discussions on the nature of clean-up activities at a site, followed by site tours. For several sites, the Agency set up a toll-free number that citizens could call to hear a recording about the clean-up progress EPA was making. Throughout the year, Regions shared information about successful community involvement efforts and targeted several sites where they will initiate additional innovative community involvement techniques.

1.5 Expanding the Role of States

Greater state involvement in Superfund cleanups allows states and the Agency to use available resources more effectively and efficiently and to clean up hazardous waste sites more quickly. EPA has historically supported state Superfund programs by providing funding and technical assistance. With this support, many states have developed clean-up programs under their own laws and have addressed contamination at a large number of non-NPL-caliber sites. To expand the role of qualified states to include responsibility for oversight of PRP-financed cleanups at NPL-caliber sites, as recommended by the Superfund Administrative Improvements Task Force, the Agency began implementing a deferral program. Under the program, EPA defers listing of a site on the NPL while interested and qualified states enforce and oversee PRP response actions. The Agency offers a similar opportunity for involvement in the program to qualified territories, commonwealths, and federally recognized Indian tribes.

During FY94, a State Deferral Workgroup, comprised of representatives from every Regional office and several Headquarters offices, developed draft guidance outlining the criteria that a state, or other qualified governing body, must meet in order to participate in the deferral program. The guidance establishes the characteristics necessary for including a site in the program and addresses procedural requirements, EPA oversight, the availability of financial assistance, clean-up levels that must be achieved to protect human health and the environment, and community involvement.

Piloting the deferral program, EPA deferred 22 NPL-caliber sites in seven states for state oversight of the cleanup, including three sites added to the deferral program during FY94. Initially, to assess the success of the deferral program, EPA will evaluate four measures at the pilot sites: the existence of an agreement between EPA and the state specifying roles, responsibilities, and schedules of performance; the existence of an agreement between the state and PRPs describing work to be performed; the response action(s) taking place at the site; and community support for the deferral. The Agency will monitor experiences at pilot sites through the State Deferral Workgroup.

1.6 Increasing Fairness in Enforcement and Reducing Transaction Costs

Through effective use of enforcement authority provided by CERCLA and SARA, EPA has reached settlements with PRPs for response work cumulatively worth more than $10 billion. In FY94 alone, PRPs were financing 75 percent of new RDs and remedial actions (RAs). Although it recommended that the Agency continue its "enforcement first" approach to maximize PRP involvement in financing and conducting cleanups, the Superfund Administrative Improvements Task Force also suggested that the Agency take steps to ensure fairness in its enforcement and look for ways to reduce transaction costs. The task force outlined specific measures for

- Promoting greater use of allocation tools;
- Fostering more settlements with small-volume waste contributors;
- Increasing fairness for owners of Superfund property; and
- Evaluating the Agency's mixed-funding policy.

An overview of efforts in each of these four areas is provided below; a more detailed discussion of these efforts can be found in Chapter 5 this Report.

1.6.1 Promoting Greater Use of Allocation Tools

Under CERCLA, PRPs are responsible for the cost of cleaning up sites. When more than one PRP is responsible for paying clean-up costs, settlement negotiations include allocation of the clean-up costs among the PRPs. PRPs frequently incur high transaction costs when efforts to allocate clean-up costs are unsuccessful or prolonged. To facilitate allocation of clean-up costs, the Superfund Administrative Improvements Task Force recommended that EPA increase its use of alternative dispute resolution (ADR) tools for creating proposed allocations. The task force also suggested that the Agency take steps to facilitate the sharing of information that can be used in allocations with and among the PRPs and to provide guidance for developing allocations.

In response to task force recommendations, the Agency has sought to increase the use of ADR for creating proposed allocations. ADR involves the use of a neutral third party to organize negotiations, facilitate settlement deliberations, and provide an opinion to the parties in negotiation. During FY93 and FY94, the Agency assisted PRPs in employing ADR and non-binding allocation techniques at approximately 30 sites. To communicate the uses of ADR to support Superfund program activities, the Agency held a national Superfund ADR Workshop in November 1993. This workshop was attended by nearly 100 government and private parties.

The Agency also worked to facilitate PRP access to site information that can be used to develop a cost allocation, such as information about PRPs' waste-in contributions. Implementing a June 1993 memorandum, Regions worked to make such information available to PRPs as soon as possible, preferably before the special notice letter is issued requesting that the PRPs undertake the response action. By sharing the information with PRPs early in the Superfund process, the Agency seeks to develop cost allocations more efficiently.

To provide guidance for developing cost allocations, the Agency evaluated historical cost allocation efforts and began identifying factors to be considered in developing the allocations. In August 1994, the Agency issued a white paper on the availability of waste-in volumetric information at NPL sites and its impact on site settlements. In September 1994, the Agency issued a report on currently used allocation methods and common implementation issues. The Agency will incorporate the findings of these studies in developing guidance on factors to consider in allocating costs.

1.6.2 Fostering More Settlements with Small-Volume Waste Contributors

To provide greater fairness for small-volume (de minimis and "de micromis") waste contributors, the Agency encourages more, early, and expedited settlements with these parties. Early settlements not only reduce transaction costs for such PRPs but also for PRPs who remain in later, more intensive negotiations, because fewer PRPs are involved.

To encourage settlements with the small-volume contributors, the Agency streamlined the de minimis settlement process, established a new policy protecting "de micromis" parties (extremely small-volume waste contributors, and developed a communications strategy to assist PRPs in understanding the settlement process. EPA, as a matter of enforcement discretion, has typically not pursued "de micromis" parties, but they have increasingly been subject to lawsuits from major contributors. The Agency also issued guidance on "de micromis" settlements in FY93. Implementing the streamlined de minimis process, which was outlined in a July 1993 guidance, the Agency reached 86 de minimis settlements involving 5,500 PRPs during the past two years. This total includes 43 de minimis settlements reached with more than 4,000 PRPs at 39 sites in FY94.

The Agency's communication strategy was key to the Agency's success in reaching de minimis settlements. The strategy recommends a variety of

approaches to ensure successful communication with parties prior to, during, and following de minimis settlement negotiations. To inform de minimis parties who may be unfamiliar with the Superfund program and the de minimis settlement process, the Agency developed a model notice letter and prepared a brochure describing the process. EPA has also used innovative communications tools, such as a toll-free telephone information line that parties can use to ask questions and request information from EPA.

Early and effective communication with major parties has also been demonstrated to be essential in ensuring that they will support, and not oppose, a de minimis settlement. The major parties have substantial interest in ensuring that the Agency obtains a fair and reasonable settlement with small-volume contributors, so that their total liability will be appropriately reduced.

1.6.3 Increasing Fairness for Owners of Superfund Property

The Superfund Administrative Improvements Task Force recommended that EPA seek ways to increase fairness for owners of Superfund property, including prospective purchasers intending to redevelop the property. Under CERCLA, past and current owners of properties where there has been a release or threatened release of a hazardous substance are liable for cleanup of the property. Prospective purchasers of contaminated property may be reluctant to purchase the property with associated but undefined liabilities. In some cases, however, prospective purchasers are willing to purchase the property and conduct or finance some clean-up work in return for a covenant-not-to-sue from EPA.

During FY94, the Agency drafted expanded criteria for evaluating circumstances in which EPA may provide an administrative covenant-not-to-sue in agreements with prospective purchasers. Where the Agency can successfully reach agreements with prospective purchasers, the Agency, local communities, and the regulated community will benefit from the cleanup and redevelopment of a site as well as the creation of jobs and the return of the property to productive use. The prospective purchasers also will benefit by gaining access to a prime business location.

As a defense to CERCLA liability, a property owner can claim that it is an "innocent landowner" and had no knowledge of releases or threatened releases at the property prior to its acquisition. To claim this defense, the property owner must show that it made "all appropriate inquiry" into the previous ownership and uses of the property. To assist prospective property purchasers in conducting "all appropriate inquiry," the Agency developed a report describing publicly available information sources that can be used to research prior ownership and use. EPA also reviews "all appropriate inquiry" standards and related materials developed by other federal agencies, states, and organizations. Through this effort, the Agency is supplementing efforts of private professional organizations that are developing standards for conducting property assessments.

In other efforts, the Agency continued to implement supplemental guidance on federal liens that was issued in FY93. Under the guidance, when EPA intends to file a federal lien to secure reimbursement of response costs that the Agency has incurred at a property, the Agency provides notice to the owner thereby expanding the opportunity for the owner to comment on the lien before it is filed. These actions are designed to increase fairness to a Superfund property owner.

1.6.4 Evaluating Mixed-Funding Policy

The Agency uses mixed funding in situations where it is appropriate to recover less than 100 percent of the site costs from PRPs. EPA uses three types of mixed-funding approaches: preauthorization, in which PRPs perform the work and the Agency agrees to reimburse them for a portion of the costs; cashouts, in which the PRPs fund a portion of the work that EPA performs; and mixed work, in which the PRP and the Agency perform different aspects of the cleanup.

In response to a recommendation by the Superfund Administrative Improvements Task Force, the Agency identified measures to streamline the

mixed-funding decision-making process and the requirements for preauthorization mixed-funding. The Agency assessed the proposed streamlining measures at seven mixed-funding demonstration sites during FY94. At six of the seven sites, the Agency and PRPs reached settlements. Results of the demonstrations indicated that the use of mixed funding was instrumental in helping the Agency reach the settlements. Further, the Regions found that the streamlined processes used in the demonstration projects simplified the use of mixed funding. To streamline the decision-making component of the process, the Regions obtained Headquarters approval to use mixed funding for the demonstration projects earlier than in the standard process (i.e., pre-approval). The Agency also streamlined application and documentation requirements for preauthorized mixed funding by using model preauthorization language in the settlement and decision documents, by providing guidance to PRPs on preauthorized response actions, and by conducting training for EPA staff on the preauthorization process.

The demonstration projects were the second of a two-phase evaluation of mixed funding. The demonstrations follow a first-phase study conducted in FY93 to evaluate different mixed-funding options and estimate the cost implications to the Trust Fund if EPA routinely paid for the "orphan share" of clean-up costs.

1.7 Ensuring Environmental Justice

Studies have indicated that low-income and minority groups may be exposed to greater health risks from environmental hazards than the general population. The increased risks have been attributed to disproportionate exposure to multiple contaminant sources, such as industrial pollution, vehicle emissions, hazardous waste sites, and lead-based paint.

To ensure that these risks to low-income and minority populations are adequately addressed by EPA's waste programs, the Agency convened the Environmental Justice Task Force in November 1993. The Environmental Justice Task Force included representatives from all Office of Solid Waste and Emergency Response program areas, the Regions, and other EPA offices with an interest in waste programs and environmental justice. The task force produced a report in April 1994 that included recommendations to ensure environmental justice in each of the waste programs, including Superfund.

Based on the task force's recommendations, the Agency began developing a series of initiatives to address environmental justice concerns. In one initiative, the Agency began a demographic analysis of Superfund sites using geographic information systems. The analysis is intended to ensure identification of sites in areas with low-income and minority populations that warrant Superfund attention. Also, the Agency analyzed site assessment priority-setting to ensure that environmental justice concerns are considered. In other efforts, the Regions began identifying geographic areas where community groups have expressed concerns about potential environmental justice issues. The Regions will work with state and local governments to assess the impacts of the Superfund sites within these geographic areas and develop strategies for appropriate actions.

To improve communications and build trust between EPA and affected communities, EPA established the National Environmental Justice Advisory Council (NEJAC) under the Federal Advisory Committee Act. The NEJAC subcommittee on waste and facility siting held meetings in August and October 1994. As of the end of the fiscal year, the subcommittee was reviewing draft EPA guidelines for identifying and aiding communities with environmental justice concerns.

The Agency also helped communities in areas with environmental justice concerns to participate more fully in the Superfund remedial process. The Agency drafted guidance on the formation of CAGs and, in cooperation with the Regions, identified 14 potential environmental justice sites where CAGs will be established. To enhance the ability of Native Americans to respond to hazardous waste sites, the Agency co-sponsored the second National Tribal Conference on Environmental Management in May

1994. The Agency also sponsored a teacher's institute to educate teachers from areas where there are hazardous waste concerns about key environmental issues. The teacher's institute provides instruction on developing an environmental action plan and obtaining scientific information. To enhance public outreach to communities in areas of environmental justice concerns, the Agency translated informational materials into the common languages of the communities.

In other efforts, the Agency developed interagency partnerships to address environmental justice concerns:

- EPA worked with the Department of Health and Human Services (HHS), the Agency for Toxic Substances and Disease Registry (ATSDR), and the National Institute of Environmental Health Sciences to conduct community outreach in low-income and minority areas with serious health concerns. As of the end of the fiscal year, EPA, HHS, and ATSDR were working on three medical assistance pilots at the Del Amo/Montrose site in California, the Old Reichold Bros. site in Missouri, and the Southern Wood/Piedmont site in Georgia. Through these pilots, the agencies are providing technical assistance, health education, medical testing, and medical monitoring.
- EPA worked with the Department of Housing and Urban Development (HUD) Lead Abatement Program to address lead problems in housing in low income and minority communities. EPA initiated a one-year detail for an Agency employee to HUD's Lead Abatement Program. The Agency also began developing a list of Superfund sites eligible for HUD lead abatement grants.
- The Agency explored ways to employ residents in conducting clean-up activities around certain environmental justice sites. EPA examined an apprenticeship program sponsored by HUD and HHS as a model for an apprenticeship program for site cleanup.

1.8 Continuing Initiatives

As recommended by the Administrative Improvements Task Force, EPA continued several ongoing efforts designed to improve the effectiveness and efficiency of the Superfund program. Exhibit 1.8-1 highlights these initiatives.

1.8.1 Implementing the Superfund Accelerated Clean-Up Model

SACM accelerates cleanup and risk reduction at Superfund sites by

- Consolidating site-assessment functions into a single, continuous process;
- Using early actions to address the worst threats to people and the environment first;
- Carrying out early actions while Regional decision teams (RDTs) assess the need for long-term actions;
- Implementing presumptive remedies, where appropriate; and
- Initiating earlier enforcement and community involvement activities.

Early actions may include removing soil and waste, preventing access to contaminated areas, capping landfills, relocating people, and providing alternative drinking water supplies. Long-term actions may include addressing contaminated ground water and preserving wetlands and estuaries. Exhibit 1.8-2 illustrates the SACM process.

During FY94, EPA completed a series of SACM pilots. The Agency documented the performance and benefits of the pilots in Status of Superfund Regional Pilots: End-of-Year Report, published in December 1993. Through the pilots, the Agency explored forming RDTs to prioritize sites and select appropriate actions. Actions included integrating site assessments, taking early actions, and choosing

Exhibit 1.8-1
Superfund Administrative Improvements: Highlights of Continued Initiatives

Superfund Accelerated Clean-Up Model · Accelerating cleanup and more rapidly reducing risks to human health and the environment; and · Allowing for earlier and more meaningful community involvement, encouraging earlier enforcement, and increasing the role of states.
Construction Completions · Increasing number of sites where any necessary remedial construction has been completed (from 61 at the beginning of FY92 to 278 in FY94).
Contract Management · Enhancing cost controls and tools and saving government monies; and · Increasing flexibility and strengthening contract management through decentralization.
Enforcement First · Majority of new remedial actions are being financed by PRPs (75 percent in FY94); and · PRP response settlements reached over $1.5 billion in FY94, achieving more than $10 billion in total PRP commitment under the program.
Base Closure · Enabling more than 50 parcels of base property to be leased for reuse and property at six bases to be transferred by deed; and · Focusing on accelerating cleanup at closing bases.
Innovative Treatment Technologies · Enhancing efforts to assemble and distribute information about technologies to users; and · Increasing use of federal facilities as testing grounds for new technologies.
Compliance Monitoring · Minimizing delays in cleanup due to PRP non-compliance with orders and agreements.
Cost Recovery · Prioritizing cases where the statute of limitations is an issue to recovering the costs; and · Proposing a rule that will aid in resolving common cost recovery issues, reducing transaction costs and minimizing potential for litigation.

51-044-38A

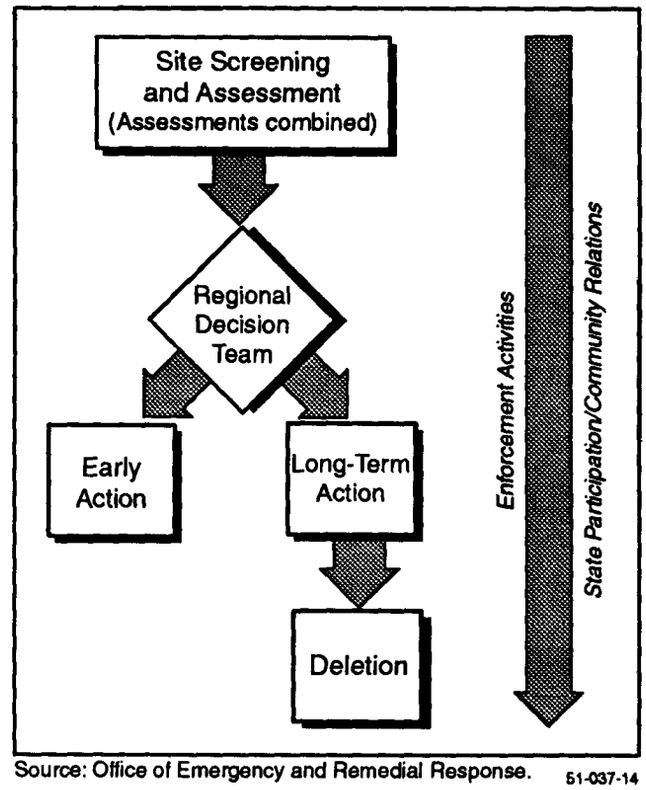
appropriate long-term actions. The pilots demonstrated the effectiveness of SACM concepts through measurable time and cost savings. For example, Region 8 shortened the timeframe for site assessment at a site in Utah from three years to one year. In another pilot, Region 10 saved more than 15 months and $100,000 at a site in Washington by using an early action. In addition to time and cost savings, the SACM pilots achieved more rapid reduction of risk to human health and the environment, earlier community involvement in cleanup, and an increased role for states.

In addition to the pilots, the Agency undertook a number of other actions to carry out the implementation of SACM. In June 1994, the Agency sponsored a national workshop in Dallas, Texas, to

communicate the success of the SACM pilots and to discuss full implementation of the model. The Agency issued various guidance documents to support implementation efforts, including Focusing Resources on Worst Sites First, Site Inspection Prioritization Guidance, Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA, SACM Coordination Strategy, Integrating Removal and Remedial Site Assessment Investigations, and the SACM Update. The Regions prepared supplementary guidance to foster their efforts. In other efforts, some Regions invited state representatives to act as members of RDTs and conducted cross-training activities between On-Scene Coordinators (OSCs) and Remedial Project Managers (RPMs). Finally, EPA revised its program management measures to reflect SACM accomplishments.

The Agency expects that full implementation of SACM will cut years off the clean-up process at sites. Although Regions are finding that SACM implementation requires more front-end resources, the end result is that cleanups are completed more quickly. SACM's initiative to involve communities early in the clean-up process also assists the Agency and citizen groups in arriving at a clean-up plan that is acceptable to both parties.

Exhibit 1.8-2
Superfund Accelerated Clean-Up Model



Source: Office of Emergency and Remedial Response. 51-037-14

1.8.2 Achieving Construction Completions

The Agency's focus on activities to complete remedial construction resulted in the Agency placing its 278th NPL site in the construction completion category during FY94. A site is placed in the construction completion category when

- Any necessary physical construction is complete, whether or not final clean-up levels or other requirements have been achieved;
- EPA has determined that the response action should be limited to measures that do not involve construction (e.g., institutional controls); or
- The site qualifies for deletion or has been deleted from the NPL.

FY94 is the third consecutive year in which the Agency has exceeded its targets for construction completion. In FY92, the Agency more than doubled the number of construction completion sites from 61 to 149, exceeding the target of 130 sites. By the end of FY93, the Agency had more than tripled the original number of construction completion sites to 217, exceeding its target of 200 sites. The Agency quadrupled the number of construction completion sites to 278 by the end of FY94, exceeding its target of 265 sites.

To support Regions in completing construction activities, EPA maintained a comprehensive list of all potential construction completion sites and monitored the status of each site. Regional efforts to achieve construction completions were aided by Agency efforts to streamline the documentation requirements for completions and to clarify the completion procedures.

1.8.3 Strengthening Contracts Management

In its ongoing effort to strengthen its management of Superfund contracts, the Agency focused on continued implementation of the Superfund Long-Term Contracting Strategy (LTCS) and development of guidance to improve cost planning and cost oversight. From these efforts, the Superfund program began to realize benefits of cost savings in areas such as program management and improved contractor performance.

LTCS supports a "one program" approach to assessment, enforcement, and cleanup at Superfund sites by basing contract design on functional rather than program-specific lines. The strategy also decentralizes contracts management functions from Headquarters to the Regions to increase flexibility and strengthen oversight, management, and accountability. Moving forward with the LTCS during FY94, the Agency awarded new Regionally based Enforcement Support Services Contracts and issued solicitations for other new Regionally based contracts. In March 1994, EPA also completed the Long-Term Contracting Strategy Review Final Report, making adjustments to the strategy. For example, specific adjustments include allocating additional resources for contract management in the Regions.

To improve cost planning and oversight, EPA completed the Cost Management Manual for Superfund in June 1994. The manual describes procedures for preparing detailed statements of work, conducting thorough reviews of contractor invoices, reducing program management costs, and applying more stringent contract controls. The manual also incorporates guidance for preparing and using independent government cost estimates. The Agency has incorporated these procedures into the contract management procedures for the new Enforcement Support Services Contracts and will also include them in the new Regionally based Response Action Contracts.

1.8.4 Promoting Enforcement First

The 1989 Management Review of the Superfund Program, also known as the 90-Day Study, recommended measures to strengthen enforcement and increase PRP response. These measures involved increased use of CERCLA and SARA enforcement and settlement authorities, better integration of enforcement and Fund-financed clean-up activities, improved case management and case support, enhanced PRP oversight and cost recovery, and better interagency coordination. As a result of the emphasis on enforcement, PRP involvement in Superfund response work increased. The percentage of RAs financed by PRPs increased from 30 percent in FY87 to 60 percent in FY90 and to 75 percent in FY94. During that same seven-year period, the value of PRP response settlements increased from less than $0.5 billion a year to over $1.4 billion per year.

As recommended by the Superfund Administrative Improvements Task Force, EPA continued to identify ways to encourage, or if necessary, to compel PRPs to undertake cleanup. The Agency

- Encouraged the use of settlement tools such as ADR, mixed funding, de minimis settlements, and cashouts to reduce the time required to achieve settlements;
- Increased the use of CERCLA Section 106 unilateral administrative orders (UAOs) to compel PRP response;
- Improved case support by increasing the comprehensiveness of the administrative record and cost recovery documentation for each case;
- Emphasized bringing PRPs into negotiations as early as possible;
- Worked closely with the Department of Justice and other governmental bodies to facilitate administrative decision-making and expedite settlements; and

- Emphasized more complete communication among EPA offices to coordinate and speed up enforcement activities.

EPA's effective use of the enforcement and settlement authorities provided in CERCLA and SARA has encouraged greater PRP participation in response work. The strict, joint, and several liability scheme of CERCLA has proven to be a strong incentive for settlement. Likewise, through the treble damages provision of CERCLA Section 107(c)(3), PRPs are encouraged to comply with UAOs. The Agency's successful enforcement efforts result in the saving of taxpayer dollars, allow for more cleanups, and conserve government resources. Cumulatively, PRP commitments for response work at Superfund sites exceeded $10 billion through FY94.

1.8.5 Accelerating Cleanup at Closing Military Bases

Closure or realignment of military bases has a potentially significant impact on the economies of states and local communities. Responding to the need for quick transfer of the base properties to non-federal owners for reuse, the Agency worked with DOD to accelerate cleanup of these properties. FY94 was the first year of EPA's implementation of the five-year Model Accelerated Clean-up Program to "fast-track" cleanup at installations selected for closure or realignment.

By the end of FY94, DOD had identified 77 major base closure installations to receive priority attention. EPA, DOD, and state representatives formed a base realignment and closure team (BCT) at each installation to oversee clean-up efforts and to integrate the environmental cleanup with reuse needs. EPA worked with DOD in developing guidance and issuing policy to provide direction to the BCTs. Efforts included guidance on leasing base property, transferring title to base property, and accelerating cleanup.

- EPA provided input to DOD for "Finding of Suitability to Lease" (FOSL), a guidance document that was issued in late FY93. The FOSL guidance defines a process for identifying parcels of land suitable to lease, preventing leases from interfering with ongoing clean-up actions, and ensuring compliance with applicable environmental requirements. In some cases, leasing has provided a means to allow reuse of base property prior to remediation; more than 50 parcels of land were leased under FOSL leasing procedures by the end of FY94.
- During FY93 and FY94, EPA provided input to DOD for "Finding of Suitability to Transfer" (FOST) guidance. Similar in scope to FOSL, this guidance defines a process for identifying parcels of land suitable to transfer. Under FOST, parcels suitable for transfer are those with no contamination that requires remediation or those that have been remediated. Although DOD issued the final FOST guidance in June 1994, EPA continued working with DOD to more fully integrate the position developed jointly by EPA and DOD into the guidance. By the end of FY94, title transfer by deed had occurred at six bases.
- EPA, DOD, and DOE issued policy on improving outreach and coordination efforts with federal, private, and community stakeholders. This policy was documented in Guidance on Accelerating CERCLA Environmental Restoration at Federal Facilities, which was signed by the three agencies in August 1994. The guidance institutionalizes accelerated clean-up approaches already in place at federal facilities and encourages further efforts by federal agencies to develop streamlined clean-up approaches and use innovative technologies. Incorporating SACM, the guidance recommends using removal actions and interim response actions, conducting sampling to support both the site investigation and response investigation, and applying standardized technical and field methodologies.

By the end of FY94, several federal facilities had been selected for demonstrating ways to expedite cleanup. DOE had selected four sites: the Hanford site in Washington, the Mound site in Ohio, the Oak Ridge site in Tennessee, and the Savannah River site in South Carolina. At the Langley site in Virginia,

the National Aeronautics and Space Administration signed an interagency agreement for cleanup before the site was listed as final on the NPL; work is proceeding at the site at an accelerated pace.

1.8.6 Promoting the Development and Use of Innovative Technologies

Innovative technology solutions can improve the timeliness and consistency of remedy selection and facilitate cleanup. Comprehensive, readily accessible information on innovative treatment technologies is needed, however, to obtain market, regulatory, and public acceptance for their use.

To promote the use of innovative treatment technologies, the Agency engaged in efforts to test these technologies in large-scale demonstrations and to improve access to data on their cost and performance. To overcome the shortage of facilities available for full-scale testing of innovative technologies, the Agency has increasingly encouraged the use of federal facilities, "orphan" sites, and, where appropriate, PRP-lead sites as candidates. EPA Policy for Innovative Environmental Technologies at Federal Facilities, issued in August 1994, reaffirmed EPA policy that federal facilities, in particular, should be used as test and demonstration centers, and encouraged their use.

At federal facilities, the Agency emphasized the use of public-private partnerships to demonstrate and evaluate innovative treatment technologies. The partnerships involve federal agencies such as EPA, DOD, and DOE; states; and private parties in demonstrations of innovative technologies that focus on contamination problems of mutual concern. The demonstrations are designed to test innovative technologies, determine their capabilities and limitations, and identify any required modifications, based on the operating experience. EPA's Technology Innovation Office sponsors the partnership project through a cooperative agreement (CA), and EPA's Risk Reduction Engineering Laboratory provides technical support. At the end of FY94, there were six active sites where public-partnerships were in place. Technology demonstrations were underway at one of the sites, McClellan Air Force Base.

- At McClellan, EPA's first public-private partnership continued with numerous participants. In addition to EPA and DOD, private companies included AT&T, Beazer East, Dow, DuPont, Monsanto, Southern California Edison, and Xerox. Two demonstrations were implemented at the site between July and October 1994. The demonstration of a two-phase extraction process for treating soil and ground water contaminated with volatile organics successfully extracted the contaminants, minimizing the need for surface treatment of extracted water. The demonstration of a photolytic destruction process to treat off-gases from soil vapor extraction was suspended due to mitigating factors at the site. The process will be modified, however, for future demonstration. In outreach efforts to communicate the results of the demonstrations, the McClellan site held a public visitors' day in October 1994 that was attended by 250 people.
- Together with the Remedial Technology Development Forum, EPA, DOE, and private parties were working to demonstrate an innovative remediation technology at DOE's Paducah Gaseous Diffusion Plant in Kentucky. Private parties in the partnership included General Electric, Dupont and Monsanto. This consortium is currently developing the treatment train testing electrosmosis and is identifying a second site to test other components of the process. [Verify that "currently" refers to the end of FY94.] DOE was providing significant funding for the Paducah test.
- As of the end of FY94, efforts were underway to establish partnerships with the Joliet Army Ammunition Plant in Illinois, the Massachusetts Military Reservation, and the Otis Air National Guard Site and the Naval Air Station North Island in California.
- Also in FY94, EPA concluded an agreement with DOE at the Pinellas Plant in Florida, and the partnership project involving General Electric, Exxon, and Phillips Petroleum, reached the implementation phase.

EPA continued ongoing activities to assess technology information systems and to generate reports about the cost and performance of innovative treatment technologies. Currently, the Agency maintains the Alternative Treatment Technology Information Clearinghouse and the Vendor Information System of Innovative Treatment Technologies for information on remediation technologies. The Agency also worked to develop the Decision Document Database to address information shortcomings in the existing databases.

To provide reports about the cost and performance of innovative technologies, EPA began preparing summaries of 17 completed Superfund RAs that used innovative technologies. DOD was sponsoring similar efforts for 17 remediation projects at military facilities. The reports will be prepared using a consistent set of cost and performance data elements developed in conjunction with the Federal Remediation Technologies Roundtable.

1.8.7 Enhancing Compliance Monitoring

In order to ensure that PRP cleanups are being performed satisfactorily and in a timely manner, the Agency must be effective in its compliance monitoring and enforcement activities. During the fiscal year, the Agency continued to implement a long-term strategy for developing Regional compliance monitoring and enforcement capabilities. The strategy calls for each Region to develop compliance monitoring and enforcement procedures, and to install an enhanced tracking system for monitoring PRP compliance with consent decrees (CDs), administrative orders on consent (AOCs), UAOs, and enforceable work-plan milestones. Under the strategy, Regions may develop their own procedures, as long as the procedures define roles and responsibilities for staff; provide documentation of non-compliance and recommended Agency responses; allow for management review; and provide notification to Regional financial management staff when a stipulated penalty assessment is made.

Each Region has issued compliance monitoring guidance. These guidances explain how OSCs and RPMs should conduct compliance monitoring and the level and type of tracking required to monitor PRP compliance. Each Region also issued enforcement response guidance that specifies the Regional procedures for handling non-compliance.

To evaluate Regional compliance monitoring efforts, the Office of Enforcement and Compliance Assurance (OECA) began a review in FY94 of Regional compliance reporting measures. As part of this review, OECA's Office of Site Remediation Enforcement was also reviewing each Region's compliance monitoring approach to ensure that the Regions were tracking the most appropriate compliance indicators.

The Agency has found that aggressive compliance monitoring and enforcement has reduced the time required to clean up a site by minimizing the number of delays due to PRP non-compliance with AOCs, UAOs, and CDs. Region-specific compliance monitoring and enforcement guidance has clarified the roles and responsibilities, methods, and procedures to be used within each Region. The development of Regional guidance has also increased the inter-Regional exchange of information, further enhancing the efficiency and effectiveness of Regional compliance monitoring and enforcement capabilities.

1.8.8 Improving the Effectiveness of Cost Recovery

CERCLA provides for recovery of federal monies spent at a site. EPA is responsible for recovering the monies, as fully and expeditiously as possible. During FY94, EPA engaged in several activities to increase the efficiency, timeliness, and effectiveness of the Agency's cost recovery efforts. Fiscal year activities focused on improving systems to track cost recovery data and prioritize cost recovery cases, and continuing to develop a regulation to standardize the cost recovery process.

EPA developed the Cost Recovery Targeting Report that combines CERCLA Information System planning obligations with Integrated Financial Management System expenditure data to present a complete picture of the statute of limitations date and past costs associated with each site. Thus, the

Agency is readily able to identify sites where the statute of limitations is near expiration. The Agency is using the report to provide a more complete picture of recoverable past costs and the status of all past, ongoing, and planned efforts to address those costs. Using the report as a tool, the Agency revised the cost recovery prioritization process to target all cases greater than $200,000 where expiration of the statute of limitations is an issue.

To standardize cost recovery documentation requirements, clarify the duration of the statute of limitations, and specify the types of recoverable indirect costs, the Agency also continued to work toward finalizing its proposed cost recovery rule. Through the rule, the Agency aims to resolve common cost recovery issues, thus reducing transaction costs by minimizing the potential for litigation.

Chapter 2
Site Evaluation Progress

By the end of FY94, more than 38,300 potential hazardous waste sites had been identified and added to the Superfund inventory. EPA continued its progress in evaluating these sites; by the end of the year, EPA and states had evaluated more than 95 percent of these sites for potential threats to human health and the environment. To enhance site evaluation, EPA continued implementing the streamlined, single-assessment process of the Superfund Accelerated Clean-Up Model (SACM). EPA also proceeded with ongoing efforts to address technical complexities associated with lead and radionuclide contamination, and improved site evaluation guidance.

2.1 Site Evaluation Process

The Superfund site evaluation process begins when EPA is notified of a potentially threatening hazardous waste site or incident. The Agency records basic information about the site in the inventory of potential hazardous waste sites maintained in the CERCLA Information System (CERCLIS), which also tracks subsequent actions and decisions at the site. At sites that pose an immediate threat to human health, welfare, or the environment, EPA conducts a removal action to address the threat. At other sites, a two-stage assessment is conducted; the assessment consists of (1) a preliminary assessment (PA) to determine whether a potential threat exists, and (2) a site inspection (SI) to determine the relative threat posed and to evaluate the site for possible listing on the National Priorities List (NPL). The NPL is the list of sites designated for long-term remedial evaluation and response.

At any point in the evaluation process, EPA may determine that the Superfund evaluation of the site is complete and that no further steps to list the site on the NPL will be taken. EPA places such sites in the "archival category, "no further remedial action planned"" This decision does not necessarily mean that there is no hazard associated with the site; it merely means that, based on available information, the site does not meet the criteria for placement on the NPL. Sites not considered appropriate for the NPL might be addressed under the Resource Conservation and Recovery Act (RCRA), state laws, or other authorities. A Superfund removal action may be taken after a site is placed in the "no further remedial action planned" category or at any time during the evaluation process if an immediate threat to human health or the environment is identified.

With full implementation of SACM in FY94, the Agency identified appropriate candidate sites and subsequently conducted many integrated assessments. Integrated assessments involve consolidating some or all of the assessment steps, as well as other site studies, into a single, integrated site evaluation. EPA also created new fields in CERCLIS to track the various integrated assessments, and issued directions on the use of these fields.

2.2 Fiscal Year 1994 Progress

During FY94, EPA continued its progress in identifying and assessing potential hazardous waste sites.

2.2.1 CERCLIS Site Additions: Discoveries and Removals

When the Agency is notified of a site that may pose a threat, EPA records basic information about the site in CERCLIS, the national inventory of potential hazardous waste sites. EPA is notified of potential hazardous waste sites in a variety of ways. Information may be provided by states, handlers of hazardous materials, or concerned citizens. Local law enforcement officials may submit a formal report to EPA or facility managers may notify EPA of a release as required by CERCLA Section 103. Section 103 specifies that a person, such as a manager in charge of a vessel or facility, immediately report to the National Response Center any release of a hazardous substance of an amount that is equal to or greater than the reportable quantity for that substance. The National Response Center operates a 24-hour hotline for immediate notification. Penalties are imposed for failure to comply with this reporting requirement.

EPA added more than 1,100 sites to CERCLIS during FY94, bringing the total number of sites under Superfund to more than 38,600. PAs have been or will be conducted to assess threats posed by the sites.

2.2.2 Preliminary Assessments Completed

When notified of a potential hazardous waste site, EPA or the state will conduct a PA to assess the threat posed by the site. The PA can include either on-site or off-site reconnaissance activities, such as an on-site visit or survey, an off-site perimeter survey, or collection of data from local authorities. EPA or the state will also review other existing site-specific information for such items as past state permitting activities, local population statistics, and any other information concerning the site's potential effect upon the environment. PA activities enable the Agency or state to determine whether further study of the site or removal assessment/action is necessary, or whether the site should be categorized as "no further remedial action planned". If the PA indicates that a potential threat to human health or the environment is posed by the site, EPA will perform an SI to determine whether the site should be proposed for listing on the NPL.

EPA and states conducted more than 900 PAs in FY94. Since the inception of Superfund, EPA and states have completed PAs at approximately 36,100 sites. The Agency has classified approximately 44 percent of sites where a PA has been conducted as "no further remedial action planned;" the remainder have proceeded to the SI stage for more extensive evaluation.

2.2.3 Site Inspections Completed

The purpose of the SI is to continue the site evaluation to determine whether a site is appropriate for listing on the NPL. The SI usually includes collecting and analyzing environmental and waste samples to identify

- The hazardous substances present at the site;
- The concentrations of these substances;
- Whether the substances are being released or there is potential for their release; and
- Whether the identified hazardous substances are attributable to the site.

During the SI, data are gathered through increasingly focused collection efforts. For sites judged to be prospective candidates for the NPL, the data will be used to calculate a score using the Hazard Ranking System (HRS). The HRS serves as a screening device to evaluate and measure the relative threat a site poses to human health, welfare, or the environment and to determine whether placement on the NPL is warranted. The HRS evaluates four pathways through which contaminants from a site may threaten human health or the environment: ground water, surface water, soil, and air. At any time during the SI, EPA may make a "no further remedial action planned" decision based on the data.

The Agency completed nearly 600 SIs during FY94 for a total of more than 17,000 SIs conducted since the inception of the Superfund program. Based on these assessments, more than 1,355 sites have been proposed to, listed on or deleted from the NPL.

Sites deleted from the NPL reflect an activity required to be reported. Approximately 28 percent of these SIs have resulted in "no further remedial action planned" decisions.

2.2.4 Site Inspection Prioritization

When the revised HRS was promulgated in March 1991 in response to a mandate in SARA, EPA could no longer use the original HRS for making NPL determinations. At that time, final decisions were pending for several sites that were evaluated through the SI stage under the original HRS. (A final decision may be to list a site on the NPL or make a "no furhter remedial action planned" determination.) To expedite final decisions for the remaining sites, EPA developed the SI prioritization (SIP) process.

The SIP process is designed to gather additional data required under the revised HRS to evaluate sites for listing on the NPL. The SIP also may assist in identifying candidates for early actions under SACM. SIPs are limited to 6,600 sites where an SI was conducted prior to August 1, 1992.

EPA completed more than 1,500 SIPs in FY94. EPA also determined that more than 700 sites did not require a SIP, reducing the number of sites where SIPs are still required to 2,700. Most SIPs completed have resulted in "no further remedial action planned" decisions; in the past three years, 70 percent of the SIPs completed have resulted in "no further remedial action planned" decisions.

2.3 National Priorities List

The NPL is the list of sites for long-term remedial evaluation and response. EPA evaluates the potential hazard of sites using the HRS. If a site scores 28.50 or higher, the Agency proposes the site for listing on the NPL, solicits public comments for consideration, and then either announces the final listing of the site on the NPL or removes the site from consideration for listing (classified as "no further remedial action planned"). A site remains on the NPL until no further CERCLA response action is appropriate. When this condition is met, EPA deletes the site from the NPL.

2.3.1 National Priorities List Update

At the end of FY94, there were 1,355 sites proposed to, listed on, or deleted from the NPL: 1,226 currently listed sites, 64 proposed sites, 64 deleted sites where all CERCLA clean-up goals have been achieved, and 1 site that was deleted because it was deferred to another authority for cleanup. Sites deleted from the NPL reflect an activity required to be reported. Exhibit 2.3-1 illustrates the historical number of final sites on the NPL for each fiscal year since SARA was enacted in 1986. At the end of FY94, the 1,355 sites proposed to, listed on, or deleted from the NPL consisted of the following:

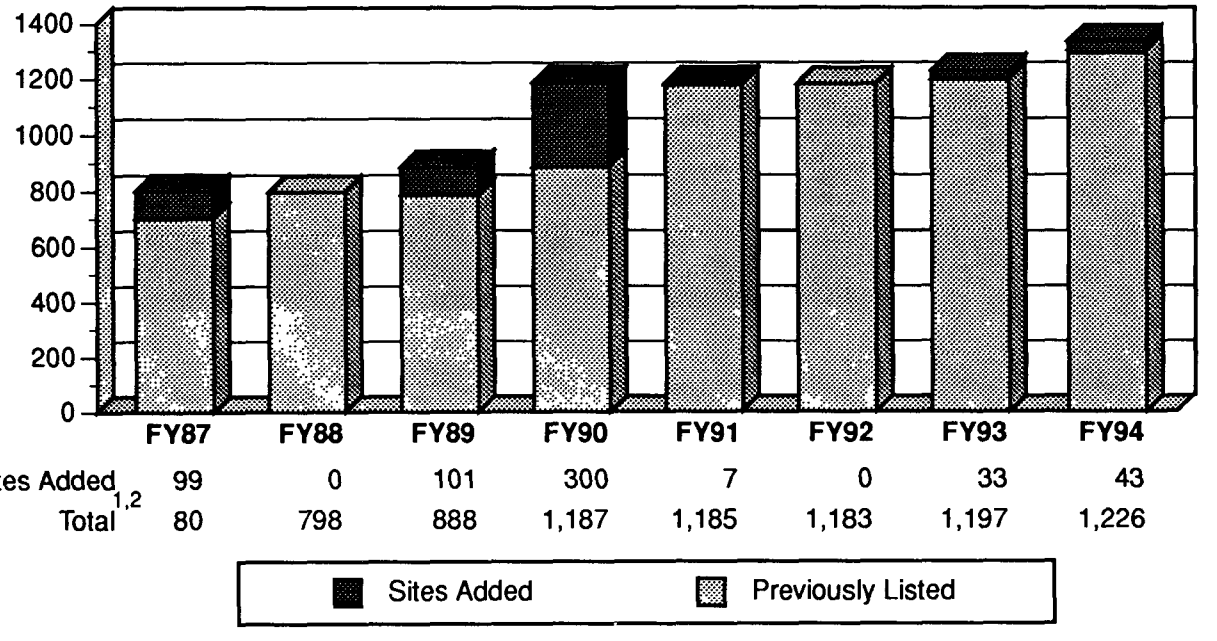
- 1,195 non-federal sites (1,076 currently listed sites, 54 proposed sites, 64 deleted sites, and 1 site that was deferred); and
- 160 federal sites (150 currently listed sites and 10 proposed sites).

Updates to the NPL during FY94 included proposal of 36 sites (22 non-federal and 14 federal facility sites), final listing of 43 sites (19 non-federal and 24 federal facility sites, that include 3 re-classified sites) and deletion of 13 sites (non-federal). Ten sites were proposed for deletion during the fiscal year, including 7 of the 13 sites that were deleted. These proposals to and listings on the NPL were included in two proposed rules (NPL Proposals 16 and 17) and two final rules. The proposed rules were published in the Federal Register on January 18, 1994 (16 non-federal sites and 10 federal sites) and August 23, 1994 (6 non-federal sites and 4 federal sites). The final rules were published in the Federal Register on February 23, 1994 (1 non-federal site) and May 31, 1994 (18 non-federal sites and 24 federal sites).

2.3.2 Relationship Between CERCLIS and NPL Update

CERCLIS is used to track the discovery of potential hazardous waste sites, including those that are subsequently listed on the NPL, and to track actions at these sites. Of the more than 38,600 sites in CERCLIS at the end of FY94, 1,355 were either

Exhibit 2.3-1
Final NPL Sites for Fiscal Year 1987 Through Fiscal Year 1994



	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Sites Added	99	0	101	300	7	0	33	43
Total[1,2]	80	798	888	1,187	1,185	1,183	1,197	1,226

[1] This graph illustrates *final* NPL sites only and reflects the fact that EPA deleted 13 sites from FY80 to FY86, 4 sites in FY88, 11 sites in FY89, 1 site in FY90, 9 sites in FY91, 2 sites in FY92, 11 sites in FY93, and 13 sites in FY94. At these deleted sites, all CERCLA clean-up objectives were achieved. In FY93, one additional site was deleted because it was deferred to another authority for cleanup. Also, eight sites were either voluntarily removed from the NPL or removed from the NPL by court order (seven sites in FY93 and one in FY94). The total of *final*, proposed, and deleted NPL sites as of September 30, 1994 was 1,355.

[2] The total number of sites listed final on the NPL from 1983 to 1986 was 703.

Source: *Federal Register* notices through September 30, 1994.

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proposed to, listed on, or deleted from the NPL. Although the sites on the NPL are a relatively small subset of the inventory in CERCLIS (approximately 3.5 percent), they generally are the most complex and environmentally significant sites. Under CERCLA, EPA can only use the Trust Fund for long-term remedial actions at NPL sites. Fund money, however, can be used to conduct a removal action at a site, whether or not it is on the NPL. Chapter 4 of this report highlights progress in remediating NPL sites, and Chapter 3 of this report discusses removal actions at NPL and non-NPL sites.

2.4 Site Evaluation Support Activities

EPA manages two support programs dedicated to addressing lead and radionuclide contamination because these contaminants present special hazards and problems. During FY94, EPA continued its progress under these programs. Under the lead program, EPA continued to work on risk assessment procedures and tools, revised a model and guidance that establish a soil-screening level for residential exposure scenarios, and continued to analyze results from a three-city study on lead contamination. Under the radiation program, EPA continued to develop Superfund guidance, examined environmental fate and transport modeling for radionuclides, and provided technical support to the Regions in addressing radioactive sites. The Agency also worked to enhance site evaluation guidance.

2.4.1 Lead Program Progress

Lead is one of the most frequently found toxic substances at Superfund sites. Lead is also a major contaminant and health threat to children in urban areas that are not associated with Superfund sites. EPA is attempting to better assess the effects of lead contamination in three initiatives: developing the Integrated Exposure Uptake Biokinetic (IEUBK) Model, revising soil-lead guidance, and conducting the Three-City Lead Study.

The Integrated Exposure Uptake Biokinetic Model

To aid Regional risk managers in establishing lead clean-up levels, EPA's Toxics Integration Branch (TIB) is developing risk assessment procedures and tools such as the IEUBK Model. This model estimates blood-lead levels in children who may have been exposed to lead through air, soil, dust, drinking water, paint, or their diet. The IEUBK Model uses site-specific data or, if no such data are available, default values that are based on national averages. Risk managers can also use the model with reasonable parameter assumptions to evaluate clean-up options.

During FY94, EPA continued to work on a manual that will provide guidance to risk assessors and managers for using site-specific data in the IEUBK Model, and for identifying the most appropriate methods for collecting data. FY94 activities also included further validation of the IEUBK Model by studying data from Superfund sites contaminated with lead from battery recycling, mining, and smelting activities.

Soil-Lead Directive

In FY94, the Office of Solid Waste and Emergency Response (OSWER) released a revised guidance document, Revised Interim Soil-Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. The guidance presents a streamlined approach for determining protective levels for lead in soil at Superfund and RCRA corrective action sites. Rather than setting a national clean-up level, the guidance establishes a soil-screening level for residential exposure scenarios. The guidance also describes how to develop site-specific preliminary remediation goals for Superfund sites and media clean-up standards at RCRA corrective action sites. The process proposed in the revised guidance is more protective of human health and the environment than the original guidance because it considers multiple sources of lead exposure and accounts for special situations involving ecological sensitivity or sensitive subpopulations. The guidance also encourages voluntary cleanups of lead contamination.

The Revised Interim Soil-Lead Guidance sets a screening level of 400 parts per million for residential exposure scenarios and recommends use of the IEUBK Model for predicting residential exposure. Sites with soil-lead levels below the screening level generally require no further action; sites with soil-lead levels above the screening level require further study.

The guidance also takes into account the potential role of multiple sources of lead (e.g., interior and exterior paint and indoor dust) in contributing to elevated blood-lead levels at a site. The guidance offers a flexible approach that allows for remediation of lead sources, other than soil, that may contribute significantly to elevated blood-lead levels.

The Interim Final Soil-Lead Guidance also clarifies the relationship between guidance on Superfund and RCRA corrective action cleanups and EPA's guidance on lead-based paint hazards. When the Office of Pollution Prevention and Toxics releases its health-based standards for soil, paint, and dust under the Toxic Substances Control Act Title IV, Section 403, OSWER will issue the final soil-lead directive.

Three-City Lead Study

EPA continued to analyze data generated by the Three-City Lead Study. The purpose of the study, which is being conducted by EPA with the support of the Center for Disease Control and the Department of Agriculture, is to determine whether reducing lead in residential soil and dust (e.g., interior house dust and exterior soil dust) results in a decrease of blood-lead levels of children exposed to the contaminant. Data were gathered from groups of children in selected

areas of Baltimore, Boston, and Cincinnati. Each area was chosen on the basis of several factors, including the age of the housing, the reported incidence of lead poisoning, the expected turnover rate for residents, and the potential for neighborhood involvement in the project.

During FY94, EPA's Office of Emergency and Remedial Response (OERR) and the Office of Research and Development (ORD) analyzed combined data sets for the three cities. OERR and ORD prepared a draft report that integrated the results of the data set, circulated the draft report for internal review, and provided it to external peer reviewers. EPA also held a number of public forums to discuss comments received on the report and began preparing the final draft.

2.4.2 Radiation Program Progress

During the fiscal year, EPA made progress in addressing technical complexities associated with site assessment, risk assessment, and clean-up technology evaluation for sites contaminated with radionuclides. Specific activities included developing Superfund guidance, examining environmental fate and transport modeling, conducting technology demonstrations and evaluations, and providing technical support to the Regions.

Site Assessment

Through an interagency agreement with the Agency for Toxic Substances and Disease Registry, ORIA provided assistance in conducting site evaluations and health assessment in areas near DOE nuclear weapons productions facilities, including the San Ildefonso Indian Pueblo near the Los Alamos National Laboratory, the environs surrounding the Fernald Envionmental Management Project, and the areas surrounding the Mound Laboratory site.

Superfund Program Guidance

During FY94, EPA continued its efforts to address radiation issues through guidance development in the following areas:

- Health Effects Assessment Summary Tables (HEAST): TIB cooperated with the Office of Radiation and Indoor Air (ORIA) to continue updating toxicity information on radionuclides for HEAST.
- Radiation Exposure and Risk Assessment Manual: ORIA is developing guidance for radionuclide toxicity assessment. At the end of FY94, the draft manual was undergoing peer review.
- Soil Treatability Guidance: ORIA continued development of guidance for determining the appropriate treatment options for soil contaminated with radionuclides. ORIA assembled a technical review team with representatives from ORIA, OERR, and DOE, and incorporated their comments and suggestions into the draft guidance.
- Development of Clean-Up Levels: ORIA continued to develop standard clean-up levels for radioactive materials in soil and ground water at federal facility sites. The draft technical support document for the proposed Radiation Site Clean-Up Regulation was submitted to the Science Advisory Board's Radiation Advisory Committee for review.

Environmental Fate and Transport Modeling

Representatives from OSWER and ORIA continued to work with representatives from the Department of Energy (DOE) and the Nuclear Regulatory Commission as part of an interagency workgroup evaluating environmental fate and transport modeling for radionuclides. In 1994, the workgroup completed a guidance document entitled A Technical Guide to Ground-Water Model Selection at Sites Contaminated with Radioactive Substances. The document addresses the selection of ground-water flow and contaminant transport models. The workgroup also continued to prepare three additional technical documents:

- Evaluating Technical Capabilities of Ground-Water Models Used to Support the Cleanup of

Low-Level Radioactive Waste Sites: An Illustrative Critique of Three Representative Models: This draft report describes a process for critically evaluating the technical capabilities of ground-water models, using three models that have been used in remedial investigation/ feasibility studies.

- Draft Report: Three Multimedia Models Used in Support of Cleanup Decision making as Hazardous, Mixed, and Radioactive Waste Sites: A Technical Evaluation of MEAS, MMSOILS, and PRESTO-EPA-CPG. Reviews three multimedia models of interest to the participants based on documentation published in reviews, personal interviews with the model developers, and on model summaries extracted from computer databases and expert systems.
- Draft Report: A Review Guide for Model Application at Sites Contaminated with Radioactive Substances, Hazardous, and Mixed Waste Substances. Documents a process by which ground-water flow and transport models may be applied, and how applications by others may be systematically reviewed during each phase of the remedial process.

Regional Assistance

ORIA provides technical assistance to Regional On-Scene Coordinators and Remedial Project Managers (RPMs) in addressing NPL sites contaminated with radioactive materials. In FY94, The ORIA National Air and Radiation Environmental Laboratory (NAREL), assisted by the ORIA Las Vegas facility, continued to serve as an EPA technical support center (TSC) in the areas of site-specific remedial technologies, detection and measurement of radioactive contamination, site remediation oversight, risk assessment, and document review. ORIA and its laboratories provided the following site-specific support to Regional programs:

- In Region 1, ORIA provided analytical support for the Finberg Field Assessment.
- In Region 2, ORIA continued to assist the Region in addressing cleanup issues at the Maywood, New Jersey NPL. ORIA also reviewed proposed alternatives for remedial action and assisted in remedial technology evaluation for the W.R. Grace site in Wayne, New Jersey.
- In Region 4, ORIA continued to provide assistance for oversight of the DOE remediation efforts in Paducah, Kentucky, and Oak Ridge, Tennessee. OIRA provided support for the characterization of the David Witherspoon site in Knoxville, Tennessee.
- In Region 5, ORIA supported risk assessment and document review activities, as well as decision-making on the cleanup of thorium, at the Kerr-McGee/West Chicago site. ORIA provided analytical support for the characterization of the Kerr-McGee/West Chicago Sites; the Ottawa, IL site; the Dial Services site in Coleveland, OH; and the Portsmouth Gaseous Diffusion Plant.
- In Region 6, ORIA provided analytical support for the characterization of the Tex Tin Corporation site located in Texas City, TX.
- In Region 7, ORIA assisted in evaluating remedial technologies and determining the clean-up level for thorium at the Weldon Springs site. ORIA also supported OERR and the Region in recommending interim safety measures at the St. Louis site.
- In Region 8, ORIA assisted in evaluating remedial technologies for the Denver Radium site. For the Rocky Flats site, ORIA worked with the RPM on technical issues associated with the site; ORIA provided document review support for the site.
- In Region 9, ORIA provided support for the characterization of the King Tutt Mesa Aggregate site in Oak Springs, NM and soil characterization techniques for the Hunter's Point Naval Shipyard Annex. ORIA completed and transmitted to the Region the report "Confirmatory Study of Plutonium in Soil from the Southeast Quadrant of the Lawrence Livermoore National Laboratory." ORIA provided analytical support

in the analysis of samples from a disposal site in George Air Force Base. At the request of the RPM, ORIA will provide, during FY95, technical support for quality assurance and quality control oversight of radiation surveys in preparation for closure at the Marc Island Naval Shipyard.

- In Region 10, ORIA supported technology evaluations for the NPL site at DOE's Idaho National Engineering Laboratory. ORIA also assisted the RPM at the Teledyne Wah Chang site in reviewing documents and recommending that the potentially responsible party conduct a more thorough characterization of the radioactivity at the site.

2.4.3 Site Evaluation Regulations and Guidance

OERR published the following site evaluation guidance during FY94:

- Deletion Policy for Resource Conservation and Recovery Act Facilities, published in the Federal Register on March 20, 1995 (60 FR 14641). This policy allows sites meeting certain criteria to be deleted from the NPL in order to defer them to RCRA authority. Fewer than 30 final NPL sites are likely to qualify for deferral under this policy.

Chapter 3
Removal Progress

Throughout the 14-year history of Superfund, removal actions have successfully prevented, minimized, or mitigated threats to human health, welfare, or the environment. EPA and potentially responsible parties (PRPs) have initiated more than 3,360 removal actions to address threats posed by the release or threatened release of hazardous substances, including nearly 310 undertaken in FY94. The expanded use of removals to more rapidly reduce risks posed by Superfund sites is a key element of the Superfund Accelerated Clean-up Model (SACM).

This chapter discusses the removal action process, the progress achieved through Superfund removals in addressing threats to human health and the environment, the contributions of the Environmental Response Team (ERT), and emergency response rulemaking and guidance development.

3.1 Removal Action Process

Removal actions are taken in response to a release or threat of release of a hazardous substance or of a pollutant or contaminant that may present an imminent and substantial danger to the public health or welfare. Examples of situations that may warrant removal actions include chemical spills or fires at production or waste storage facilities, transportation accidents involving hazardous substances, and illegal disposal of hazardous waste (midnight dumping). Exhibit 3.1-1 presents examples of the kinds of threats that may be posed by these situations and the types of corresponding removal actions that may be taken. Managed by a federal On-Scene Coordinator (OSC), a removal action is often short-term, and addresses the most immediate threats. Removals comply with substantive applicable or relevant and appropriate requirements (ARARs) to the extent practicable, given the exigencies of the situation. ARARs are substantive requirements of federal and more stringent state environmental laws.

When notified of a release or threat of release that may require a removal action, the Agency (or lead-Agency) conducts a removal site evaluation to determine the source and nature of the release, the threat to public health and the environment, and whether an appropriate response has been initiated. A removal site evaluation could be completed in minutes or months, depending on the specific incident and the information available to determine the need for a removal action. When the removal site evaluation is completed, the Agency reviews the results and other factors to determine the appropriate extent of a removal action. At any point in this process, EPA may refer the site for further evaluation or determine that no further action is necessary. When it concludes that a removal action is required, the Agency undertakes an appropriate response to minimize or eliminate the threat.

The Agency defines three kinds of removal actions based on the time available before a response action must be initiated. "Emergency" removal actions require a prompt response at the site. "Time-critical" removal actions are conducted when the Agency (or lead-Agency) concludes that the action must begin within six months. For "non-time-critical" removal actions, the planning period may extend for more than six months; during this planning period, the lead agency conducts an engineering evaluation/ cost analysis for the response action and seeks public comment on the response options.

Exhibit 3.1-1
Typical Removal Actions

Threat Posed	Typical Removal Action Taken
Humans or animals have access to released hazardous substances, fire, or explosion	Installing fences, warning signs, or other security and site control precautions
	Removal of waste materials posing the threat
	Temporarily relocating residents in extreme situations
Precipitation or run-off from other sources (e.g., flooding) may enter the release area	Constructing drainage controls, such as run-off or run-on diversions
Failure of a structure such as a lagoon is likely	Stabilizing berms, dikes, or impoundments
Migration of hazardous substances into soil, ground water, or air is likely	Containing hazardous substances, such as capping contaminated soil or sludge
	Treating hazardous substances, including incineration
	Excavating highly contaminated soil
	Removing drums, barrels, tanks, or other bulk containers containing hazardous substances
Drinking water supply is contaminated	Providing alternate water supplies

Source: Office of Emergency and Remedial Response/Emergency Response Division.

51-044-20

To document the selection of a response action, the Agency prepares an action memorandum that states the authority for initiating the action, the action to be taken, and the basis for selecting the response. EPA also establishes an administrative record, compiling the documents that form the basis for the selection of the response action. The following sections discuss additional aspects of the removal action process, including community involvement, the role of the OSC, and CERCLA limitations on the scope of removal actions.

Community Involvement in Removal Actions

EPA provides many opportunities for community involvement during the removal process. The Agency appoints an official spokesperson to keep the public informed of the progress of a given removal action. The administrative record file and index of documents maintained at the central location is made available to the public (except confidential portions) at a repository near the site and at EPA offices. If the removal action is expected to continue beyond 120 days, the lead agency must involve local officials and other parties in the process through such activities as community interviews and a community relations plan.

The On-Scene Coordinator

The OSC organizes, directs, and documents the removal action. The specific responsibilities of the OSC include conducting field investigations, monitoring on-scene activities, and overseeing the removal action. The OSC is also responsible for preparing a final report that describes the site conditions prior to the removal action, the removal action performed at the site, and any problems that occurred during the removal action.

Fund-Financed Removal Action Statutory Limits

Removal actions are generally short-term, relatively inexpensive responses to releases or threats of releases that pose a danger to human health,

welfare, or the environment. Accordingly, Congress included limitations on removal actions in CERCLA. The cost of a removal action is limited to $2 million, and the duration is limited to one year. Congress established exemptions from these limitations for specific circumstances. A removal action may exceed the monetary and time limits if

- Continued response is required immediately to prevent, limit, or mitigate an emergency; there is an immediate threat to public health, welfare, or the environment; and such action cannot otherwise be provided on a timely basis; or
- Continued response action is otherwise appropriate and consistent with the remedial action (RA) to be taken.

During FY94, EPA granted 16 exemptions for removal actions to exceed the $2 million limitation. In addition, EPA granted 26 exemptions allowing removal actions to continue for more than one year.

3.2 Fiscal Year 1994 Progress

Since the inception of Superfund, the Agency and PRPs have begun more than 3,360 removal actions at National Priorities List (NPL) and non-NPL sites to address threats to human health, welfare, or the environment posed by releases or potential releases of hazardous substances. Under SACM, the Agency is expanding its use of removal actions to further expedite response, especially at NPL sites.

3.2.1 Status Report on Removal Progress

Of the more than 3,660 removal actions undertaken by EPA and PRPs under the Superfund program, nearly 310 were started in FY94 (see Exhibit 3.2-1). Of these 310 removal actions, PRPs financed 70 and EPA financed 240. The removal actions started by PRPs included 20 removal actions at NPL sites and 50 removal actions at non-NPL sites. EPA started nearly 40 removal actions at NPL sites and 200 removal actions at non-NPL sites. The nearly 310 removal actions begun by EPA and PRPs in FY94 compare to 270 started in FY93.

As shown in Exhibit 3.2-2, EPA and PRPs have completed 3,050 removal actions under the Superfund program, including 240 in FY94. Of the 240 removal actions completed during the fiscal year, PRPs financed more than 50, including more than 10 at NPL sites and nearly 40 at non-NPL sites. EPA financed nearly 190 of the completed removal actions, including approximately 30 at NPL sites and 160 at non-NPL sites. The 240 removal actions completed by EPA and PRPs in FY94 compare to nearly 290 completed by EPA and PRPs in FY93.

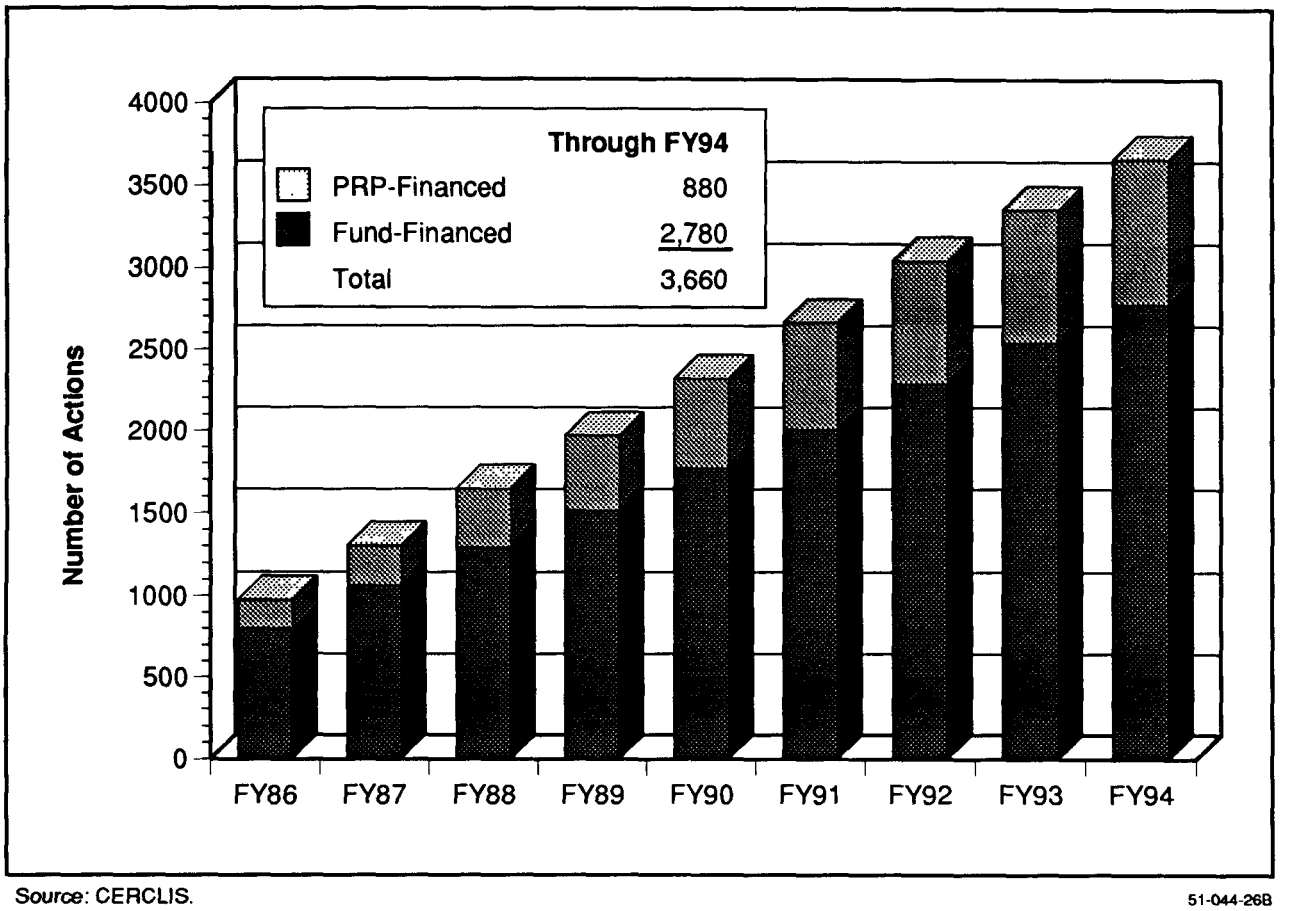
Removal actions that were begun but are not yet complete are considered "ongoing." Ongoing removals include actions that have been in progress less than 12 months at the end of a fiscal year and removal actions that have been granted exemptions from the statutory one-year duration limit. Sites where a removal action has taken place (including thermal treatment) but the contaminants have not yet been transported to a disposal facility are also defined as having ongoing removals.

3.2.2 Expanding the Use of Removal Authority

One of the key elements of SACM is to expand the use of removal authority to perform "early actions" that reduce immediate risk more rapidly and expedite NPL site cleanups. Early actions can be emergency, time-critical, or non-time-critical removal responses or quick remedial responses.

As an incentive to implement this approach under SACM, the Agency set aside $50 million in the RA budget to fund early actions. Although the directive announcing the availability of the set-aside funding was not issued until February 1992, over $37 million was allocated for early actions at 13 sites in 7 Regions in FY92. In FY94, all of the set-aside funds plus an additional $4.6 million was distributed to nine sites in six Regions. The funding, which was allocated on a first-come, first-serve basis, is intended to supplement, not replace, the Regions' removal funds that have been traditionally used for response actions at NPL sites. The additional funding, coupled

Exhibit 3.2-1
Cumulative Removal Action Starts



Source: CERCLIS.

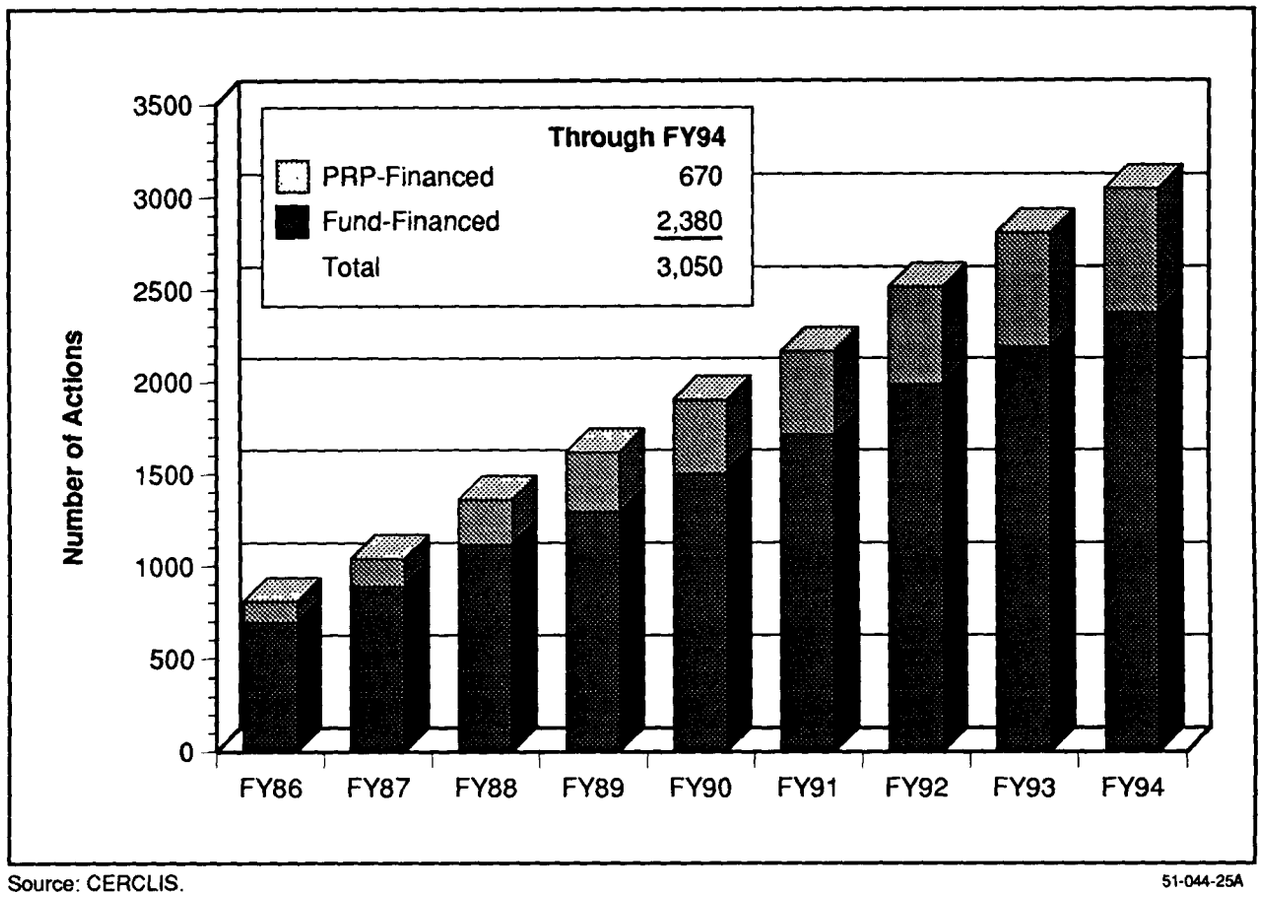
51-044-26B

with the use of remedial funding directly under the Emergency and Rapid Response Services (ERRS) contracts, has significantly enhanced EPA's ability to expedite responses at key NPL sites. For example, the set-aside funding for FY94 allowed the Superfund program to initiate the additional nine early actions. (Additional information on SACM and the use of early actions is provided in Chapter 1.)

Due to the success of the approach, the Agency will continue to set-aside funds in the RA budget for early actions. The Agency is also making progress in awarding Regional ERRS contracts, which are the primary vehicle for implementing early actions. Regions 1 through 5 currently have ERRS contracts in place; Regions 6 through 10 continue to work on establishing ERRS contracts. The major obstacle to implementing early actions to date has been the limited capacity of the ERRS contracts.

An example of an early action at an NPL site is the SACM pilot at the Better Brite site in DePere, Wisconsin. This pilot combined a time-critical removal response and a remedial investigation/feasibility study (RI/FS). Through early action, the Agency reduced immediate risk at the site by removing contaminated soils, demolishing buildings, and controlling the spread of contaminates in the ground-water plume. The early action also expedited the implementation of the overall site remediation. A subsequent RA will be taken to implement a pump-and-treat system to clean up the ground-water contamination.

Exhibit 3.2-2
Cumulative Removal Action Completions



Source: CERCLIS. 51-044-25A

Another example of an early action is the Raymark site in Stratford, Connecticut. At this site, set-aside funding is being used to continue time-critical removal excavation activities at residential properties contaminated with lead, asbestos, and polychlorinated biphenyls (PCBs). The contamination is a result of the use of contaminated material from the Raymark facility as fill material throughout the surrounding area. Through the early action, contaminated material is being removed from residential properties and transported back to the Raymark facility where it will be dealt with as part of the overall RA for the facility. This early action is quickly and completely reducing immediate risk, while contributing to the acceleration of the overall site remediation.

3.3 Environmental Response Team Activities

Under the National Oil and Hazardous Substances Pollution Contingency Plan, EPA manages the ERT. Over its 14 years of service, this team of EPA experts has been available to OSCs and Remedial Project Managers to support removal and remedial actions 24 hours a day, 365 days a year. In addition to its response support, ERT conducts introductory and intermediate-level training courses in health and safety and other technical aspects of response. ERT provides expertise in emergency response, hazard assessment, health and safety, air

monitoring, alternative and innovative technology, site investigation, ecological damage assessment, clean-up contractor management, and oil and chemical spill control.

During FY94, ERT conducted approximately 103 removal actions and 79 RAs, and responded to 10 oil spills and 2 international incidents. ERT also offered 203 training courses nationwide.

3.4 Emergency Response Regulations and Guidance

Under the reportable quantity (RQ) regulatory program, the Agency proposed adjustments to certain RQs and to several administrative reporting exemptions. In addition, the Agency continued updating the Superfund Removal Procedures (SRP) Manual.

3.4.1 Reportable Quantity Regulations

Section 102(b) of CERCLA, as amended, sets an RQ of one pound for hazardous substances, except those substances for which different RQs have been established in Section 311(b)(4) of the Clean Water Act. Section 102(a) of CERCLA authorizes EPA to adjust RQs for hazardous substances and to designate additional CERCLA hazardous substances.

Under CERCLA Section 103(a), the person in charge of a vessel or facility must immediately notify the National Response Center upon learning of a release of hazardous substance in a quantity that equals or exceeds its RQ. In addition to this reporting requirement, Section 304 of the Emergency Planning and Community Right-to-Know Act of 1986 requires that a release of a hazardous substance in a quantity that equals or exceeds its RQ (or one pound if a reporting trigger is not established by regulation) be reported to state and local authorities.

Reportable Quantity Adjustments

On October 23, 1993, EPA proposed changes to the designation, RQ, and notification requirements for hazardous substances under CERCLA (*58 FR 54836*). The proposed changes revise the table of hazardous substances to

- Add 47 hazardous air pollutants and adjust their RQs;
- Add five other hazardous air pollutants that are broad generic categories of substances;
- Add and adjust the RQs for 10 hazardous wastes listed or proposed to be listed under RCRA; and
- Adjust the RQs for five hazardous wastes that were already on the table.

Reportable Quantity Exemptions

On November 30, 1992, the Agency proposed a rule to codify four administrative reporting exemptions for naturally occurring radionuclide releases from the requirements of CERCLA Section 103. The proposal would exempt such releases from

- Large, generally undisturbed land holdings, such as golf courses and parks;
- Disturbances of land for purposes other than mining, such as farming or building construction;
- The dumping of coal and coal ash at utility and industrial facilities with coal-fired boilers; and
- Coal and coal ash piles at utility and industrial facilities with coal-fired boilers.

The Agency has determined that administrative reporting requirements related to these releases serve no purpose. The rule is in accordance with the decision of the court in Fertilizer Institute v. United States Environmental Protection Agency 935 F.2d 1303 (D.C. Cir., 1991), wherein the court specified that the original promulgation of the exemptions in a final rule (54 FR 22524, May 24, 1989) did not provide sufficient notice and opportunity for public comment. The purpose of the November 30, 1992, proposal was to provide such notice and opportunity for comment. On March 5, 1993, at the request of several parties, the Agency reopened the comment period for an additional 60 days to provide greater opportunity for the public to evaluate the issues.

3.4.2 Removal Guidance

The SRP Manual covers all procedural and administrative requirements for removal actions. It is used by OSCs; removal, remedial, and enforcement personnel; and staff from other federal and state agencies. In FY90, EPA began restructuring the manual into a series of 10 stand-alone volumes, each addressing distinct aspects of Superfund removal actions. EPA previously completed five volumes of the series: *Consideration of ARARs During Removal Actions, Removal Enforcement Guidance for On-Scene Coordinators, Public Participation Guidance for On-Scene Coordinators, Action Memorandum Guidance, and Response Reporting: POLREPs (pollution reports) and OSC Reports*. During FY94, the Agency continued working on the remaining five SRP volumes and an overview volume.

Chapter 4
Remedial Progress

The Agency's progress during FY94 illustrated its commitment to accelerating and completing cleanups at Superfund sites. The Agency started more than 120 remedial actions (RAs) to construct remedies, and completed construction activities to place 61 sites in the construction completion category. To date under the Superfund program, the Agency has completed clean-up activities to place a total of 278 National Priorities List (NPL) sites in the construction completion category. This chapter describes this and other examples of remedial progress during the year. Specifically, this chapter provides information on

- FY94 progress in remediating NPL sites;
- Remedial initiatives;
- Remedies selected during the year;
- Efforts to develop and use innovative treatment technologies, including an evaluation of newly developed and achievable permanent treatment technologies, as required by CERCLA Section 301(h)(1)(D); and
- Results of five-year reviews under CERCLA Section 121(c) at sites where contamination remained after the initiation of the RA.

4.1 Remedial Process

The remedial process complements the removal process (see Chapter 3) by addressing more complicated, long-term evaluation and response for hazardous waste sites on the NPL. The remedial process is preceded by the site evaluation process, which consists of the discovery or identification of a potential site, the preliminary assessment of the site, and the site inspection (SI). During the SI, the site is evaluated for possible listing on the NPL. If a site is listed on the NPL after the SI, the Trust Fund can be used to finance clean-up activities at the site under the remedial authority of CERCLA.

The remedial process to clean up NPL sites is comprised of the following activities:

- The remedial investigation/feasibility study (RI/FS) to determine the type and extent of contamination and to evaluate and develop remedial clean-up alternatives;
- The record of decision (ROD) to identify the remedy selected, based on the results of the RI/FS and public comment on the clean-up alternatives;
- The remedial design (RD) to develop the plans and specifications required to construct the selected remedy;
- The RA to implement the selected remedy, from the start through the completion of construction of the remedy; and
- Operation and maintenance (O&M) to ensure the effectiveness and/or integrity of the remedy. O&M occurs after implementation of a response action.

A Remedial Project Manager (RPM) oversees all remedial activities and related enforcement activities. Regional coordinators at EPA Headquarters assist RPMs by reviewing remedial and enforcement activities and by answering technical and policy questions.

4.2 Fiscal Year 1994 Remedial Progress

The Agency's progress during the fiscal year in initiating RAs and completing construction activities to classify sites as construction completions indicates its continuing commitment to accelerate the cleanup of NPL sites. By the end of FY94, work had occurred at 94 percent of the 1,355 NPL sites. Sites deleted from the NPL reflect an activity required to be reported. Exhibit 4.2-1 illustrates the status of the work at NPL sites, showing sites by the most advanced stage of activity accomplished. The following sections of this chapter highlight progress made at the sites during FY94.

4.2.1 Construction Completions

Responding to the recommendations of the 1991 30-Day Study and the 1993 Superfund Administrative Improvements Task Force, the Agency has worked to accelerate and complete cleanup at NPL sites. The Agency completed construction activities at 61 sites during FY94, bringing the total number of sites in the construction completion category to 278. This exceeded the recommended FY94 target of 265. More than 78 percent of the construction completions have been achieved in the past three years.

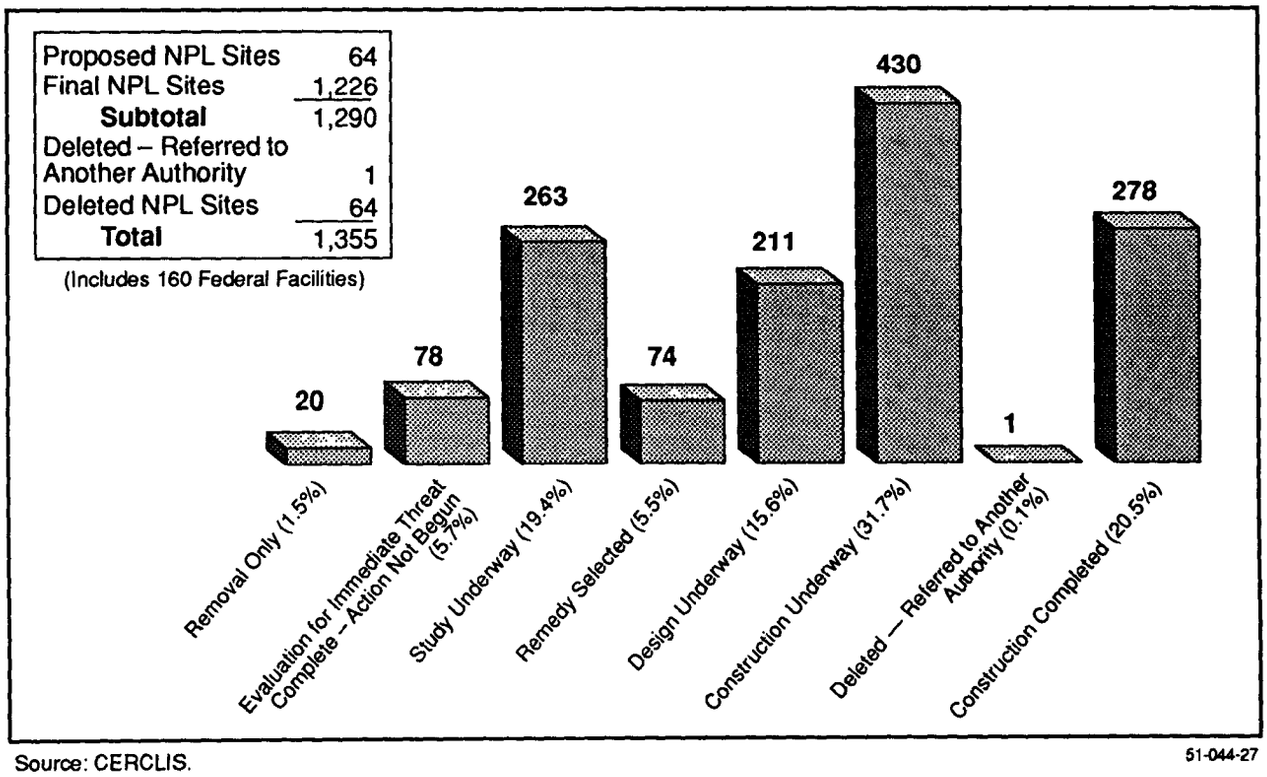
4.2.2 New Remedial Activities

As shown in Exhibit 4.2-2, the Agency or potentially responsible parties (PRPs) had undertaken approximately 1,670 RI/FSs, 1,230 RDs, and 850 RAs since the inception of the Superfund program through the end of the FY94.

The remedial activities started during FY94 reflect the Agency's emphasis on accelerating the pace of cleanup and focusing resources on RAs. New remedial activities undertaken this fiscal year include

- *RI/FS Starts:* The Agency or PRPs started nearly 70 RI/FSs during FY94, including nearly 40 (60 percent) financed by EPA and more than

Exhibit 4.2-1
Work Has Occurred at 94 Percent of the National Priorities List Sites



Source: CERCLIS.

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30 (40 percent) financed by PRPs. In FY93 the Agency or PRPs started nearly 60 RI/FSs, including more than 30 (60 percent) financed by EPA and more than 20 (40 percent) financed by PRPs.

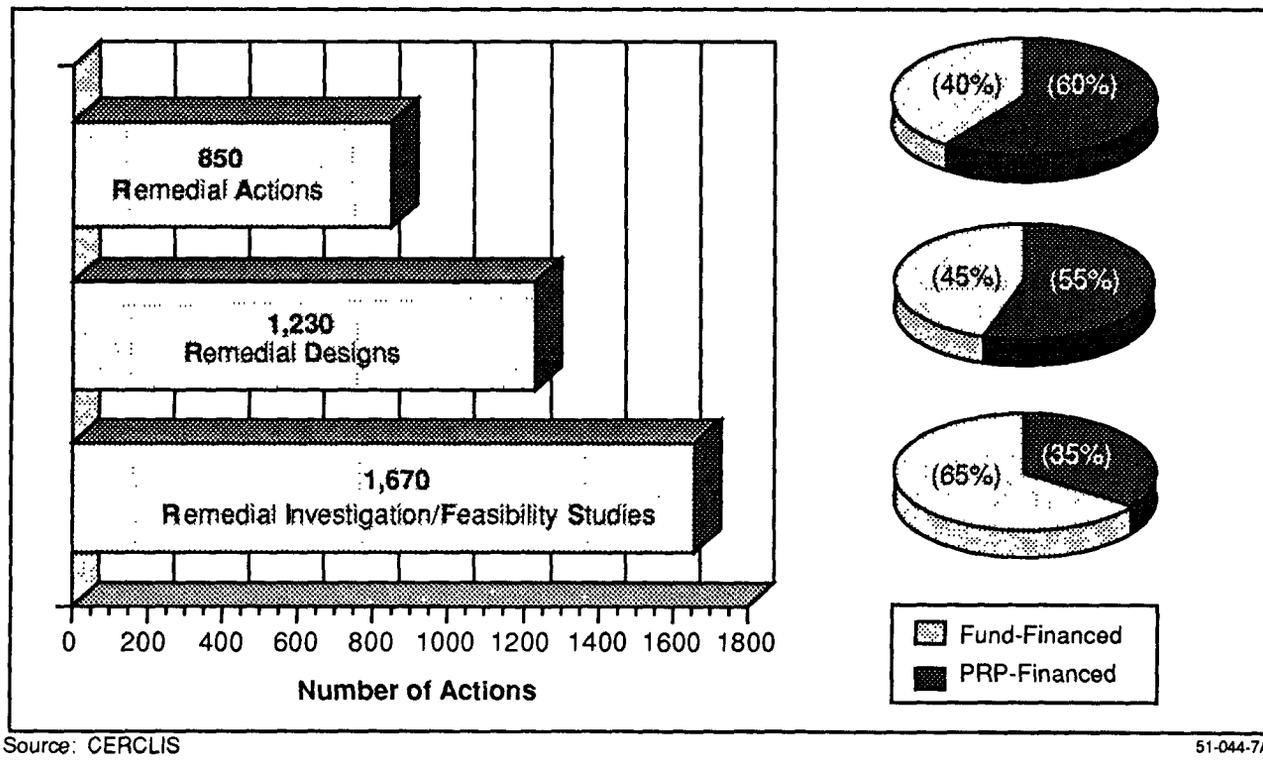
- *RD Starts:* The Agency or PRPs started approximately 110 RDs during FY94, including nearly 30 (25 percent) financed by EPA and more than 80 (75 percent) financed by PRPs. In FY93 the Agency or PRPs started approximately 130 RDs, including nearly 50 (40 percent) financed by EPA and more than 80 (60 percent) financed by PRPs.
- *RA Starts:* The Agency or PRPs started more than 120 RAs during FY94. EPA was financing approximately 30 (20 percent) and PRPs were financing more than 90 (80 percent). In FY93, the Agency or PRPs started approximately 120 RAs, including nearly 30 (25 percent) financed by EPA and 90 (75 percent) financed by PRPs.

4.2.3 Status of Remedial and Enforcement Activities in Progress

At the end of FY94, 1,767 RI/FS, RA, and RD projects were in progress at 867 sites, compared to 1,750 RI/FS, RA, and RD projects in progress at 910 sites at the end of FY93. Projects in progress at the end of FY94 included 1,320 RI/FS and RA projects and 447 RD projects. As required by CERCLA Sections 301(h)(1)(B),(C), and (F), a listing of the RI/FS and RA projects in progress at the end of FY94 is provided in Appendix A, along with a projected completion schedule for each project. A listing of all RDs in progress at the end of FY94 is provided in Appendix B.

Of the 1,320 RI/FS and RA projects in progress at the end of FY94, 54 percent were on schedule, ahead of schedule, started during the fiscal year, or

Exhibit 4.2-2
Remedial Accomplishments Under the Superfund Program for Fiscal Year 1980 Through Fiscal Year 1994



Source: CERCLIS

51-044-7A

had no previously published completion schedule, and 46 percent were behind schedule. These projects include 299 on schedule, 51 ahead of schedule, 276 started during the fiscal year, 90 that had no previously published completion schedule, and 604 that were behind schedule. Exhibit 4.2-3 compares the number of projects in progress at NPL sites at the end of FY93 with the number in progress at the end of FY94, by lead.

PRPs were conducting 441 of the RI/FS and RA projects in progress at the end of FY94, including 202 RI/FSs and 239 RAs. Of these 441 PRP-financed projects, 51 percent were on schedule, ahead of schedule, started during the fiscal year, or had no previously published completion schedule, and 49 percent were behind schedule. Projects include 82 on schedule, 9 ahead of schedule, 117 started during the fiscal year, 19 that had no previously published completion schedule, and 214 that were behind schedule.

The status of RI/FSs and RAs in progress at the end of the fiscal year is based on a comparison of each project's planned completion date in the CERCLA Information System (CERCLIS) at the end of FY93 with the planned completion date in CERCLIS at the end of FY94. An initial completion schedule is included when a remedial activity is entered into CERCLIS. Minimal site-specific information is available when the initial completion schedule is determined by the Regions, and they usually rely on standard planning assumptions (e.g., 12 quarters for an RI/FS). As work continues, Regions adjust schedules for projects to reflect actual site conditions.

4.3 Remedial Initiatives

As recommended by the 1993 Superfund Administrative Improvements Task Force, EPA continued several efforts to streamline remedial activities and increase the consistency and efficiency in Superfund cleanups. EPA's FY94 efforts included

Exhibit 4.2-3
Projects in Progress at National Priorities List Sites by Lead for Fiscal Year 1993 and Fiscal Year 1994

	RI/FS		RDs		RAs	
	FY93	FY94	FY93	FY94	FY93	FY94
Fund-Financed—State-Lead	28	21	25	26	26	28
Fund-Financed—Federal-Lead[1]	145	160	107	108	95	98
Fund-Financed—EPA Performs Work at Site[2]	21	11	4	4	3	2
PRP-Financed and PRP-Lead	219	204	238	242	186	222
Mixed Funding—Monies from Fund and PRPs	0	1	1	2	9	7
PRP-Financed—State Order and EPA Oversight[3]	45	27	23	16	21	25
State Enforcement	2	2	1	2	0	0
Federal Facility	459	485	46	56	46	75
Total	**919**	**911**	**445**	**456**	**386**	**457**

[1] Includes remedial program-lead projects and enforcement program-lead projects.
[2] Projects at which EPA employees, rather than contractors, perform the site clean-up work.
[3] Projects where site clean-up work is financed and performed by the PRPs under state order, with EPA oversight.

Sources: *Progress Toward Implementing Superfund:* FY93 (Appendices A and B) and FY94 (Appendices A and B). 51-044-8A

developing presumptive remedies, establishing soil screening levels (SSLs), and implementing guidance on dense non-aqueous phase liquid (DNAPL) contamination and on the technical impracticability (TI) waiver.

4.3.1 Presumptive Remedies

The Agency is developing presumptive remedies to streamline the remedy selection process for certain categories of sites. The objective of the presumptive remedy initiative is to use the program's past experience to streamline site investigation and speed up identification of appropriate clean-up activities. Presumptive remedies can foster consistency in remedy selection and reduce the cost and time required to clean up similar types of sites.

During FY94, the Agency monitored the implementation of presumptive remedies at seven sites. At these sites, the Agency piloted the presumptive remedies developed for municipal landfills and sites contaminated with volatile organic compounds (VOCs). The seven projects included five municipal landfills and two sites with VOC contamination in soil.

For example, EPA selected the BFI-Rockingham Landfill NPL site in Rockingham, Vermont, as a national pilot for the evaluation of the presumptive remedy guidance for CERCLA municipal landfill sites. The Agency used existing historical data to streamline the risk assessment and RI/FS and to establish an initial basis for action. The Agency further accelerated the RI by eliminating a complete chemical characterization of the landfill, focusing instead on collecting geotechnical information (i.e., landfill cover quality and soil settlement and stability) needed for designing the source control remedy recommended as the presumptive remedy. PRPs undertook a non-time-critical removal action to begin implementing components of the presumptive remedy, including a landfill cap. By quantifying potential ground-water risks and other pathway risks during the RI/FS, the Agency also streamlined the RA for actions outside the scope of the presumptive remedy (i.e., ground-water and surface-water cleanup).

Using a presumptive remedy approach at the BFI-Rockingham Landfill site decreased the time period from RI/FS start to construction initiation from the typical 5 to 8 years to 2 years. In addition, the Agency reduced the time period from RI/FS start to ROD signing for those activities outside the scope of the presumptive remedy from the typical 3 to 5 years to 2 years.

The Agency is also working to develop additional presumptive remedies for wood-treater, polychlorinated biphenyl (PCB)-contaminated, manufactured gas plant, grain storage, and contaminated ground-water sites. The Agency will continue efforts to develop these presumptive remedies and identify demonstration sites. The Agency will also monitor the demonstration projects and integrate the results into additional guidance on the use of presumptive remedies.

4.3.2 Soil Screening Levels

To facilitate investigation and cleanup of soil contamination, EPA continued efforts to develop SSLs. SSLs identify contaminant levels below which there typically is no concern and above which further site-specific evaluation is warranted. Generally, where chemical concentrations fall below the SSL, no further federal action or study would be required, provided that the risks posed by the site are only for those pathways addressed by the soil screening guidance. If other risks are posed, such as ecological risks, the site may require further study. Levels above the screening level would not automatically trigger an RA or cause a site to be designated as "contaminated" but would indicate that further evaluation of the site was required.

EPA continued to work on the soil screening guidance that will provide guidelines for developing risk-based, site-specific SSL values. The SSL values can be compared to samples taken from a site to determine whether a site poses a risk from a soil contaminant and would warrant further study. The soil screening guidance will assist in focusing investigation efforts on significant contaminants and exposure pathways of concern. The guidance will also provide a standard method of ruling out certain

areas of a site from further concern and study.

During FY94, the Agency held numerous outreach meetings with the Department of Energy (DOE), Department of Defense (DOD), Department of Housing and Urban Development, lenders, auditors, insurers, industry, and environmental groups to discuss SSLs. In addition to the stakeholder meetings, the Agency met frequently with Association of State and Territorial Solid Waste Management Officials, who represent state interests.

The Agency conducted several projects to technically evaluate the exposure pathways and sampling methods proposed in the guidance. For example, EPA completed a pilot study of 10 sites. From the results, the Agency determined that exposure pathways used in the guidance are sufficient to model exposure pathways of residential areas and that additional exposure pathways do not need to be incorporated into the SSL process. The Agency also initiated a SSL demonstration project to verify that the sampling methods described in the draft guidance are adequate. Through the project, the Agency will analyze soil obtained from a Superfund site using the proposed sampling methods.

Based on stakeholder input and the technical analyses, the Agency revised the draft soil screening guidance and, in August 1994, distributed a revised draft of the guidance to Regions and the states for additional review. The August 1994 draft of the soil screening guidance established threshold levels for 100 chemical concentrations in soil that warrant site-specific study of risks. On December 30, 1994, the Agency also published a Notice of Availability of the draft soil screening guidance in the *Federal Register* to solicit further public comment.

EPA began developing an outreach document for the general public to explain the soil screening process in clear and concise language. EPA also asked community groups to comment on the clarity of the draft soil screening guidance for a non-technical audience.

4.3.3 Addressing Technical Complexities of Ground-Water Cleanup

EPA continued to evaluate technical and policy solutions that are designed to address the pervasiveness of DNAPL contamination in ground water. DNAPLs are contaminants, such as chlorinated solvents, that have extremely complex characteristics, do not mix with water, and typically accumulate at the bottom of a contaminated ground-water source. Because of these characteristics, DNAPLs are difficult to detect and complicate the cleanup of ground water. Agency research indicates that approximately 85 percent of all Superfund sites have ground-water contamination, and 60 percent of all Superfund sites are likely to have DNAPL contamination.

To address the technical difficulties associated with DNAPL contamination, the Agency continued to develop a comprehensive strategy for detecting and addressing the contamination. The strategy focuses on locating contaminant ground-water plumes and DNAPL sources within plumes, evaluating the extent of DNAPL contamination, and initiating appropriate responses using a phased approach. The strategy places special emphasis on the use of early actions to prevent exposure, contain plumes and DNAPL sources, and prevent migration. In addition, the strategy encourages continued efforts to develop innovative technologies for addressing DNAPL contamination.

The Agency also issued guidance on October 4, 1993, providing a consistent process for invoking the TI waiver. The waiver is invoked primarily at contaminated ground-water sites, particularly sites that may be contaminated with DNAPLs. In situations where currently available technology will not achieve performance standards for remediation, the Agency may invoke the waiver, and further actions will be focused only on preventing migration of, and exposure to, the contaminants. Since issuing the TI waiver guidance, EPA has focused on broadening Regional,

state, and PRP awareness and understanding of the guidance and on developing an implementation strategy. Based on its analysis of the site-specific TI evaluations, the Agency drafted an implementation strategy that was near completion at the end of the fiscal year.

To further examine the various policy issues involved in addressing DNAPL contamination, the Agency conducted technical training seminars in all 10 Regions during FY94. Over 2,500 participants attended, including representatives from states, other federal agencies, and academia; private and public contractors; and PRPs.

4.4 Remedy Selection

The Agency signed 99 RODs in FY94, including 39 new and amended RODs for PRP-financed and Fund-financed sites and 60 RODs for federal facility sites. The ROD documents the results of all studies performed on the site, identifies each remedial alternative that the Agency considered, and explains the basis for selecting the remedy. The ROD is signed after the RI/FS is completed and the public has had the opportunity to comment on the remedial alternatives that are being considered to clean up the site.

The Agency selected a variety of remedies in FY94 RODs, based on a careful analysis of characteristics unique to each site and the proximity of each site to people and sensitive environments (wetlands and endangered wildlife are examples of environmental resources that are taken into consideration when evaluating remedies). Congress, with the enactment of SARA, indicated that EPA should give preference to permanent remedies, such as treatment, rather than temporary remedies, such as containment.

A list of the 99 RODs signed during FY94 is provided in Appendix C. To fulfill the statutory requirement of CERCLA Section 301(h)(1)(A) to provide an abstract of each feasibility study (i.e., ROD), a summary of each ROD will be published separately in the *ROD Annual Report: Fiscal Year 1994*.

4.5 Use and Development of Treatment Technologies

In SARA, Congress amended CERCLA to require that EPA favor the use of permanent remedies over containment or disposal in selecting remedies for Superfund sites. In each of the past six years, more than 70 percent of the RODs have contained provisions for the treatment of at least some waste.

To support the Agency's efforts to develop and improve treatment remedies, the Office of Research and Development (ORD) administers the Superfund Innovative Technology Evaluation (SITE) program for developing, demonstrating, and evaluating new treatment, monitoring, and measurement technologies and disseminating unbiased and validated information about them. Cooperatively, ORD and the Office of Solid Waste and Emergency Response (OSWER) have also established six technical support centers (TSCs) and the Superfund Technical Liaison (STL) program. A seventh TSC has been established with the Office of Air and Radiation (OAR). The purpose of the TSCs and STL program is to increase the speed and quality of Superfund cleanups and reduce clean-up costs by providing Superfund staff with direct technical support from the Agency's scientists and technical experts. ORD also supports information transfer activities, such as seminars, bulletins, and electronic information sources, and supplies technical assistance to the federal, state, and public sectors for evaluating potentially applicable treatment technologies.

Within OSWER, the Technology Innovation Office (TIO) is responsible for encouraging the use of innovative technologies under Superfund. TIO produces a variety of reports, journals, databases, and conferences to inform project managers, engineers, academics, contractors, and other interested

parties about the availability of new technologies and their potential applications. TIO works with other offices within the Agency to affect policy change, analyze trends in technology application, identify vendors and remediation markets, collect cost and remediation data, and champion innovative technologies. Outside EPA, TIO works with other federal agencies and the private sector in collaborative efforts to demonstrate technologies and coordinate research activities.

4.5.1 Superfund Innovative Technology Evaluation Program Progress

Historically, the use of innovative treatment technologies at contaminated sites has been impeded by a lack of reliable cost and performance data. To overcome this impediment and to respond to the increased demand for validated hazardous waste treatment technologies, SARA directs EPA, "to carry out a program of research, evaluation, testing, development, and demonstration of alternative or innovative treatment technologies...which may be utilized in response actions to achieve more permanent protection of human health and the environment"" (CERCLA Section 311(b)1, as amended by SARA Section 209(b)). The SITE program was established by ORD and OSWER to satisfy these statutory requirements and to support the Agency's efforts to develop and implement faster, more effective, and less costly treatment remedies.

The program, which completed its ninth year in FY94, is considered the pioneer and model program for demonstrating and evaluating full-scale, viable, innovative treatment technologies at hazardous waste sites. It serves as an integral part of the EPA's research into alternative methods for cleaning up the sites. It is also the first program to provide cost sharing opportunities for the private sector by awarding cooperative agreements (CAs) to technology developers and sharing the costs of evaluating participating technologies.

The SITE program supports all stages of technology development, from bench-scale and pilot tests to full-scale field demonstrations. EPA documents and publishes engineering, performance, and cost data on the technologies tested as part of the program to assist the user community in making selections for site characterization and remediation, and assists developers in commercialization activities. From its inception in 1986 through FY94, 88 technologies have successfully been demonstrated through the SITE program. As of the end of FY94, there were 86 technology developers participating in the program.

As intended, the Agency's continuing efforts under the SITE program to compile and communicate data to the user community has increased the number of innovative technologies being employed. This upward trend exemplifies the program's effectiveness in implementing the Congressional mandate. EPA's analysis of technologies evaluated under the SITE program also indicates that innovative treatment technologies are more cost-effective than standard remedial treatments. For example, Exhibit 4.5-1 illustrates the cost savings identified in a limited study of 17 RODs under which remedial technologies in the SITE program were tested. The average cost savings for using innovative treatment technology versus standard treatment per site was $21 million, representing a savings of 62 percent.

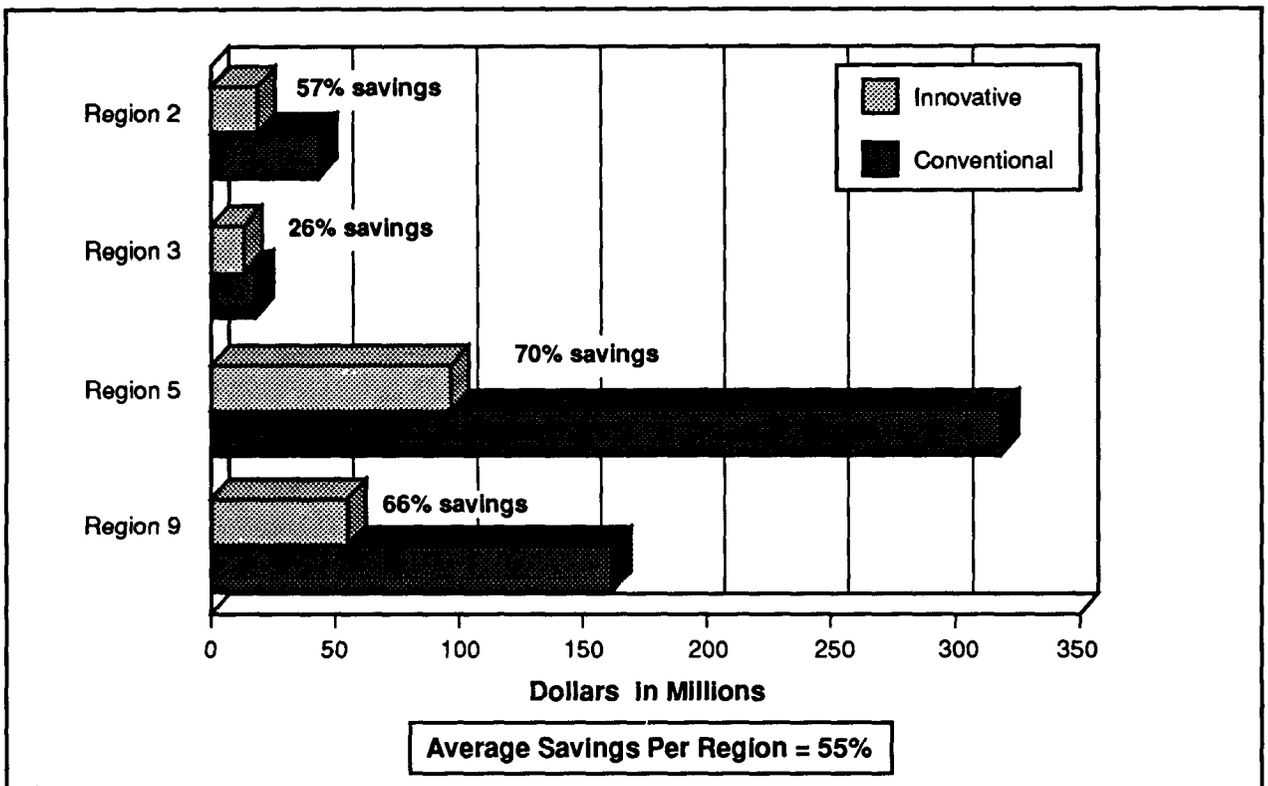
Successful implementation of innovative technologies requires a team approach. To ensure the timely introduction of new technologies into the marketplace, the SITE program maintains flexibility and maximizes the efficient use of available resources by working with other federal and state agencies, the private sector, EPA Regional offices, the Superfund Technical Assistance Response Team (START), OSWER, and technology developers. The Test and Evaluation Facility and the Center Hill Facility in Cincinnati, Ohio are also used to evaluate innovative technologies.

Operational Areas

The SITE program consists of the following four components:

- The Emerging Technology program;
- The Demonstration program;
- The Characterization and Monitoring program;

Exhibit 4.5-1
Cost Savings Associated with the Use of Innovative Technologies at 17 Sites[1]



[1] 1990-1992 ROD information: Not including administrative costs

Source: Office of Research and Development. 51-044-30

and

- Technology Transfer.

The Emerging Technology and Demonstration programs are administered by the Risk Reduction Engineering Laboratory in Cincinnati (RREL-Cin), Ohio. The Characterization and Monitoring program is administered by the Environmental Monitoring Systems Laboratory - Las Vegas (EMSL-LV), Nevada. Technology Transfer is an integral component of each of the SITE operational programs.

Emerging Technology Program: The SITE Emerging Technology program is EPA's first program to provide an opportunity to the private sector to share costs in technology development. Through CAs under the program, EPA provides technical and financial support to developers for researching, developing, and advancing promising technologies from proof of concept, bench-, and pilot-scale to field demonstration and commercialization. Approximately 97 percent of the developers in the program are small businesses.

Under the Emerging Technology program, the applicability of particular technologies to Superfund site waste characteristics is evaluated, and technologies showing promise may be considered for more rigorous testing in the SITE Demonstration program. Each technology's performance is documented in a final report, project summary, and bulletin. Since the program's inception in 1987, the Agency has accepted 72 technologies into the program. Forty-two of the technology projects have been completed and 30 are ongoing. Exhibit 4.5-2 categorizes the completed and ongoing technology projects by treatment type. Technology development projects range from bench-, pilot-, and field-levels of

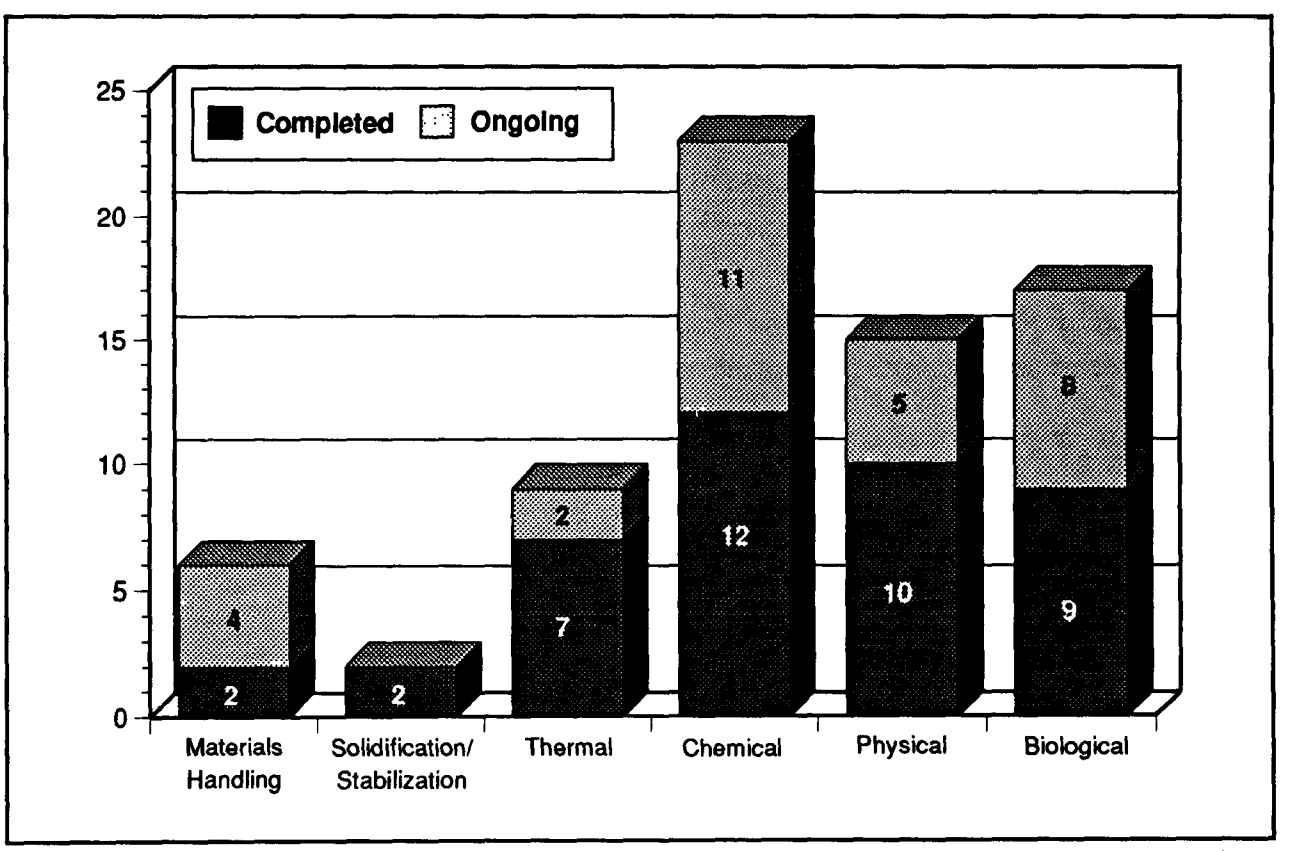
research, with over 20 of the 30 on-going technologies involved in field development.

Technologies in the Emerging Technology program include eight technologies accepted in the program during FY94. Exhibit 4.5-3 describes these eight technologies. Exhibit 4.5-4 describes the nine projects that were completed under the program in FY94.

Demonstration Program: The SITE Demonstration program develops reliable engineering, performance, and cost data on innovative, alternative technologies so that potential users can evaluate a technology's applicability for a specific waste site. The goal of the SITE Demonstration program is to encourage the commercial use of promising innovative treatment technologies that are better, faster, and more cost-effective than available treatment technologies. Demonstrations are conducted on hazardous waste sites, including NPL and non-NPL sites, or under simulated hazardous waste site conditions at developer or federal test and evaluation facilities. Data collected from SITE demonstrations and its analysis provide technology users with both quantitative and qualitative information on the technology's performance, potential need for pre- and post-processing, applicable waste and media types, potential operating problems, and approximate capital and operating costs. Technology evaluations also provide valuable insight into long-term O&M costs and risks.

Seventeen new technologies were accepted into the Demonstration program in FY94, including five from the SITE program's annual requests for proposals, eight from nominations by EPA's Regional offices and other government agencies, and four from the SITE Emerging Technology program. Exhibit 4.5-5 provides a summary of new technologies accepted into the SITE Demonstration program in

Exhibit 4.5-2
Emerging Technology Program Projects by Treatment Category



Source: Office of Research and Development.

51-044-29

Exhibit 4.5-3
SITE Emerging Technology Projects Accepted Into Program In Fiscal Year 1994

Treatment Category: Chemical

Institute of Gas Technology, Illinois, developed a supercritical extraction/liquid phase oxidation process to remove and destroy contaminants in soil and sludge. The process uses supercritical fluid extraction and wet-air oxidation steps to treat chlorinated and nonchlorinated PAHs, PCBs, and other organic compounds. The process is suitable for both high and low concentrations of organic contaminants.

Membran Corp., Minnesota, developed a membrane apparatus to transfer gases into water without bubble formation and VOC emissions. The device will be tested in bioreactors that require the transfer of oxygen, methane, and hydrogen into the water phase to biodegrade petroleum hydrocarbons and chlorinated solvents. The device is also applicable to *in situ* ground-water treatment.

M.L. Energia, New Jersey, uses reductive thermal oxidation and reductive photo-thermal oxidation to convert chlorinated hydrocarbons into environmentally benign and useful materials such as hydrocarbons, hydrogen chloride, and carbon dioxide. The process is applicable to the treatment of air streams contaminated with chlorinated hydrocarbons.

IT Corporation, Ohio, developed a process that removes heavy metals from contaminated soil and sludge by forming a soluble chelate that can be separated, leaving clean soil. The technology is potentially applicable to the treatment of a wide variety of metal-contaminated hazardous wastes.

University of Houston, Texas, invented a concentrated aqueous salt solution to extract lead from contaminated soil. The technology is especially applicable to battery waste sites. The project will also evaluate uses of the technology to extract other heavy metals.

Treatment Category: Biological

ABB Environmental Services, Massachusetts, created an *in situ* biological treatment for compounds such as tetrachloroethylene and trichlorethylene in saturated soils and aquifers. Advanced anaerobic/aerobic sequential biodegradation is a key element in the process.

Geo-Microbial Technologies, Oklahoma, uses anaerobic biotreatment to release toxic metals from contaminated soil. The process has advantages over aerobic biotreatment, which can produce waste streams containing sulfuric acid and soluble heavy metals. The process is applicable to the treatment of soil, sludge, and sediment contaminated with metals, hydrocarbons, and organic pollutants.

Treatment Category: Materials Handling

TMA Eberline (Thermo Analytic), New Mexico, developed a material handling process to automatically separate radioactive material from otherwise clean soil. The process may dramatically reduce the overall amount of material requiring disposal by minimizing the amount of clean soil that is co-mingled with radioactive material.

51-044-33

Exhibit 4.5-4
Projects Completed Under the SITE Emerging Technology Program in Fiscal Year 1994

Treatment Category: Chemical

Cognis, California, developed the TERRAMET® soil remediation system, that leaches and recovers lead and other metals from soil, dust, sludge, or sediment. An aqueous leachant is used to remove most types of lead contamination: metallic lead, soluble ions, and insoluble lead oxides and salts. The project has achieved greater than 98 percent lead removal. Based on initial results, this project was also accepted into and evaluated in the SITE Demonstration program.

ART International, New Jersey, created a special combination of organic solvents in an innovative chemical process to extract organic pollutants from soil, sediment, and sludge. The technology, known as the LEEP® process has application for a wide range of contaminants including tar, chlorinated hydrocarbons, PAHs, PCBs, pesticides, and wood-preserving compounds. A pilot plant has been constructed and commercialization activities for a full-scale unit are underway.

Matrix Photocatalytic, Canada, developed a process to destroy organic contaminants in air using a titanium dioxide photocatalytic reactor. The system can treat a wide range of chlorinated and nonchlorinated VOCs, including more resistant compounds such as carbon tetrachloride. The project has been invited into the SITE Demonstration Program where both air and water waste streams will be evaluated.

Treatment Category: Physical

Pulse Sciences Inc., California, uses high-energy x-rays to destroy organic contaminants, leaving only nontoxic by-products. The technology treats groundwater and wastewater contaminated with chlorinated and nonchlorinated organic compounds, and substances that can deplete the ozone layer, such as freon.

Treatment Category: Biological

New Jersey Institute of Technology, New Jersey, integrated two innovative techniques—pneumatic fracturing of soil and bioremediation—to enhance *in situ* remediation of soil contaminated with petroleum hydrocarbons and BTEX compounds. The project was successful and a full-scale demonstration is anticipated. A two-year field development effort was completed at a British Petroleum site in Maryland.

Treatment Category: Materials Handling

Montana College of Mineral Science, Montana, uses a specially designed hydrocyclone to treat mining wastes containing heavy metals. The wastes are a source of ground- or surface-water contamination. The process is especially applicable to heavy metal sulfides. Currently, investigators are in search of waste sites to demonstrate this technology.

EA Technology, United Kingdom, developed a comprehensive soil-separation and washing process to remove metals, petroleum hydrocarbons, and polynuclear aromatic hydrocarbons. This process may also be applicable to sediment and sludge. This technology can provide stand-alone treatment or be incorporated in a treatment train.

51-044-34_1

Exhibit 4.5-4
Projects Completed Under the SITE Emerging Technology Program in Fiscal Year 1994, cont.

Treatment Category: Thermal
University of Dayton, Ohio, created an air-treatment process using photothermal reactions conducted at moderate temperatures (200–500°F) to destroy a wide range of organic compounds including PCBs and chlorinated solvents. The process offers much higher throughput than other photo-oxidation processes. In addition, no dioxin or furan was formed, which can be problematic by-product of conventional thermal oxidation processes. A full-scale demonstration is anticipated.
Treatment Category: Solidification/Stabilization
Western Product Recovery, Texas, invented a chemical bonding and adsorbtion process to convert heavy metals in soil, sediment and sludge to non-leaching ceramic silicate pellets that can either be left on site or used as an aggregate for concrete or other applications. The process can also oxidize organics in the waste stream; the resulting ceramic pellets will be organic free. Efforts are underway to design a transportable production unit.

51-044-34_2

FY94. As of the end of FY94, the SITE Demonstration program included 117 accepted, ongoing, and completed technologies. Thirteen of the technologies were evaluated in the field in FY94 and are described in Exhibit 4.5-6.

Characterization and Monitoring Program: The goal of the Characterization and Monitoring program is to validate the performance of innovative and alternative monitoring, measurement, and site characterization technologies. This validation accelerates the recognition of technologies that have the potential to provide cost-effective, high quality, faster, or safer means of detecting, quantifying, and monitoring contaminants at Superfund sites.

Through FY94, the program has involved more than 32 different characterization and monitoring technologies. During FY94, the program received peer review comments from the FY93 demonstration of PCB screening technologies and incorporated these changes into a revised report format. Also during the fiscal year, nine technologies were demonstrated for pentachlorophenol (PCP) and cone-penetrometer-deployed sensors. The PCP demonstration involved five technologies, including four immunoassay test kits and a field analytical screening technology, that were demonstrated in conjunction with a remediation technology, base catalyzed decomposition process. Cone-penetrometer-deployed sensors demonstrated included resistivity, pH, seismology, and temperature; soil, water, and vapor sampling; and two laser fluorescence screenings for polyaromatic hydrocarbons (PAHs) and BTEX. In addition, EMSL-LV initiated plans for demonstrating and evaluating a field portable x-ray fluorescence spectrometer.

Technology Transfer Program: Technical information from the three innovative technology programs described above is disseminated through various activities to increase awareness and promote the commercial use of innovative technologies for assessment and remediation of Superfund sites. These activities include publishing and distributing SITE program documents such as project-specific fact sheets, bulletins, capsules, application reports, peer review journal articles, and technical data packages; conducting community outreach activities such as presentations at conferences, program-specific brochures, on-site visitor's days, demonstration videotapes, and exhibits; participating in forums, interagency task forces, and associations; and

Exhibit 4.5-5
New Technologies Accepted Into the SITE Demonstration Program In Fiscal Year 1994

Treatment Category: Physical/Chemical

SIVE Services, California, created an enhanced steam-injection and vacuum extraction method designed for *in situ* treatment of contaminated soil at relatively shallow depths.

Lockheed Missiles and Space Co., California, created a batch electrokinetic remediation (BEKR) process that uses ceramic electrodes to move contaminants through soil. Water is circulated through the electrode casings to collect and remove contaminants. The BEKR process is designed to remove both toxic anions and cations from soil, mud, and sludge. Regeneration of the system produces a concentrated contaminant brine that can be treated further or disposed.

Morrison Knudsen, Corp., Idaho, created a clay-based grouting technology that integrates three primary phases: obtaining detailed information about site characteristics, developing a site-specific grout formulation, and placing the grout. The technology, developed by a Ukrainian firm, is being evaluated at an abandoned mine in Montana.

Process Technologies, Inc., Idaho, developed a photolytic destruction process that photolyses vapor-phase halogens. Key features of the technology include that there are no moving parts, and its modular design allows for easy scale-up. A demonstration of the technology was initiated in late September, 1994 at McClellan Air Force Base in Sacramento, California, to treat off-gases from an existing soil-vapor extraction system.

Electro-kinetics, Louisiana, developed the Electro-Klean electrokinetics soil process that separates and extracts heavy metals and organic contaminants from soil. This technology may be applied *in situ* or *ex situ*, and uses direct currents with electrodes placed on each side of the contaminated mass. Several studies of this technology have been previously conducted under the Emerging Technology Program. Sandia National Laboratories, New Mexico, created the Electrokinetic remediation technology, an in-situ process designed to treat cadmium in arid soil. A demonstration of the technology is planned for mid-1995 in Albuquerque, New Mexico.

Xerox, Corp., New York, developed a two-phase extraction process that uses a high-vacuum source applied to an extraction tube within a water well to increase ground-water removal rates and to volatilize and extract that portion of contaminant from the sorbed or free-product phases. A demonstration of this process began in August 1994 at the McClellan Air Force Base in Sacramento, California.

EET, Inc., Texas, created the TECHXTRACT™ process, employing proprietary chemical formulations in successive steps to remove PCBs, toxic hydrocarbons, heavy metals, and radionuclides from the subsurface of porous materials such as concrete, wood, brick, and steel.

RKK, Ltd., Tennessee, developed CRYOCELL®, a frozen soil barrier that completely contains waste, preventing migration to the soil, or isolates a contaminated area during an *in situ* remediation program. Preliminary tests of the technology have been conducted at the DOE Oak Ridge National Laboratory. The demonstration is planned for the DOE Hanford facility in Richland, Washington.

51-044-35_1

Exhibit 4.5-5
New Technologies Accepted Into the SITE Demonstration Program in Fiscal Year 1994, cont.

Treatment Category: Physical/Chemical, cont.

BioGenesis Enterprises, Inc., Virginia, developed the Biogenesis℠ process that uses specialized equipment, surfactants, and water to clean soil and sediment contaminated with PCBs. The PCB sediment washing system will be tested in early 1995 at the Alameda Naval Station in Alameda, California. Another version of the Biogenesis℠ system was successfully tested on hydrocarbons under the SITE program in 1992.

Matrix Photo-catalytic, Ltd., Canada, developed a photocatalytic oxidation system that removes and destroys dissolved organic contaminants from water in a continuous flow process at ambient temperatures. The system also treats chlorinated compounds such as PCBs. A demonstration of the technology is planned at the DOE Oak Ridge National Laboratory.

Matrix Photo-catalytic, Ltd., Canada, created a photocatalytic oxidation system that removes and destroys organic contaminants from air.

TriWaste Reduction Services, Inc., Canada, developed the TriWaste Reduction system that combines a thermal phase separation system with a soil-washing treatment system. The system is designed to treat metals and chlorinated organic compounds.

Treatment Category: Biological

Pintail Systems, Inc., Colorado, created a technology that uses microbial detoxification of cyanide in heap leach processes to reduce cyanide levels in spent ore and process solutions. Two full-scale cyanide detoxification projects have been completed, and a demonstration is planned for the Summitville Mine Superfund site in Colorado.

SBP and Environmental Laboratories, Inc., Connecticut, created the vacuum-vaporized well system consisting of a specially adapted ground-water well, a negative-pressure stripping reactor, an *in situ* bioreactor, and an above-ground vapor-phase bioreactor. The technology is a part of the demonstration jointly sponsored with the New York State Department of Environmental Conservation (NYDEC) and the New York State Center for Hazardous Waste Management.

R.E Wright Associates, Inc., Pennsylvania, developed a process using a bioventing technology in which injection and extraction wells enable the developer to regulate oxygen and nutrient levels to stimulate the native bacteria in the soil to biodegrading the contaminants of concern. The technology is a part of the demonstration jointly sponsored with the NYDEC and the New York State Center for Hazardous Waste Management.

ENSR Consulting & Engineering and Larson Engineering, Texas, developed a process that treats VOC-soils in biovaults. Nutrients, moisture, and oxygen levels can be controlled within the constructed vaults. The technology is a part of the demonstration jointly sponsored with NYDEC and the New York State Center for Hazardous Waste Management.

Treatment Category: Thermal

Vortec, Corp., Pennsylvania, developed a system that oxidizes and vitrifies soil, sediment, sludge, and mill tailings that have organic, inorganic, and heavy-metal contamination. The technology was previously tested under the Emerging Technology Program. Transportable systems are being developed for soil remediation at DOE facilities.

51-044-35_2

Exhibit 4.5-6
SITE Demonstration Projects Completed in Fiscal Year 1994

Treatment Category: Physical/Chemical, cont.

Cognis, Inc., California, demonstrated the Cognis TERRAMET® soil-remediation system for leaching and recovering lead and other metals from contaminated soil, dust, sludge, or sediment. Appropriate sites include contaminated ammunition testing areas, firing ranges, battery-recycling centers, scrap yards, metal-plating shops, and chemical manufacturers. The technology was demonstrated at the Twin Cities Army Ammunition Plant in New Brighton, Minnesota.

North American Technology/Aprotek, California, demonstrated a hydrocarbon-recovery technology that uses an oleophilic amine-coated ceramic chip to separate suspended and dissolved hydrocarbons, and some chemical emulsions from aqueous solutions. The technology is effective on gasoline, crude oil, diesel fuel, benzene, toluene, ethylbenzene, xylene compounds, as well as PAHs, and a variety of chlorinated hydrocarbons. This technology was demonstrated in Fort Lauderdale, Florida.

ROCHEM, California, demonstrated the ROCHEM Disc Tube Module System™ that uses membrane separation to treat aqueous solutions ranging from waste water to leachate contaminated with organic solvents. Many types of waste material can be treated with this system, including sanitary and hazardous landfill leachate containing both organic and inorganic contaminants. The Disc Tube Module System was demonstrated in Johnston, Rhode Island.

Roy F. Weston, California, demonstrated the Unterdruck-Verdampfer Brunnen (UVB) vacuum-vaporizing well, an in-situ system for remediating contaminated aquifers, especially those contaminated with VOCs. Depending on the circumstances, the UVB system may also remediate semivolatile organic compounds (SVOCs) and heavy metals. The demonstration was conducted at March Air Force Base in Ontario, California.

Billings & Associates, Inc, New Mexico, demonstrated the subsurface volatilization and ventlation system (SVVS®) technology that uses a network of injection and extraction wells to treat subsurface organic contamination using soil vacuum extraction in combination with in-situ biodegradation. The system applies to sites with leaks or spills of gasoline, diesel fuels, and other hydrocarbons, including halogenated compounds. The SVVS® was demonstrated in Buchanan, Michigan.

Terra Kleen Response Group, Inc., Oklahoma, demonstrated a solvent extraction treatment system, a waste minimization process designed to remove SVOCs, VOCs, and chlorinated compounds from soils. The system was demonstrated in San Diego, California.

Dynaphore Inc., Virginia, created the Dynaphore FORAGER® Sponge; an open-celled cellulose sponge with an amine-containing polymer that has a selective affinity for aqueous heavy metals in both cationic and anionic states. The sponge can scavenge metals in concentration levels of parts per million and parts per billion from industrial discharges, municipal sewage, process streams, and acid mine-drainage waters. The sponge was demonstrated in Pedricktown, New Jersey.

51-044-36_1

Exhibit 4.5-6
SITE Demonstration Projects Completed in Fiscal Year 1994, cont.

Treatment Category: Biological
J.R. Simplot, Idaho, demonstrated the Simplot anaerobic biological remediation (SABRE™) process designed to treat soils contaminated with nitroaromatic pollutants. The technology was demonstrated on trinitrotoluene at the Weldon Springs Ordnance Works, an abandoned manufacturing site in Weldon Springs, Michigan. *Grace Dearborn, Inc, Canada*, demonstrated the organic amendment-enhanced bioremediation technology (DARAMEND™), designed to degrade organic contaminants, including PCP, PAHs, and petroleum hydrocarbons in industrial soil and sediment. The technology treats batches of soil by incorporating DARAMEND™ amendments into the soil using conventional agricultural methods. The technology was demonstrated in Ontario, Canada.
Treatment Category: Thermal
KAI Technology, Massachusetts, demonstrated a radio frequency heating (RFH) *in situ* process, that uses electromagnetic energy to heat soil and improve soil vapor extraction. The RFH technique has been tested in removing petroleum hydrocarbons, VOCs and SVOCs from soil. It was demonstrated at Kelly Air Force Base as part of a joint project with the U.S. Air Force Armstrong Laboratory in San Antonio, Texas. *Maxymillian Technology, Inc., Massachusetts*, demonstrated a portable thermal-desorption system (TDS) that uses rotary kiln technology to remove contaminants from soil. The TDS is designed to remediate soil contaminated with VOCs, SVOCs, and PAHs, and was demonstrated in Utica, New York. *Texaco Syngas, Inc., New York*, demonstrated an entrained-bed gasification process, a noncatalytic, partial oxidation process in which carbonaceous substances react at elevated temperatures and pressures, producing a gas containing primarily carbon monoxide and hydrogen. This gas can be used to produce other chemicals or burned as fuel. The system can treat soil, sludge and sediment contaminated with both organic and inorganic constituents, chemical wastes, and petroleum residues. The process was demonstrated in Fresno, California. *Geosafe, Corporation, Washington*, demonstrated an *in situ* vitrification system that uses electric currents to melt soil or other earthen materials at high temperatures, destroying organic pollutants by pyrolysis. Inorganics are incorporated within the vitrified glass and crystalline mass. This technology was demonstrated in Grand Ledge, Michigan.

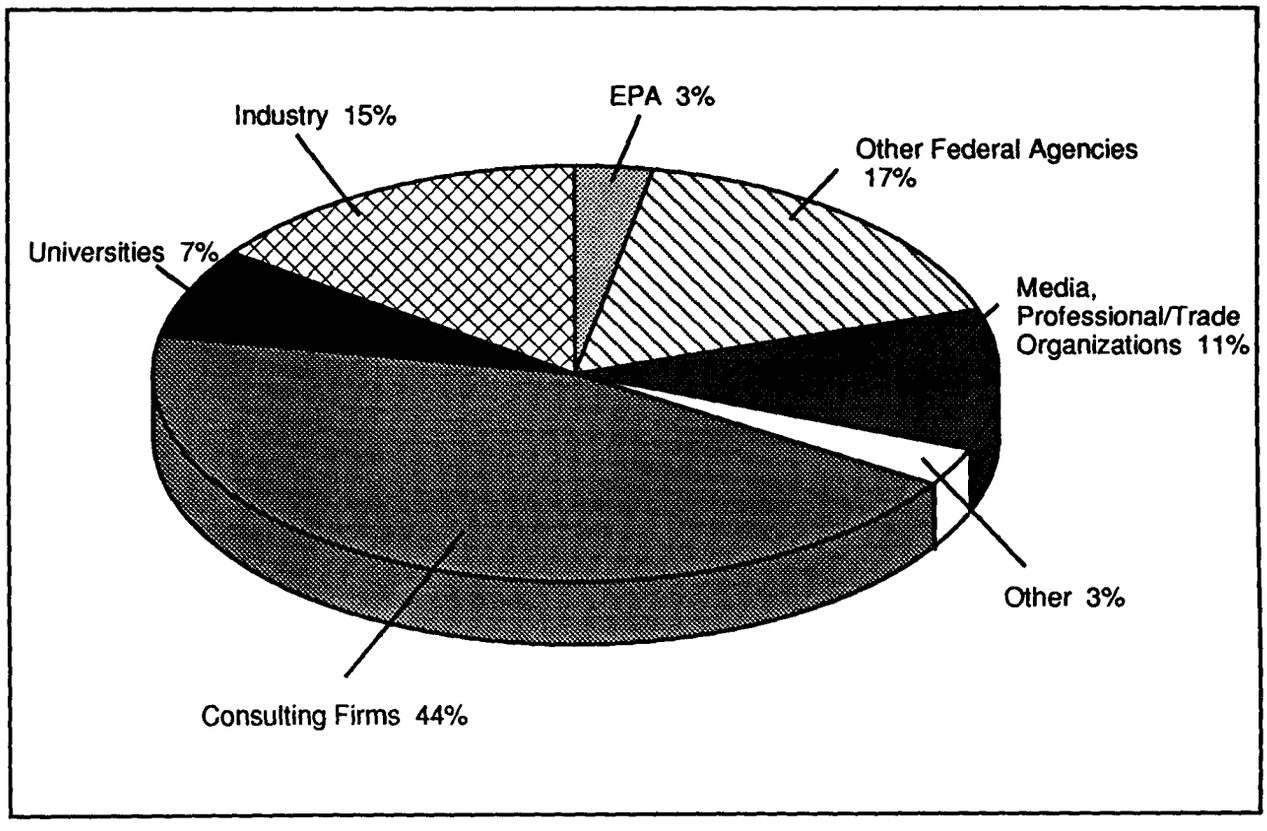
providing technical assistance to Regions, states, and remediation clean-up contractors. Nearly 323,000 SITE program publications were distributed to requesters in FY94, including approximately 1,000 technical evaluation reports, 78,000 summaries, 109,000 application reports, 16,500 profiles, and 119,000 bulletins. As illustrated in Exhibit 4.5-7, the highest percentage of requests (44 percent) came from engineering consulting firms.

51-044-36_2

4.5.2 Superfund Technical Assistance Programs

Superfund projects require broad technical knowledge and expertise. To provide multi-disciplinary expertise and technical support for Superfund cleanups, the Agency sponsors TSCs,

Exhibit 4.5-7
Requests for SITE Documents



Source: Office of Research and Development. 51-044-28

START, the ORD STL program, and the Ground-Water and Engineering Forums. The goals of these technical assistance programs are to increase the speed and quality of Superfund cleanups, reduce clean-up costs, address technical issues encountered in site cleanup, and provide Regional Superfund staff with direct access to the technical expertise and resources of the Agency's researchers.

Technical Support Centers and Superfund Technical Assistance Response Team

In FY94, the Agency funded seven TSCs: five ORD laboratories, the OERR Environmental Response Team (ERT), and one OAR laboratory. ORD also sponsored the START program. The purpose of the TSCs and the START program, described in detail below, is to provide site-specific technical assistance in the areas of release response, site characterization, human health risk assessment, ecological assessment, radiological evaluation, ground-water remediation, and engineering. The TSCs and START program responded to approximately 430 technical support requests at more than 400 Superfund sites in FY94. The TSCs and START program are invaluable to the Agency's Superfund effort, fulfilling a critical niche in developing and delivering the best expertise available in support of faster, better, and more cost-effective cleanups.

Monitoring and Site Characterization TSC: ORD-Environmental Monitoring Systems Laboratory-Las Vegas, Nevada : The EMSL-LV TSC provides scientific and technical assistance for contaminant detection, sampling/monitoring design, hydrological

monitoring, site characterization, data interpretation, and geophysics. The EMSL-LV TSC delivers a range of services for application at Superfund sites, including saturated and unsaturated zone modeling; remote sensing, mapping, and geostatistics; analytical methods and quality assurance; bore-hole and surface geophysics; x-ray fluorescence field survey methods; sampling and monitoring design assistance; mixed waste assistance; and radiological analysis.

In FY94, the EMSL-LV TSC provided technical assistance for 44 Superfund sites, typically providing multiple support activities at individual sites. In addition, the EMSL-LV TSC responded to 123 short-term requests for technical support (i.e., requests that can be completed within a 40-hour period) and 12 requests for remote sensing support. EMSL-LV TSC scientists also wrote an issue paper titled *Identifying Background Levels of Naturally Occurring Inorganics and Man-Made Substances in Soils and Sediments*. In response to a request to EPA's Office of International Activities (OIA) received through the U.S.-Asia Environmental Partnership program, the EMSL-LV TSC assisted the Republic of Palau in identifying methods to determine whether hazardous leachate from a landfill was migrating into, and damaging, the surrounding sensitive environment.

Health Risk Assessment and Toxicology TSC:: ORD-Environmental Health and Criteria Office-Cincinnati, Ohio: The Environmental Health and Criteria Office-Cincinnati (ECAO-Cin) TSC functions as a focal point to coordinate Agency-wide assistance in the area of human health risk assessment. Coordinating with OERR's Toxics Integration Branch, ECAO-Cin identifies future research issues and ensures consistent dissemination and use of risk assessment toxicity values and other guidance. Technical services available from the ECAO-Cin TSC include chemical-specific and chemical-mixture toxicity information; support for the Health Effects Assessment Summary Tables (HEAST); support for the *Risk Assessment Guidance for Superfund-Human Health Evaluation Manual*; technical review and comment on site-specific Superfund risk assessments; and coordination of information for the risk assessment teleconference for Superfund.

In FY94, the ECAO-Cin TSC responded to approximately 2,500 requests for individual chemical toxicity values. In addition, the ECAO-Cin TSC updated 25 risk assessment issue papers, reviewed and revised 22 subchronic assessments for the annual update of HEAST, and processed 360 support questions from HEAST users.

Ecological Assessment TSC: ORD-Environmental Monitoring Systems Laboratory-Cincinnati, Ohio: The Environmental Monitoring Systems Laboratory-Cincinnati (EMSL-Cin) TSC develops indicators of ecological conditions and provides technical assistance in aquatic and terrestrial ecological assessment, including technical reviews, biological collection and assessment of aquatic and terrestrial systems, physical habitat assessment, and ecotoxicity assessments. Ecotoxicity assessments include toxicity testing of water, sediment, and soil with vertebrates, invertebrates, and plants. The EMSL-Cin TSC conducted 130 water-column and 48 toxicity tests at nine hazardous waste sites in FY94. Bioassessments using fish, macroinvertebrates, and periphyton were also conducted at three of these sites.

In addition to providing direct technical support, the EMSL-Cin TSC conducts important ecological research into how contaminants from hazardous waste sites affect ecological resources. For example, EMSL-Cin ecologists have constructed 12 artificial streams to function as mesocosms that can be used to study the impacts of mine wastes on water plants and fish communities. Using these artificial streams, EMSL ecologists have begun evaluating the impact on aquatic ecology of zinc, a major metal of concern in hard rock mining.

Ground-Water Characterization and Remediation TSC: ORD-R.S. Kerr Environmental Research Laboratory-Ada, Oklahoma: The R.S. Kerr Environmental Research Laboratory (RSKERL) is EPA's center for fate-and-transport research; it focuses its efforts on contaminants in the vadose and saturated zones of the subsurface, methodologies relevant to protection and restoration of ground-water quality, and evaluation of subsurface processes for the treatment of hazardous waste. The RSKERL

TSC provides technical assistance in the areas of pump-and-treat aquifer remediation, bioremediation of soil and ground water, subsurface geochemistry, contaminant transport modeling, subsurface contamination transformation, and *in situ* treatment processes.

The RSKERL TSC completed its seventh year of service in FY94. In addition to its numerous technology-transfer activities, the TSC has 666 active or completed site-specific projects at more than 320 Superfund sites. In FY94, the RSKERL TSC responded to 112 requests for assistance and added 64 new sites to its roster, including 7 federal facilities.

The RSKERL TSC also operates the Center for Subsurface Modeling Support (CSMoS) and the Subsurface Remediation Information Clearinghouse (SRIC). CSMoS provides direct technical support to EPA and state decision-makers in subsurface model applications. In addition, CSMoS manages, distributes, and supports the ground-water and vadose zone models and databases researched and developed at RSKERL. CSMoS has distributed more than 3,474 models in response to 1,717 requests, 65 percent of which were from private institutions such as consulting firms. SRIC provides a forum for rapidly developing, highly specialized scientific information. Activities include developing, collecting, evaluating, coordinating, and disseminating information related to the fate and transport of contaminants in soil and ground water. In FY94, SRIC distributed more than 6,932 publications in response to 2,554 requests. In addition, 11 technology transfer activities were provided for EPA Regions, states, other federal agencies, and the private sector. These activities focused on ground-water monitoring, modeling, and investigations; mechanical integrity of injection wells; ground-water sampling methods; and bioremediation.

Engineering and Treatment TSC: ORD-Risk Reduction Engineering Laboratory-Cincinnati, Ohio: The RREL-Cin TSC plans and conducts engineering, research, and development related to treatment of solid and hazardous wastes. RREL-Cin TSC staff provide technical services involving specific treatment technologies and Superfund response processes, including treatability studies, RD/remedy selection review, construction quality-assurance/quality-control methods, and source control and geotechnical test methods.

The RREL-Cin TSC responded to over 80 requests for engineering assistance in FY94, including assistance in 26 treatability studies, 3 treatment screening option reviews, 13 technology evaluations, 6 RI/FS engineering reviews, and 27 requests for RD/RA engineering assistance. The RREL-Cin TSC also published an engineering issue paper on *in situ* treatment of unsaturated soil.

Environmental Response TSC: OERR-Environmental Response Team, Edison, New Jersey: The ERT TSC provides support for responses to releases of hazardous waste, chemicals, and oil. ERT also provides support in risk assessment, multi-media sampling and analysis, health and safety, clean-up techniques, and training for response personnel. Services include response techniques for emergency hazardous chemical releases; treatment technologies, sampling plans, and contaminant assessment; technical review of remedial and removal technologies, safety, and preparedness; the Hazardous Material Incident Response Training program; and site-safety plans, personnel protection, and safety. During FY94, ERT conducted 103 removal actions and 79 RAs, responded to 10 oil spills and 2 international incidents, and conducted 203 training courses nationwide.

Radiological and Chemical Assessment TSC: OAR-National Air and Radiation Environmental Laboratory, Montgomery, Alabama: The National Air and Radiation Environmental Laboratory (NAREL) TSC can assess, characterize, and remediate radiologically and chemically contaminated sites. In addition, the laboratory offers an expanding capability for analyzing heavy-metal and organic-waste contaminants. Specific NAREL TSC services include conducting and monitoring radiological assessment of sites; designing, evaluating, and demonstrating remediation technologies; analyzing samples for radionuclides; calculating and assessing dose and risk; evaluating, calibrating, and providing quality assurance for radon field measurements and instruments; and providing a nuclear emergency response team.

Superfund Technical Assistance Response Team: ORD-Risk Reduction Engineering Laboratory-Cincinnati, Ohio: In addition to the Engineering and Treatment TSC, RREL sponsors the START program. The START program provides intensive, long-term, site-specific technical and engineering support to provide better, faster, and more cost-effective remediation at Superfund sites with difficult engineering problems or sites of national significance. Sites admitted into the START program are nominated by EPA's Regional offices. In FY94, the START program provided assistance for 60 Superfund sites through more than 300 separate technical support activities. The START program also supported 50 treatability studies through design review and implementation and oversight of laboratory and field studies. In addition, the START program published four engineering bulletins on specific technologies, as well as two technical-resource documents on site types, such as pesticide- and solvent-contaminated sites, to help Regional staff evaluate and select the most appropriate remediation technologies.

Superfund Technical Liaison Program

Under the STL program, senior ORD scientists are permanently stationed in Regional offices. Through these ORD scientists, the STL program provides direct technical assistance to Regional staff, facilitates interaction among ORD laboratories and Headquarters' offices, promotes the application of good science within the Regional waste programs, and provides feedback to ORD on Regional technical needs.

Ground-Water and Engineering Forums

The Ground-Water and Engineering Forums, chaired by TIO, helped coordinate activities between Regional technical staff and the ORD laboratories for addressing ground-water and engineering concerns encountered in site remediation. In conjunction with the TSCs, the Ground-Water and Engineering Forums published issue papers on the remediation of PCBs, remediation of DNAPLs, use of pump-and-treat technologies, and use of *in situ* soil treatment. The forums also provided opportunities for members to conduct technical reviews of four guidance documents during the year. In addition, seven forum members joined the American Society of Testing and Materials to help review standards that relate to EPA's field protocols.

To expand interagency coordination, the forums held joint semi-annual meetings with DOE and the United States Geological Survey. The meetings improve technology transfer and aid in interagency communication and coordination.

4.5.3 Technology Transfer and Interagency Sharing

TIO, as a producer of technological information, is widely recognized as a leader in the technology innovation arena. For more than five years, TIO has identified, cataloged, and disseminated information to users on many issues, including

- Trends in the use of innovative technology at Superfund, Resource Conservation and Recovery Act (RCRA), and underground storage tank (UST) sites;
- Future markets for innovative remediation technologies;
- Procurement barriers to the use of innovative technologies;
- Support services for technology developers;
- Screening matrices for technologies; and
- Demonstrations of technologies by other federal agencies.

TIO has also brought federal agencies, academics, and the private sector together to demonstrate and evaluate technologies. The following sections detail FY94 technology transfer and interagency information sharing efforts, including forums and conferences, demonstrations and evaluations of innovative technologies, reference materials, and training and continuing education opportunities.

Innovative Technology Forums and Conferences

To encourage collaborative efforts across EPA, other federal agencies, academics, and the private sector, EPA sponsored forums and conferences for exchanging information on innovative technologies. The Agency also participated in international information exchanges.

- *Fifth Forum on Innovative Hazardous Waste Treatment Technologies: Domestic and International*: TIO and ORD sponsored this conference to increase awareness of technologies that are ready for application to clean up sites. This three-day conference introduced and highlighted innovative treatment technologies that produced significant performance results. The conference showcased results of selected international technologies, the SITE program technologies, and case studies from the SITE program.
- Federal Remediation Technology Roundtable: Through this forum, TIO provided an information exchange network for federal agencies that were conducting applied research and developing innovative remediation techniques. The roundtable published the annual updates of three documents that describe federal technology demonstrations, databases, and publications about innovative technologies. Interagency communication through the roundtable also led to several joint initiatives to demonstrate technologies and create a uniform format for documenting cost and performance information.
- Remedial Technologies Development Forum (RTDF): The RTDF, organized by TIO and ORD, encourages collaboration among companies, public interest groups, states, universities, DOE, and DOD in defining, prioritizing, and funding clean-up technologies. By consulting on technologies at the earliest stages of their development, the RTDF seeks to combine the financial and intellectual resources of consortium members to promote research coordination and eliminate duplicative research and development. The RTDF formed four workgroups to look at specific research areas: *in situ* remediation technologies, bioremediation of chlorinated solvents, site characterization, and *in situ* soil flushing. The *in situ* remediation group initiated field work in the "Lasagna" process at DOE's Paducah facility in 1994 and will continue to develop the process. The "Lasagna" process is a treatment train that integrates hydrofracturing, electro-osmosis, and *in situ* treatment of VOCs in soils containing clay. The bioremediation group is planning six research projects on intrinsic bioremediation, anaerobic bioremediation, and co-metabolic bioventing. The other two groups are working to establish protocols for testing that will lead to field demonstrations of technologies for site characterization and *in situ* flushing. The RTFD is exploring the possibility of establishing two additional focus areas: permeable treatment walls and *in situ* treatment of metal-contaminated soils.
- Marketplace Conferences: TIO conducted two marketplace conferences during FY94, one in the Northeast and the other in the Rocky Mountain region. The purpose of these conferences was to highlight business opportunities and markets for vendors and developers of innovative treatment technologies. The conferences brought together top-level state, EPA, DOD, DOE, and Department of Commerce officials with business executives from technology firms. TIO plans to conduct at least two additional conferences, one on the west coast and another in the Southeast.
- Efforts to Encourage Small Businesses: To encourage small-business innovative technology vendors and users, EPA and the Small Business Administration (SBA) signed a memorandum of understanding (MOU). Through the MOU, SBA and EPA will engage in efforts to encourage small businesses to develop, market, and/or adopt cost-effective environmental technologies, helping facilitate both economic growth and environmental compliance. In efforts to identify mechanisms to improve access to capital for

small businesses, OSWER and SBA financed a study of small business developers and users of technology. Also under the MOU, SBA initiated a study of the environmental assistance capability of its Small Business Development Center network. This study assessed the national network's potential to deliver environmental compliance, pollution prevention, and environmental development assistance for the small business community and provided a plan to implement such a program.

- International Efforts: To encourage international exchange of information on clean-up technologies, representatives of OSWER and ORD served as project directors of a pilot study for the North Atlantic Treaty Organization's Committee for the Challenges to Modern Society. This study, a follow-up to a successful effort to share information on innovative treatment technologies, evaluated both demonstrated and emerging remedial technologies for the cleanup of contaminated land and ground water. In the first phase of the study, participants discussed and exchanged information on 29 soil and ground-water remediation projects. The second phase continues work on field-demonstrated technologies, and also expands the scope to include emerging processes in earlier stages of development. Eighteen countries actively participated in this program and, at the end of FY94, 46 case study projects were underway.

Efforts to Demonstrate and Evaluate Innovative Treatment Technologies

To encourage increased use of innovative treatment technologies, TIO improved the documentation of cost and performance data for innovative treatment technologies. TIO also engaged in projects such as the public-private partnership program to demonstrate new technologies.

To measure performance or "benchmark" innovative technologies, TIO continued gathering data on 17 completed Superfund RAs that used innovative technologies for full-scale remedies. Coordinated through the Federal Remediation Technologies Roundtable, the project also aims to standardize cost and performance reporting by other federal agencies engaged in similar efforts.

In the public-private partnership program, TIO, the Air Force, Clean Sites, and potential users of innovative treatment technology collaborate to evaluate the cost-effectiveness of remediation technologies. The partnership project is based on the premise that risk-sharing is a critical incentive to encourage increased use of new technologies. Commercialization of new technologies is often hampered by the hesitation of PRPs to risk the cost of, and potential liability arising from, a failed test of a proposed technology at their site. The public-private partnership project evaluates technology applications, particularly for *in situ* processes, at federal facilities with contamination problems that are similar to those faced by the participating corporations at their own facilities. Using federal facilities as test locations is one of the government's major contributions to promoting new environmental technologies. This mutually beneficial arrangement reassures industry about the commercial use of the technology and helps to defray the government's evaluation costs. A partnership project for joint testing and evaluation of technologies at McClellan Air Force Base started in late FY94. At McClellan, the partnership is evaluating two-phase extraction and photolytic destruction.

Reference Materials

To encourage use of innovative technologies, the Agency provides and maintains a variety of reference materials on the technologies. Examples include three electronic sources of information on innovative treatment technologies: the Alternative Treatment Technology Information Center (ATTIC), the Vendor Information System for Innovative Treatment Technologies (VISITT), and the Clean-Up Information (CLU-IN) electronic bulletin board. The Agency is also developing a fourth electronic information source, the Vendor Field Analytical and Characterization Technologies System (Vendor FACTS).

- ATTIC is a comprehensive information network on alternative methods of hazardous waste treatment, developed and maintained by ORD,

that is available through any modem-equipped IBM-compatible PC or Macintosh computer using standard communication software. The core of the on-line system is the ATTIC database, a relational database that contains technical information from a variety of sources, including EPA's SITE program, states, industry, RODs, and treatability studies. ATTIC also provides access to the Treatment Technology Database, which contains abstracts from literature on all types of treatment technologies and highlights literature viewed as best by experts; the Treatability Study Database, which provides performance information derived from treatability studies on technologies that remove contaminants from wastewaters and soil; the UST Database, which presents information on underground storage tank corrective actions, surface spills, emergency response, and remedial actions; and the Oil/Chemical Spill Database, which provides abstracts on treatment and disposal of spilled oil and chemicals. In addition, ATTIC allows immediate access to other disk-based systems such as VISITT and the Bioremediation in the Field Search System. Overall, FY94 statistics on ATTIC use clearly indicate an increasing demand for this valuable information service. In FY94, 10,308 calls were made to the ATTIC system, of which about 1,599 were first-time users. Callers copied (downloaded) information directly from ATTIC more than 2,900 times in FY94, indicating ATTIC's contents are valued and used.

- VISITT contains vendor-submitted performance and cost information. As of the end of FY94, VISITT 3.0 included information on 277 innovative treatment technologies offered by 171 developers and vendors. TIO provides this information on diskettes to interested potential users of innovative technologies. Since developing the system in FY91, TIO has distributed more than 10,000 copies of the system to requestors in over 60 countries.
- The CLU-IN electronic bulletin board is designed to serve project managers and others interested in information about innovative remediation technologies. This bulletin board, which TIO funds and manages, offers a range of technology-related information that may be read on-line or down-loaded to a personal computer. In 1994, access to CLU-IN was enhanced by providing multiple pathways to connect to CLU-IN. Dial-in users can now connect directly by pushing a few keys on a standardized menu, and Internet users may access CLU-IN by a number of routes including direct TELNET access. To provide more information to the states, TIO included CLU-IN information for two new special interest groups: the owners or operators of leaking USTs and members of the Association of State and Territorial Solid Waste Management Officials.
- Vendor FACTS, under development, will provide cost and performance and other related information submitted by vendors on 22 categories of measurement and monitoring technologies.

TIO has developed several publications that provide information on new developments and applications of innovative treatment technologies:

- In December 1993, TIO published a monograph titled, *Profile on Innovative Technologies and Vendors for Waste Site Remediation (Profile).* The *Profile* documents the findings of a review of vendors who supply innovative technologies. The study was conducted to gain a better understanding the characteristics of the companies in this field.
- To assist innovative technology developers and investors in the soil and ground-water market, TIO published a benchmark survey that provides information on the future demand for remediation services. The survey, *Cleaning Up the Nations Waste Sites; Technology & Market Trends,* addresses site characteristics, market size, and other demand factors for the major waste site clean-up programs in the U.S. The market survey helped complete information on this fragmented market and address future demand for remediation services for all major clean-up

programs in the U.S., including Superfund, RCRA, UST, and other federal agency programs.

- The *Innovative Treatment Technologies: Annual Status Report* provides technical background information and information on the selection and use of innovative treatment technologies at Superfund sites. The report is designed to enhance communication among vendors, experienced technology users, and those who are considering using innovative treatment technologies to clean up contaminated sites. The September 1994 report contains information on almost 300 innovative technology projects at Superfund remedial and removal sites.
- *Tech Trends* and *Ground Water Currents* are two newsletters distributed by TIO that address soil treatment technologies and ground-water remediation technologies, respectively. These newsletters are published quarterly and are distributed to over 20,000 interested subscribers, including federal and state project managers, consulting engineers, academics, and technology users.
- The *Bioremediation Resource Guide* directs readers to resource documents, databases, hotlines, and dockets. The purpose of the guide is to assist technology users in accessing information on bioremediation technology and its applications.
- *Remediation Technologies Screening Matrix and Reference Guide, Version* 2, which was developed by TIO and members of the Federal Remediation Technology Roundtable, profiles 55 innovative and established technologies for the remediation of soil, sediment, sludge, ground water, and air/off gas treatment processes. This document presents a detailed discussion of the properties and behavior of five common contaminant groups including VOCs, SVOCs, fuels, inorganics, and explosives.
- Three treatment technology guides, *Physical/ Chemical Resource Guide, Soil Vapor Extraction Guide*, and *Ground-Water Resource Guide*, provide abstracts of guidance documents, overview/program reports, research studies, field demonstration results, and computer resources. These guides are designed to assist site project managers in screening and selecting innovative treatment technologies.
- *The Innovative Hazardous Waste Treatment Technologies: A Developer's Guide to Support Services (Third Edition)* was developed by TIO to provide information to technology developers and vendors on grant funding and technical assistance, incubators/test/evaluation facilities, and university-affiliated research centers offering technology development and evaluation services.

TIO also sponsored several traveling information booths that were sent to hazardous waste remediation conferences and other meetings around the country. These displays were major outlets for dissemination of EPA materials and database information on innovative remediation technologies.

Training and Continuing Education

In FY94, the Agency sponsored efforts to develop training resources and materials on technologies and site remediation.

- OSWER, in cooperation with the American Association of Environmental Engineers, continued work on monographs that detail specific innovative technologies. These monographs provide information to consulting engineers and other potential users about the use of state-of-the-art technology. In FY94, five monographs were completed containing state-of-the-practice design criteria and performance and cost information. The WASTECH steering committee is currently forming task groups to update and complete the monograph series.
- TIO, in cooperation with the Office of International Activities (OIA), developed a train-the-trainer course, *Principles of Hazardous Waste Site Ranking*, to provide fundamental environmental management information to the emerging democracies of central and eastern Europe. In 1994, TIO completed training for

instructors and government managers in Poland and transferred this training effort to the Polish government. TIO and OIA also negotiated with the government of Bulgaria and will begin training there. The primary objective of the training course is to assist the host government in developing programs to establish hazardous-site-remediation priorities. The training course helps participants identify potential threats to public health, welfare, and the environment; promotes effective use of limited resources and expertise; encourages public involvement and support in identifying and responding to waste-site problems; reassures those living near low-ranked sites that no immediate threat to their well-being exists; and ensures governmental accountability and consistency in program applications, nationally and internationally.

- TIO, with assistance from ORD, developed the Innovative Treatment Technologies Workshop in FY94 as an advanced level course for experienced On-Scene Coordinators and RPMs. The workshop provided an opportunity to understand the operation, applicability, adaptability, and cost and performance data for selected innovative treatment technologies for Superfund site remediation.

4.6 Report on Facilities Subject to Review Under CERCLA Section 121(c)

Certain remedies, such as containment remedies, allow hazardous substances, pollutants, or contaminants to remain on site if they do not pose a threat to human health or the environment. CERCLA Section 121(c) requires EPA to conduct a review of such sites at least every five years after the initiation of the RA to ensure that the remedy fully protects human health and the environment. CERCLA Section 121(c) also requires the Agency to submit a report to Congress that lists the facilities for which periodic reviews were conducted, the results of all the reviews, and any action taken as a result of the reviews. FY94 was the fourth year in which sites were eligible for five-year reviews. A total of 39 sites required five-year reviews in FY94. Exhibit 4.6-1 contains the list of sites where five-year reviews were required in FY94. In addition, the following FY92 and FY93 five-year reviews were completed during FY94: Chisman Creek (VA) due FY92; Central City/Clear Creek (CO) due FY92; Denver Radium (CO) due FY92; GE-Moreau (NY) due FY93; and Tysons Dump #1 (PA) due FY93 for a total of 15 five-year reviews completed in FY94.

Of 14 sites that were reviewed during FY94, EPA determined that the remedies continue to protect human health and the environment at nine of the sites. At the remaining five sites, the Agency is continuing to implement the remedies required to protect human health and the environment. These sites include Delaware Sand & Gravel, L.A. Clarke and Sons, Southern Maryland Wood Treating, Strasburg Landfill, Tysons Dump (due FY93), and Washington County Landfill. EPA will continue to conduct future five-year reviews consistent with CERCLA Section 121(c) and Agency guidance.

To define the scope of five-year reviews and identify two types of reviews that may be conducted, the Agency issued a directive entitled *Structure and Components of Five-Year Reviews*. The directive defines "statutory reviews" as those expressly required by CERCLA Section 121(c). "Policy reviews" are defined as discretionary reviews that the Agency may choose to undertake in circumstances where they are not required by CERCLA. To reinforce the five-year review directive, EPA issued a fact sheet in August 1991 on five-year reviews.

The FY94 policy reviews were conducted at Sylvester (NH), Kimberton Site (PA), Middletown Road Dump Site (MD), Davie Landfill (FL), Pepper Steel & Alloys (FL), Cemetery Dump Site (MI), Charlevoix Municipal Well Field (MI), Kurt Manufacturing (MN), Tar Creek (Ottawa Co) (OK), and Triangle Chemical Co (TX). A total of 10 policy reviews were completed in FY94.

Exhibit 4.6-1
Sites At Which Five-Year Reviews Are Required Under CERCLA Section 121(c), Fiscal Year 1994

Site Name (State)	Region	Review Date
Baird & McGuire (MA)	1	
Laurel Park, Inc. (CT)	1	
Nyanza Chemical Waste Dump (MA)	1	11/10/93
Ottati & Goss/Kingston Steel Drum (NH)	1	12/15/93
Bog Creek Farm (NJ)	2	
Endicott Village Well Field (NY)	2	
Sealand Restoration (NY)	2	
Swope Oil & Chemical Co. (NJ)	2	
Upjohn Facility (PR)	2	
Vestal Water Supply 1-1 (NY)	2	
Fike Chemical (WV)	3	
Henderson Road Site (PA)	3	
Kane & Lombard Steel Drums (MD)	3	04/13/94
Delaware Sand & Gravel (DE)	3	09/30/94
L.A. Clarke & Sone (VA)	3	09/30/94
Southern Maryland Wood Treating (MD)	3	09/30/94
Strasburg Landfill (PA)	3	09/30/94
American Creosote Works (Jackson) (TN)	4	
Celanese Corp. (Shelby Fiber) (NC)	4	
Martin-Marietta-Sodyeco Inc. (NC)	4	
Stauffer Chemical Co. (Cold Creek) (AL)	4	
Stauffer Chemical Co. (LeMoyne Plant) (AL)	4	
Northwest 58th Street Landfill (FL)	4	03/02/94
Alpha Chemical Corp (FL)	4	05/16/94
Gold Coast Oil Corp. (FL)	4	
Johns-Manville Corp. (IL)	5	
Velsicol Chemical Corp. (Illinois) (IL)	5	
Washington County Landfill (MN)	5	01/06/94
Windom Municipal Dump (MN)	5	02/09/95
Waite Park Wells (MN)	5	
AT & SF (clovis) (NM)	6	
Bayou Sorrel Site (LA)	6	
Brio Refinery (TX)	6	
United Nuclear Corp. (NM)	6	
French Limited (TX)	6	
Lawrence Todtz Farm (IA)	7	
Monticello Radioactively Contamin (UT)	8	
Pacific Hide & Fur Recycling Co. (ID)	10	
Martin-Marietta Aluminum Co. (OR)	10	

Chapter 5
Enforcement Progress

The Agency uses the enforcement provisions of CERCLA, as amended by SARA, to maximize the involvement of potentially responsible parties (PRPs) in the cleaning up of Superfund sites. The Agency's enforcement goals are to

- Maintain high levels of PRP participation in conducting and financing cleanups through EPA's aggressive use of statutory enforcement authority;
- Ensure fairness and equity in the enforcement process; and
- Recover Superfund monies expended by EPA for response actions.

FY94 accomplishments illustrate the continuing success of EPA's Superfund enforcement efforts. EPA achieved enforcement agreements worth more than $1.4 billion in PRP response work. PRPs financed approximately 75 percent of the remedial designs (RDs) and remedial actions (RAs) started during the fiscal year. Through its cost recovery efforts, EPA achieved over $206 million in settlements and collected more than $200 million for reimbursement of Superfund expenditures. The Agency collected over $5.7 million in CERCLA penalties.

Under the Superfund administrative improvements initiative, the Agency reinforced its goal to ensure fairness in the enforcement process by reducing transaction costs and accelerating the pace of cleanups. Efforts included increasing the use of allocation tools, encouraging early settlements with *de minimis* and "de micromis" parties, fostering greater fairness for owners and prospective purchasers of Superfund sites, and evaluating increased use of mixed funding. Implementing other administrative improvement measures, the Agency also worked to enhance compliance monitoring, increase the effectiveness of cost recovery efforts, and implement the Superfund Accelerated Clean-Up Model (SACM). As it implemented SACM to streamline cleanup and accelerate risk reduction the Agency worked to streamline and expedite enforcement activities.

5.1 The Enforcement Process

The Superfund program integrates enforcement and response activities. To initiate the enforcement process, EPA identifies PRPs, notifies them of their potential liability, and seeks to negotiate an agreement with them to perform or pay for the cleanup. If an agreement is reached, the Agency oversees the work performed under the legal settlement. If the PRPs do not settle, EPA may issue a unilateral administrative order (UAO) compelling them to perform the cleanup. If PRPs do not comply with the UAO, EPA may conduct the cleanup using Superfund monies and pursue cost recovery action against the PRPs for costs incurred. These steps are fundamental to obtaining PRP involvement in conducting response activities and recovering expended Trust Fund monies. The enforcement process is explained in more detail below:

- When a site is being proposed to the National Priorities List (NPL), or when a removal action is required, EPA conducts a PRP search to identify parties that may be liable for site cleanup and to collect evidence of their liability. PRPs include present and past owners or operators of

a site, generators of waste disposed of at a site, and transporters who selected the site for the disposal of hazardous waste.

- EPA notifies parties of their potential liability for future response work and for any past response costs incurred by the government, thus beginning the negotiation process between the Agency and the PRPs.
- EPA encourages PRPs to settle and undertake clean-up activities, specifically to start removal actions, remedial investigation/feasibility studies (RI/FSs), or remedial design/remedial action (RD/RAs). If PRPs are willing and able to do the response work, the Agency will attempt to negotiate an agreement allowing the PRPs to conduct and finance the proposed clean-up work and to pay for past government costs. For RD/RAs, the settlement must be in the form of a judicial consent decree (CD) that is lodged with a court by the Department of Justice (DOJ). For other types of response actions, the agreement may be in the form of a CD or an administrative order on consent (AOC) issued by an EPA Regional Administrator. Both agreements are enforceable in a court of law. Under either agreement, PRPs conduct the response work under EPA oversight. PRPs who settle may later seek contribution toward the cleanup from non-settling PRPs by bringing suit against them.
- EPA also may use a cash-out settlement to reach an agreement with PRPs. A cash-out settlement is a type of mixed funding settlement that requires PRPs to provide substantial up-front financing toward the cost of a site cleanup that will be conducted by EPA or other PRPs. Cashout settlements also may include a premium to partially offset EPA's risk due to uncertainties, such as remedy failure or cost overruns.
- If negotiations do not result in a settlement, CERCLA Section 106 provides EPA with the authority to issue a UAO requiring the PRPs to conduct the cleanup; EPA may also bring suit through DOJ to compel PRPs to perform the work. If the Agency issues a UAO and the PRPs do not comply, the Agency again has the option to file a lawsuit to compel the performance specified in the order (and to seek penalties up to $25,000 per day) or to perform the work itself and then seek cost recovery and treble damages.
- If the site is cleaned up using Superfund monies, EPA will file suit through DOJ, when practicable, to recover monies spent. Many of these suits to recover past costs will also include EPA claims for estimated future costs. Any money recovered from the PRPs is returned to the Trust Fund.

5.2 Fiscal Year 1994 Progress

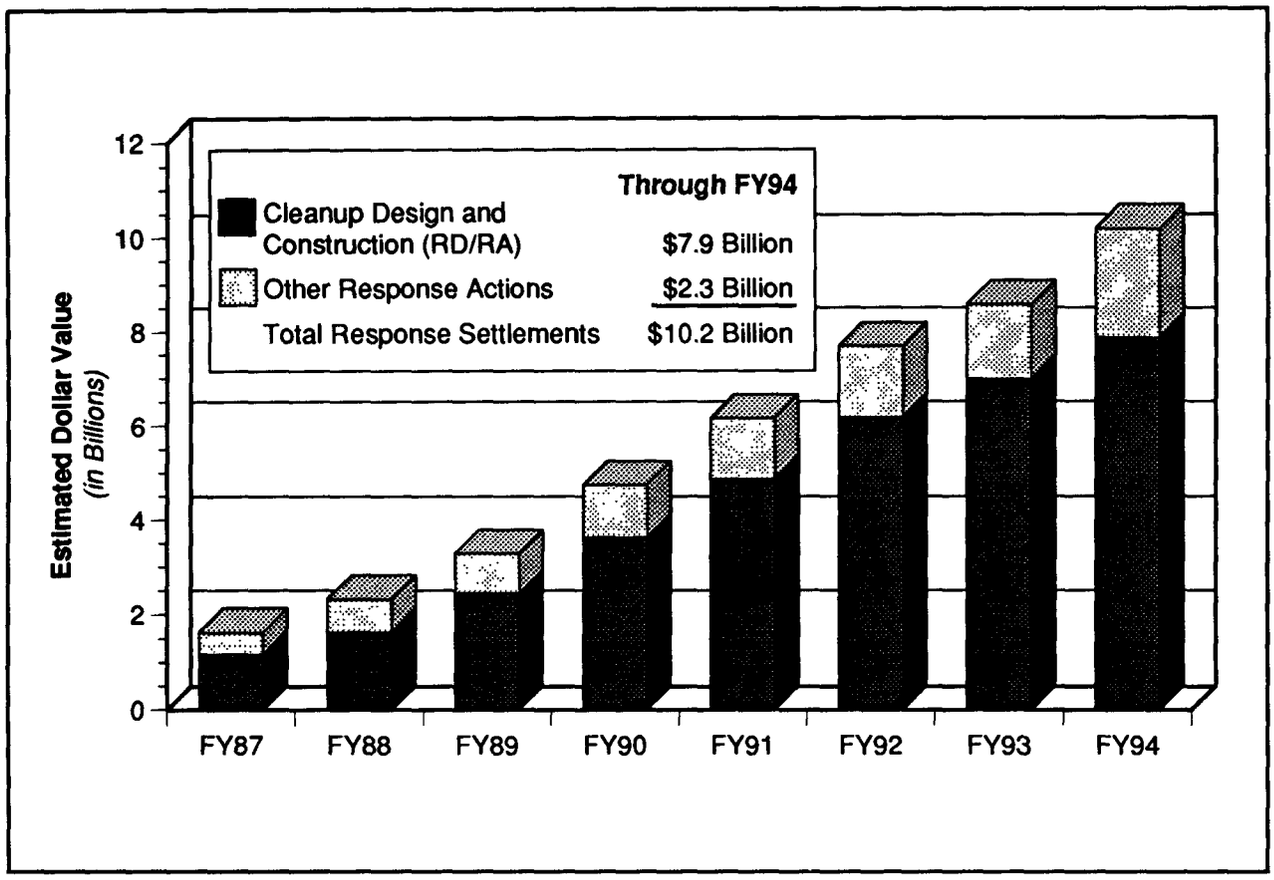
FY94 progress reflects the continuing success of Superfund enforcement efforts to secure PRP participation in undertaking Superfund cleanups and in recovering Trust Fund monies expended by EPA in its response efforts.

5.2.1 Settlements for Response Activities

During FY94, the Agency reached 230 settlements (CDs, AOCs, or UAOs in compliance) with PRPs for response activities worth over $1.4 billion. As shown in Exhibit 5.2-1, the cumulative value through FY94 of PRP response settlements achieved under the Superfund program exceeds $10 billion. (Although UAOs strictly speaking are not settlements they are included in this category if the PRP notifices the Agency of their intent to comply with the order and perform the required work under the order.)

Of the 230 response settlements achieved in FY94, 88 settlements worth almost $960 million were for RD/RAs. These RD/RA settlements included 35 CDs referred to DOJ for approximately $585 million, 18 AOCs for almost $80 million, and 35 UAOs in compliance for more than $295 million. These RD/RA settlements are the result of 58 RD/RA negotiations started and 82 RD/RA negotiations

Exhibit 5.2-1
Cumulative Value of Response Settlements Reached with Potentially Responsible Parties



Source: CERCLIS.

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completed by EPA during the fiscal year.

During FY94, the Agency issued 110 UAOs, including 42 for RD/RAs. The Agency also signed 154 AOCs. The 110 UAOs issued and 154 AOCs signed include agreements for removal actions, RI/FSs, RDs, and RD/RAs.

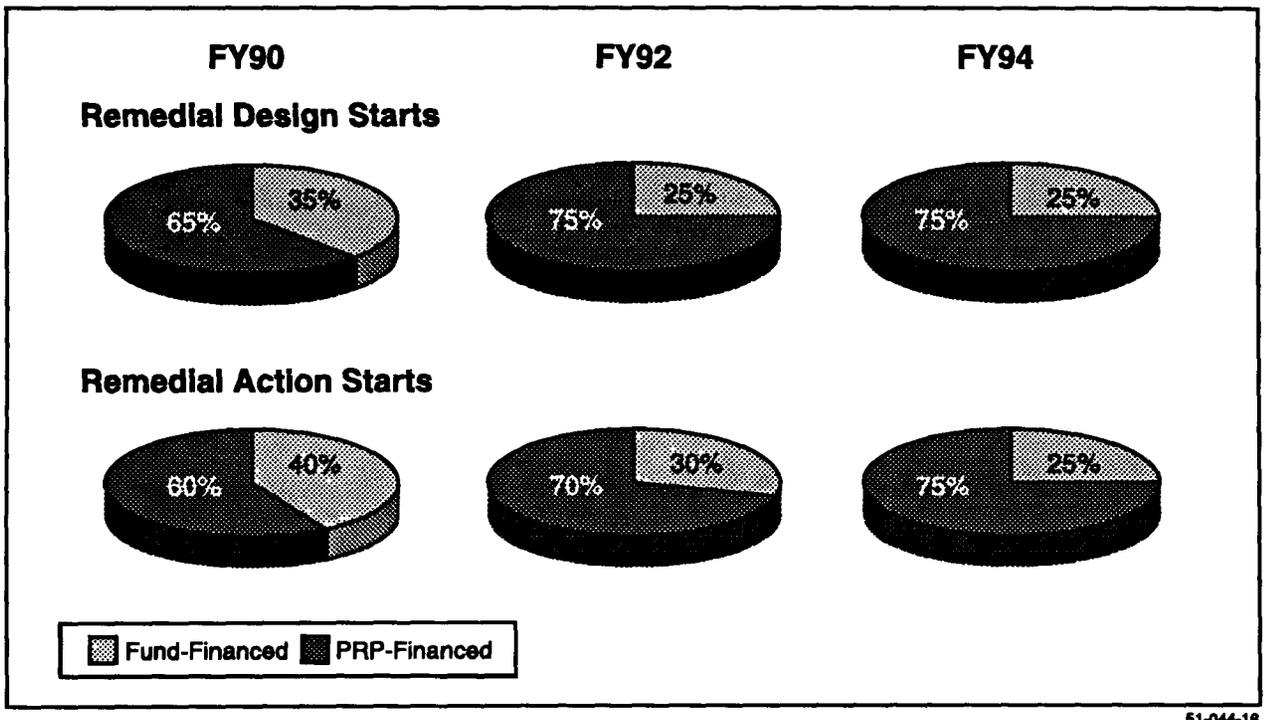
5.2.2 PRP Participation in Clean-up Activities

Exhibit 5.2-2 illustrates the continuing high level of PRP participation in undertaking and financing RDs and RAs since the implementation of the "enforcement first" initiative in 1989. In FY94, PRPs continued to finance and conduct a high percentage of the remedial work undertaken at Superfund sites: 75 percent of new RDs, 75 percent of new RAs, and 46 percent of new RI/FSs.

5.2.3 Cost Recovery Achievements

Through pursuit of cost recovery actions, EPA and DOJ reached 237 settlements worth more than $206 million. The FY94 cost recovery settlements represent over 14 percent of the total $1.4 billion achieved in cost recovery settlements since the inception of Superfund. More than 70 percent of the total $1.4 billion has been achieved in the past five

Exhibit 5.2-2
Increase in the Percentage of Remedial Designs and Remedial Actions Started by PRPs



Source: CERCLIS.

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years. Exhibit 5.2-3 illustrates cost recovery settlements collected to date.

EPA collected over $200 million through cost recovery settlements, bankruptcy settlements, and other sources during the fiscal year. These FY94 collections represent more than 20 percent of the approximately $934 million collected by EPA to date; more than 80 percent of the $934 million has been collected in the past five years.

5.2.4 Success in Reaching and Enforcing Agreements with PRPs

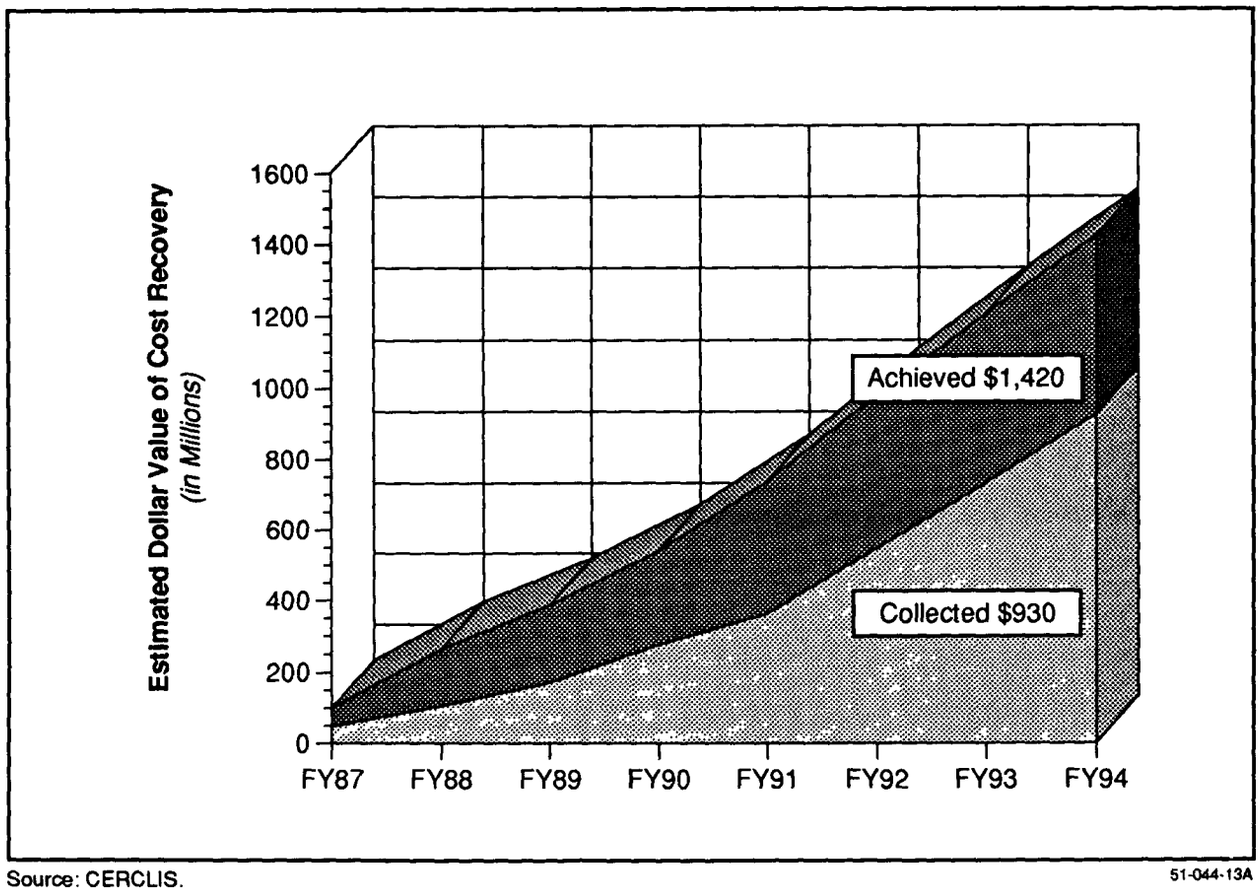
During FY94, the EPA Offices of Regional Counsel and Regional Waste Management Divisions, working in conjunction with the Office of Enforcement and Compliance Assurance (OECA) and DOJ, entered into numerous enforcement agreements with PRPs. Exhibit 5.2-4 highlights a cross section of the most successful enforcement settlements reached during the fiscal year.

5.3 Enforcement Initiatives

During FY94, the Agency's Headquarters enforcement offices went through a major reorganization. Superfund enforcement, which was formerly administered through the Office of Waste Programs Enforcement, was shifted to the new Office of Site Remediation Enforcement - Superfund Division within OECA. The reorganization had little impact on program progress, and ongoing Superfund enforcement activities continued under the new organization.

As recommended by the Superfund Administrative Improvements Task Force, the

Exhibit 5.2-3
Cumulative Value of
Cost Recovery Dollars Achieved and Collected



Source: CERCLIS.

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Agency engaged in efforts to promote equity in the enforcement process. FY94 activities were focused on increasing the use of allocation tools such as alternative dispute resolution (ADR), encouraging early settlements with *de minimis* and "de micromis" parties, fostering greater fairness for owners and prospective purchasers of Superfund sites, and evaluating the increased use of mixed funding. Also, as recommended by the task force, the Agency continued efforts to improve compliance monitoring efforts, enhance cost recovery efforts, and implement SACM.

5.3.1 Greater Use of Allocation Tools

During FY94, the Agency worked to promote greater use of allocation tools and thereby reduce transaction costs. PRPs must pay transaction costs, such as legal and investigative costs, as part of the expenditures involved in cleaning up a site. PRPs frequently incur high transaction costs when settlement efforts to allocate clean-up costs are prolonged or unsuccessful.

Exhibit 5.2-4
Highlights of Successful Enforcement Accomplishments

Settlement	Terms of the Settlement
Savage Municipal Water Supply New Hampshire (Region 1) Settlement: CD (CD01) for RA, and past and future costs lodged with the District Court on 04/07/94 and entered on 06/27/94 Estimated Value: $14.9 million	Three PRPs will conduct the cleanup of the site, at an estimated cost of $11 million. Also, the PRPs will pay EPA $900,000 in past response costs and $3 million for future oversight costs. To address heavy metal contamination of ground water, soil, sediment, and an on-site stream, the cleanup will include sampling to determine the extent of contamination, removal activities for highly contaminated areas, and construction of a ground-water pump-and-treat system.
Caldwell Trucking Company New Jersey (Region 2) Settlement: CD (CD02) for RA including natural resource restoration, payment for natural resource damages, assessment and monitoring costs, and past and future costs lodged with the District Court on 03/31/94 Estimated Value: $35.5 million	Nine PRPs will perform cleanup of ground water contaminated with volatile organic compounds (VOCs) and work to restore natural resources, at an estimated cost of $32 million. The PRPs will also pay EPA $2.46 million for past and future response costs, and pay the State of New Jersey $1 million for natural resource damages, including the loss of an aquifer. In addition, the PRPs will pay the Department of the Interior $40,000 for its assessment and monitoring costs.
Ciba-Geigy Corporation New Jersey (Region 2) Settlement: CD (CD01) for RA, past and future response costs, and future oversight costs lodged with the District Court on 10/18/93 and entered on 04/21/94 Estimated Value: $68.4 million	Ciba-Geigy Corporation will perform a $60 million cleanup of contaminated ground water, reimburse EPA $8.4 million for past response costs, and pay EPA's future response costs, including oversight costs. On-site disposal of manufacturing wastes in at least 17 known or suspected areas of the 1,400-acre site contaminated soil and ground water with VOCs and heavy metals. EPA is investigating the disposal areas as part of a second operable unit.
Hooker Chemical/Ruco Polymer Corporation New York (Region 2) Settlement: UAO (UAO03) for RA issued on 06/30/94; PRPs notified EPA on 07/26/94 of their intent to comply Estimated Value: $13.25 million	In compliance with the UAO, Occidental Chemical Corporation and Ruco Polymer Corporation will sample soil to determine the extent of contamination, flush and excavate soil contaminated with VOCs and semi-volatile organic compounds (SVOCs), and install a ground-water pump-and-treat system. The estimated cost of these activities is $13.25 million. Under previous orders, the PRPs have excavated and cleaned up polychlorinated biphenyl (PCB)-contaminated soil and are investigating the extent of ground-water contamination.

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Exhibit 5.2-4
Highlights of Successful Enforcement Accomplishments, cont.

Settlement	Terms of the Settlement
Lipari Landfill New Jersey (Region 2) Settlement: CD (CD03) for reimbursement of past response costs lodged with the District Court on 03/16/94 and entered on 04/15/94; CD (CD04) for clean up of off-site locations lodged with the District Court on 03/16/94 Estimated Value: $52.9 million CD03, $48 million CD04	In one of the largest Superfund settlements to date, Rohm & Haas, Owens-Illinois, and ManorCare agreed to reimburse EPA and the State of New Jersey $52.9 million for past response costs at the site. In a second settlement, Rohm & Haas also agreed to undertake a $ 48 million cleanup of off-site contamination. VOCs, heavy metals, and phthalates contaminated on-site soil, ground water, surface water, and sediment. EPA constructed an underground wall around the site, capped the contained area, and installed injection wells to flush out contaminated ground water, which is then treated at the site. Rohm & Haas is excavating a nearby marsh, a lake, and two streams affected by the contaminated ground water. Material from the marsh will be treated and then used in the reconstruction of the marsh.
Niagara County Refuse New York (Region 2) Settlement: *de minimis* AOC (AOC02) for past and future response costs signed on 09/23/94 Estimated Value: $794,000	Eleven *de minimis* PRPs will pay EPA nearly $794,000 for past and future response costs at the site. Individual payments are based on the volumetric shares of waste contributed to the site and include a premium for any unforeseen future costs.
Rockaway Borough Well Field New Jersey (Region 2) Settlement: CD (CD02) for RD/RA, operation and maintenance, payment of past costs, and payment of future oversight costs lodged with the District Court on 01/20/94 Estimated Value: $13.5 million	Thiokol Corporation will perform a RD for the site and undertake cleanup for a portion of the ground water known as the Klockner Plume. The estimated cost of the cleanup is $12 million. Additionally, Thiokol Corporation will reimburse EPA $1.5 million for past response and will pay EPA's future oversight costs. VOCs from three source areas, including a facility operated by Thiokol, polluted the aquifer, which is the sole source of ground water for the Rockaway Borough and surrounding communities.
Sharkey Landfill New Jersey (Region 2) Settlement: CD (CD01) for RD/RA, payment of past response costs, and payment of future oversight costs lodged with the District Court on 07/05/94 Estimated Value: $45.6 million ($1.4 million *de minimis* contribution)	At an estimated cost of $43.3 million, 31 major PRPs will perform the RD and cleanup of the site. The cleanup will include capping the landfill and installing and operating ground-water extraction systems to remove heavy metals and VOCs. In addition, the PRPs will reimburse EPA $1.75 million and the State of New Jersey $300,000 for past response costs, and pay up to $250,000 for EPA's future oversight costs. Also, twelve *de minimis* parties will contribute approximately $1.4 million toward the site clean-up costs.

51-044-31_2

Exhibit 5.2-4
Highlights of Successful Enforcement Accomplishments, cont.

Settlement	Terms of the Settlement
Blosenski Landfill Pennsylvania (Region 3) Settlement: UAO (UAO04) issued to 14 PRPs on 12/27/93 for RD/RA; 11 PRPs notified EPA on 01/31/94 of their intent to comply, and the remaining PRPs have resolved their liability Estimated Value: $12.5 million	In compliance with the UAO, 11 PRPs will design and build a ground-water pump-and-treat system and construct an impermeable cap over the landfill to address VOC, heavy metal, and polycyclic aromatic hydrocarbon (PAH) contamination at the site. The estimated value of this work is $12.5 million. EPA also is negotiating with the PRPs to pay $5.5 million in past response costs.
C & D Recycling Pennsylvania (Region 3) Settlement: UAO (UAO01) issued on 08/09/94 for RA; PRP notified EPA on 09/14/94 of its intent to comply Estimated Value: $9 million	In compliance with the UAO, AT&T Nassau Metals Corporation will clean up the site, at an estimated cost of $9 million. The PRP will remove, treat, and dispose of ash, soil, and sediment contaminated with heavy metals as a result of wire recovery operations at the site. The company also will conduct periodic surveys to ensure that contaminants do not migrate into ground and surface waters.
Columbia Gas Pipeline North Carolina, Kentucky, Virginia, West Virginia, Maryland, Delaware, Pennsylvania, Ohio, New York, and New Jersey (Regions 2, 3, 4, and 5) Settlement: AOC (AOC01) for RA signed on 09/23/94 Estimated Value: $15 million per year for 16 years, for a total of $250 million	Columbia Gas Transmission Company will identify and clean up contaminated sites along its 19,000-mile natural gas system, which covers 10 states in four EPA Regions. The company estimates that compliance with the order will cost $15 million a year for 16 or more years, for an estimated total cost of approximately $250 million. EPA has already identified PCB contamination at several locations along the pipeline. Also, EPA and the company negotiated a consent agreement and consent order requiring the company to pay a $4.9 million penalty for violations of Toxic Substances Control Act regulations for improperly using and disposing of PCBs.
E.I. Du Pont de Nemours and Company (Newport Landfill) Delaware (Region 3) Settlement: UAO (UAO01) issued on 04/19/94 for site RA; PRPs notified EPA of their intent to comply on 05/23/94 Estimated Value: $47.7 million	In compliance with the UAO, E.I. Du Pont de Nemours and Company and Ciba-Geigy Corporation will perform clean-up work estimated to cost $47.7 million. Work will include capping two on-site landfills, stabilizing on-site soil, cleaning up area wetlands, containing ground water on the north side of the Christiana River, dredging river sediments, and performing long-term monitoring of the wetlands and river. Waste from past Du Pont operations, including radioactive waste, was disposed of in two landfills at the site. Heavy metals and chlorinated solvents have been detected in site soil, ground water, wetland sediments, and the river.

51-044-31_3

Exhibit 5.2-4
Highlights of Successful Enforcement Accomplishments, cont.

Settlement	Terms of the Settlement
Occidental Chemical Corporation Pennsylvania (Region 3) Settlement: UAO (UAO01) issued on 06/23/94 for RA; PRPs notified EPA on 07/25/94 of their intent to comply Estimated Value: $11 million	In compliance with the UAO, Occidental Chemical Corporation and Bridgestone/ Firestone, Inc., will clean up the site at an estimated cost of $11 million. To address VOC-contaminated ground water, the PRPs will install and operate ground-water extraction wells and air strippers, monitor ground-water contamination levels, and excavate and backfill former waste-water lagoons.
Rentokil Virginia (Region 3) Settlement: CD (CD01) for RA and reimbursement of past response costs lodged with the District Court on 07/21/94 and entered on 09/30/94 Estimated Value: $11.3 million	Virginia Properties, Inc., will perform clean-up work valued at approximately $11 million and will reimburse EPA nearly $279,000 in past response costs. Ground water, soil, and surface water are contaminated with pentachlorophenol (PCP), creosote, copper, chromium, arsenic, and dioxin as a result of on-site disposal of chemical waste from wood preserving operations. The PRP will treat contaminated soil, place a cap over and install a slurry wall around the entire site, and construct a de-watering system underneath the cap.
Aberdeen Pesticide Dumps North Carolina (Region 4) Settlement: Two UAOs (UAO09 and UAO10) for RA issued on 06/22/94; PRPs notified EPA on 07/29/94 and 08/08/94 of their intent to comply Estimated Value: $11 million	In compliance with the two UAOs, PRPs will clean up pesticide-contaminated ground water at three of the five areas of the site used for manufacturing pesticides and disposing of pesticide waste. The estimated cost of the cleanup is $11 million.
Bypass 601 Ground Water Contamination North Carolina (Region 4) Settlement: CD (CD01) for RA and reimbursement of past response costs lodged with the District Court on 08/03/94 Estimated Value: $36.5 million	EPA reached agreement with 82 PRPs to clean up the site; the CD included a preauthorization mixed-funding agreement, a separate *de minimis* settlement, and a "de micromis" settlement. Under the mixed funding agreement, EPA will contribute up to $10.1 million, and the PRPs will contribute an estimated $32 million to clean up lead-contaminated soil and ground water. The cost of the cleanup could increase to as much as $100 million, however, depending on the amount of contaminated soil treated. In addition, the PRPs will reimburse EPA $4.5 million in past response costs.

51-044-31_4

Exhibit 5.2-4
Highlights of Successful Enforcement Accomplishments, cont.

Settlement	Terms of the Settlement
Smith's Farm Kentucky (Region 4) Settlement: UAO (UAO02) for RD/RA issued on 04/22/94; PRPs notified EPA on 05/25/94 of their intent to comply Estimated Value: $33 million	In compliance with the UAO, 10 PRPs will perform RD/RA work estimated to cost $33 million. To address VOC, SVOC, and heavy metal contamination at the site, the PRPs will consolidate contaminated soil and waste, construct a leachate collection and treatment station, and cap and recontour a 35-acre landfill located at the site.
American Chemical Service, Inc. Indiana (Region 5) Settlement: *de minimis* AOC (AOC02) for past and future response costs signed on 09/27/94 Estimated Value: $27 million	In one of the largest Superfund *de minimis* settlements in terms of the number of participating parties and amount of money recovered, EPA reached agreement with 1,006 *de minimis* PRPs to reimburse EPA and the State of Indiana more than $27 million in past and future response costs, including a premium for unforeseen future costs. The settlement represents approximately 35 percent of the estimated site clean-up costs. EPA also issued a UAO on September 30, 1994, requiring major generators and some non-settling parties to implement a remedy for the site.
Motor Wheel Disposal Michigan (Region 5) Settlement: CD (CD01) for RA, reimbursement of past costs, and payment of future costs lodged with the District Court on 02/16/94 and entered on 04/22/94 Estimated Value: $40 million	Six PRPs will implement the site remedy at an estimated cost of $40 million, reimburse EPA for response costs incurred since May 26, 1992, and pay the Agency's future oversight costs. Under a 1987 AOC, PRPs conducted a site study that revealed that ground water was contaminated with VOCs. Under the CD, the PRPs will place a cap over a former waste disposal area and pump and treat the contaminated ground water.
Gulf Coast Vacuum Louisiana (Region 6) Settlement: *de minimis* AOC (AOC01) for past and future response costs signed on 09/26/94 Estimated Value: $2.3 million	Fifty-four *de minimis* PRPs will reimburse EPA more than $287,000 for past response costs and pay approximately $2.01 million for future response costs. The payment for future response costs includes a 67.5 percent premium for unforeseen future costs. EPA found that on-site disposal pits were contaminated with heavy metals and VOCs and that on-site soil was contaminated with heavy metals. EPA response actions have included removing and treating water accumulated in the disposal pits and building a containment levee to prevent run off onto adjacent farmland.

51-044-31_5

Exhibit 5.2-4
Highlights of Successful Enforcement Accomplishments, cont.

Settlement	Terms of the Settlement
Mosley Road Sanitary Landfill Oklahoma (Region 6) Settlement: UAO (UAO01) for RA issued on 01/28/94; the PRP notified EPA on 02/15/94 of its intent to comply; de minimis AOC (AOC02) signed on 06/13/94 Estimated value: $12 million (UAO01), $1.3 million (AOC02)	Waste Management of Oklahoma, Inc., will comply with the UAO to repair an existing clay cap on the landfill, install a landfill gas recovery system, restore near-surface ground water as a drinking water source, and monitor ground water. These actions, which are estimated to cost $12 million, focus on preventing the migration of soil contaminants (pesticides, industrial solvents, sludge, waste chemicals, and emulsions) into an underlying aquifer that serves as a high-quality drinking water source for many Oklahoma City residents. Also, 19 *de minimis* parties will contribute $1.3 million toward the Agency's past and future response costs at the site.
Petro-Chemical Systems, Inc. (Turtle Bayou) Texas (Region 6) Settlement: UAO (UAO02) for RD/RA issued on 12/22/93 to six PRPs; three PRPs notified EPA on 1/18/94 of their intent to comply Estimated value: $27 million	In compliance with this UAO, three PRPs will perform RD/RA work estimated to cost $27 million. The PRPs will field test, design, and implement a remedy for the site to address VOC- and SVOC-contaminated soil and ground water. EPA also is seeking to recover approximately $17 million for past and future response costs from a former operator and a former waste generator.
California Gulch Colorado (Region 8) Settlement: CD (CD12) for RA lodged with the District Court on 05/16/94 and entered on 08/26/94; CD (CD10) for reimbursement of past response costs and RA entered in the District Court on 12/15/93 Estimated value: $70.8 million (CD12), $1.1 million (CD10)	Under CD12, Resurrection Mining Company and ASARCO, Inc., will address all sources of contaminant releases at the site, including waste rock, mine tailings, and slag from lead smelting operations conducted in the area since the 1860s. EPA estimates that the remedial work required under this settlement will cost approximately $70.8 million, although specific clean-up actions have not yet been defined. Also, under CD10, the Denver & Rio Grande Western Railroad Company will reimburse EPA $1.1 million in past response costs and will clean up slag piles, rail works, easements, and parts of a railyard in the area.
Portland Cement (Kiln Dust #2 & #3) Utah (Region 8) Settlement: CD (CD04) for reimbursement of past and future response costs lodged with the U.S. Bankruptcy Court for the Southern District of New York on 07/11/94. Estimated Value: $18.5 million	Lone Star Industries, formerly known as Portland Cement Company of Utah, will reimburse EPA and the State of Utah approximately $18.5 million in cash and securities for past and future clean-up costs. The State of Utah plans to excavate and dispose of site wastes. Currently, the state is conducting a RI and focused FS of ground-water contamination at the site.

51-044-31_6

Exhibit 5.2-4
Highlights of Successful Enforcement Accomplishments, cont.

Settlement	Terms of the Settlement
Iron Mountain Mine California (Region 9) Settlement: UAO (UAO06) for RD/RA issued to three PRPs on 04/19/94; one PRP notified EPA on 05/26/94 of its intent to comply Estimated Value: $40 million	Rhone-Poulenc, Inc., has notified EPA of its intent to comply with a UAO to enhance treatment facilities for acid mine drainage. Rhone-Poulenc will modify an existing treatment plant, construct additional facilities to treat drainage from the Old #8 Mine Seep, and operate and maintain the treatment plant for 30 years. The cleanup is estimated to cost $40 million. Sulfuric acid in the mine drainage leaches an average of a ton of copper, cadmium, zinc, and other toxic metals from the Iron Mountain Mine every day. These contaminants eventually enter the Sacramento River, resulting in fish kills and chronic adverse impacts on fisheries, including the winter run of the chinook salmon.
Bunker Hill Mining & Metallurgical Idaho (Region 10) Settlement: CD (CD03) for RA and reimbursement of past and future costs with five PRPs, including two de minimis PRPs lodged with the District Court on 05/10/94; AOC (AOC07) for RD issued on 07/19/94 Estimated Value: $48 million (CD03) ($1.23 million de minimis contribution), $2 million (AOC07)	PRPs have begun RD work valued at an estimated $2 million and will undertake cleanup valued at $40 million to address heavy metal contamination at the site. Also, the PRPs will pay up to $8 million for EPA's past costs and the cost of oversight by EPA and the State of Idaho. Two de minimis PRPs involved in the clean-up settlement will pay $1.23 million to the other three settling PRPs. The PRPs will remove and replace the top layer of lead-contaminated soil from approximately 1,350 residential yards, commercial properties, and rights-of-way. The PRPs also will close all existing water wells in the Main Valley Aquifer and any other contaminated wells. In addition, the PRPs will finance an institutional controls program to support property owners in protecting the clean soil covers, educate the community about the control measures being put in place, provide health intervention, and provide loans to residents to use in acquiring high-efficiency vacuums for controlling dust within their homes.

51-044-31_7

Exhibit 5.2-4
Highlights of Successful Enforcement Accomplishments, cont.

Settlement	Terms of the Settlement
Commencement Bay Nearshore/Tideflats Washington (Region 10) Settlement: Two AOCs (AOC09 and AOC10) for pre-RD and RD signed on 11/29/93 and 03/23/94 Estimated Value: $6 million (AOC09), $3.7 million (AOC10)	Through two AOCs, PRPs will conduct design work for the cleanup of three waterways at the site. The waterways are contaminated with a variety of organic and inorganic pollutants as a result of 100 years of industrial activity. Six PRPs will conduct pre-RD sampling and analysis to select a waste disposal site and develop a comprehensive remediation plan for the Hylebos Waterway, which is contaminated with metals and high concentrations of PCBs, in addition to organic and inorganic pollutants. The estimated value of this work is $6 million. The City of Tacoma will design the sediment cleanup for the Thea Foss and Wheeler Osgood Waterways, which are part of the city's waterfront and the focus of its long-term revitalization and development plans. The estimated value of this work is $3.7 million.
Queen City Farms Washington (Region 10) Settlement: CD (CD01) for RA and reimbursement of past and future response costs entered in the District Court on 09/09/94 Estimated Value: $22.5 million	The Boeing Company will perform clean-up activities estimated to cost $22 million, reimburse EPA more than $566,000 for its past response costs, and reimburse EPA for its future oversight costs. Ground water and surface water at the site are contaminated with VOCs, and the soil is contaminated with PCBs and metals. Boeing will remove liquid waste from, and construct a vertical barrier around, a previously capped area to prevent contaminants from entering the ground water, remove 10,000 cubic yards of soil and debris from the site, and conduct long-term ground- and surface-water monitoring. If these measures are not successful, Boeing also may extract and treat contaminated ground water.

51-044-31_8

Alternative Dispute Resolution

ADR is a tool that is used to create proposed allocations of responsibility among negotiating parties. ADR involves use of a neutral third party to organize negotiations, facilitate settlement deliberations, and provide an opinion to the parties in negotiations.

During FY94, OECA and the Offices of Regional Counsel made substantial progress toward standardizing and implementing the use of ADR mechanisms for enforcement actions. Activities included issuing guidance entitled *Final Guidance on Use of Alternative Dispute Resolution Techniques in Enforcement Action*, implementing the "ADR Act" and Executive Order on Civil Justice Reform, increasing case use of ADR mechanisms, developing case support systems, providing training and internal ADR services, and supporting outreach to the regulated community. Specific accomplishments are discussed in more detail below:

- Regional offices encouraged the use of ADR mechanisms and provided ADR services at 29 sites during FY94. In particular, the Regional offices encouraged PRPs to use ADR to assist settlements. ADR mechanisms were used successfully by the Regional offices to assist enforcement negotiations for 13 civil actions. Encouraging the use of ADR as a tool for increasing the efficiency of settling future disputes, the Agency included mediation in the dispute resolution provisions of several judicial and administrative settlement documents.
- Region 1 assumed responsibility for developing standard ADR use and consideration procedures in civil actions. Region 1 used ADR in six cost recovery and RD/RA actions. Regions 2 and 3 used ADR professionals to obtain agreement on major *de minimis* settlements involving over 1,000 parties. A pilot on the use of arbitration to resolve Superfund cost recovery cases resulted in the drafting of proposed case selection criteria and hearing procedures.
- As part of the Superfund administrative improvements effort, Regional offices participated in two pilots supporting the use of ADR professionals in private allocation disputes at Superfund sites. The highly successful pilots explored the use of ADR to support both non-binding and binding allocation methods.
- The Headquarters ADR liaison and various Regional ADR contacts provided assistance to EPA Headquarters and DOJ staff in drafting the allocation and ADR provisions of the proposed Superfund Reform Act of 1994. As a result of these activities, the Agency developed a comprehensive model for the use of allocation procedures to resolve allocation and settlement disputes at Superfund sites.
- EPA Headquarters worked with DOJ and the Regional offices to develop an innovative ADR strategy to increase the use of ADR in program operating procedures. Innovations include the inclusion of information on ADR use in pre-referred negotiation documents and participation of ADR-knowledgeable staff in case and docket reviews.
- All Regional offices and EPA Headquarters had training on the effective use of mediation and other ADR techniques during FY94. The training was designed for legal and program staff who participate in enforcement settlement activities. Training also was provided to several state environmental agencies.
- Progress was made during FY94 in educating the regulated community on the Agency's support for the use of ADR techniques to reduce both private and government transaction costs. The Headquarters ADR liaison, several Regional ADR contacts, and EPA management made presentations and provided training programs on effective ADR use for numerous professional and PRP organizations and several other federal agencies. In addition, in November 1993, a

national workshop explored opportunities to use ADR in increasing the effectiveness and fairness of the Superfund program.

Developing and Sharing Allocation Information

On August 12, 1994, to facilitate developing and sharing of allocation information, the Agency issued a white paper on the availability of volumetric waste information at NPL sites and its impact on site settlements. The paper contains findings from the evaluation of 554 multi-party generator/transporter NPL sites.

Guidance on Developing Allocation Methods

The Agency also conducted an assessment of currently used allocation methods and allocation implementation issues. The assessment was conducted through interviews with nine parties from across the country who conduct or participate in allocations. The results of the assessment were published in September 1994 in a report entitled, *Allocations Among Potentially Responsible Parties for the Costs of Superfund Site Cleanups.*

5.3.2 Foster More Settlements with Small-Volume Waste Contributors

To provide greater fairness for small-volume *de minimis* and "de micromis" waste contributors at Superfund sites, EPA is encouraging more, early, and expedited settlements that will reduce the transaction costs for all parties. To simplify determining a PRP's eligibility for a *de minimis* settlement and to streamline the settlement process, the Agency reduced the amount of information that a Region requires before offering a *de minimis* settlement. EPA issued guidance, *Streamlined Approach for Settlements with de minimis Waste Contributors under CERCLA Section 122(g)(1)(a)*, OSWER Directive 9834.7-ID, that provided a method for preparing payment matrices and encouraged Regions to take a more active role in facilitating a *de minimis* settlement.

The Agency also has worked with the Regions on settling with extremely small volume waste contributors ("de micromis" parties) and moving aggressively to settle with "de micromis" parties who are subject to contribution actions by major waste contributors. By using EPA's existing settlement authority in an expeditious manner, the Agency can resolve the liability of "de micromis" parties so that they may gain the full extent of contribution protection available under the statute.

In addition, the Agency continued to work on a Regional communications strategy that includes developing a model notice letter for assisting and informing *de minimis* parties about the settlement process. Effective communication with all concerned parties early in the settlement process can serve many useful functions, including limiting transaction costs and improving the possibility that a settlement offer will be accepted. The communications strategy recommends a variety of approaches to ensure successful communications with parties prior to, during, and following *de minimis* settlement negotiations. For example, EPA developed a brochure that describes the basic concepts and steps of the Superfund program and the *de minimis* settlement process. The brochure is included in mailings to *de minimis* parties, distributed at PRP meetings, and provided to elected officials as introductory information about *de minimis* settlements. The Agency also implemented a toll-free telephone information line for small-volume contributors who have questions about the settlement process.

5.3.3 Greater Fairness for Owners at Superfund Sites

When prospective purchasers of Superfund sites know of contamination prior to purchasing property, they may be liable for clean-up work under Superfund. Prospective purchasers are willing, in some instances, to conduct or finance some cleanup of the property

in return for a covenant from EPA not to sue. When an agreement for cleanup is reached between EPA and a prospective purchaser, the Agency, local communities, and the regulated community can benefit in several ways. The Agency can gain additional funding to finance cleanup at the site. The local communities and economies benefit from the redevelopment of the site, which creates jobs and returns the property to productive use. The prospective purchaser benefits by gaining access to a prime location for business, without fear of possible Superfund liability.

EPA is focusing more effort on negotiating agreements that will facilitate or assist in the re-use or development of contaminated property.

5.3.4 Evaluate Mixed-Funding Policy

The Agency uses mixed funding in situations where it is appropriate to recover less than 100 percent of the site costs from PRPs in a particular settlement. There are three types of mixed funding settlements: preauthorization (where PRPs perform the work and the Agency agrees to reimburse them for a portion of the costs), cashouts (where the PRPs fund a portion of the work that EPA performs), and mixed work (where the PRP and the Agency perform different aspects of the cleanup).

The Agency surveyed the opinions of organizations and individuals, including PRPs, regarding mixed-funding agreements. Many of those surveyed noted that the procedures and documentation required to enter into a mixed-funding settlement, or to assert a claim against the Trust Fund, are burdensome. During FY94, the Agency responded by conducting mixed-funding demonstration projects to explore options for streamlining the mixed-funding decision-making process, and the application and documentation requirements.

To evaluate the mixed-funding demonstration projects, the Agency defined "measures of success"" These measures relate to the overall number of settlements achieved using mixed funding and the timeliness and quality of the settlement process. Where the use of mixed funding (either mixed work or preauthorization) resulted in settlement without a large expenditure of resources (such as would be expended going to trial), the pilot was considered successful. For purposes of the evaluation, settlement was defined as an agreement on the specific language of the settlement document. Based on the evaluation of demonstration projects, EPA will continue to recommend measures for streamlining preauthorization procedures and requirements.

5.3.5 Compliance Monitoring

Through ongoing oversight of PRP activities, EPA monitors PRPs' compliance with AOCs, UAOs, and CDs. EPA monitors PRP activities at sites to ensure that the activities are performed correctly and on schedule.

EPA is continuing to develop and implement procedures for increasing the effectiveness of its compliance monitoring. The Agency implemented Regional compliance tracking systems to monitor compliance with CERCLA enforcement actions/ settlements. EPA's OECA also began reviewing Regional compliance reporting measures and plans to determine whether national compliance guidelines are appropriate or necessary. OSRE began conducting a review of each Region's approach to ensure that the Regions are tracking the most appropriate indicators of compliance. Preliminary results of EPA Regional compliance monitoring reviews indicate that improved compliance monitoring procedures are increasing Regional enforcement of AOCs, UAOs, and CDs, including use of stipulated penalties.

5.3.6 Improved Effectiveness of Cost Recovery

EPA has completed several significant activities to improve its effectiveness in recovering Trust Funds expended for cleanup. Agency efforts have focused on developing more effective reports and revising the cost recovery prioritization process. The Cost Recovery Targeting Report was developed to combine CERCLA Information System planning obligations with data from the Integrated Financial

Management System to present a complete picture of the statute of limitations date and the past costs associated with each site. The Cost Recovery Targeting Report combines data from the two systems to resolve potential problems related to comparability and access to data, and to enable EPA to identify sites where the statute of limitations is near expiration. The report also presents a complete picture of past recoverable costs and the status of all past, ongoing, and planned efforts to address these costs. With the report as a tool, EPA revised the cost recovery target process to target all cases with unrecovered costs exceeding $200,000, where the statute of limitations is an issue. Under the revised process, the Regions are required to provide documentation for all cases where the statute of limitations is an issue, including those where the deadlines have expired. The revised process should help Regions to better prioritize their cost recovery work.

In other efforts, the Agency continued to work toward finalizing its proposed cost recovery rule. The rule seeks to standardize cost recovery documentation requirements, clarify statute of limitations issues, specify the types of costs that constitute recoverable indirect costs, and explain the methodology used to calculate indirect costs. As of the end of FY94, the rule was still in process.

5.3.7 Superfund Accelerated Clean-Up Model

As the Agency implemented SACM to streamline and accelerate risk reduction and cleanup at Superfund sites, it also worked to expedite Superfund enforcement activities. To support SACM, the Agency is starting earlier PRP searches, using "non-time critical" removals at PRP-lead sites, and increasing the use of AOCs for RDs. The settlement at the Columbia Gas Pipeline, highlighted in Exhibit 5.2-4, is one example of the use of a non-time-critical removal at a PRP-lead site.

The increased use of AOCs for RDs allows PRPs to initiate the RD while continuing to negotiate on the settlement (CD) for conducting the cleanup. Further, the use of the AOC for RD allows the PRPs to perfect the clean-up design prior to finalizing the settlement. During FY94, EPA issued 18 AOCs for RDs.

Chapter 6
Federal Facility Cleanups

Departments and agencies of the federal government manage a variety of industrial activities at 27,000 installations. Due to the nature of such activities, whether they are federally or privately managed, federal installations may be contaminated with hazardous substances. Generally, contaminated facilities are subject to CERCLA requirements.

Although federal facilities comprise only a small percentage of the community regulated under CERCLA, federal facilities are usually larger and more complex than their private industrial counterparts. Because of their size and complexity, compliance with environmental statutes may present unique management issues for federal facilities.

6.1 The Federal Facilities Program

CERCLA Section 120(a) requires that federal facilities comply with CERCLA requirements to the same extent as private facilities. Generally, Executive Order 12580 delegates the President's authority under CERCLA to federal departments and agencies, making them responsible for all clean-up activities at their facilities. At federal facilities that are National Priorities List (NPL) sites, which are sites having the highest priority for remediation under Superfund, CERCLA mandates that cleanups be conducted under interagency agreements (IAGs) between EPA and relevant federal agencies. States are often a party to these agreements as well. To ensure federal facility compliance with CERCLA requirements, EPA not only provides technical advice and assistance, but also takes enforcement action when appropriate.

In addition to CERCLA, there exists a range of authority and enforcement tools under state statutes that apply to non-NPL federal facility sites. Indian tribes may also be involved in federal agency compliance with environmental regulations when acting as either lead or support agencies for Superfund response actions.

6.1.1 Federal Facility Responsibilities Under CERCLA

Federal departments and agencies are responsible for identifying and addressing hazardous waste sites at the facilities that they own or operate. They are required under CERCLA to comply with all provisions of federal environmental statutes and regulations and all applicable state and local requirements during site cleanup.

6.1.2 EPA's Oversight Role

EPA oversees and assists federal agencies with clean-up activities. EPA responsibilities include evaluating sites for the NPL, negotiating or re-negotiating and amending IAGs, promoting community involvement through site-specific advisory boards and restoration advisory boards, potentially selecting or assisting in the determination of clean-up remedies, concurring with clean-up remedies, providing technical advice and assistance, reviewing federal agency pollution abatement plans, and resolving disputes regarding noncompliance. To fulfill these responsibilities, EPA relies on personnel from Headquarters, Regional offices, and states. This includes personnel from the Federal

Facilities Enforcement Office (FFEO) in the Office of Enforcement and Compliance Assurance (OECA) and the Federal Facilities Restoration and Reuse Office (FFRRO) in the Office of Solid Waste and Emergency Response.

To track the status of a federal facility, EPA uses a number of information systems. The Facility Index System provides an inventory of federal facilities subject to environmental regulations. Through the CERCLA Information System (CERCLIS), EPA maintains a comprehensive list of all reported potentially hazardous waste sites, including federal facility sites. CERCLIS also contains clean-up project schedules and achievements for federal facility sites. The list of federal facility sites potentially contaminated with hazardous waste, required by CERCLA 120(c), is made available to the public through the Federal Agency Hazardous Waste Compliance Docket and through regular docket updates published in the *Federal Register*.

6.1.3 The Roles of States and Indian Tribes

Under the provisions of CERCLA Section 120(f), state and local governments are encouraged to participate in planning and selecting remedial actions to be taken at federal facility NPL sites within their jurisdiction. State and local government participation includes, but is not limited to, reviewing site information and developing studies, reports, and action plans for the site. EPA encourages states to become signatories to the IAGs that federal agencies must enter into with EPA under CERCLA Section 120(e)(2). State participation in the CERCLA clean-up process is carried out under the provisions of CERCLA Section 121.

Cleanups at federal facility sites not on the NPL are carried out by the federal agency that owns or operates the site. Federal agencies use the CERCLA clean-up process outlined in the National Contingency Plan at these sites. In addition to CERCLA, these cleanups are subject to state laws regarding response actions. A state's role at a non-NPL federal facility site, therefore, will be determined both by that state's clean-up laws and CERCLA.

CERCLA Section 126 mandates that federally recognized Indian tribes be afforded substantially the same treatment as states with regard to most CERCLA provisions. Thus, the role of a qualifying Indian tribe in a federal facility cleanup would be substantially similar to that of a state. To qualify, a tribe must be federally recognized; have a tribal governing body that is currently performing governmental functions to promote the health, safety, and welfare of the affected population; and have jurisdiction over a site.

6.2 Fiscal Year 1994 Progress

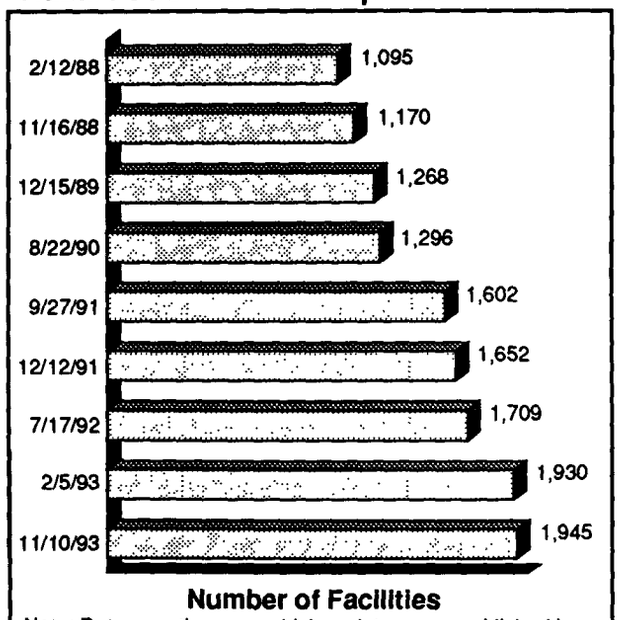
FFEO and FFRRO, in conjunction with various other EPA Headquarters offices, Regional offices, and states, ensure federal department and agency compliance with CERCLA and Resource Conservation and Recovery Act requirements. Progress in achieving federal facility compliance may be measured by the status of federal facility sites on the Federal Agency Hazardous Waste Compliance Docket and on the NPL, and by the execution of IAGs for federal facility sites.

6.2.1 Status of Facilities on the Federal Agency Hazardous Waste Compliance Docket

Federal facilities where hazardous waste is managed or from which hazardous substances have been released are identified on the Federal Agency Hazardous Waste Compliance Docket. The docket was established under CERCLA Section 120(c) and functions as a comprehensive record of the Superfund federal facilities program. It includes the compliance status of each federal facility. Information submitted to EPA on identified facilities is compiled and maintained in the docket and then made available to the public.

The initial federal agency docket was published in the *Federal Register* on February 12, 1988. At that time, 1,095 federal facilities were listed on the

Exhibit 6.2-1
Number of Federal Facilities on the Federal Agency Hazardous Waste Compliance Docket



Note: Dates are those on which updates were published in the *Federal Register*.

Source: Federal Agency Hazardous Waste Compliance Docket.

51-044-4A

Exhibit 6.2-2
Distribution of Federal Facilities on the Federal Agency Hazardous Waste Compliance Docket

Department of Defense	863	(44%)
Department of the Interior	428	(22%)
Department of Agriculture	122	(6%)
Department of Transportation	111	(6%)
Department of Energy	90	(5%)
Ownership Not Yet Known	76	(4%)
Tennessee Valley Authority	42	(2%)
Corps of Engineers, Civil	36	(2%)
Veterans Administration	34	(2%)
United States Postal Service	24	(1%)
Department of Justice	23	(1%)
General Services Administration	21	(1%)
Environmental Protection Agency	20	(1%)
National Aeronautics and Space Administration	17	(1%)
Department of Commerce	12	(0.6%)
Department of Health and Human Services	11	(0.6%)
Department of the Treasury	7	(0.4%)
Department of Housing and Urban Development	4	(0.2%)
Central Intelligence Agency	2	(0.1%)
Department of Labor	1	(0.05%)
Small Business Administration	1	(0.05%)
TOTAL	1,945	

Note: Percentages total less than 100% due to rounding.

Source: Federal Agency Hazardous Waste Compliance Docket.

51-044-5A

docket. Exhibit 6.2-1 shows the increase in the number of sites on the docket since its first publication. Most recently, the docket update of November 10, 1993, listed a total of 1,945 facilities. Of this total, the Department of Defense (DOD) owned or operated 863 (44 percent) of the facilities and the Department of the Interior (DOI) owned or operated 428 (22 percent). The remainder were distributed among 18 other federal departments, agencies, and instrumentalities. A breakdown of facilities on the docket by federal department or agency is illustrated in Exhibit 6.2-2.

6.2.2 Status of Federal Facilities on the NPL

To distinguish the increasing number of federal facility NPL sites from non-federal NPL sites, NPL updates list federal facility sites separately from non-federal sites. NPL updates also contain language that clarifies the roles of EPA and other federal departments and agencies with regard to federal facility sites. Consistent with Executive Order 12580 and the National Oil and Hazardous Substances Pollution Contingency Plan, EPA is typically not the lead agency for federal facility sites on the NPL; federal agencies are usually lead agencies for their own facilities. EPA is, however, responsible for overseeing federal facility compliance with CERCLA.

At the end of FY94, there were 160 federal facility sites proposed to or listed on the NPL,

including 150 final and 10 proposed sites. These totals included 10 sites that were proposed for listing and 24 proposed sites that were listed as final during FY94.

Federal departments and agencies made substantial progress during FY94 toward cleaning up federal facility NPL sites. Activity at federal facility NPL sites during the year included the start of approximately 60 remedial investigation/feasibility studies (RI/FSs), 50 remedial designs (RDs), and 40 remedial actions (RAs). Also, 60 records of decision (RODs) were signed, and 17 sites achieved construction completion. Ongoing activities at the end of FY94 included 486 RI/FSs, 60 RDs, and 79 RAs.

6.2.3 Interagency Agreements Under CERCLA Section 120

IAGs are the cornerstone of the enforcement program for federal facility NPL sites. They are enforceable documents and contain, among other things, a description of remedy selection alternatives, schedules of clean-up activities, and provisions for dispute resolution. During FY94, nine CERCLA IAGs were executed to accomplish hazardous waste cleanup at federal facility NPL sites. Of the 150 final federal facility sites listed on the NPL, 129 were covered by enforceable agreements by the end of the fiscal year.

IAGs between EPA and each responsible federal department or agency, to which states maybe signatories, document some or all of the phases of remedial activity (RI/FS, RD, RA, operation and maintenance) to be undertaken at a federal facility NPL site. IAGs formalize the schedule and procedures for submission and review of documents and include a timeline for remedial activities in accordance with the requirements of CERCLA Section 120(e). They also must comply with the public involvement requirements of CERCLA Section 117.

Included in IAG provisions are mechanisms for resolving disputes between the signatories. EPA can also assess stipulated penalties for noncompliance with the terms of IAGs. The agreements are enforceable by the states, and citizens may seek to enforce them through civil suits. Penalties may be imposed by the courts against federal departments and agencies in successful suits brought by states or citizens for failure to comply with IAGs.

6.3 Federal Facility Initiatives

The growing awareness of environmental contamination at federal facilities has increased the public demand for facility cleanup. To address this demand, EPA has worked to establish priorities for clean-up programs and thereby maximize the cleanups that can be accomplished with the finite resources available. In FY94, EPA reorganized its federal facility enforcement offices (FFRRO and FFEO) to make them more effective. The Agency also continued efforts to clean up closing military bases, accelerate cleanup, address issues through interagency forums, and promote the use of innovative technologies at federal facility sites.

6.3.1 Military Base Closure

During the fiscal year, DOD with EPA and the states began implementing the Fast Track Clean-Up Program that was developed in response to the Base Realignment and Closure (BRAC) Act and published as a DOD directive in September 1993. The Fast Track Clean-Up Program focuses clean-up efforts on facilitating reuse of bases scheduled for closure and speeding the economic recovery of communities associated with those bases.

Under the Fast Track Clean-Up Program, EPA, DOD, and the states established BRAC clean-up teams (BCTs) at 75 bases in FY94. BCTs were identified and trained in November 1993. EPA, DOD, and the states focused efforts on the BRAC bases with the greatest potential for economic reuse. Of the 75 bases with BCTs, 24 are final NPL sites, 3 are sites proposed to the NPL, and 19 are sites likely to be proposed to the NPL.

Major components of the Fast Track Clean-Up Program include identifying uncontaminated parcels, accelerating cleanup, enhancing community involvement, facilitating leasing agreements,

encouraging removal actions, providing technical assistance at non-NPL bases, and integrating cleanup with economic development. The program aims to maximize and expedite the reuse of bases scheduled for closure in a manner consistent with the requirements of CERCLA Section 120(h).

EPA's approach in supporting DOD in the Fast Track Clean-Up Program was outlined in the Model Accelerated Clean-Up Program guidance. In compliance with the terms of the guidance, EPA assigned a Remedial Project Manager (RPM) to each installation with a BCT. The RPM serves as an integral part of the clean-up team and spends a significant amount of time at the base. EPA also provided technical experts in areas such as hydrogeology, toxicology, ecological assessment, field support, and legal review to support the effort. DOD supported EPA by committing approximately 100 full-time equivalent personnel to aid in achieving the objectives of the Fast Track Clean-Up Program. Most of the DOD resources were assigned to EPA's Regional offices.

6.3.2 Accelerated Cleanups at Federal Facilities

EPA, with DOD and the Department of Energy (DOE), published *Guidance on Accelerating CERCLA Environmental Restoration at Federal Facilities* in August 1994. The guidance identifies Superfund Accelerated Clean-Up Model components that provide opportunities for speeding cleanup at federal facility NPL sites. The guidance also addresses site assessment, innovative technology, the impact of accelerated cleanup on the NPL, presumptive remedies, early and long-term actions, public involvement, Regional decision teams, and the effect of accelerated cleanup on sites with existing federal facility IAGs. Also in conjunction with other federal agencies, EPA initiated the development and promotion of presumptive remedies at closing military bases. Presumptive remedies are preferred technologies for common categories of sites based on historical patterns of remedy selections, as well as scientific and engineering evaluations of performance data on technology implementation. Presumptive remedies are expected to reduce the cost and time required to clean up similar sites, to promote consistency in remedy selection, and to facilitate the expeditious reuse of properties by surrounding communities.

6.3.3 Interagency Forums

Through its participation in interagency organizations, EPA made significant progress in addressing concerns associated with federal facility cleanup.

Federal Facilities Environmental Restoration Dialogue Committee

The Federal Facilities Environmental Restoration Dialogue Committee (FFERDC), established in 1992 as an advisory committee under the Federal Advisory Committee Act, provided a forum for identifying and refining issues related to environmental restoration activities at federal facilities. During FY94, FFERDC contributed to the debate on Superfund reform and held national discussions on improving the federal government's approach to environmental management.

Defense Environmental Restoration Task Force

EPA continued to participate in the Defense Environmental Restoration Task Force (DERTF). The goals of DERTF and DOD are to examine environmental issues associated with the cleanup and reuse of closing military installations and to identify and recommend ways to expedite and improve environmental response actions at military installations scheduled to be closed. To support its activities, DERTF established five working groups. Each working group is addressing one of the following topics: fast track clean-up implementation, environmental baseline surveying, leasing, future land use, and environmental justice.

BRAC Clean-Up Teams

With DOD and the states, EPA formed BCTs at all major installations scheduled for closure and

conducted three training conferences for BCT members. EPA and DOD prepared and conducted bottom-up reviews of 77 BRAC clean-up plans for closing installations, established restoration advisory boards (RABs) at closing installations, provided seven RAB training workshops, and determined, by consensus, the suitability of property to transfer or lease for reuse. As mandated by the Community Environmental Response Facilitation Act, EPA reviewed and where appropriate concurred in the identification of uncontaminated parcels of property that are part of an NPL site.

Environmental Management Advisory Board

With DOE, EPA participated in the Department's Environmental Management Advisory Board. The board consists of representatives from industry, academia, and the environmental community. It provides information, advice, and recommendations on issues confronting the national environmental management program. These issues include clean-up criteria and risk assessment, land use, priority setting, management effectiveness, cost-versus-benefit analyses, and strategies for determining the future national configuration of waste management and disposal facilities.

6.3.4 Innovative Technology Development

FFRRO and FFEO, in conjunction with the Technology Innovation Office (TIO), the Office of Research and Development, and the Office of Policy, Planning, and Evaluation, coordinated efforts to establish federal facilities as testing and development centers for innovative technologies. In August 1994, the EPA Administrator signed and issued a policy document, the *EPA Policy for Innovative Environmental Technologies at Federal Facilities*. This policy advocates and reaffirms EPA's commitment to promote the use and development of innovative technologies at federal facilities. EPA, along with DOD and DOE, also signed an interagency guidance document on accelerating CERCLA environmental restoration at federal facilities. The guidance includes a provision encouraging accelerated cleanup at federal facilities through the use of innovative technologies. It also gives EPA discretion to allow changes in scheduled activities and to provide technical support to federal agencies to facilitate the use of innovative technologies. Decisions about using innovative technologies are to be made with the support of EPA, state agencies, the lead federal agency, and the public.

TIO, FFRRO, and FFEO engaged in several other efforts to promote the use of innovative technologies at federal facility sites. For example, TIO, FFRRO, and FFEO formed the Federal Facilities Forum to serve as a venue for problem-solving and exchanging information between EPA Regions and federal agencies on improved technology to help accelerate restoration and reuse of federal facilities. TIO, FFRRO, and FFEO also initiated efforts to start the Multisite Technology Confirmation Initiative. Through this initiative, the Agency seeks to identify innovative technologies that have been demonstrated at the full-scale level and to facilitate their use at additional sites. By developing information on the cost and performance of innovative technologies, this initiative should enhance the acceptability and use of innovative technologies for remediation at federal facilities. In other efforts, the Agency participated in public-private partnerships and the Develop On-Site Innovative Technologies (DOIT) Committee.

Public-Private Partnerships

Through the use of public-private partnerships, EPA has demonstrated and evaluated various innovative hazardous waste technologies. For example, EPA, DOE, and the State of Florida continued to implement a public-private partnership through DOE's Innovative Treatment Remediation Demonstration Program for the remediation of ground water at the DOE Pinellas Plant in Florida. The parties are working to select the appropriate technology for the site. At McClellan Air Force Base, EPA continued a public-private partnership project with the State of California, the Air Force, and several private firms. Two technology demonstrations were held at McClellan between July and October of 1994.

Through a cooperative agreement between TIO and Clean Sites, Inc., additional public-private partnerships between federal agencies, federal regulators, state regulators, and private companies are being established. Efforts are underway to establish a public-private partnership at the Joliet Army Ammunition Plant, in Illinois, for the remediation of explosives-contaminated soil, using an innovative technology. Clean Sites, Inc., is working with the Remedial Technology Development Forum to demonstrate an innovative technology at DOE's Paducah Gaseous Diffusion Plant in Kentucky. Public-private partnerships are also being established at the Massachusetts Military Reservation, the Otis Air National Guard Site, and the Naval Air Station/ North Island.

Develop On-Site Innovative Technologies Committee

In other FY94 activity, EPA continued to work closely with DOE, DOD, DOI, and the Western Governors Association (WGA) to bring about environmental regulatory reform at the state and federal level. EPA is represented on the DOIT Committee, a federal advisory committee created to implement a memorandum of understanding (MOU) signed by DOD, DOE, DOI, EPA, and WGA. Pursuant to the MOU, the signatories are cooperating to expedite waste site cleanups and advance better technologies. The DOIT Committee, seeking to analyze technology demonstrations and solicit stakeholder involvement at federal facilities, has four working groups (mixed waste, mining waste, munitions, hazardous waste at military bases). In FY94, the workgroups identified a number of sites for technology demonstrations and made suggestions for new approaches.

6.4 CERCLA Implementation at EPA Facilities

Of the 1,945 sites on the Federal Agency Hazardous Waste Compliance Docket at the end of FY94, 20 were EPA-owned or operated. Of these EPA-owned or operated sites, one was listed on the NPL. A report, required by CERCLA Section 120(e)(5), on clean-up progress at these 20 facilities is provided below.

6.4.1 Requirements of CERCLA Section 120(e)(5)

CERCLA Section 120(e)(5) requires an annual report to Congress from each federal department, agency, or instrumentality on its progress in implementing Superfund at its facilities. Specifically, the annual report to Congress is to include, but need not be limited to, the following items:

- Section 120(e)(5)(A): A report on the progress in reaching IAGs under CERCLA Section 120(e)(2);
- Section 120(e)(5)(B): The specific cost estimates and budgetary proposals involved in each IAG;
- Section 120(e)(5)(C): A brief summary of the public comments regarding each proposed IAG;
- Section 120(e)(5)(D): A description of the instances in which no agreement (IAG) was reached;
- Section 120(e)(5)(E): A progress report on conducting RI/FSs required by CERCLA Section 120(e)(1) at NPL sites;
- Section 120(e)(5)(F): A progress report on remedial activities at sites listed on the NPL; and
- Section 120(e)(5)(G): A progress report on response activities at facilities that are not listed on the NPL.

CERCLA also requires that the annual report contain a detailed description, by state, of the status of each facility subject to Section 120(e)(5). The status report must include a description of the hazards presented by each facility, plans and schedules for initiating and completing response actions, enforcement status (where applicable), and an explanation of any postponement or failure to complete response actions. EPA gives high priority to maintaining compliance with CERCLA

requirements at its own facilities. To ensure concurrence with all environmental statutes, EPA uses its environmental compliance program to heighten regulatory awareness, identify potential compliance violations, and coordinate appropriate corrective action schedules at its laboratories and other research facilities.

EPA also has instituted an internal program review process to identify facilities with potential environmental violations of federal (including CERCLA), state, and local requirements. By performing these detailed facility analyses, EPA is better able to assist facilities in complying with federal, state, and local requirements.

6.4.2 Progress in Cleaning Up EPA Facilities Subject to Section 120 of CERCLA

At the end of FY94, the Federal Agency Hazardous Waste Compliance Docket listed 20 EPA-owned or operated facilities, including one that has been listed on the NPL (the Old Navy Dump/ Manchester NPL site in Washington). Three of the sites (Casmalia Resources in Casmalia, California; the Brunswick Facility in Brunswick, Georgia; and the Philadelphia Site in Philadelphia, Pennsylvania) may have been listed on the docket in error. EPA is currently investigating those listings. EPA has evaluated and, as appropriate, undertaken response activities at the 17 EPA sites on the docket for which it is responsible, including the site on the NPL. As required by CERCLA Section 120(e)(5), Exhibit 6.4-1 provides the status, by state, of EPA-owned or operated sites and identifies the types of problems and progress of activities at each site. EPA facilities that have undergone significant response activities in FY94 are discussed in detail below. As required for EPA-owned or operated NPL sites, the information presented below for the Old Navy Dump/Manchester NPL Site provides a report on progress in meeting Section 120 requirements for reaching IAGs, conducting RI/FSs, and providing information on the status of remedial activities. For other EPA-owned or operated sites on the docket, the information presented below provides a report on progress in conducting response activities at the facilities.

National Air and Radiation Environmental Laboratory, Alabama

EPA's air and radiation laboratory formerly operated at a site near its current location at Gunter Air Force Base in Montgomery, Alabama. During operations at the original site, waste solvents, including xylene and benzene, were discharged into a pit adjacent to the laboratory building. The releases were identified by EPA's internal auditing program. The site was remediated initially by removing the accessible contaminated soil and replacing it with uncontaminated soil. Then EPA, in conjunction with the Underground Injection Control Program of the Alabama Department of Environmental Management, determined the extent of the remaining contamination and developed an appropriate mitigation program. EPA is monitoring the ground-water wells on the property regularly and initiating a program to pump ground water from the contaminated area.

EPA Headquarters, District of Columbia

EPA Headquarters was reported as a small-quantity generator of hazardous wastes during FY93 because of the presence of unopened containers of photographic development chemicals. Through pollution prevention and waste minimization initiatives undertaken in FY94, EPA Headquarters is attempting to eliminate this small quantity wastestream.

EPA Central Regional Laboratory, Maryland

EPA conducted an on-site investigation of ground-water contamination at the EPA Central Regional Laboratory in Annapolis, Maryland. Although the State of Maryland is satisfied that hazardous substances have not been released into the environment and that further response action is not required, the Agency installed a homogenizing tank and continued to maintain monitoring wells at the site. During FY94, EPA continued monitoring of the wells with no contamination found.

Exhibit 6.4-1
Status of EPA Facilities on the Federal Agency Hazardous Waste Compliance Docket

State	EPA Facility	Known or Suspected Problems	Project Status
AL	National Air and Radiation Environmental Laboratory (formerly known as the Eastern Environmental Radiation Facility)	Contained soil and ground-water contamination	PA completed; ongoing monitoring and response activities.
AR	Combustion Research Facility	No contamination	PA completed 4/89; no further remedial action planned.
CO	National Enforcement Investigation Center	No contamination	PA completed 4/88; no further remedial action planned.
DC	EPA Headquarters	Small-quantity generator	EPA undertaking pollution prevention and waste minimization efforts to eliminate wastestream.
IL	Region 5 Environmental Services Division Laboratory	No contamination	PA completed 4/88; no further remedial action planned.
KS	EPA Mobil Incinerator	No contamination from mobile incinerator	No further remedial action planned; mobile incinerator removed from site.
KS	Region 7 Environmental Services Divison Laboratory	No contamination	PA completed 4/88; no further remedial action planned.
MD	EPA Central Regional Laboratory	No contamination	PA completed 4/88. SI completed; monitoring of site ongoing.
MI	Motor Vehicle Emission Laboratory	No contamination	PA conducted 3/90; no further remedial action planned.
NC	EPA Tech Center	No contamination	PA conducted 8/91; no further remedial action planned.
NJ	EPA Edison Facilities	No contamination that poses a threat to the environment	PA/SI prompted additional investigative work.
OH	AWBERC Facility	No contamination	PA completed 4/88; no further remedial action planned.
OH	Center Hill Hazardous Waste Engineering Research Laboratory	No contamination	PA completed 4/88; no further remedial action planned.
OH	Testing and Evaluation Facility	No contamination	PA completed 4/88; no further remedial action planned.
OR	EPA Laboratory	Small-quantity generator	Conditionally exempt from PA requirements.
TX	EPA Laboratory	Small-quantity generator	Conditionally exempt from PA requirements.
WA	Old Navy Dump/Manchester NPL Site (formerly known as the Region 10 Environmental Services Divison Laboratory)	Soil and sediment contamination attributable to DOD ownership	Site listed on the NPL in 5/94; IAG negotiations initiated 7/94; RI/FS to be performed in FY95.

Source: Hazardous Waste Compliance Docket and the Office of Administration and Resources Management.

51-044-6

EPA Edison Facilities, New Jersey

The EPA Edison Facilities site was formerly the Raritan Depot, which was owned by DOD and used for munitions testing and storage. In 1963, the General Services Administration (GSA) took possession of the property and, in 1988, transferred approximately 200 acres of the site to EPA. Although residual contamination from past DOD and GSA activities at the facility persists, EPA has not stored, released, or disposed of any hazardous substances on the property.

A site inspection was conducted in FY91, following the discovery of a contaminated surface-water impoundment. The investigation resulted in the implementation of interim clean-up actions. Response activities have included spraying a rubble pile containing asbestos with a bituminous sealant; removing the liquid in the surface impoundment, excavating soil, installing a liner, and backfilling the impoundment with clean material; excavating and storing munitions; and removing underground storage tanks. EPA expects that DOD will pursue additional clean-up work at the site.

Old Navy Dump/Manchester NPL Site, Washington

EPA acquired this former Navy site from DOD in 1970 and used the land to construct an environmental testing laboratory in 1978. The property is also used for two other environmental laboratories run by the National Marine Fisheries Service and the Washington State Department of Ecology.

The property adjacent to the laboratories had been used by the Navy to conduct firefighting training exercises, maintain metal anti-submarine nets, and serve as a Navy landfill. Investigations of the property history revealed that in the 1940s and 1950s, the Navy had used a lagoon on the property to dispose of metal debris and other waste from the nearby Bremerton Naval Shipyard. Also, chemical residues from the Navy firefighting training school had been allowed to drain into the ground. In FY93, a preliminary assessment and site inspection of the property revealed the presence of hazardous substances in the soil, sediment, and surface-water run off. In January 1994, EPA proposed the site to the NPL, and in June 1994, EPA listed the site on the NPL.

Because the site is a former Navy site, the Defense Environmental Restoration Program for Formerly Used Defense Sites (FUDS) will provide funding for evaluating and correcting the hazardous conditions. Negotiations for an IAG for site cleanup were initiated in July 1994 and were ongoing as of the end of the fiscal year. Also during the year, the Seattle District of the U.S. Army Corps of Engineers was authorized under the Department of Defense's Environmental Restoration Program for FUDs to perform an RI/FS of the Old Navy Dump/Manchester NPL Site (FUDS Site No. F10WA011900) and to prepare a proposed plan and ROD. Initiation of the RI/FS is scheduled for FY95.

Chapter 7
Superfund Program Support Activities

7.1 Community Involvement

Superfund's community involvement efforts demonstrate EPA's commitment to informing potentially affected citizens about Superfund sites and involving them in the clean-up process. EPA focuses on:

- Informing the public of planned or ongoing actions;
- Giving the public an opportunity to comment on and provide input for technical decisions; and
- Identifying and resolving conflicts.

The guideline for EPA's proactive community involvement effort is "early, often, and always"" EPA is committed to beginning outreach activities early in the Superfund process, meeting with citizens on a regular basis, and always listening to citizens' concerns.

EPA's policy of enhancing community involvement is demonstrated by its continued efforts to tailor community involvement activities to each community's needs and to identify effective approaches for reaching concerned citizens. Each community is unique and requires an individual communication strategy. EPA's strategy, while satisfying statutory requirements, also uses the following innovative communication techniques:

- Sponsoring open houses for local citizens to meet one-on-one with EPA Superfund site teams to discuss community concerns or site information;
- Using various media, such as public access television and public monitoring equipment, to convey information from EPA to local citizens, promote greater public understanding, and encourage public participation in site activities;
- Conducting introduction to Superfund workshops and video presentations to educate affected citizens about the Superfund clean-up process and opportunities for involvement in the process;
- Establishing "store-front offices" in communities, often staffed by local residents; and
- Providing the community with direct access to data from site-monitoring stations.

As EPA implements the Superfund Accelerated Clean-Up Model, the Agency remains committed to promoting meaningful community involvement in decision-making during all phases of site cleanup. EPA views early and frequent community involvement as critical to the success of EPA's mission to protect human health and the environment. FY94 community involvement efforts reflect the Agency's commitment to identify and implement ways to enhance community involvement. The Agency also continued offering technical assistance grants (TAGs) to communities to enable them to participate more fully in Superfund cleanup and decision making.

7.1.1 Fiscal Year 1994 Highlights

During FY94, EPA continued to improve the vigorous community involvement efforts by emphasizing the importance of public participation through its Superfund administrative improvements and reauthorization efforts. Efforts focused on identifying ways to increase community involvement in the Superfund program, enhance outreach between EPA and communities, and ensure environmental justice by addressing the concerns of minority and low-income communities. The Agency also provided support to the General Accounting Office (GAO) in an analysis of the effectiveness of Superfund community involvement efforts. In addition, the Agency continued to provide a technical outreach program for communities, hold national conferences on community involvement, and offer training and workshops to communities.

Enhanced Community Involvement Through Administrative Improvements

The enhancement of meaningful community involvement is one of the 17 areas where EPA is changing Superfund through the administrative improvement initiative. In FY94, EPA continued 21 demonstration projects where Regions focused on environmental justice issues. The Regions also worked on 16 sites where innovative community involvement techniques were demonstrated, including two sites where EPA continued to work with community working groups (CWGs).

Reauthorization Activities

In December 1993, NACEPT released a report on five meetings held to obtain public comment on the reauthorization of Superfund, including a meeting of more than 50 local citizens who met with NACEPT members in September 1993 to discuss how to improve community involvement in the Superfund program. EPA conducted the meeting through the use of a satellite-video link to 20 cities across the country.

The Vision Workgroup, which the Agency formed to develop an integrated model of community involvement, environmental justice, and economic redevelopment, continued to address these issues with respect to Superfund reauthorization. The workgroup presented analyses to the National Advisory Committee on Environmental Policy and Technology (NACEPT) subcommittee on Superfund and continued to work on draft proposals for reauthorization in FY94. The workgroup focused on facilitating earlier and more meaningful community involvement, providing easier access for the public to TAGs, and fostering CWGs.

General Accounting Office Support and Response

Headquarters and the Regional offices provided support to GAO, which released a report in April 1994 entitled *Superfund Community Relations Could Be More Effective*. This report was a result of a special review on whether communities are adequately involved Superfund site decisions and included recommendations for earlier community involvement, improving fact sheets, improving the graphics used in public notices, improving the site information repositories, and evaluating the work load of Regional community involvement staff.

Technical Outreach Services for Communities

The Agency continued support for the technical outreach program that expands EPA's tools for community outreach by providing an alternative, independent source of technical information. EPA's Office of Research and Development's Office of Exploratory Research provides a national network of five hazardous substance research centers (HSRCs). Authorized by SARA Title III, Section 311(d), the HSRCs are supported by a network of 23 universities nationwide. Each HSRC supports two EPA Regions and provides technology transfer and training. The HSRCs also provide services that are flexible and tailored to each community's needs. For example, the technical expert at the HSRC may review site-related documents, attend public meetings, explain technical process information, or provide an independent assessment of site activities.

National Community Involvement Conferences

EPA continued to hold semi-annual national community involvement conferences that provided Regional personnel with an opportunity to share information and discuss issues of national concern. Highlights of the two conferences (Philadelphia, Pennsylvania, in January 1994 and Denver, Colorado, in July 1994) included sessions on environmental justice, administrative improvements, working with the Agency for Toxic Substances and Disease Registry (ATSDR), GAO recommendations, and reauthorization.

Superfund Community Relations Skills Course

EPA offered the Superfund Community Relations Skills course seven times in FY94 to ensure that EPA staff members are equipped with the latest community involvement skills and techniques, and that they have a thorough understanding of community relations requirements at Superfund sites. EPA designed the course to allow independent Regional presentations, ensure flexibility to tailor the course to the specific audience's needs, and reduce travel costs. EPA offered the community relations skills course to community relations and technical staff from EPA, other federal agencies, and state agencies across the country. The course was held in five Regional offices and twice at the CERCLA Education Center in Raleigh, North Carolina.

Introduction to Superfund Workshop Development

Community involvement staff in Headquarters and the Regions revised and updated an introductory workshop for citizens. The three-hour workshop for citizens, originally developed by Regional staff, was revised for national distribution and delivery. The workshop is supplemented by the video *This Is Superfund: A Citizen's Guide to EPA's Superfund Program*, which was also developed in FY94.

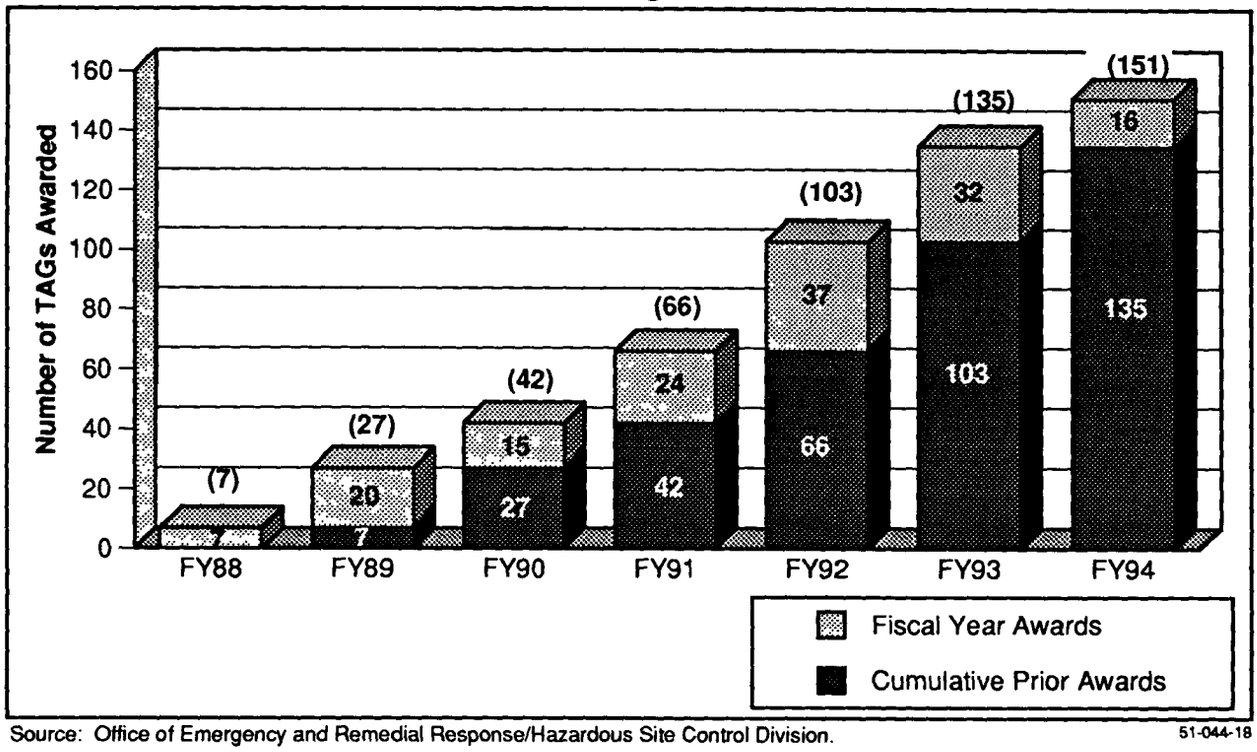
7.1.2 Technical Assistance Grants Under CERCLA Section 117(e)

The TAG Program, an EPA grant program authorized by CERCLA Section 117(e), as amended by SARA, is designed to foster community involvement among citizens affected by Superfund sites listed on or proposed to the National Priorities List (NPL). These $50,000 grants enable communities to become more knowledgeable about the technical and scientific aspects of a Superfund site and to participate more effectively in the clean-up process. Using TAG funds, the TAG recipient can hire technical advisors to assist them in understanding the site-specific strategies under Superfund and then be better able to participate as a stakeholder throughout the Superfund process. The community as a whole benefits from a TAG since the information acquired through technical advisors is shared with the entire community.

EPA continues to improve the TAG Program by establishing efficient lines of communication between potential TAG recipients and the Agency, including communication between the Regional offices and Headquarters. Improvements throughout FY94 included:

- Monthly TAG Conference Calls. TAG Coordinators from each Region and Headquarters discussed pertinent TAG issues and reported on Regional/Headquarters TAG activity. These calls aid in promoting national consistency in implementing the TAG Program.
- Community Involvement Focus Groups. EPA convened a series of focus groups in San Francisco, Dallas, and Boston. Participants in the groups included community members, TAG recipients and applicants, and local government officials. Participants discussed their views on Superfund legislative changes, primarily focusing on the proposed changes to the TAG Program and other community involvement initiatives. EPA produced a 30-minute video comprised of comments made by the focus group participants.

Exhibit 7.1-1
Number of Technical Assistance Grants Awarded from Fiscal Year 1988 Through Fiscal Year 1994



Source: Office of Emergency and Remedial Response/Hazardous Site Control Division. 51-044-18

- Superfund National Community Involvement Conference. The July 1994 conference, held in Denver, Colorado, included discussions of the TAG Program. The conference attracted over 100 participants. Participants discussed TAG close-outs, audits, and the expansion of the TAG Program under Superfund reauthorization.
- Dialogue Between EPA and the Department of Defense (DOD) Concerning TAGs at federal facilities. EPA participated in the DOD Technical Assistance for Public Participation Workgroup to discuss the development of a memorandum of understanding between EPA and DOD concerning the financing of TAGs at federal facilities. There are currently 25 TAGs awarded to communities affected by federal facilities listed on the NPL.
- Electronic TAG Application. In order to facilitate the application process for citizens, EPA developed an electronic TAG application. With a laptop or an accessible personal computer, Regional TAG Coordinators are able to visit a site and, working one-on-one with the citizens, assist them in the completion of the TAG application.
- As illustrated in Exhibit 7.1-1, since the TAG program began in FY88, EPA has awarded 151 TAGs, which are worth more than $8.6 million to support community involvement in Superfund cleanup. This total includes 16 TAGs awarded in seven Regions during FY94. Because of the benefits of the TAGs, many TAG recipients choose not to close-out their grant award as they mature, but rather request additional funds through a waiver or deviation. There are 17 TAGs that exceed the initial $50,000 award with waivers and deviations.

7.2 A Coordinated Approach to Public Information

The Agency's public information outreach program is built on a system of information coordination and management. Under this program, EPA is committed to providing quick public access to high-quality documents.

All Superfund documents available to the public are listed in the *Catalog of Superfund Program Information Products* and its regular update bulletins. Copies of the catalog and updates are available from the Superfund Document Center or from the Department of Commerce's National Technical Information Service (NTIS). Electronic access to the catalog and updates is available through Agency internal electronic bulletin boards or through the NTIS FEDWORLD gateway to the Internet system which is advertised nationwide to the general public.

During FY94, EPA managed the full implementation of the EPA-NTIS Superfund partnership, a comprehensive interagency effort to provide maximum public access to Superfund documents. Through this partnership, the Agency and NTIS conduct an outreach and marketing program to inform the public about the availability of Superfund documents from NTIS. This partnership effort has provided the public with rapid delivery of Superfund documents and has conserved EPA resources.

The public can also access information about Superfund through other information sources, such as the Superfund Docket and the Resource Conservation and Recovery Act (RCRA)/Superfund Hotline. Further information on public information services is provided below.

7.2.1 The National Technical Information Service

The Department of Commerce's NTIS serves as a permanent archive and general source of federal publications, including Superfund documents. Before the EPA-NTIS partnership, EPA had fulfilled requests for more than two million documents free of charge. Due to resource constraints, however, free document distribution was no longer possible. To fulfill its commitment to ensure that Superfund documents are available to the public, EPA has worked to maximize public access to and promote the availability of Superfund documents through NTIS.

The Agency's joint effort with NTIS provides the public with ready access to the entire Superfund collection. During FY94, EPA-NTIS efforts included expanding the collection of Superfund documents available through NTIS by providing distribution services for documents developed by EPA Regions. NTIS staff also operated and managed the Superfund Document Center, which had previously been staffed by EPA contractors. Using NTIS employees provided considerable savings to the government and facilitates access to the many production services housed at the NTIS headquarters in Springfield, Virginia.

NTIS also maintains a Superfund Order Desk where users may purchase single copies of documents or customized subscriptions for categories of documents pertinent to their needs. Prepublication documents are available at the Superfund Order Desk prior to being formally printed and distributed. The EPA-NTIS personnel involved in the joint outreach and marketing program informed all regular users about this service during FY94.

In other FY94 efforts, EPA's Outreach and Special Projects Office began implementing a communications and outreach plan during its first full year of operation, relying on the services provided by NTIS. With the assistance of NTIS, the office provides information management and delivery systems. The office also plays a central coordinating role for outreach efforts, ensuring that the Superfund program "speaks with one voice".

7.2.2 The Superfund Docket

The Superfund Docket provides public access to the materials that support proposed and final regulations. In compliance with the Freedom of Information Act, the public is allowed access to docket materials following approval of the material by the Office of General Counsel and announcement of the proposed or final regulation in the *Federal*

Register. The Superfund Docket is located at EPA offices in Crystal City, Virginia.

7.2.3 Other Information Sources

The RCRA/Superfund Hotline, managed by EPA Headquarters, provides information to the public and EPA personnel concerning hazardous waste regulations and policies. The hotline is a comprehensive source of general information about ongoing Superfund program developments.

EPA also maintains the Hazardous Waste Superfund Collection at EPA Headquarters and Regional libraries. The collection contains documents ranging from records of decision to commercially produced books on hazardous waste and the Superfund program.

7.3 EPA's Partnership with States and Indian Tribes

EPA continues to promote and maintain its partnership with states, federally recognized Indian tribes, commonwealths, territories, and political subdivisions in the Superfund clean-up process. (States, commonwealths, and territories will be referred to as states for the purposes of this Report.) Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) provides mechanisms for ensuring meaningful state and tribal involvement in implementing Superfund response activities, as required by Sections 104 and 121(f) of CERCLA. Subpart O of 40 CFR Part 35 provides additional detail on requirements for transferring funds and responsibilities to states and Indian tribes to undertake response actions, as well as on building their overall program capabilities.

The following sections describe response agreements and Core Program cooperative agreements (CPCAs) between EPA and states, tribes, or political subdivisions. Also, fiscal year highlights of EPA efforts to promote involvement of states and Indian tribes in Superfund response activities are provided.

7.3.1 Response Agreements and Core Program Cooperative Agreements

Response agreements provide states, tribes, and political subdivisions with the opportunity to participate in response activities at sites under their jurisdiction. Superfund CPCAs assist states and tribes in developing their overall Superfund response capabilities. This section discusses each type of agreement in detail.

Response Agreements

Response agreements fall into two categories: Superfund state contracts (SSCs) and cooperative agreements (CAs). Both serve as the contractual tools through which states, tribes, and political subdivisions work with EPA to conduct or support Superfund response activities.

SSCs and most CAs document assurances required by CERCLA Section 104, from a state, tribe, or political subdivision. Before EPA provides funding to conduct a remedial action (RA) in a state (i.e., a Fund-financed RA), for example, the state must provide the Agency with the following assurances, required by CERCLA Section 104 and formalized in the SSC or remedial CA:

- Provide for 100 percent of RA operation and maintenance;
- Provide 10 percent of the RA cost;
- Ensure the availability of a 20-year capacity for the disposal or treatment of hazardous wastes;
- Provide for off-site disposal, if necessary; and
- Acquire or accept transfer of interest in property, if necessary.

Assurances are generally not required for Fund-financed response actions that are not RAs. Where a state or a political subdivision was an operator at the facility at the time when hazardous substances were disposed, however, the state must provide at least 50 percent of the cost of the removal, remedial planning, and RA in cases where a CERCLA-funded RA is conducted. Tribes are exempt from providing most of the CERCLA assurances, but may need to

provide the assurance to acquire or accept interest in property in certain cases. The following sections describe SSCs and CAs.

Superfund State Contracts: A state or tribe must enter into an SSC with the Agency when EPA conducts (i.e., is the lead for) a Fund-financed RA. The SSC, which must be signed before EPA conducts the RA, documents the CERCLA assurances that have been made with a state and Indian tribe. The SCC also includes provisions detailing the cost share required and specifying the process for the collection of cost-share payments.

A three-way SSC is required when a political subdivision assumes the lead for remedial activities. The three-way SSC parties include EPA, the state, and the political subdivision. The SSC must be in place before EPA can transfer funds, through a remedial CA, to the political subdivision. Also, although the political subdivision will conduct the remedial activity, the state still is responsible for providing the required CERCLA assurances in the SSC.

Cooperative Agreements: Superfund CAs are the vehicle through which EPA provides funds to states, tribes, and political subdivisions to ensure their meaningful involvement in implementing Superfund. The following five types of response CAs, described in 40 CFR Part 35 Subpart O, are available for site-specific response activities.

- Pre-remedial CAs are awarded to states, tribes, and political subdivisions to conduct pre-remedial activities, including preliminary assessments (PAs) and Site Investigations (SIs).
- Remedial CAs allow states, tribes, or political subdivisions to receive Superfund money for taking the lead in remedial planning, remedial design (RD), and RAs at specified sites within their jurisdiction. When a state or tribe takes the lead for an RA, the remedial CA documents the state or tribe's CERCLA Section 104 assurances, and an SSC is not required. When a political subdivision takes the lead for a remedial activity, a three-way SSC must be signed. This three-way SCC documents the state's CERCLA assurances.
- Removal CAs are awarded to states, tribes, or political subdivisions that lead a non-time-critical removal action (NTCR). Such actions allow for a planning period of more than six months. Cost share payment is not required (unless the facility was operated by the state or political subdivision, as described above), but EPA encourages cost sharing for removal actions that cost more than $2 million.
- Enforcement CA funds may be used by a state, tribe, or political subdivision to conduct potentially responsible party (PRP) searches, issue notice letters for negotiation activities, implement administrative and judicial enforcement actions, or oversee PRP response actions. Subpart O contains specific enforcement-related criteria that an applicant must meet to be eligible for an enforcement CA.
- Support agency cooperative agreements (SACAs) allow states, tribes, and political subdivisions that do not have lead-agency responsibility to actively participate in response activities at sites under their jurisdiction. SACAs may assist the state, tribe, or political subdivision in facilitating investigations, response selection, and implementation through the sharing of information and expertise. They may not be used, however, to document CERCLA assurances.

In addition to describing response CAs, 40 CFR Part 35 Subpart O also specifies financial, administrative, and other requirements with which a state, tribe, or political subdivision must comply in order to receive funds. A multi-state cooperative agreement, which has the same requirements as the other types of agreements, is a multi-purpose agreement that has been used to consolidate funding for various response activities at different sites.

Core Program Cooperative Agreements

Congress has expressed the intent to include CERCLA funding to states and tribes for certain basic, or core, activities that are not attributable to a specific site but are important to the improvement of

their overall response capabilities. The legislative history of CERCLA Section 104(d), as amended, demonstrates this intent. Through CPCAs, EPA offers states and tribes the opportunity to develop comprehensive, self-sufficient Superfund programs.

CPCAs have a single budget and scope of work designed to enhance state or tribal program activities. Approval of the budget request and scope of work is dependent on the developmental needs of a state or tribal program, demonstrated progress in meeting previous core objectives, and fund availability. States are required to provide a 10 percent cost share for core program awards.

The core program is intended to lay the groundwork for the implementation of an integrated EPA/state/tribal approach for meeting Superfund goals. EPA typically budgets and annually distributes $10 million to $13 million among the ten Regional offices for CPCAs. Regions also may provide additional funding if resources are available.

7.3.2 Fiscal Year 1994 Highlights

From FY81 through FY94, EPA has awarded nearly $1.3 billion in CAs to states, tribes, and political subdivisions to assist them in participating in Superfund response activities. This total includes $79 million awarded in FY94 through site-specific CAs. Through remedial, removal, or enforcement CAs, states, tribes, and political subdivisions led more than 75 new or continuing Fund-financed remedial investigations and feasibility studies, RDs, and RAs, and enforced nearly 110 PRP responses at Superfund sites during the fiscal year.

FY94 marked the eighth year of the implementation of the Core Program. Since its inception in FY87, recipients have been awarded over $103 million in CPCA funding. During FY94, 41 states, Puerto Rico, and a consortium of four tribes received nearly $16 million through CPCAs.

The Agency also continued to offer a seminar on response agreements to states, tribes, political subdivisions, and EPA staff. The three-day seminar provides information on SSCs and CAs as contractual mechanisms, including their purposes, applications, and administration. During FY94, the Agency conducted two seminars involving more than 70 state, tribal, and federal participants. Further highlights of EPA fiscal year efforts to support states and Indian tribes in conducting Superfund response activities are detailed in the following sections.

State Highlights

EPA continued to build the state/EPA partnership through outreach initiatives with states. These initiatives included meetings with states on special topics of interest, such as soil screening levels, integrated assessments, and communications between EPA and state removal managers. EPA also provided states with assistance to enhance their Superfund programs by funding the participation of 150 representatives from 40 states in CERCLA training. The state representatives attended two sessions of state site managers' training in the basics of the federal Superfund program.

EPA facilitated state information exchange by publishing the 1993 update to the *50-State Study*. The update provides information about states' accomplishments in developing their own cleanup programs. EPA also supported peer matches that enable states to meet and exchange information with other states that have expertise in particular aspects of Superfund. In addition, EPA supported the third biannual Superfund managers' conference in August 1994, which provided a focused forum for information exchange on Superfund issues among 215 participants from various federal agencies and 48 states and territories.

Under the administrative improvements initiative to enhance states' role in cleanup, the Agency continued developing guidance on implementing the Superfund state deferral program. Under this program, EPA may defer consideration of certain sites for listing on the NPL, while interested states or tribes compel and oversee response actions conducted and funded by PRPs. Twenty-two sites in seven states are serving as pilots for the deferral program.

Tribal Highlights

In FY94, the Superfund program was actively involved in addressing hazardous waste problems on Native American lands and in assisting tribes to

assume regulatory and program management responsibilities. Tribes received funding, technical assistance, and training for Superfund implementation through SSCs, CAs, SACAs, CPCAs, and other agreements. For example, EPA Region 5 began work to develop a SACA with the Bad River Band of the Lake Superior Chippewa and another for the St. Regis Paper/Champion and Cass Lake Dump sites within the Leech Lake Reservation at Cass Lake, Minnesota. The Region also successfully closed out a CA with the Oneida Tribe in Wisconsin. In addition, Region 5 conducted several presentations for tribes on Title III implementation on Native American land and on the first responders training.

EPA Region 6 negotiated and awarded a CPCA for $400,500 and a multi-site CA for $447,300 to the Inter-Tribal Environmental Council of Oklahoma (ITEC). The Region also negotiated and awarded a CPCA for $445,000 and a multi-site CA for $273,400 to the All-Indian Pueblo Council of New Mexico. In addition, the Region awarded a SACA for $40,000 to the Navajo Nation for interaction with EPA at the United Nuclear and Prewitt NPL sites. Region 6 also provided technical assistance to the Pueblo Office of Environmental Programs, which conducted 22 PAs and 2 SIs in FY94, and to ITEC, which conducted 20 PAs and 8 SIs.

In ongoing Headquarters activities, representatives from EPA's Superfund program participated in the EPA/Tribal Workgroup as well as other Agency workgroups working on tribal issues. Headquarters also co-sponsored the second National Tribal Conference on Environmental Management in Cherokee, North Carolina, in May 1994, at which more than 500 persons registered and more than 300 tribes were represented. The Agency also developed the local government reimbursement module for tribes, as part of the first responders training course. In addition, Superfund program representatives responded to inquiries involving implementation of 40 CFR Part 35 Subpart O, coordinated efforts with other Agency offices, and provided expertise regarding tribal issues during development of the proposed Superfund Reform Act of 1994.

7.4 Minority Firm Contracting

EPA's Office of Small and Disadvantaged Business Utilization (OSDBU) is responsible for ensuring that the Agency complies with Section 105(f) of CERCLA. Section 105(f) of CERCLA requires EPA to consider minority contractors for procurement opportunities when awarding Superfund contracts, encourage the participation of such firms in the Superfund program, and report annually on the number and types of minority contractors receiving Superfund contracts.

7.4.1 Minority Firm Contracting During Fiscal Year 1994

EPA awards contracts to minority firms through direct and indirect procurements that result from Superfund financial assistance awards to states and other federal agencies (i.e., contracts and subcontracts resulting from CAs awarded to the states and from interagency agreements (IAGs) with other federal agencies). Direct procurement involves any procurement activity in which EPA is a direct party to a contractual arrangement for supplies, services or construction. Under financial assistance programs (indirect procurement), EPA awards grants and/or cooperative agreements to States, local municipalities, universities, colleges, non-profit or profit-making insitutions or firms, hospitals and individuals or otherwise known as recipients. Through direct and indirect procurement, EPA awarded $43.3 million in FY94 to minority contractors to perform Superfund work. This amount represents 4.3 percent of total contract awards during FY94.

Through the Agency's direct procurements, minority business enterprises (MBEs) received $32.2 million in Superfund contracts and subcontracts. This total was awarded through various contracting methods (i.e., Small Business Administration 8(a) awards and subcontracts). In addition, EPA awarded a $300,000 grant for Superfund training to the National Association of Minority Contractors (NAMC), a non-profit organization.

Through the Agency's indirect procurements,

Exhibit 7.4-1
Minority Contract Utilization During Fiscal Year 1994

Type of Activity	Total Dollars Obligated	Minority Contractor Participation [1]	Percentage of Total
Direct Procurement	$672,080,000	$32,200,000	4.79
Cooperative Agreements	13,440,134	253,334	1.88
Interagency Agreements [2]	321,885,110	10,879,358	3.38
Total	**$1,007,405,244**	**$43,332,692**	**4.30**

[1] This does not include women's business enterprise participation.
[2] This amount represents the total dollars awarded in FY94 through interagency agreements.

Source: Office of Small and Disadvantaged Business Utilization. 51-044-9

MBEs received more than $11.1 million in Superfund contracts and subcontracts. As Exhibit 7.4-1 illustrates, EPA's CAs with states resulted in contracts worth $253,334 to minority contractors. Other federal agencies awarded nearly $10.9 million in contracts, subcontracts, and purchase orders to minority firms with funds transferred from the Superfund program under IAGs.

Minority firms provide three types of services to the Superfund program: professional, field support, and construction. Exhibit 7.4-2 illustrates examples of tasks performed under each category.

7.4.2 EPA Efforts to Identify Qualified Minority Firms

OSDBU conducted a number of outreach activities during FY94 to encourage qualified minority firms to seek contract and subcontract opportunities through the Superfund program. These activities included the following:

- NAMC and OSDBU conducted five training sessions designed to help minority contractors become more successful in winning Superfund direct prime contract and subcontract awards. A total of 170 attendees participated in the training sessions. In addition, 100 firms participated in a trade fair held for minority contractors.
- OSDBU, in cooperation with the State of Colorado, hosted an MBE and women business enterprise (WBE) workshop to familiarize minority and women business owners with opportunities available through Superfund and other EPA programs. More than 100 minority and women business owners participated in the workshop.
- EPA hosted a disadvantaged business utilization workshop for officials from the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont to provide technical assistance in Superfund and other program areas. A total of 65 state officials attended the workshop.
- EPA hosted its annual MBE/WBE and all-states workshop in August 1994, addressing the need for improving minority contractor utilization. Representatives from EPA Regional offices, Headquarters offices, and 37 states attended.

7.4.3 Efforts to Encourage Other Federal Agencies and Departments to Use Minority Contractors

OSDBU continues to work with other federal agencies to try to increase the participation of minority contractors in the Superfund program. Throughout the fiscal year, federal agencies held numerous conferences, workshops, and seminars to encourage minority business participation in the Superfund program. Examples of these conferences include the Small and Disadvantaged Business Council Meeting; Minority Business Enterprise Week; Second Federal Procurement Conference and Fair; Procurement Opportunities Expo '94; Congressional Black Caucus Foundation Federal Procurement Fair; and Minority Business Enterprise Awareness Conference.

IAGs between EPA and any agency or department that involve Superfund monies also contain provisions to ensure that agencies or departments are aware of the requirements of CERCLA Section 105(f). In addition, special provisions require that agencies or departments undertaking Superfund work submit an annual report to EPA on minority contractor utilization.

Exhibit 7.4-2
Services Provided by Minority Contractors

Professional	Field Support	Construction
Health Assessments	Drilling/Well Installation	Site Cleanup
Community Relations	Laboratory Analysis	Excavations
Feasibility Studies		Waste Hauling & Drilling
Data Management Security		Security
Geophysical Surveys		Site Support
Remedial Investigations		Facilities
Expert Witness		
Editing		
Air Quality Monitoring		

Source: Office of Small and Disadvantaged Business Utilization. 51-044-10

Chapter 8
Resource Estimate for Superfund Implementation

Section 301(h)(1)(G) of CERCLA requires EPA to estimate the resources needed by the federal government to complete Superfund implementation. The Agency interprets this requirement to be a report on the cost of completing cleanup at sites currently on the National Priorities List (NPL). Much of this work will occur after FY94.

Section 8.1 of this chapter includes annual information on Trust Fund resources needed by EPA and other federal departments and agencies through FY94, and on the allocation of the resources for FY93 and FY94. An overview of the method used to estimate the long-term costs associated with site cleanup is contained in Section 8.2, and an estimate of the long-term costs of cleaning up sites on the existing NPL is contained in Section 8.3. The estimate includes Trust Fund resource projections for EPA and other federal departments and agencies for FY95 and beyond. Section 8.4 provides information submitted to EPA by other federal departments and agencies on their resource needs (from the Trust Fund and within their agency budgets) from FY91 through FY94 and describes their Superfund activities.

The long-term estimate provided in Section 8.3 is based primarily on the resources required to carry out the responsibilities and duties assigned to EPA and other federal departments and agencies by Executive Order 12580. To compute the estimate, EPA must make assumptions about the size and scope of the Superfund program, the nature and number of response actions, the level of participation by states and private parties, and the increasing use of treatment technologies. For active NPL sites (those that have reached or passed the remedial investigation/feasibility study [RI/FS] planning stage), these assumptions relate to management of the workload already in the remedial pipeline and the costs of those actions. For NPL sites that have not yet entered the RI/FS planning stage, assumptions are made about which activities will be necessary to clean up the sites and delete them from the NPL.

In developing the long-term resource estimate, EPA considered several sources of information:

- EPA Superfund budgets for FY91 through FY94, including budgets from other federal departments and agencies;
- Data submitted to EPA by other federal departments and agencies under an approved General Services Administration (GSA) Interagency Report Control Number, issued on February 5, 1988, as required under the provisions of 41 CFR Part 201-45.6;
- The Federal Agency Hazardous Waste Compliance Docket developed under Section 120(c) of CERCLA and each federal department's and agency's annual report to Congress on federal facility cleanup as required under Section 120(e)(5) of CERCLA; and
- Various EPA information systems, primarily the CERCLA Information System (CERCLIS) and the Integrated Financial Management System.

Specifically, EPA has estimated resource needs for FY95 and beyond. This long-term effort has been coordinated with the development of the FY95 budget. In conjunction with the revised National Oil and

Hazardous Substances Pollution Contingency Plan (NCP) and its policies affecting program direction and scope, EPA continues to refine the complete cost estimate for implementing CERCLA. The Agency is working to improve data quality, refine cost estimating methods, and collect additional information.

EPA's ability to project the federal resource requirement for CERCLA implementation improves each year as more experience is gained. Improved coordination with other federal departments and agencies and additional data on the implementation of the federal facilities requirement of Section 120 also will increase the accuracy of future resource estimates.

8.1 Source and Application of Resources

Since the enactment of CERCLA in 1980, Congress has provided Superfund with $13.6 billion in budget authority (FY81 through FY94). This estimate includes $1.8 billion for FY81 through FY86 and $11.8 billion for the post-SARA period, FY87 through FY94. The FY94 budget allocated total resources of $1.7 billion for the following activities:

- *Response Activities* use 68 percent of Superfund resources. Response activities include site assessment (9%), time-critical and non-time-critical removals (21%), long-term clean-up actions (25%), and program implementation activities (13%). Also included is support provided by the Office of Water, the Office of Indoor Air and Radiation.
- *Other Federal Agencies* use 10% of Superfund respources. Agencies included are: Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Federal Emergency Management Agency, General Services Administration, Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, National Institute of Environmental Health Sciences, Department of the Interior, Department of Justice, Departmen of Labor, National Aeornautics and Space Administration, Tennessee Valley Authority, Department of Transportation, and Department of Veterans Affairs
- *EPA's Enforcement Activities* use 3 percent of Superfund resources. Enforcement activities include PRP negotiations, litigation, and settlements and cost recovery efforts.
- *Management and Support* uses 8 percent of Superfund resources. This category includes program analysis provided by the Office of Program Planning and Evaluation; personnel, contracting and financial management services from the Office of Administration and Resources Management; legal services provided by the Office of General Counsel; and the audit function provided by the Office of the Inspector General.
- *Research and Development* uses 4 percent of Superfund resources for technical support and for developing and evaluating faster, better and less expensive methodologies and technologies in the areas of site characterization, risk assessment, monitoring, remedy selection and remedy design, construction and operations.

Exhibit 8.1-1 presents a snapshot of the allocation of Superfund resources for FY93 and FY94 within these categories.

Exhibit 8.1-1
EPA Superfund Obligations
(in Millions)

Program Area	FY93 Actuals	FY94 Actuals
Response Activities (Total)	$1,224.2	$1,304.5
EPA	1,071.0	1,143.0
Other Federal Agencies	153.2	161.5
Enforcement Activities	173.0	174.1
Management and Support	123.5	129.0
Research and Development	64.1	68.9
TOTAL SUPERFUND	$1,584.8	$1,676.5

Source: Superfund Budget Documentation. 51-044-12

8.1.1 Estimating the Scope of Cleanup

Site cleanup is the single largest category of Superfund expenditures and is expected to remain so in the future. To project EPA funding needs for clean-up activities, several key estimations were made, including

- The projected number and average cost of studies, remedial designs (RDs), and remedial actions (RAs) undertaken;
- The extent and cost of removal activity; and
- The proportion of direct clean-up actions undertaken by PRPs.

8.1.2 PRP Contributions to the Clean-Up Effort

The most significant way PRPs contribute to the hazardous substance clean-up effort is by conducting and financing response actions (whether voluntarily or under order). When PRPs finance site clean-up efforts, potential EPA Superfund obligations for those sites are dramatically reduced and the remaining principal cost is PRP oversight. EPA continues to develop and implement policies designed to encourage PRP cleanups.

In addition to response actions actually performed by PRPs, a portion of the costs of certain Fund-financed response actions will be recovered from PRPs through enforcement activities. Typically, there are delays of several years between expenditures from the Trust Fund and recovery of costs.

8.2 Resource Model Assumptions

Estimating the cost of cleaning up current NPL sites depends on a number of factors, many of which will change as the program continues to mature. The main factors are

- Changes in Superfund program policies and procedures because of the revised NCP, particularly the clean-up standards as required under Section 121 of CERCLA;
- Changes in the remedial program because of revisions to the Hazard Ranking System, as required under Section 105 of CERCLA;
- The long period required to identify, develop, select, and construct a remedy, and the need for scheduling flexibility to maximize the impact of enforcement activities;
- The level of state Superfund program activity;
- The level of PRP participation in the program;
- Changes in clean-up approaches, such as implementing more early actions in favor of remedial actions; and
- The nature of and demand for removal actions.

Based on these factors, EPA uses the Outyear Liability Model (OLM) to estimate the long-term resource needs of the Superfund program. The OLM provides meaningful long-range forecasts, has the flexibility to refine forecasts, and can be adjusted for a large number of program-related variables. These variables can be individually adjusted to reflect actual or anticipated changes in the program. The four primary cost categories used in the OLM to estimate the long-term resources required to clean up the existing NPL sites are

- Active NPL sites;
- NPL sites where the remedial process has not yet begun;
- Non-site activities; and
- RA costs.

EPA's estimate of resources required to clean up the existing NPL sites is provided in Section 8.3. To develop this estimate, the Agency has concentrated on remedial and removal activities. These activities are the major components of the Superfund program and account for the majority of Fund expenditures by the Agency.

8.2.1 Active NPL Sites

Remedial efforts are underway at most of the

sites on the current NPL. Remedial plans are being developed for the remaining sites on the NPL, leaving 78 sites on the existing NPL pending study at the end of FY94.

Data on the active NPL sites are stored in CERCLIS and incorporated into the OLM to present the most accurate picture of planned activities. The OLM estimates ancillary activities for sites at which some level of planning or remediation activity is underway. Because most of the existing NPL sites are active, they constitute a large portion of the total liability estimate.

In addition to planned remedial activities, enforcement activities have a significant impact on the costs of addressing Superfund sites. All enforcement activities are estimated by the model according to past program experience and several standard sequences of activities, each representing a different enforcement approach. Enforcement-related variables within the model include costs, workyears, and the shift in remedial costs when Superfund assumes responsibility from, or passes responsibility to, a PRP. As with remedial activities, most enforcement costs and workyears are estimated.

8.2.2 Sites Yet to Begin the Remedial Process

The OLM uses the same general approach for sites where the remedial process has yet to begin. Cleaning up an NPL site involves a number of different activities occurring over time and in predictable arrangements. For sites where the remedial process has yet to begin, the OLM must first approximate the activities that will be involved when remediation of the sites begins. Approximations are made by applying several generic activity sequences to the number of sites being estimated. When the activities have been set, cost and workyear pricing factors are applied to estimate the necessary resources. A consistent approach is used for all site activities, both remedial and enforcement. In the approach, tradeoffs such as avoiding clean-up costs but incurring PRP oversight costs are handled automatically as assumptions are adjusted.

The OLM includes a library of different activity sequences. Each sequence represents a typical site and involves different activities, durations, and schedules. In addition to the key activity starts discussed above, the OLM includes a number of other factors to control the mix of these activity sequences.

8.2.3 Non-Site Costs

Although non-site activities comprise a substantial portion of the budget, individually they are fairly small and stable. For these reasons, resource needs for these activities are estimated by applying annual growth factors to the levels included in the requested budget for the current year.

Aside from the number of sites requiring cleanup and the cost of individual cleanups, the assumption of managerial and financial responsibility for a site has the largest potential impact on the cost of the Superfund program. There are many factors involved in establishing who is responsible for a site (referred to as the site lead), including

- Level of emphasis on enforcement;
- Willingness of states to assume financial responsibility; and
- Cost-sharing arrangements between Superfund and the states and between Superfund and the PRPs.

The model accommodates each of these factors with one or more variables, allowing the estimation of Superfund liabilities across a wide range of site-lead and cost-sharing scenarios. Site variables include

- Proportion of sites addressed by each lead category (Fund, PRP, state, and state enforcement);
- Number of sites that are owned and/or operated by state or local governments; and
- Number of sites that follow each of several enforcement paths.

Choices among these variables generally affect both cost and duration of the program. Increases in PRP leads will ultimately result in lower Fund costs, but related litigation will substantially extend the

amount of time required to reach deletion of a site from the NPL.

8.2.4 Factors Related to Remedial Action Costs

The method of estimating RA costs is based on analysis of the records of decision (RODs) signed from FY87 through FY94. A statistical analysis of RA cost estimates contained in these RODs identified 11 distinct cost patterns based on the choice of remedial technology. For each technology type, there is a unique average cost and expected treatment volume. These factors, together with the expected use of each technology, control the RA cost module of the OLM. Adjustments within the RA cost module make it possible to estimate the fiscal impact of

- Policies affecting the selection of technological approach (e.g., using more treatment and less containment);
- Changes in the contaminants found on site (e.g., if remaining sites have higher levels of heavy metals than prior sites, incineration would be less effective);
- Changes in technology costs; and
- Changes in site size.

Exhibit 8.3-1
Estimate of Total Trust Fund Liability to Complete Cleanup at Sites on the National Priorities List
(in Billions)

	Total Allocations
FY94 and Prior	$13.6
FY95 and beyond	17.4
TOTAL	**$31.0**

Source: Superfund Budget Documentation and Outyear Liability Model. 51-044-11A

8.3 Estimated Resources to Complete Cleanup

As illustrated in Exhibit 8.3-1, EPA's estimate of the total liability to complete cleanup of existing NPL sites is $31 billion. This total includes the OLM long-term estimate of $17.4 billion for FY95 and beyond. Major assumptions shaping the long-term estimate are as follows:

- Only the cost of the sites currently proposed to or listed on the NPL (1,355 sites, including 1,226 final, 64 proposed, 1 deferred, and 64 deleted sites as of September 30, 1994) is included.
- Removal activities at sites on the NPL remain at current levels.
- RA cost factors (choice of technology, site size, and technology cost) result in an estimated cost of $12.2 million per RA.
- Program support and other non-site elements are straightlined at the levels of the current request year budget (FY95 President's budget).
- Approximately 35 percent of all new RI/FS starts will be Fund-financed (i.e., the Trust Fund will pay at least 90 percent of the cost).
- For non-federal facility sites, PRPs will take the lead on 75 percent of the RAs. (Because oversight is significantly less expensive than cleanup, Fund costs drop dramatically when PRPs assume financial responsibility for more cleanups.)
- No resource and programmatic assumptions for federal facility sites are included in the OLM. The OLM does not generate a resource estimate for the federal facility program.

Assumptions about the future reflect planning assumptions from the Superfund Program Management Manual and historical performance averages, both of which are revised periodically. EPA will continue to monitor developments that affect program costs. Changes will be incorporated into the model as they occur, improving depiction of future programmatic direction and refining previous analysis. OLM estimates will vary over time as a

result, and subsequent editions of this Report will most likely contain revised estimates.

8.4 Estimated Resources for Other Executive Branch Departments and Agencies

The second element in fulfilling the requirements of Section 301(h)(1)(G) of CERCLA is providing an estimation of the resources needed by other federal departments and agencies. The Superfund resource needs of the other Executive Branch departments and agencies are met through two sources: the Superfund Trust Fund and the individual federal department's or agency's budget.

Trust Fund monies are provided to other federal departments and agencies through two mechanisms:

- Interagency Budgets: EPA provides Trust Fund monies to other federal departments and agencies that support EPA's Superfund efforts. Transfers are accomplished through an interagency budget under Executive Order 12580.
- Site-Specific Agreements: EPA also provides money from the Trust Fund to other federal departments and agencies through site-specific agreements.

Exhibit 8.4-1
CERCLA Resource Needs and Interagency Funding for Other Federal Departments and Agencies
(Dollars in Millions)

Federal Departments and Agencies	FY91 Actual		FY92 Actual		FY93 Actual		FY94 Actual		FY91-FY94 Total	
	Trust Fund	Agency Budget	Trust Fund	Agency Budget	Trust Fund	Agency Budget	Trust Fund	Agency Budget	Trust Fund	Agency Budget
Agriculture	--	12.8	--	27.7	--	13.3	--	13.5	--	67.3
Commerce (NOAA)	2.2	1.1	2.2	1.3	1.1	1.8	2.2	3.4	7.7	7.6
Defense	--	'1,369.0	--	'2,090.0	--	'1,750.0	--	'2,487.0	--	'7,696.0
Energy	--	'1,000.0	--	'1,444.6	--	'1,150.2	--	'1,150.0	--	'4,744.8
FEMA	2.4	1.4	2.1	--	.9	--	1.5	--	6.9	1.4
General Services Administration	--	--	--	0.4	--	0.7	--	0.1	6.9	1.2
Health and Human Services										
ATSDR	48.5	--	56.5	--	60.0	--	67	--	23.2	--
NIEHS	44.4	--	51.1	--	51.9	--	52.9	--	200.3	--
Interior	1.2	59	1.2	70.4	0.8	62.0	0.6	60.7	3.8	252.1
Justice	32.9	--	35.5	--	33.3	--	32.3	--	134	--
Labor (OSHA)	0.9	--	0.6	--	0.3	--	0.3	--	2.1	--
NASA	--	3.9	--	2.4	--	5.5	--	7.0	--	18.8
Tennessee Valley Authority	--	--	--	4.3	--	3.4	--	2.2	--	9.9
Transportation	--	11.9	--	15.2	--	20.6	--	16.8	--	64.5
Veterans Affairs	--	2.0	--	2.0	--	2.0	--	--	--	6.0
Total	132.5	'2461.1	149.2	'3,658.3	148.3	'3,009.5	156.8	'3,740.7	586.8	'12,869.6

Source: Office of Program Management.

51-044-17A

Federal departments and agencies also provide support to Superfund activities through CERCLA-Specific Funds and general funds of the department or agency. Exhibit 8.4-1 summarizes reported expenditures (both Trust Fund and agency funds) of other federal departments and agencies. There are no projections of future needs available for other agencies. The information below was provided by the respective departments and agencies to describe their resource needs and Superfund activities.

Department of Agriculture

The U.S. Department of Agriculture (USDA) initiated a special program in FY88 to achieve compliance with the statutory and regulatory requirements of CERCLA. The program includes preassessment, assessment, removal, and remedial activities at USDA facilities throughout the United States.

The USDA has more than 100 sites listed on the Federal Agency Hazardous Waste Compliance Docket. EPA is currently proposing to add 40 more USDA sites to the docket as part of the ninth update. One of these sites is currently listed on the NPL, and several others have been proposed for listing. The USDA sites on the docket are primarily the responsibility of the Agricultural Research Service, Rural Housing and Community Development Service, and Forest Service. Other USDA agencies, including the Commodity Credit Corporation, Food Safety and Inspection Service, and Natural Resources Conservation Service, also have a number of CERCLA activities underway.

In general, USDA agencies have completed an inventory and discovery process for USDA-owned facilities or managed lands with the following exceptions:

- The Forest Service has not completed an inventory of potential problems on the 190 million acres of land it manages with respect to abandoned mining sites or closed sanitary landfills. Most of these sites are located on national forest lands and are the result of third-party activities that occurred in the past under authorizing statutes, regulations, or permits. Cleanup at these sites will involve cost recovery from PRPs.
- The Forest Service acts on behalf of the Secretary of Agriculture as a federal trustee for natural resources on lands it manages that have been damaged by releases of hazardous substances. The inventory of such sites has not yet been established. As a trustee for natural resources, the Forest Service also acts for the USDA in providing support and assistance to the National Response Team (NRT) and Regional Response Teams (RRTs).

Department of Commerce

The National Oceanic and Atmospheric Administration (NOAA) carries out many of the responsibilities of the Department of Commerce under CERCLA. NOAA's CERCLA goals are to reduce risks to coastal habitats and resources from hazardous chemical releases through preparedness and response activities; protect and restore NOAA trust habitats and resources affected by hazardous waste sites in coastal areas; and advance the state of knowledge about hazardous material interactions in coastal environments through research, development, and technology transfer.

NOAA accomplishes these goals through two networks of regional coordinators:

- NOAA's Coastal Resource Coordinators work with EPA to evaluate natural resource concerns at coastal hazardous waste sites and ensure coordination among state and federal natural resource trustees. This work is funded largely through CERCLA. When threats to natural resources cannot be addressed through CERCLA remedial actions, NOAA may seek to repair natural resource damages through its Damage Assessment and Restoration Program. This program is not funded through CERCLA.
- NOAA's Scientific Support Coordinators provide the U.S. Coast Guard (USCG) and EPA On-Scene Coordinators with scientific and technical expertise in planning for and responding to oil and hazardous material releases. Scientific Support Coordinators, whose work is funded by NOAA, seek to mitigate the effects of releases into coastal areas.

NOAA also conducts site-specific clean-up actions at facilities under its control. This program is relatively new within the agency; NOAA began receiving money for this specific program in 1993. Funding increases in this area are directly related to the number of NOAA sites that are added to the Federal Agency Hazardous Waste Compliance Docket. FY94 expenditures in this area, which includes both Resource Conservation and Recovery Act (RCRA) and CERCLA cleanups, totaled $3.1 million.

Department of Defense

The Department of Defense (DOD) has the authority and responsibility under CERCLA to clean up contamination associated with past DOD activities. In 1984, DOD increased its emphasis on hazardous waste cleanup when Congress established the Defense Environmental Restoration Program. Under this program, DOD identifies, investigates, and cleans up environmental contamination from past DOD activities. DOD is responsible for remediating such contamination in accordance with the procedures of the NCP.

At the close of FY94, DOD identified more than 21,454 potientially contaminated sites on more than 1,769 installations with the potential for contamination. DOD is committed to cleaning up contaminated sites and plans to spend about $2.1 billion from the Defense Environmental Restoration and Base Realignment and Closure Accounts during FY95 to continue this effort.

Department of Energy

As a result of nearly 50 years of weapons development and energy research, the Department of Energy (DOE) faces an enormous task in characterizing and remediating numerous facilities across the country. This task is complicated by the nature of the activities associated with ensuring that each remedial action complies with federal, state, Native American and local regulations. In addition to this complex regulatory process, DOE faces other complicating factors such as multiple contaminants, contaminants that are unidentified because of incomplete historical records or lack of characterization data, and lack of proven technologies.

Compliance with environmental laws, regulations, and requirements is central to the operation of DOE facilities. The fundamental goal of DOE's cleanup program is to ensure that risks to human health and the environment posed by past, present, and future operations are either eliminated or reduced to prescribed, safe levels. DOE is committed to addressing these concerns as quickly, safely and efficiently as possible.

During FY94, three new DOE sites were added to the NPL: the Laboratory for Energy-Health Research located in Davis, California; the Paducah Gaseous Diffusion Plant situated in Paducah, Kentucky; and the Pantex Plant in Amarillo, Texas. The addition of these sites brings the total number of DOE sites on the NPL to 23. Other DOE sites listed on the NPL are Brookhaven National Laboratory Site, New York; Fernald Environmental Management Project (formerly known as Feed Materials Production Center), Ohio; Hanford 100 Site, Washington; Idaho National Engineering Laboratory Site, Idaho; Lawrence Livermore National Laboratory-Main Site, California; Lawrence Livermore National Laboratory-Site 300, California; Maywood Site, New Jersey; Monticello Mill Site, Utah; Monticello Vicinity Site, Utah; Mound Plant, Ohio; Oak Ridge Reservation, Tennessee; Rocky Flats Plant, Colorado; Ross Complex, Washington; Savannah River Site, South Carolina; St. Louis Site, Missouri; Wayne Site, New Jersey; and Weldon Spring Site Remedial Action Project, Missouri.

During FY94, DOE renegotiated the Hanford Tri-Party Agreement and continued the process of amending the interagency agreement (IAG) at the Rocky Flats Environmental Technology Site. Also, work began on the execution of IAGs for the three DOE sites added to the NPL in FY94. Progress continued on the completion of RI/FSs at all DOE sites. Significant progress in conducting RAs and removal or interim actions was also made at several of the sites.

Federal Emergency Management Agency

The enactment of SARA in 1986 made many of the voluntary preparedness and planning activities

the Federal Emergency Management Agency (FEMA) ineligible for funding under the Superfund budget after September 30, 1987.

To continue the ongoing Superfund assistance to state and local governments and to support efforts to implement Title III of SARA, FEMA consolidated funding requests under two separate appropriation authorizations. Funding for Superfund activities was requested under the Superfund interagency budget. The remainder of FEMA's hazardous materials clean-up coordination activities, including those authorized by SARA Title III, was incorporated into FEMA's own operating budget (under its technological hazards budget). Since FY87, no additional funds have been requested under CERCLA Section 301(h)(1)(G) to carry out Superfund activities.

Funding received under Superfund is used to provide guidance, technical assistance, and interagency coordination for FEMA and for multi-agency initiatives that support state and local responsibilities under Superfund. Interagency coordination is accomplished primarily through the NRT/RRT structure. FEMA provides staff support to the NRT, RRTs, and supporting subcommittees.

FEMA activities in support of state and local governments include furnishing guidance in the design and development of hazardous material exercises to include jurisdictions within and around Superfund sites; providing guidance in the development and revision of hazardous material plans addressing Superfund issues to ensure their adequacy and consistency with the NCP; supplying training and course materials for constituencies involved in various Superfund clean-up activities; supporting the NRT-sponsored National Hazardous Materials Conference to coordinate efforts for improving hazardous material emergency preparedness nationwide; and completing the temporary and permanent relocation programs started in FY91 (e.g., Times Beach, Forest Glenn).

General Services Administration

Resources for environmental studies and corrective projects are included in the GSA budget and can be used for CERCLA studies/corrective projects, if necessary. GSA does not have any sites on the NPL; although, it has initiated and completed cleanups at non-NPL sites.

Department of Health and Human Services

Within the Department of Health and Human Services, the Agency for Toxic Substances and Disease Registry (ATSDR) and the National Institute of Environmental Health Sciences (NIEHS) perform CERCLA activities. These activities are described below.

Agency for Toxic Substances and Disease Registry

ATSDR's mission is to prevent or mitigate adverse human health effects and diminished quality of life resulting from exposure to hazardous substances. ATSDR is charged under CERCLA with various responsibilities including performing public health assessments; conducting emergency response actions; conducting health studies, surveillance, and registries; profiling toxic substances; and educating the public about health risks. ATSDR significantly expanded its approach to conducting health assessments during the fiscal year. Major areas of expansion included exposure investigations, exposure dose reconstruction activities, community outreach, and public health action plans.

In 1994, ATSDR completed 38 public health assessment documents; 238 health assessments; and 17 petitioned health assessments. In addition, ATSDR prepared approximately 500 health consultations, provided technical assistance to address approximately 400 other requests from EPA and other federal, state, or local agencies and organizations, conducted 101 site reviews and updates, and prepared 2 lead initiative summary reports.

ATSDR's emergency response staff are responsible for providing health-related technical support, 24 hours per day, to federal, state, and local responders, as well as to private citizens and health care providers, during emergencies caused by the release or threatened release of hazardous substances. ATSDR Emergency Response Coordinators have

immediate access to a wide variety of professional experts including toxicologists, physicians, chemists, environmental scientists, and health physicists. In FY94, ATSDR emergency response staff was involved in 51 acute release events (e.g., spills, fires, etc.) and 421 other activities.

In compliance with CERCLA Section 104(i)(3), which requires ATSDR to prepare toxicological profiles on the first 275 most hazardous substances found at Superfund sites, ATSDR was working on 47 CERCLA-funded toxicological profiles during FY94. ATSDR also continued filling priority data needs for 38 of these substances through initiation of a voluntary research program and continuation of a substance-specific data gaps research program in cooperation with the Minority Health Professions Foundation.

National Institute of Environmental Health Sciences

The NIEHS uses CERCLA funds to support its Superfund Basic Research Program and its Worker Training Program. The NIEHS Superfund Basic Research Program, continues to provide research and training grants for coordinated multicomponent, interdisciplinary studies aimed at identifying and reducing adverse health effects of exposure to hazardous wastes. The program's primary objectives are to expand the base of scientific knowledge, reduce the amount and toxicity of hazardous substances in the environment, and ultimately prevent adverse human health effects. Research sponsored in the fields of ecology, engineering, and hydrogeology are integrated into biomedical research programs designed to provide a broad and detailed body of scientific information to be used by local, state, and federal agencies; private organizations; and industry in making decisions related to the management of hazardous substances.

In FY94, NIEHS supported 18 research programs at 29 universities or institutions encompassing more than 142 individual research projects.

NIEHS received $20 million from FY94 appropriations to support Cooperative Agreements (CAs) for providing model occupational safety and health training for workers that perform dangerous jobs in the nation's hazardous waste management and remediation programs, as well as for emergency responders to uncontrolled hazardous materials releases. The model program encourages innovation for training difficult-to-reach populations by addressing issues such as literacy, adult education techniques, and other areas unaddressed by the market place.

During the first seven years of the Superfund Worker Training Program (FY87 through FY94), NIEHS has successfully supported 18 primary awardees. These represent over 70 different institutions that have trained over 433,000 workers across the country and presented over 20,700 classroom and hands-on training courses, which have accounted for almost 7.3 million contact hours of actual training. Through CAs in FY94, the NIEHS worker training awardees presented 5,348 courses to 87,205 hazardous waste workers and emergency responders, resulting in almost 1.5 million contact hours of training.

Department of the Interior

Each of the nine bureaus and four territorial elements of the Department of the Interior (DOI) provides support to the Superfund program, including assistance to the NRT and RRTs. DOI's role in the program focuses on three general areas:

- Response management, including RRT assistance activities, incident-specific activities, and NPL site remedial response activities;
- Emergency response preparedness, including RRT participation, RRT workgroups, and RRT support; and
- Trust resources/damage assessment, including coordination of national resource trustee concerns, natural resource damage assessment briefings, and settlements for trustee resources.

DOI is involved in the full range of response and remediation activities on its lands and at its facilities. Whenever feasible, DOI seeks to prevent the generation and acquisition of hazardous waste, including minimizing waste generation through the use of sound waste management practices. DOI manages waste materials responsibly in order to

protect the natural resources and the people who live, work, and enjoy its lands and facilities. DOI is committed to moving aggressively toward the cleanup and restoration of contaminated areas under its care.

Department of Justice

The Department of Justice (DOJ) is responsible for all judicial litigation brought under CERCLA. This responsibility includes conducting CERCLA civil judicial litigation, representing EPA in bankruptcy proceedings, prosecuting criminal violations, conducting defensive and appellate litigation, and participating as *amicus curiae* on behalf of EPA, as required to support effective implementation of the statute. In addition, DOJ provides support in negotiating consent decrees (CDs) under Sections 106, 107, and 122 of CERCLA; processes CDs in accordance with approved interagency procedures; prepares and disseminates reports on litigation activities; and keeps EPA informed of other CERCLA actions consistent with the national program. Superfund money provides DOJ with the necessary attorneys, support staff, expert witnesses, and litigation support vital to the CERCLA enforcement process.

The enforcement efforts of DOJ play a critical role in the overall Superfund program. Successful judicial actions to recover clean-up costs and replenish the Trust Fund, and actions to compel PRPs to conduct cleanup are integral parts of EPA's enforcement strategy.

Civil litigation efforts in support of the Superfund program have been highly successful. In the past four years, for example, DOJ filed 527 civil judicial complaints, assessed over $1.1 billion through cost recovery judgements and settlements, and compelled defendants to conduct various cleanup activities valued at over $2.5 billion. The number of active Superfund cases being litigated rose from 451 cases with over 3,000 parties in FY91 to 464 cases with over 8,000 parties at the end of FY94.

Department of Labor

Funds appropriated under IAGs allow the Occupational Safety and Health Administration (OSHA) to provide EPA with technical assistance in the area of worker health and safety. Superfund legislation requires OSHA to issue specific standards for employees engaged in hazardous waste operations. As mandated by SARA Section 126, OSHA is promulgating a standard for accreditation of training programs for hazardous waste operations.

Programs operated by OSHA or states with OSHA-approved plans are designed to protect workers at Superfund sites. OSHA representatives conduct compliance inspections at sites where remedial actions are underway, provide technical assistance at hazardous waste sites, and assist the NRT and RRTs in preparedness and training activities. As a member of the NRT and the associated RRTs, OSHA assists these teams with completing their annual workplans and conducts audits of response plans. In addition, OSHA issues interpretations of worker health and safety standards and maintains a computerized system for the interpretations and for tracking hazardous waste activity.

National Aeronautics And Space Administration

The National Aeronautics and Space Administration's (NASA's) environmental compliance and restoration program was initiated in FY88 to ensure compliance with statutory environmental requirements. This program provides the means to conduct environmental compliance, site cleanup, and restoration measures at NASA field installations, government-owned industrial plants, and other locations where NASA is required to contribute to clean-up costs. CERCLA activities being addressed as part of the program, include studies, assessments, RI/FSs, RDs, and RAs. The figures shown in Exhibit 8.4-1 represent resources dedicated solely to clean-up activities under the CERCLA program, not including pollution abatement or clean-up activities under other environmental programs such as RCRA.

During FY94, two NASA sites were jointly listed on the NPL along with two DOD sites. A federal facilities agreement was executed for one of the sites, while negotiations are ongoing for the other site. As ongoing studies and assessments progress and pending regulatory reviews are completed at other sites, clean-up activities will continue.

Tennessee Valley Authority

The Tennessee Valley Authority (TVA) is committed to operating and maintaining its facilities and properties in compliance with statutory environmental requirements. TVA has no facilities listed on the NPL, and none of its facilities has been proposed for listing. TVA, however, is currently involved in three site cleanups under RCRA corrective action. In addition, TVA began a program to evaluate site contamination and remediation beyond that required by regulations. TVA is also involved in research and development projects involving new remediation technologies.

Department of Transportation

The Department of Transportation uses funding from its budget to support CERCLA activities carried out by the Federal Aviation Administration (FAA), the USCG, the Maritime Administration (MARAD), and the Research and Special Programs Administration (RSPA).

- Federal Aviation Administration: CERCLA activities of FAA involve pollution abatement and hazardous waste cleanup at regional facilities.
- United States Coast Guard: USCG supports CERCLA through pollution abatement activities related to the operation of its own facilities.
- Maritime Administration: MARAD's activities in support of CERCLA involve testing and cleanup of hydrocarbons in storage tank facilities at Kings Point and other locations.
- Research and Special Program Administration: RSPA activities in support of CERCLA requirements include hazardous waste rulemaking and technical support, emergency response training, and hazardous materials/ hazardous substances incident reporting. RSPA also is responsible for implementing a grant program for the states that supports SARA emergency planning and training for accidents and incidents involving hazardous materials.

Department of Veterans Affairs

From FY89 through FY93, the Department of Veterans Affairs (VA) received approximately $23 million for Superfund cleanup and other construction activity related to hazardous waste. No additional funding was appropriated for FY94 because sufficient funds were available to cover anticipated needs. VA may make additional budgetary requests in the future to cover its liability under Superfund. At present, VA has been identified as a relatively small contributor at approximately 15 Superfund sites.

Appendix A
Status of Remedial Investigations, Feasibility Studies, and Remedial Actions at Sites on the National Priorities List in Progress on September 30, 1994

Appendix A satisfies the combined statutory requirements of CERCLA Sections 301(h)(1)(B) and (F). Accordingly, this appendix reports the status and estimated completion date of all remedial investigation/feasibility study (RI/FS) and remedial action (RA) Title I projects in progress at the end of FY94. This appendix also provides notice of RI/FSs and RAs that EPA presently believes will not meet its previously published schedule for completion, and includes new estimated dates of completion, as required by Section 301(h)(1)(C). These dates were previously published in Appendix A of *Progress Toward Implementing Superfund: Fiscal Year 1993*. In addition to meeting these statutory requirements, this appendix lists new remedial projects that were begun in FY94 and were in process at the end of FY94. Listed activities may include remedial projects at several operable units on a single site, as well as first and subsequent activities at a single operable unit.

Information in the appendix is organized under the following headings:

- **RG** — EPA region in which the site is located.
- **ST** — State in which the site is located.
- **Site Name** — Name of the site, as listed on the National Priorities List (NPL).
- **Location** — Location of the site, as listed on the NPL.
- **Operable Unit** — Operable unit at which the corresponding remedial activity is occurring; a single site may include more than one operable unit.
- **Activity** — Type of project in progress on September 30, 1943.
- **Lead** — The entity leading the activity, as follows:

  EP: Fund-financed with EPA employees performing the project, not contractors;

  F: Fund-financed and federal-lead by the Superfund remedial program;

  FE: EPA enforcement program-lead;

  FF: Federal facility-lead;

  MR: Mixed funding; monies from both the Fund and potentially responsible parties (PRPs);

  PRP: PRP-financed and conducted;

  PS: PRP-financed work performed by the PRP under a state order (may include federal financing or federal oversight under an enforcement document);

S: State-lead and Fund-financed; and

SE: State enforcement-lead (may include federal financing).

Remaining terms used in the CERCLA Information System (CERCLIS) database, O (other), SN (state-lead and financed, no Fund money), and SR (state-ordered PRP response activities), are excluded from this status report because they do not include federal financing.

For some activities, the indicated lead is followed by an asterisk (*), which indicates that funding for the activity was taken over by the indicated lead during FY94.

- **Funding Start** — The date on which funds were allocated for the activity.
- **Previous Completion Schedule** — For projects ongoing at the end of FY93 that continued into FY94, the quarter and fiscal year of the planned completion date for the activity, as of 9/30/94. This column is blank for projects that were begun in FY94.
- **Present Completion Schedule** — The quarter and fiscal year of the planned completion of the activity, as of 9/30/94. This information was compiled from CERCLIS on 11/15/94.
- **Status** — Status of the project with respect to previous (FY93) and present (FY94) published completion schedules, as follows:

  On-schedule projects are designated by a zero (0).

  Projects that are **behind schedule** are designated by a numeral indicating the number of quarters that the project is behind schedule and a minus sign (e.g., -4).

  Projects that are **ahead of schedule** are designated by a numeral indicating the number of quarters that the project is ahead of schedule (e.g., 4).

  Projects for which **EPA has not estimated a completion date** are designated by an asterisk (*).

  Projects that were begun in FY93 are described as **new** in the status column.

  Projects described as **DNE** (date newly entered) have funding starts in previous fiscal years and no date in the Previous Completion Schedule. These sites, for numerous reasons, were not entered into CERCLIS during the fiscal year of the funding start, or a change in the status of the site or activity now requires that the activity be published in the FY94 Report. For example, several activities with the status of DNE were state enforcement-lead or state-lead and financed before FY94, and therefore did not fall under the requirements of CERCLA Section 301(h)(1)(B). During FY94, a lead change resulted in Fund money being used in the clean-up activities; therefore, they are now included in this appendix.

- An initial completion schedule is required to be put into CERCLIS when an activity is entered. Plans at this point are based on little site knowledge. As work continues, schedules are adjusted to reflect actual site conditions.

Progress Toward Implementing Superfund: Fiscal Year 1994

APPENDIX A

STATUS OF REMEDIAL INVESTIGATIONS, FEASIBILITY STUDIES, AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
	GU	Anderson Air Force Base	YIGO	01	RI/FS	FF	03/30/93	4	1999	3	2001	-7
				02	RI/FS	FF	06/29/93	4	1999	3	2000	-3
				03	RI/FS	FF	06/29/93	3	1997	3	1997	0
				04	RI/FS	FF	06/29/93	4	1999	3	2000	-3
				05	RI/FS	FF	06/29/93	4	1999	3	2002	-11
				06	RI/FS	FF	06/29/93	4	1999	3	2003	-15
1	CT	Barkhamsted-New Hartford Landfill	Barkhamsted	01	RI/FS	PRP	09/30/91	1	1995	3	1995	-2
1	CT	Beacon Heights Landfill	Beacon Falls	02	RA	PRP	03/31/92	2	1994	4	1995	-6
1	CT	Gallup's Quarry	Plainfield	01	RI/FS	PRP	09/07/93	2	1996	2	1996	0
1	CT	Kellog-Deering Well Field	Norwalk	03	RI/FS	EP	05/16/90	4	1999	4	1999	0
1	CT	NEW LONDON SUBMARINE BASE	NEED TO IDENTIFY	01	RI/FS	FF	09/27/94			3	1995	new
				02	RI/FS	FF	09/27/94			4	1997	new
				03	RI/FS	FF	09/27/94			3	1996	new
				04	RI/FS	FF	09/27/94			4	1997	new
				05	RI/FS	FF	09/27/94			4	1998	new
1	CT	Raymark Industries, Inc.	Stratford	01	RI/FS	F	09/20/93			2	1995	DNE
				03	RI/FS	F	09/20/93			3	1996	DNE
1	CT	Solvents Recovery Service of New England	Southington	03	RI/FS	F	08/12/88	4	1995	2	1996	-2
1	MA	Atlas Tack Corp.	Fairhaven	01	RI/FS	F	09/18/89	1	1995	3	1996	-6
1	MA	Baird & McGuire	Holbrook	02	RA	F	06/26/90	3	1997	3	1997	0
				03	RA	F	09/30/91	4	1995	4	1995	0
1	MA	Charles-George Reclamation Trust Landfill	Tyngsborough	03	RA	F	09/28/90	1	1995	4	1995	-3
1	MA	Fort Devens	Fort Devens	01	RI/FS	FF	05/13/91	4	1994	2	1995	-2
				02	RI/FS	FF	05/13/91	4	1994	3	1995	-3
				03	RI/FS	FF	08/31/92	1	1995	4	1995	-3
				04	RI/FS	FF	08/31/92	1	1995	1	1995	0
				05	RI/FS	FF	08/31/92	1	1995	1	1996	-4

APPENDIX A

STATUS OF REMEDIAL INVESTIGATIONS, FEASIBILITY STUDIES, AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
				06	RI/FS	FF	05/24/93	3	1995	1	1997	-6
				07	RI/FS	FF	05/24/93	3	1995	2	1996	-3
				08	RI/FS	FF	05/24/93	3	1995	3	1996	-4
				09	RI/FS	FF	12/17/93			1	1996	new
1	MA	Fort Devens - Sudbury Training Annex	Fort Devens	01	RI/FS	FF	05/13/91	1	1995	3	1995	-2
				02	RI/FS	FF	05/13/91	3	1995	3	1995	0
				03	RI/FS	FF	05/13/91	4	1994	3	1995	-3
				04	RI/FS	FF	06/15/93	3	1995	4	1996	-5
				05	RI/FS	FF	06/15/93	4	1995	2	1997	-6
1	MA	Hocomonco Pond	Westborough	02	RA	PRP	06/02/93	2	1995	1	1997	-7
1	MA	Industri-Plex (Mark Philips Trust)	Woburn	01	RA	PRP	05/18/92	1	1995	3	1996	-6
1	MA	Iron Horse Park	Billerica	01	RA	PRP	07/15/91	4	1995	4	1996	-4
				03	RI/FS	F	01/31/90	2	1995	2	1996	-4
1	MA	New Bedford Site	New Bedford	01	FS	F	02/15/85	1	1994	1	1996	-8
				03	RI/FS	F	09/28/93	4	1998	4	1998	0
1	MA	Nyanza Chemical Waste Dump	Ashland	04	RI/FS	F	02/18/93	1	1997	3	1997	-2
1	MA	Otis Air National Guard Base/Camp Edwards	Falmouth	01	RI/FS	FF	07/17/91	2	1995	3	1995	-1
				02	RA	FF	10/15/92	1	1995	1	1995	0
				03	RI/FS	FF	07/17/91	1	1996	1	1996	0
				04	RI/FS	FF	07/17/91	4	1994	2	1995	-2
				05	RI/FS	FF	07/17/91	4	1995	4	1996	-4
				06	RI/FS	FF	07/17/91	1	1995	4	1996	-7
				07	RA	FF	09/21/93	1	1996	1	1996	0
				08	RI/FS	FF	07/17/91	3	1995	2	1997	-7
				09	RI/FS	FF	02/01/93	1	1996	1	1996	0
				10	RI/FS	FF	03/02/93	3	1996	3	1996	0
1	MA	Re-Solve, Inc.	Dartmouth	02	RA	MR	05/05/93	3	1995	2	1995	1

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
1	MA	Shpack Landfill	Norton/Attleboro	01	RI/FS	PRP	09/24/90	2	1995	2	1996	-4
1	MA	W.R. Grace & Co., Inc.	Acton	01	RA	PRP	09/03/93	4	1995	4	1996	-4
1	MA	Wells G&H	Woburn	02	RI/FS	PRP	09/28/90	2	1995	2	1997	-8
				03	RI/FS	F	09/28/90	2	1995	2	1997	-8
1	ME	Brunswick Naval Air Station	Brunswick	02	RA	FF	08/22/94			4	1996	new
				07	RI/FS	FF	06/22/90	1	1995	2	1995	-1
1	ME	Loring Air Force Base	Limestone	03	RI/FS	FF	05/09/91	2	1995	2	1997	-8
				04	RI/FS	FF	05/09/91	2	1995	3	1996	-5
				05	RI/FS	FF	05/09/91	3	1994	3	1996	-8
				06	RI/FS	FF	01/30/91			4	1994	DNE
				08	RI/FS	FF	01/30/91	1	1996	4	1996	-3
				09	RI/FS	FF	01/30/91	3	1996	4	1996	-1
				10	RI/FS	FF	01/30/91	1	1998	4	1996	5
1	ME	Winthrop Landfill	Winthrop	03	RA	PRP	04/28/94			4	1997	new
1	NH	Fletcher's Paint Works	Milford	01	RI/FS	F	07/29/90	4	1994	4	1995	-4
1	NH	New Hampshire Plating Co.	Merrimack	01	RI/FS	F	07/14/92	1	1995	1	1996	-4
1	NH	Pease Air Force Base	Portsmouth/Newington	01	RA	FF	09/20/94			4	1996	new
				02	RA	FF	09/20/94			1	1997	new
				04	RI/FS	FF	04/17/91	1	1995	4	1995	-3
				05	RI/FS	FF	02/25/92	2	1995	2	1995	0
				06	RI/FS	FF	02/25/92	2	1995	2	1995	0
				07	RI/FS	FF	05/21/91	1	1995	3	1995	-2
				08	RI/FS	FF	06/16/92	1	1995	1	1995	0
1	NH	South Municipal Water Supply Well	Peterborough	01	RA	PRP	05/03/93	2	1995	4	1995	-2
1	NH	Tinkham Garage	Londonderry	01	RA	PRP	02/07/94			2	1996	new
				02	RA	PRP	02/07/94			1	1999	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
1	RI	Central Landfill	Johnston	02	RI	PRP	08/25/94			1	1996	new
1	RI	Davis (GSR) Landfill	Smithfield	01	RI/FS	F	09/27/90	1	1995	2	1996	-5
1	RI	Davis Liquid Waste	Smithfield	01	RA	F	04/27/88	1	1996	2	1996	-1
1	RI	Davisville Naval Construction Batt Center	North Kingstown	01	RI/FS	FF	03/23/92	1	1995	1	1996	-4
				03	RI/FS	FF	03/23/92	3	1994	2	1995	-3
				04	RI/FS	FF	03/23/92	2	1995	4	1995	-2
				05	RI/FS	FF	03/23/92			4	1997	DNE
1	RI	Landfill & Resource Recovery, Inc. (L&RR)	North Smithfield	01	RA	PRP	06/23/94			1	1996	new
1	RI	Newport Naval Education/Training Center	Newport	02	RA	FF	12/27/93			4	1997	new
				03	RI/FS	FF	03/23/92	2	1995	1	1996	-3
				04	RI/FS	FF	03/23/92	3	1994	4	1995	-5
1	RI	Rose Hill Regional Landfill	South Kingstown	01	RI/FS	F	09/30/90	1	1995	4	1995	-3
1	VT	Bennington Municipal Sanitary Landfill	Bennington	01	RI/FS	PRP	06/28/91	1	1995	1	1996	-4
1	VT	Burgess Brothers Landfill	Woodford	01	RI/FS	PRP	08/27/91	2	1996	2	1996	0
1	VT	Parker Landfill	Lyndon	01	RI/FS	PRP	08/10/90	4	1994	2	1995	-2
1	VT	Tansitor Electronics Inc.	Bennington	01	RI/FS	PRP	09/12/90	3	1994	2	1995	-3
2	NJ	A. O. Polymer	Sparta Township	01	RA	PRP	05/11/94			2	1995	new
2	NJ	American Cyanamid Co.	Bound Brook	04	RI/FS	SE	05/28/88	3	1997	4	1996	3
				05	RI/FS	SE	05/28/88	2	1999	4	1997	6
2	NJ	Asbestos Dump	Millington	02	RA	F	08/31/93	4	1994	4	1995	-4
				03	RI/FS	F*	01/24/91	2	1994	2	1996	-8

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2	NJ	Bog Creek Farm	Howell Township	02	RA	F	09/27/91	2	1994	4	1995	-6
2	NJ	Bridgeport Rental & Oil Services	Bridgeport	01	RA	F	04/19/88	1	1995	1	1996	-4
				02	RI/FS	F	09/29/88	3	1994	3	1994	0
2	NJ	Burnt Fly Bog	Marlboro Township	03	RI/FS	S	09/30/88	4	1995	4	1996	-4
2	NJ	Caldwell Trucking Co.	Fairfield	01	RA	PRP	05/12/93	1	1996	1	1996	0
2	NJ	Chemical Control	Elizabeth	02	RA	PRP	12/31/92	4	1994	4	1994	0
2	NJ	Chemical Insecticide Corp.	Edison Township	01	RA	F	09/28/90	4	1993	4	1994	-4
				02	RI/FS	F	03/29/85	2	1994	4	1994	-2
				03	RI/FS	F	12/03/93			2	1995	new
2	NJ	Chemical Leaman Tank Lines, Inc.	Bridgeport	02	RI/FS	F	07/15/85	4	1993	4	1993	0
2	NJ	Chemsol, Inc.	Piscataway	01	RI/FS	F	09/28/90	3	1995	1	1996	-2
				02	RA	PRP	05/17/93	4	1994	2	1995	-2
2	NJ	Ciba-Geigy Corp. (TOMS RIVER CHEMICAL)	Toms River	02	RI/FS	F	07/05/89	2	1994	2	1997	-12
2	NJ	Combe Fill South Landfill	Chester Township	01	RA	S	09/28/90	4	1995	3	1996	-3
2	NJ	Cosden Chemical Coatings Corp.	Beverly	01	RA	F	09/29/94			1	1996	new
2	NJ	Curcio Scrap Metal, Inc.	Saddle Brook Township	02	RI/FS	PRP	06/02/93	4	1994	1	1995	-1
2	NJ	D'Imperio Property	Hamilton Township	01	RA	PRP	05/10/94			4	1997	new
2	NJ	Denzer & Schafer X-Ray Co.	Bayville	01	RI/FS	S	06/26/87	2	1994	1	1995	-3
2	NJ	Diamond Alkali Co.	Newark	02	RI/FS	PRP	04/20/94			1	1997	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
2	NJ	Dover Municipal Well 4	Dover Township	02	RI/FS	F	07/06/93	3	1995	2	1996	-3
2	NJ	Ewan Property	Shamong Township	01	RA	PRP	08/16/94			4	1995	new
2	NJ	Fair Lawn Well Field	Fair Lawn	01	RI/FS	F	09/30/92	4	1995	2	1996	-2
2	NJ	Federal Aviation Administration Technical Center	Atlantic City	01	RA	FF	08/19/92	1	1995	3	1995	-2
				07	RI/FS	FF	06/01/87	3	1994	4	1995	-5
				08	RI/FS	FF	06/01/87	4	1994	1	1996	-5
				09	RI/FS	FF	06/01/87	2	1995	1	1996	-3
				10	RI/FS	FF	06/01/87	2	1995	1	1996	-3
2	NJ	Florence Land Recontouring Landfill	Florence Township	01	RA	S	09/29/89	3	1994	4	1995	-5
2	NJ	Fort Dix (Landfill Site)	Pemberton Township	01	RA	FF	08/06/92	1	1995	1	1996	-4
				02	RI/FS	FF	06/19/91	1	1995	1	1996	-4
				03	RI/FS	FF	10/01/92	1	1995	1	1996	-4
2	NJ	Garden State Cleaners Co.	Minotola	01	RA	F	06/30/93	3	1996	3	1996	0
2	NJ	Glen Ridge Radium Site	Glen Ridge	01	RA	F	09/15/89	4	1998	4	1998	0
				02	RI/FS	F	03/30/90	3	1994	2	1995	-3
				03	RA	F	09/30/92	4	1998	4	1998	0
2	NJ	Goose Farm	Plumstead Township	01	RA	PRP	08/27/92	4	1999	4	1999	0
2	NJ	Helen Kramer Landfill	Mantua Township	01	RA	F	09/23/88	4	1994	4	1994	0
2	NJ	Hercules, Inc. (Gibbstown Plant)	Gibbstown	02	RI/FS	PS	07/02/86	1	1995	1	1996	-4
2	NJ	Higgins Disposal	Kingston	01	RI/FS	F	05/17/90	4	1995	1	1996	-1
2	NJ	Hopkins Farm	Plumstead Township	01	RI/FS	PS	02/03/87	2	1994	3	1994	-1

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2	NJ	Imperial Oil Co., Inc./Champion Chemicals	Morganville	01	RA	S	09/29/94			1	1996	new
				03	FS	S	09/28/84	3	1994	3	1995	-4
2	NJ	Industrial Latex Corp.	Wallington Borough	02	RI/FS	F	09/30/93			4	1996	DNE
2	NJ	Kauffman & Minteer, Inc.	Jobstown	01	RI/FS	F	04/11/89	2	1994	2	1995	-4
2	NJ	Kin-Buc Landfill	Edison Township	01	RA	PRP	06/23/93	4	1995	2	1996	-2
				02	RA	PRP	06/10/94			2	1996	new
2	NJ	King of Prussia	Winslow Township	03	RA	PRP	07/22/94			1	1995	new
2	NJ	LANDFILL & DEVELOPMENT CO	NEED TO IDENTIFY	01	RI/FS	PS	10/03/86			2	1995	DNE
2	NJ	Lang Property	Pemberton Township	01	RA	F	09/30/92	1	1996	4	1996	-3
2	NJ	Lipari Landfill	Pitman	02	RA	F	09/30/88	4	1999	4	1999	0
2	NJ	Mannheim Avenue Dump	Galloway Township	01	RA	PRP	11/16/93			1	1995	new
2	NJ	Maywood Chemical Co.	Maywood/Rochelle Park	01	RI/FS	PRP	09/21/87	4	1994	3	1995	-3
				02	RI/FS	FF	07/21/90	4	1994	3	1995	-3
2	NJ	Metaltec/Aerosystems	Franklin Borough	01	RA	F	03/29/91	1	1995	4	1996	-7
2	NJ	Montclair/West Orange Radium Site	Montclair/West Orange	01	RA	F	09/15/89	4	1998	4	1998	0
				02	RI/FS	F	03/30/90	3	1994	2	1995	-3
				03	RA	F	09/30/92	4	1998	4	1998	0
2	NJ	NL Industries	Pedricktown	02	RA	PRP	10/19/92	3	1994	1	1995	-2
2	NJ	Naval Air Engineering Center	Lakehurst	05	RA	FF	03/16/92	3	1996	3	1995	4
				11	RA	FF	07/18/94			2	1995	new
				13	RA	FF	07/18/94			2	1995	new
				14	RA	FF	07/18/94			2	1995	new
				16	RI/FS	FF	09/25/89	2	1994	2	1995	-4
				18	RI/FS	FF	09/25/89	2	1994	2	1996	-8
				19	RI/FS	FF	09/25/89	2	1996	2	1996	0
				20	RI/FS	FF	09/25/89	3	1997	3	1997	0

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
				21	RI/FS	FF	09/25/89	3	1997	3	1997	0
2	NJ	Naval Weapons Station	Colts Neck	01	RI/FS	FF	09/27/90	1	1995	1	1996	-4
				02	RI/FS	FF	09/27/90	4	1995	1	1996	-1
2	NJ	Picatinny Arsenal	Rockaway Township	02	RI/FS	FF	10/01/92	3	1997	3	1997	0
				03	RI/FS	FF	10/01/92	4	1995	1	1996	-1
				04	RI/FS	FF	05/28/93	1	1998	1	1998	0
2	NJ	Reich Farms	Pleasant Plains	01	RA	PRP	09/28/94			3	1995	new
2	NJ	Rockaway Borough Well Field	Rockaway Township	03	RI/FS	F*	09/30/92	1	1995	1	1996	-4
2	NJ	Roebling Steel Co.	Florence	02	RA	F	09/20/94			2	1995	new
				04	RI/FS	F	09/29/92			3	1995	DNE
2	NJ	Sayreville Landfill	Sayreville	02	RI/FS	PS	11/26/91	2	1994	1	1995	-3
2	NJ	Scientific Chemical Processing	Carlstadt	02	RI/FS	PRP	12/19/88	1	1995	1	1996	-4
				03	RI/FS	PRP	12/19/88			4	1995	DNE
2	NJ	Sheild Alloy Corp.	Newfield Borough	02	RI/FS	PS	10/05/88	1	1995	1	1996	-4
2	NJ	Swope Oil & Chemical Co.	Pennsauken	01	RA	PRP	09/07/88	2	1996	2	1996	0
2	NJ	Syncon Resins	South Kearny	01	RA	S	05/23/89	2	1994	2	1994	0
2	NJ	U.S. Radium Corp.	Orange	02	RI/FS	F	09/30/89	4	1994	2	1995	-2
2	NJ	Vineland Chemical Co., Inc.	Vineland	05	RA	F	09/30/94			4	1996	new
2	NJ	WR Grace & Co. Inc./Wayne Interim Storage Site	Wayne Township	01	RI/FS	FF	07/21/90	2	1995	3	1995	-1
2	NJ	Waldick Aerospace Devices, Inc.	Wall Township	01	RA	F	09/30/91	1	1995	3	1995	-2

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2	NJ	Williams Property	Swainton	01	RA	S	06/30/93	1	1995	2	1995	-1
2	NY	American Thermostat Co.	South Cairo	02	RA	F	08/07/92	1	1995	2	1995	-1
				02	RA	F	06/30/93	1	1995	4	1996	-7
2	NY	Anchor Chemicals	Hicksville	01	RI/FS	PRP	06/02/89	3	1994	4	1995	-5
2	NY	Applied Environmental Services	Glenwood Landing	01	RA	PS	03/28/94			1	1998	new
2	NY	Brewster Well Field	Putnam County	01	RA	F	09/23/87	4	1993	3	1995	-7
2	NY	Brookhaven National Laboratory (USDOE)	Upton	01	RI/FS	FF	05/11/93	1	1997	1	1997	0
				03	RI/FS	FF	06/30/94			3	1998	new
				04	RI/FS	FF	11/19/91	1	1996	1	1996	0
				05	RI/FS	FF	10/29/93			4	1997	new
				06	RI/FS	FF	06/02/94			2	1997	new
2	NY	Carrol & Dubies Sewage Disposal	Port Jervis	02	RI/FS	PRP	07/31/92	1	1995	1	1996	-4
2	NY	Circuitron Corp.	East Farmingdale	01	RA	F	09/30/94			4	1995	new
				03	RA	F	09/30/94			4	1996	new
2	NY	Claremont Polychemical	Old Bethpage	01	RA	F	09/30/93			4	1996	DNE
2	NY	Colesville Municipal Landfill	Town of Colesville	01	RA	PS	07/14/94			3	1996	new
2	NY	Conklin Dumps	Conklin	01	RA	PS	07/06/93	2	1995	1	1996	-3
2	NY	FMC Corp. (Dublin Road Landfill)	Town of Shelby	01	RA	PS	05/02/94			4	1996	new
2	NY	Facet Enterprises, Inc.	Elmira	01	RI/FS	PRP	05/22/86	3	1992	3	1992	0
2	NY	Forest Glen Mobile Home Subdivision	Niagara Falls	02	RI/FS	F	09/30/92	1	1995	2	1996	-5
2	NY	Fulton Terminals	Fulton	01	RA	PRP	09/29/94			2	1999	new

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2	NY	GCL Tie & Treating Inc.	Village of Sidney	01	RI	F	09/30/92	4	1993	3	1995	-7
2	NY	Genzale Plating Co.	Franklin Square	01	RA	F	09/30/94			3	1996	new
				02	RI/FS	F	09/25/91	4	1994	3	1995	-3
2	NY	Goldisc Recordings, Inc.	Holbrook	01	RI/FS	PRP	06/27/91	1	1995	3	1995	-2
2	NY	Griffiss Air Force Base	Rome	01	RI/FS	FF	03/29/90	1	1995	1	1996	-4
				02	RI/FS	FF	03/29/90	2	1996	2	1996	0
				03	RI/FS	FF	03/29/90	2	1995	2	1996	-4
				04	RI/FS	FF	03/29/90	2	1995	2	1996	-4
				05	RI/FS	FF	03/29/90	2	1996	2	1996	0
				06	RI/FS	FF	03/29/90	2	1996	2	1996	0
				07	RI/FS	FF	03/29/90	2	1997	2	1997	0
2	NY	Hooker (Hyde Park)	Niagara Falls	01	RA	PRP	08/15/87	1	1995	1	1996	-4
2	NY	Hooker (South Area)	Niagara Falls	01	RA	PRP	11/02/90	4	1996	4	1996	0
				01	RA	PRP	11/02/90	4	1996	4	1996	0
				01	RA	PRP	12/09/93			2	1997	new
2	NY	Hudson River PCBs	Hudson River	02	RI/FS	F	07/25/90	2	1995	1	1996	-3
2	NY	Jones Chemicals, Inc.	Caledonia	01	RI/FS	PRP	03/29/91	1	1995	1	1996	-4
2	NY	Jones Sanitation	Hyde Park	01	RI/FS	PRP	03/26/91	1	1995	4	1995	-3
2	NY	Kentucky Avenue Well Field	Horseheads	03	RI/FS	PRP	08/08/91	1	1995	2	1995	-1
2	NY	Li Tungsten Corp.	Glen Cove	01	RI/FS	F	08/26/92	1	1995	3	1996	-6
2	NY	Liberty Industrial Finishing	Farmingdale	01	RI/FS	F	09/28/90	4	1993	3	1995	-7
2	NY	Love Canal	Niagara Falls	07	RA	S	02/09/87	1	1995	3	1998	-14
				08	RA	S	06/26/87	1	1995	1	1996	-4

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2	NY	Malta Rocket Fuel Area	Malta	01	RI/FS	PRP	11/10/89	4	1994	3	1995	-3
2	NY	Marathon Battery Corp.	Cold Springs	02	RA	F	06/28/91	3	1993	3	1996	-12
2	NY	Mattiace Petrochemical Co., Inc.	Glen Cove	01	RA	F	06/30/93	1	1995	4	1995	-3
				04	RA	F	09/30/93	3	1996	1	1997	-2
				05	RA	F	06/30/93			4	1995	DNE
				06	RA	F	06/30/93			4	1995	DNE
2	NY	Nepera Chemical Co., Inc.	Maybrook	01	RI/FS	PS	03/22/88	1	1995	3	1995	-2
2	NY	Niagra Mohawk Power Corp. (Saratoga Springs Plant)	Saratoga Springs	01	RI/FS	PRP	09/27/89	3	1994	2	1995	-3
2	NY	North Sea Municipal Landfill	North Sea	01	RA	PRP	09/21/92	4	1994	4	1994	0
				02	RI/FS	PRP	07/27/89	4	1992	4	1992	0
2	NY	Old Bethpage Landfill	Oyster Bay	01	RA	PS	11/13/90	1	1993	1	1993	0
2	NY	Onondaga Lake	Syracuse	01	RI/FS	PS	05/10/93	4	1995	4	1998	-12
2	NY	Plattsburg Air Force Base	Plattsburgh	02	RI/FS	FF	04/23/91	4	1993	2	1995	-6
				03	RA	FF	09/30/92	4	1995	4	1995	0
				05	RI/FS	FF	04/23/91	2	1994	3	1995	-5
				06	RI/FS	FF	06/04/92	4	1994	1	1996	-5
				07	RI/FS	FF	10/01/92	1	1996	1	1996	0
2	NY	Port Washington Landfill	Port Washington	01	RA	PRP	06/09/93	4	1995	2	1995	2
2	NY	Preferred Plating Corp.	Farmingdale	01	RA	F	01/31/92	4	1995	2	2007	-46
2	NY	Ramapo Landfill	Ramapo	01	RA	PS	06/20/94			2	1996	new
2	NY	Richardson Hill Road Landfill/Pond	Sidney Center	01	RI/FS	PRP	07/22/87	1	1995	2	1996	-5
2	NY	Rosen Brothers Scrap Yard/Dump	Cortland	01	RI/FS	PRP	01/04/90	4	1994	3	1995	-3

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
2	NY	SMS Instruments, Inc.	Deer Park	01	RA	F	05/17/91	3	1994	3	1994	0
2	NY	Sarney Farm	Amenia	01	RA	F	03/31/92	2	1994	2	1995	-4
2	NY	Sealand Restoration, Inc.	Lisbon	02	RI/FS	F	06/29/90	1	1995	4	1995	-3
2	NY	Seneca Army Depot	Romulus	01	RI/FS	FF	03/19/90	3	1995	3	1995	0
				02	RI/FS	FF	04/29/91	3	1995	3	1995	0
2	NY	Sidney Landfill	Sidney	01	RI/FS	F	09/19/89	1	1995	4	1995	-3
2	NY	Sinclair Refinery	Wellsville	02	RA	PRP	05/29/92	4	1993	3	1994	-3
2	NY	Syosset Landfill	Oyster Bay	02	RI/FS	PRP	11/15/90	4	1994	4	1995	-4
2	NY	Vestal Water Supply Well 1-1	Vestal	01	RA	F	09/30/87	3	1993	4	1994	-5
				02	RA	F	09/30/94			1	1997	new
				02	RA	PRP	09/30/94			4	1996	new
2	PR	Naval Security Group Activity	Sabana Seca	01	RI/FS	FF	03/19/92	4	1995	1	1996	-1
				02	RI/FS	FF	10/01/92	4	1995	1	1996	-1
2	PR	Upjohn Facility	Barceloneta	01	RA	PRP	04/19/89	4	1995	1	1996	-1
				01	RA	PRP	02/11/92	2	1994	3	1994	-1
2	PR	Vega Alta Public Supply Wells	Vega Alta	01	RA	PRP	09/18/92	4	1994	4	1994	0
2	VI	ISLAND CHEMICAL CORP/V.I. CHEM	NEED TO IDENTIFY	01	RI/FS	PRP	09/29/94			1	1996	new
2	VI	Tutu Wellfield	Tutu	01	RI/FS	PRP	02/19/92	4	1994	4	1995	-4
3	DE	Army Creek Landfill (Delaware Sand & Gravel Llangollen)	New Castle County	01	RA	MR	09/28/90	3	1994	1	1995	-2
				02	RA	MR	07/23/91	2	1994	1	1995	-3
3	DE	Delaware Sand & Gravel-Llangollen/Army Creek Landfill)	New Castle County	03	RA	PRP	07/28/93	3	1996	3	1996	0

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3	DE	Dover Air Force Base	Dover	02	RA	FF	08/09/94	4	1996	4	1996	0
				05	RI/FS	FF	09/20/93			2	1995	DNE
				06	RI/FS	FF	09/30/93			2	1997	DNE
				07	RI/FS	FF	09/20/93			2	1997	DNE
				08	RI/FS	FF	09/20/93	2	1995	2	1997	-8
				09	RI/FS	FF	09/20/93	2	1995	2	1997	-8
3	DE	Halby Chemical Co.	New Castle	02	RI/FS	F	12/20/91	1	1995	4	1995	-3
3	DE	Harvey & Knott Drum, Inc.	Kirkwood	02	RA	MR	06/28/93	1	1994	2	1995	-5
3	DE	Koppers Co., Inc. (Newport Plant)	Newport	01	RI/FS	PRP	09/26/91	4	1996	3	1997	-3
3	DE	NCR Corp. (Millsboro Plant)	Millsboro	01	RA	PRP	09/16/94			2	1997	new
3	DE	New Castle Spill (once listed as TRIS Spill)	New Castle County	01	RA	PRP	09/29/92			1	1999	DNE
3	DE	Standard Chlorine of Delaware, Inc.	Delaware City	01	RI/FS	PS	11/30/87	1	1994	1	1995	-4
3	DE	Sussex County Landfill No. 5	Laurel	01	RI/FS	PRP	03/29/91	4	1994	1	1995	-1
3	DE	Tybouts Corner Landfill	Smyrna	01	RA	MR	11/25/92	1	1996	3	1995	2
3	DE	Tyler Refrigeration Pit	Smyrna	01	RI/FS	PRP	03/29/91	3	1995	2	1997	-7
3	MD	Aberdeen Proving Ground (Edgewood Area)	Edgewood	02	RI/FS	FF	03/27/90	1	1996	1	1996	0
				04	RI/FS	FF	03/27/90	3	1994	3	1994	0
				06	RI/FS	FF	03/27/90	2	1994	2	1996	-8
				07	RI/FS	FF	03/27/90	1	1994	2	1995	-5
				08	RI/FS	FF	03/27/90	2	1994	4	1996	-10
				09	RI/FS	FF	03/27/90	1	1995	1	1996	-4
				10	RI/FS	FF	03/27/90	2	1995	1	1996	-3
				11	RI/FS	FF	12/05/90	4	1995	1	1996	-1

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3	MD	Aberdeen Proving Grounds (Michaelsville Landfill)	Aberdeen	02	RI/FS	FF	03/27/90	1	1994	1	1996	-8
				03	RI/FS	FF	03/27/90	2	1994	2	1995	-4
				05	RI/FS	FF	03/27/90	3	1994	4	1994	-1
				06	RI/FS	FF	08/30/91	2	1994	1	1995	-3
3	MD	Bush Valley Landfill	Abingdon	01	RI/FS	PRP	06/15/90	1	1995	4	1995	-3
3	MD	Limestone Road	Cumberland	01	RA	PRP	03/29/94			2	1995	new
3	MD	Southern Maryland Wood Treating	Hollywood	02	RI/FS	F	05/29/92	1	1994	1	1995	-4
3	PA	AIW Frank/Mid-County Mustang	Exton	01	RI/FS	F	09/14/90	2	1994	3	1995	-5
3	PA	AMP, Inc. (Glen Rock Facility)	Glen Rock	01	RI/FS	PRP	03/01/89	4	1995	1	1996	-1
3	PA	Bendix Flight Systems Division	Bridgewater Township	02	RA	PRP	06/15/92	2	1994	1	1995	-3
				04	RA	PRP	03/10/94			3	1996	new
				05	RA	PRP	06/23/94			2	1996	new
3	PA	Berkley Products Co. Dump	Denver	01	RI/FS	F	03/12/90	4	1994	2	1995	-2
3	PA	Berks Landfill	Spring Township	01	RI/FS	PRP	06/26/91	1	1995	2	1995	-1
3	PA	Boarhead Farms	Bridgeton Township	01	RI/FS	F	12/05/89	2	1995	2	1995	0
3	PA	Brodhead Creek	Stroudsburg	01	RA	PRP	05/04/94			3	1995	new
				02	RI/FS	PRP	05/29/92	4	1994	2	1995	-2
3	PA	Brown's Battery Breaking	Shoemakersville	01	RA	F	12/27/91	1	1994	2	1996	-9
3	PA	Butler Mine Tunnel	Pittston	01	RI/FS	PRP	03/30/87	2	1994	2	1995	-4
3	PA	CRATER RESOURCES/KEYSTONE COKE	NEED TO IDENTIFY	01	RI/FS	PRP	09/07/94			2	1996	new
3	PA	CROSSLEY FARM	NEED TO IDENTIFY	01	RI/FS	F	09/27/94			1	1996	new

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3	PA	Centre County Kepone	State College Boro	01	RI/FS	PRP	11/07/88	2	1994	1	1995	-3
3	PA	Craig Farm Drum	Parker	01	RA	PRP	09/27/93	1	1995	3	1995	-2
3	PA	CryoChem, Inc.	Worman	02	RA	F	09/30/93			1	1996	DNE
3	PA	Douglassville Disposal	Douglassville	03	RA	PRP	10/04/91	1	1994	1	1995	-4
3	PA	Dublin TCE Site	Dublin Borough	02	RI/FS	PRP	08/15/91	2	1994	4	1995	-6
3	PA	East Mount Zion	Springettsbury Township	01	RA	F	09/30/94			4	1997	new
3	PA	Eastern Diversified Metals	Hometown	01	RI	PRP	10/19/87			3	1993	DNE
3	PA	Elizabethtown Landfill	Elizabethtown	01	RI/FS	PRP	09/28/90	4	1994	1	1995	-1
3	PA	Fischer & Porter Co.	Warminster	02	RI/FS	F	02/20/92	3	1994	3	1995	-4
3	PA	Havertown PCP	Haverford	03	RI/FS	F	08/15/91	4	1994	4	1995	-4
3	PA	Hellertown Manufacturing Co.	Hellertown	01	RA	F	05/11/93			1	1995	DNE
				02	RA	F	09/22/93			2	1997	DNE
3	PA	Henderson Road Site	Upper Merion Township	02	RA	PRP	03/15/91	2	1994	1	1995	-3
3	PA	Jack's Creek/Sitkin Smelting and Refining Inc.	Maitland	01	RI/FS	F	08/28/90	2	1994	2	1995	-4
3	PA	Keystone Sanitation Landfill	Union Township	02	RI/FS	F	04/21/94			1	1996	new
3	PA	Letterkenny Army Depot (Property Disposal Office Area)	Franklin County	02	RI/FS	FF	02/03/89	2	1994	2	1995	-4
3	PA	Letterkenny Army Depot (Southeast Area)	Chambersburg	01	RA	FF	09/08/93	4	1994	4	1994	0
				02	RI/FS	FF	02/03/89	2	1994	2	1995	-4
				03	RI/FS	FF	02/03/89	2	1994	2	1996	-8

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3	PA	Lord-Shope Landfill	Girard Township	01	RA	PRP	07/20/94			1	1996	new
3	PA	METROPOLITAN MIRROR AND GLASS	NEED TO IDENTIFY	01	RI/FS	F	09/19/94			2	1996	new
3	PA	McAdoo Associates	McAdoo Borough	02	RA	F	08/02/94			1	1995	new
3	PA	Metal Banks	Philadelphia	01	RI/FS	PRP	05/29/91	2	1995	2	1995	0
3	PA	Middletown Air Field	Middletown	02	RA	PRP	04/25/94			1	1997	new
				03	RI/FS	F	02/28/94			3	1996	new
3	PA	Mill Creek Dump	Erie	01	RA	F	06/30/89	4	1993	1	1995	-5
				02	RA	PRP	05/04/92	4	1995	4	1995	0
3	PA	Moyers Landfill	Eagleville	01	RA	F	09/29/88	4	1995	1	1996	-1
3	PA	Naval Air Development Center (8 waste centers)	Warminster Township	02	RA	FF	06/14/94			3	1995	new
				04	RI/FS	FF	12/28/93			1	1995	new
				05	RI/FS	FF	06/27/94			4	1995	new
3	PA	North Penn-Area 6 (J.W. Rex/Allied Paint/Keystone hydra	Lansdale	01	RI/FS	F	06/30/88	1	1995	2	1995	-1
				03	RI/FS	F	09/28/93			3	1996	DNE
3	PA	Ohio River Park	Neville Island	01	RI/FS	PRP	10/16/91	3	1994	3	1995	-4
3	PA	Osborne Landfill	Grove City	02	RI/FS	PRP	10/31/92	1	1995	4	1995	-3
3	PA	Palmerton Zinc Pile	Palmerton	01	RA	PRP	07/31/88	4	1999	4	1999	0
				02	RI/FS	PRP	12/13/91	1	1994	1	1994	0
				04	RI/FS	F	08/12/88	4	1996	3	1997	-3
3	PA	Publicker Industries Inc.	Philadelphia	02	RI/FS	F	09/21/89	4	1993	1	1995	-5
				02	RA	F	09/23/92	1	1995	1	1995	0
3	PA	Raymark	Hatboro	04	RA	PRP	05/23/94			4	1995	new

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3	PA	Resin Disposal	Jefferson Borough	02	RI/FS	PRP	06/24/92	1	1995	2	1995	-1
3	PA	Revere Chemical Co.	Nockamixon Township	02	RI/FS	PRP	12/16/88			2	1995	DNE
3	PA	River Road Landfill (Waste Management, Inc.)	Hermitage	01	RI/FS	PRP	05/05/90	4	1994	3	1995	-3
3	PA	Rodale Manufacturing Co., Inc.	Emmaus Borough	01	RI/FS	PRP	09/22/92	1	1995	2	1996	-5
3	PA	Shriver's Corner	Straban Township	01	RI/FS	PRP	03/10/87	2	1994	2	1995	-4
3	PA	Strasburg Landfill	Newlin Township	04	RI/FS	F	01/14/92	1	1995	3	1997	-10
3	PA	Tobyhanna Army Depot	Toby Hanna	01	RI/FS	FF	09/27/90	1	1994	4	1994	-3
				02	RI/FS	FF	09/27/90	4	1993	3	1996	-11
				03	RI/FS	FF	09/27/90	4	1995	4	1995	0
3	PA	Tysons Dump	Upper Merion Township	01	RA	PRP	06/03/88	1	1995	1	1995	0
				01	FS	F	07/15/93			4	1994	DNE
3	PA	Walsh Landfill	Honeybrook Township	04	RI/FS	F	05/01/90	2	1994	1	1997	-11
3	PA	Westinghouse Elevator Co. (Sharon Plant)	Sharon	01	RI/FS	PS	09/20/88	1	1995	1	1996	-4
3	PA	Westinghouse Elevator Co. Plant	Gettysburg	02	RI/FS	PRP	03/20/92	1	1995	2	1995	-1
3	PA	York County Solid Waste and Refuse Authority Landfill	Hopewell Township	01	RI/FS	PS	11/30/87	1	1994	1	1995	-4
3	VA	Atlantic Wood Industries, Inc.	Portsmouth	01	RI/FS	PRP	07/23/87	3	1994	1	1995	-2

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3	VA	Avtex Fibers, Inc.	Front Royal	04	RA	F	07/22/91	4	1995	1	1998	-9
				06	RI/FS	PRP*	09/27/90	1	1995	1	1998	-12
				07	RI/FS	PRP	03/30/93	4	1995	1	1997	-5
3	VA	C&R Battery Co., Inc.	Chesterfield County	01	RA	PRP	04/28/92	1	1994	1	1995	-4
3	VA	Defense General Supply Center	Chesterfield County	02	RI/FS	FF	09/21/90	2	1994	4	1994	-2
				03	RI/FS	FF	09/21/90	4	1993	2	1995	-6
				04	RI/FS	FF	09/21/90	3	1994	3	1996	-8
				06	RI/FS	FF	10/11/91	2	1994	1	1996	-7
				07	RI/FS	FF	10/11/91	3	1994	3	1996	-8
				08	RI/FS	FF	10/11/91	4	1994	1	1996	-5
3	VA	Dixie Caverns County Landfill	Salem	01	RA	PRP	08/15/94			4	1995	new
3	VA	First Piedmont Corp. Rock Quarry (Route 719)	Pittsylvania County	01	RA	PRP	06/30/94			3	1996	new
3	VA	Greenwood Chemical Co.	Newton	01	RA	F	09/29/94			1	1996	new
				04	RI/FS	F	06/11/91	1	1995	1	1996	-4
3	VA	H & H Inc., Burn Pit	Farrington	01	RI/FS	F	06/30/88	1	1994	1	1995	-4
3	VA	L.A. Clarke & Son	Spotsylvania County	02	RA	PRP	08/07/90	1	1994	1	1995	-4
				03	RA	PRP	12/14/92	1	1997	1	1997	0
3	VA	NASA -LANGLEY RESEARCH CENTER	NEED TO IDENTIFY	03	RI/FS	FF	12/16/93			1	1997	new
3	VA	NAVAL SURFACE WARFARE - DAHLGR	NEED TO IDENTIFY	01	RI/FS	FF	12/13/93			4	1996	new
				02	RI/FS	FF	12/13/93			4	1996	new
				03	RI/FS	FF	12/13/93			4	1996	new
				04	RI/FS	FF	12/13/93			4	1996	new
3	VA	NAVAL WEAPONS STATION - YORKTO	NEED TO IDENTIFY	01	RI/FS	FF	06/01/92			4	1994	DNE
				02	RI/FS	FF	07/25/94			1	1997	new

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3	VA	Rinehart Tire Fire Dump	Frederick County	01	RA	F	09/29/89	1	1996	1	1996	0
				02	RA	F	08/26/94			1	1995	new
				03	RI/FS	F	06/17/94			1	1996	new
3	VA	Saltville Waste Disposal Ponds	Saltville	02	RA	PRP	04/27/93	3	1994	3	1995	-4
				03	RI/FS	PRP	09/15/88	2	1994	1	1995	-3
				04	RI/FS	PRP	09/15/88	1	1995	4	1996	-7
3	VA	U.S. Titanium	Piney River	01	RA	PRP	08/18/94			3	1997	new
3	WV	Fike Chemical	Nitro	02	RA	PRP	09/22/93	4	1994	2	1995	-2
				04	RI/FS	PRP	09/30/94			1	1996	new
3	WV	Follansbee Site	Follansbee	01	RI/FS	PRP	09/27/90	1	1995	1	1996	-4
3	WV	Ordnance Works Disposal Areas	Morgantown	02	RI/FS	PRP	06/04/90	1	1995	3	1996	-6
3	WV	West Virginia Ordnance	Point Pleasant	08	RI/FS	FF	09/28/93	1	1995	3	1998	-14
				09	RI/FS	FF	09/28/93	4	1995	2	1998	-10
				11	RI/FS	FF	01/04/94			3	1998	new
4	AL	Alabama Army Ammunition Plant	Childersburg	01	RA	FF	11/10/92	3	1994	2	1995	-3
				04	RI/FS	FF	09/27/94			2	1996	new
				05	RI/FS	FF	09/29/94			1	1996	new
4	AL	Anniston Army Depot (Southeast Industrial Area)	Anniston	01	RA	FF	05/04/92	4	1997	4	1997	0
				01	RI/FS	FF	08/01/94			1	1998	new
				02	RI/FS	FF	12/12/90	3	1996	3	1996	0
4	AL	Ciba-Geigy Corp. (McIntosh Plant)	McIntosh	01	RA	PRP	09/28/89	3	1996	3	1996	0
				03	RI/FS	PRP	03/31/92	2	1994	1	1995	-3
				05	RI/FS	EP	05/21/93	1	2000	1	2000	0
4	AL	Interstate Lead Co. (ILCO)	Leeds	03	RI/FS	F	07/22/94			2	1996	new
4	AL	Olin Corp. (McIntosh Plant)	McIntosh	01	RI/FS	PRP	05/08/90	2	1994	1	1995	-3
				02	RI/FS	PRP	06/17/94			4	1995	new
				03	RI/FS	EP	05/21/93	1	2000	1	2000	0

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4	AL	Stauffer Chemical Co. (Clemoyne Plant)	Axis	01	RA	PRP	09/27/89	4	1992	4	1999	-28
				01	RA	PRP	08/18/93	1	1995	4	1999	-19
				02	RI/FS	PRP	01/05/90	4	1994	3	1995	-3
				02	RI/FS	PRP	12/31/92	4	1994	3	1995	-3
				04	RI/FS	PRP*	05/21/93	1	2000	1	2000	0
4	AL	Stauffer Chemical Co. (Cold Creek Plant)	Bucks	01	RA	PRP	09/27/89	2	1992	4	1999	-30
				01	RA	PRP	09/27/93	1	1995	4	1999	-19
				02	RI/FS	PRP	01/05/90	4	1994	4	1994	0
				02	RI/FS	PRP	12/31/92	4	1994	1	1995	-1
				04	RI/FS	PRP*	05/21/93	1	2000	1	2000	0
4	AL	T.H. Agriculture & Nutrition Co. (Montgomery Plant)	Montgomery	01	RI/FS	PRP	03/26/91	2	1994	4	1994	-2
				02	RI/FS	PRP	07/14/94			4	1995	new
4	FL	Agrico Chemical Co.	Pensacola	01	RA	PRP	09/23/94			1	1997	new
4	FL	Broward County --21st Manor Dump	Fort Lauderdale	01	RI/FS	F	03/02/93	1	1995	1	2000	-20
4	FL	CHEVRON CHEMICAL CO. (ORTHO DI	NEED TO IDENTIFY	01	RI/FS	PRP	01/25/93			3	1995	DNE
4	FL	Cabot/Koppers	Gainesville	01	RA	PRP	09/29/93	1	1996	1	1996	0
				01	RA	PRP	12/29/93			4	1995	new
				02	RI/FS	F	05/17/94			4	1995	new
4	FL	Cecil Field Naval Air Station	Jacksonville	01	RI/FS	FF	12/12/89	1	1995	3	1995	-2
				03	RI/FS	FF	10/22/90	1	1995	2	1996	-5
				04	RI/FS	FF	02/18/92	1	1996	1	1996	0
				05	RI/FS	FF	02/18/92	1	1996	1	1996	0
				07	RA	FF	06/02/94			3	1999	new
4	FL	Dubose Oil Products Co.	Cantonment	01	RA	PRP	02/16/93	2	1999	4	1995	14
4	FL	ESCAMBIA WOOD-PENSACOLA	NEED TO IDENTIFY	00	RI/FS	F	09/20/94			2	1996	new

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STATUS OF REMEDIAL INVESTIGATIONS, FEASIBILITY STUDIES,
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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
4	FL	Florida Steel Corp.	Indiantown	01	RA	PRP	09/21/94			3	1996	new
4	FL	Harris Corp. (Palm Bay Plant/Genera l Development Utili)	Palm Bay	02	RI/FS	PRP	01/23/92	1	1995	2	1995	-1
4	FL	Helena Chemical Co.	Tampa	01	RI/FS	PRP	09/02/92	1	1995	3	1995	-2
				02	RI/FS	PRP	11/06/92	2	1995	4	1995	-2
4	FL	Homestead Air Force Base	Homestead	01	RI/FS	FF	10/01/90	3	1994	3	1995	-4
				02	RI/FS	FF	10/01/90	4	1994	1	1996	-5
				04	RI/FS	FF	10/01/90	2	1995	2	1995	0
				05	RI/FS	FF	10/01/90	1	1995	1	1996	-4
				06	RI/FS	FF	10/01/90	1	1995	2	1995	-1
				07	RI/FS	FF	10/01/90	2	1995	1	1996	-3
				08	RI/FS	FF	10/01/90	4	1995	1	1996	-1
				09	RI/FS	FF	05/21/93	3	1995	2	1996	-3
				19	RI/FS	FF	12/27/93			1	1996	new
4	FL	Jacksonville Naval Air Station	Jacksonville	01	RI/FS	FF	10/08/90	4	1995	2	1996	-2
				02	RI/FS	FF	07/01/92	4	1995	3	1997	-7
				03	RI/FS	FF	12/17/93			1	1996	new
4	FL	Kassauf-Kimerling Battery Disposal (once listed as Timber Lake Battery Disposal)	Tampa	02	RA	PRP	09/02/94			4	1995	new
4	FL	Munisport Landfill	North Miami	01	RA	PRP	07/12/94			2	1995	new
4	FL	Northwest 58th Street Landfill (Part of Biscayne Aquife	Hialeah	01	RA	PRP	03/22/90	1	1995	3	1995	-2
4	FL	PEELE-DIXIE WELLFIELD SITE	NEED TO IDENTIFY	01	RI/FS	F	02/16/94			2	1996	new
4	FL	Pensacola Naval Air Station	Pensacola	01	RI/FS	FF	11/01/90	2	1996	2	1996	0
				02	RI/FS	FF	10/15/90	3	1996	3	1996	0
				03	RI/FS	FF	10/15/90	3	1996	3	1996	0
				04	RI/FS	FF	10/15/90	4	1996	4	1996	0
				05	RI/FS	FF	10/15/90	3	1996	3	1996	0
				06	RI/FS	FF	10/15/90	3	1996	1	1996	2
				07	RI/FS	FF	10/15/90	2	1996	2	1996	0
				08	RI/FS	FF	10/15/90	3	1996	3	1996	0

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
				10	RI/FS	FF	06/24/91	4	1994	2	1996	-6
				11	RI/FS	FF	10/01/91	3	1996	3	1996	0
				12	RI/FS	FF	10/01/91	2	1996	2	1996	0
				13	RI/FS	FF	10/01/91	1	1997	1	1997	0
				14	RI/FS	FF	10/01/91	4	1996	4	1996	0
				15	RI/FS	FF	11/29/93			4	1997	new
				16	RI/FS	FF	11/29/93			4	1997	new
				17	RI/FS	FF	11/29/93			4	1997	new
4	FL	Pepper Steel & Alloys, Inc.	Medley	01	RA	PRP	03/26/87	4	1994	4	1995	-4
4	FL	Petroleum Products Corp.	Pembroke Park	01	RA	PRP	06/10/93	2	1996	2	1995	4
				02	RI/FS	F	09/15/89	2	1995	3	1996	-5
4	FL	Pickettville Road Landfill	Jacksonville	02	RA	PRP	09/30/93			1	1996	DNE
4	FL	Sapp Battery Salvage	Cottondale	01	RA	PRP	03/10/93	3	1995	3	1996	-4
				02	RI/FS	F	09/30/90	4	1995	4	1995	0
4	FL	Schuylkill Metal Corp.	Plant City	01	RA	PRP	06/24/92	1	1995	3	1996	-6
				01	RA	PRP	09/17/93	1	1995	3	1995	-2
				01	RA	PRP	06/07/94			1	1997	new
4	FL	Sherwood Medical Industries	Deland	03	RI/FS	PRP	06/25/93	3	1994	2	1995	-3
4	FL	Sixty-Second Street Dump	Tampa	01	RA	PRP	02/11/93	4	1995	4	1995	0
4	FL	Standard Auto Bumper Corp.	Hialeah	01	RA	F*	09/29/93	1	1996	1	1995	4
4	FL	Stauffer Chemical Co (Tarpon Springs)	Tarpon Springs	01	RI/FS	PRP	07/28/92	1	1995	2	1995	-1
4	FL	Stauffer Chemical Co. (Tampa Plant)	Tampa	01	RI/FS	PRP	09/02/92	1	1995	3	1995	-2
				02	RI/FS	PRP	12/12/92	2	1995	4	1995	-2
4	FL	Sydney Mine Sludge Ponds	Brandon	01	RA	PRP	06/20/94			3	1995	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
4	FL	Taylor Road Landfill	Seffner	01	RI/FS	PRP	02/01/93	4	1995	4	1995	0
4	FL	Tower Chemical Co.	Clermont	02	RI/FS	F	03/22/94			4	1995	new
4	FL	Whitehouse Oil Pits	Whitehouse	01	RI/FS	F	04/15/94			4	1995	new
4	FL	Wingate Road Municipal Incinerator Dump	Fort Lauderdale	01	RI/FS	PRP	09/27/91	4	1994	2	1995	-2
4	FL	Zellwood Ground Water Contamination	Zellwood	01	RA	F	09/21/92	3	1994	2	1995	-3
				02	RI/FS	F	02/19/93	2	1995	4	1995	-2
4	GA	Firestone Tire & Rubber Co.	Albany	01	RA	PRP	07/27/94			2	1995	new
4	GA	Marine Corps Logistics Base	Albany	01	RI/FS	FF	07/23/91	3	1995	3	1996	-4
				02	RI/FS	FF	07/23/91	3	1995	3	1996	-4
				03	RA	FF	11/29/93			2	1998	new
				04	RI/FS	FF	09/15/92	4	1994	1	1996	-5
				05	RI/FS	FF	06/20/93			1	1996	DNE
4	GA	Robins Air Force Base (Landfill #4/ Sludge Lagoon)	Houston County	01	RA	FF	12/31/91	4	1995	4	1996	-4
				03	RI/FS	FF	05/06/91	1	1995	1	1996	-4
4	GA	T.H. Agriculture & Nutrition Co.	Albany	02	RI/FS	PRP*	01/20/93	4	1994	3	1995	-3
4	GA	Woolfolk Chemical Works, Inc.	Fort Valley	02	RI/FS	PRP	04/24/90			4	1995	DNE
4	KY	Brantley Landfill	Calvert City	01	RI/FS	PRP	01/10/90	3	1994	1	1995	-2
4	KY	Distler Brickyard	West Point	01	RA	F	09/28/88	4	1996	4	1996	0
4	KY	Fort Hartford Coal Co. Stone Qurry	Olaton	01	RI/FS	PRP	09/20/89	4	1994	4	1994	0

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
4	KY	Green River Disposal, Inc.	Macco	01	RI/FS	PRP	05/22/90	3	1994	1	1995	-2
4	KY	National Electric Coil/Cooper Industries	Dayhoit	01	RA	PRP	02/25/93	3	1995	3	1995	0
4	KY	Paducah Gaseous Diffusion Plant (USDOE)	Paducah	01	RI/FS	FF	04/10/89	4	1999	4	1999	0
				02	RA	FF	03/24/94			4	1995	new
				04	FS	FF	08/12/93			2	1995	DNE
				05	RI/FS	FF	09/10/92	3	1998	3	1998	0
				07	RI/FS	FF	07/09/93	4	1999	4	1999	0
				10	RI/FS	FF	04/27/93	4	1999	4	1999	0
				11	RI/FS	FF	06/28/93	3	1999	3	1999	0
				12	RI/FS	FF	01/28/94			2	1999	new
				13	RI/FS	FF	07/25/94			4	1999	new
4	KY	Red Penn Sanition Co. Landfill	Peewee Valley	01	RI/FS	F	08/18/89	3	1994	4	1994	-1
4	KY	Smith's Farm	Brooks	01	RA	PRP	05/20/93	3	1995	2	1996	-3
4	KY	Tri-City Disposal Co.	Shepherdsville	01	RA	PRP	06/22/93	4	1995	1	1995	3
4	MS	CHEMFAX, INC.	NEED TO IDENTIFY	01	RI/FS	F	09/07/94			4	1996	new
4	NC	Aberdeen Pesticide Dumps	Aberdeen	05	RI/FS	PRP	03/21/94			1	1996	new
4	NC	BATTERY TECH (DURACELL-LEXINGT	NEED TO IDENTIFY	01	RI/FS	F	09/09/94			4	1995	new
4	NC	Camp Lejeune Military Reservation (Marine Corp Base)	Onslow County	01	RA	FF	09/30/93			1	1995	DNE
				05	RI/FS	FF	08/21/91	1	1995	3	1995	-2
				07	RI/FS	FF	06/08/94			3	1996	new
				08	RI/FS	FF	06/30/93	2	1995	1	1996	-3
				09	RI/FS	FF	12/02/91	3	1995	1	1996	-2
				10	RI/FS	FF	04/13/92	4	1996	4	1996	0
				11	RI/FS	FF	06/30/93	4	1995	3	1995	1
				12	RI/FS	FF	04/04/94			1	1996	new
				13	RI/FS	FF	04/04/94			1	1996	new

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4	NC	Cape Fear Wood Preserving	Fayetteville	01	RA	F	09/29/94			2	2000	new
4	NC	Charles Macon Lagoon & Drum Storage	Cordova	01	RA	PRP	06/28/94			1	2000	new
4	NC	Chemtronics, Inc.	Swannanoa	01	RA	PRP	06/10/91	4	1994	4	1995	-4
4	NC	FCX, Inc. (Statesville Plant)	Statesville	02	RI/FS	F	07/20/93	3	1994	1	1995	-2
				03	RI/FS	PRP	06/25/93	1	1995	3	1995	-2
4	NC	GENERAL ELECTRIC CO./SHEPHERD	NEED TO IDENTIFY	01	RI/FS	F	12/21/93			4	1995	new
4	NC	Martin-Marietta, Sodyeco, Inc.	Charlotte	01	RA	PRP	09/25/89	2	1999	2	1999	0
4	NC	National Starch & Chemical Corp.	Salisbury	01	RA	PRP	06/27/90	2	1999	2	1999	0
4	NC	Potter's Septic Tank Service Pits	Maco	01	RA	F	09/23/94			1	1997	new
4	SC	Beaunit Corp. (Circular Knit and Dye)	Fountain Inn	01	RI/FS	PRP	02/21/92	2	1994	2	1994	0
4	SC	Calhoun Park/Ansonborough Home	Charleston	01	RI/FS	PRP	01/22/93	1	1995	3	1995	-2
4	SC	Carolawn, Inc.	Fort Lawn	01	RA	PRP	05/12/93	4	1994	2	1995	2
				02	RI/FS	EP	04/12/94			2	1995	new
4	SC	Elmore Waste Disposal	Greer	01	RA	F	07/29/94			2	1995	new
4	SC	Geiger (C & M Oil)	Rantoules	01	RA	F	03/31/92	3	1994	4	1994	-1
				02	RA	F	01/19/94			1	1996	new
4	SC	Golden Strip Septic Tank Service	Simpsonville	01	RA	PRP	02/28/94			2	1995	new

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4	SC	Koppers Co., Inc (Florence Plant)	Florence	01	RI/FS	PRP	02/29/88	2	1994	4	1994	-2
4	SC	Koppers Co., Inc. (Charleston Plant)	Charleston	01	RI/FS	PRP	01/14/93	1	1995	2	1995	-1
4	SC	Leonard Chemical Co., Inc.	Rock Hill	01	RI/FS	PRP	12/13/90	4	1994	1	1995	-1
4	SC	Medley Farm Drum Dump	Gaffney	01	RA	PRP	09/30/93			4	1995	DNE
4	SC	Palmetto Recycling, Inc.	Columbia	01	RI/FS	F	05/06/92	3	1994	1	1995	-2
4	SC	Palmetto Wood Preserving	Dixiana	02	RA	F	09/25/89	4	1994	4	1995	-4
4	SC	SCRDI Bluff Road	Columbia	01	RA	PRP	06/22/94			4	1994	new
4	SC	Sangamo Weston, Inc./Twelve-Mile Creek/Lake Hartwel PCB	Pickens	01	RA	PRP	11/22/93			4	1994	new
4	SC	Savannah River Site (USDOE)	Aiken	04	RI/FS	FF	02/28/90	4	1994	4	1996	-8
				05	RI/FS	FF	02/28/90	4	1994	4	1996	-8
				08	RI/FS	FF	08/06/90	1	1994	2	1995	-5
				09	RI/FS	FF	12/06/90	1	1994	2	1995	-5
				10	RI/FS	FF	01/09/91	3	1993	3	1995	-8
				11	RI/FS	FF	03/06/91	3	1997	3	1997	0
				12	RI/FS	FF	05/08/91	3	1999	1	1997	10
				13	RI/FS	FF	06/07/91	1	2000	4	1996	13
				14	RI/FS	FF	07/01/91	2	1999	3	1996	11
				15	RI/FS	FF	07/01/91	4	1999	3	1996	13
				16	RI/FS	FF	03/06/91	3	1997	4	1996	3
				17	RI/FS	FF	05/08/91	2	1999	2	1997	8
				18	RI/FS	FF	07/01/91	2	1999	2	1997	8
				19	RI/FS	FF	08/05/91	2	1999	4	1997	6
				20	RI/FS	FF	10/31/91	3	1999	1	1998	6
				21	RI/FS	FF	10/28/91	3	1999	1	1999	2
				22	RI/FS	FF	03/25/92	4	1999	3	1997	9
				23	RI/FS	FF	10/21/91	4	1999	3	1997	9
				24	RI/FS	FF	02/25/92	1	2000	4	1997	9
				25	RI/FS	FF	02/05/92	1	2000	4	1998	5
				26	RI/FS	FF	07/15/92	2	1999	1	1998	5
				27	RI/FS	FF	08/15/92	2	1999	4	1996	10

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
				28	RI/FS	FF	09/15/92	2	1999	2	1998	4
				30	RI/FS	FF	09/06/90	3	1993	4	1994	-5
				31	RI/FS	FF	07/16/90	2	1994	3	1998	-17
				32	RI/FS	FF	08/06/90	2	1994	1	1997	-11
				33	RA	FF	09/23/94			4	1994	new
				34	RA	FF	09/23/94			4	1994	new
				36	RI/FS	FF	12/29/89			1	1996	DNE
				37	RI/FS	FF	08/05/91			1	1996	DNE
				44	RI/FS	FF	12/29/89			4	1999	DNE
4	SC	Wamchem, Inc.	Burton	01	RA	PRP	12/04/92	3	1994	4	1995	-5
4	TN	American Creosote Works, Inc. (Jackson Plant)	Jackson	02	RI/FS	F	12/29/89	4	1994	1	1994	3
				03	RI	F	07/01/93	4	1994	2	1995	-2
4	TN	Mallory Capacitor Co.	Waynesboro	01	RA	PRP	06/08/93	1	1995	3	1996	-6
4	TN	Milan Army Ammunition Plant	Milan	01	RA	FF	11/15/93			1	1998	new
				03	RI/FS	FF	10/01/89	1	1996	1	1996	0
				04	RI/FS	FF	10/01/89	1	1995	1	1996	-4
				05	RI/FS	FF	10/01/89	1	1996	1	1996	0
				06	RI/FS	FF	10/01/89	1	1996	1	1996	0
				07	RI/FS	FF	10/01/89	1	1996	1	1996	0
				08	RI/FS	FF	10/01/89	1	1996	1	1996	0
				09	RI/FS	FF	10/01/89	1	1996	1	1996	0
				10	RI/FS	FF	10/01/89	1	1996	1	1996	0
				11	RI/FS	FF	10/01/89	1	1996	1	1996	0
				12	RI/FS	FF	07/23/90	1	1996	1	1996	0
				13	RI/FS	FF	11/26/91	1	1996	1	1996	0
4	TN	North Hollywood Dump	Memphis	01	RA	PRP	09/27/93	4	1995	4	1996	-4
4	TN	Oak Ridge Reservation (USDOE)	Oak Ridge	03	RI/FS	FF	12/29/89	1	1992	1	1992	0
				03	RA	FF	11/01/91	4	1995	4	1995	0
				04	RI/FS	FF	03/31/90	4	1997	4	1997	0
				05	RI/FS	FF	03/31/90	4	1999	4	1999	0
				07	RI/FS	FF	06/05/90	4	1998	4	1998	0
				09	RI/FS	FF	06/05/90	3	1998	3	1998	0
				10	RI/FS	FF	06/05/90	3	1995	3	1995	0
				12	RI/FS	FF	01/03/90	3	1999	3	1999	0
				13	RI/FS	FF	06/09/90	1	2000	1	2001	-4

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				14	RI/FS	FF	10/25/86	4	1999	3	1997	9
				15	RI/FS	FF	09/14/90	1	1999	1	1999	0
				16	RA	FF	07/13/94			1	1997	new
				19	RI/FS	FF	10/25/86	2	1996	1	1999	-11
				20	RI/FS	FF	07/16/90	1	1998	1	1998	0
				21	RI/FS	FF	12/28/90	2	1998	2	1998	0
				22	RI/FS	FF	12/28/90	3	1999	3	1999	0
				23	RI/FS	FF	01/14/91	3	1999	4	1999	-1
				24	RI/FS	FF	03/31/90	1	2000	3	1995	18
				25	RI/FS	FF	10/25/86	3	1999	4	1999	-1
				26	RI/FS	FF	08/31/92	1	1996	1	1996	0
				27	RI/FS	FF	10/02/91	3	1996	4	1996	-1
				29	RI/FS	FF	02/01/93	1	1996	1	1996	0
				30	RI/FS	FF	10/04/93			4	1999	new
				31	RI/FS	FF	09/23/93	4	1998	4	1998	0
				32	RI/FS	FF	09/30/93			2	1999	DNE
				33	RI/FS	FF	10/25/86	2	1995	2	1996	-4
				34	RI/FS	FF	12/02/92	4	1999	4	1999	0
				35	RI/FS	FF	02/02/94			4	1999	new
				36	RI/FS	FF	03/31/94			4	1999	new
				37	RI/FS	FF	03/30/90			1	1998	DNE
				38	RI/FS	FF	12/30/91			3	1995	DNE
4	TN	USA DEFENSE DEPOT MEMPHIS	NEED TO IDENTIFY	01	RI/FS	FF	01/11/94			3	1996	new
				02	RI/FS	FF	02/09/94			3	1996	new
				03	RI/FS	FF	03/10/94			3	1996	new
				04	RI/FS	FF	05/09/94			3	1996	new
4	TN	Velsicol Chemical Corp. (Hardeman County)	Toone	02	RI/FS	PRP	11/04/91	1	1995	1	1995	0
4	TN	Wrigley Charcoal Plant	Wrigley	01	RA	F*	09/29/93	4	1994	1	1995	-1
5	IL	AMOCO CHEMICAL (JOLIET LANDFIL	NEED TO IDENTIFY	01	RI/FS	PS	04/07/94			3	1996	new
5	IL	Acme Solvent Reclaiming, Inc.	Morristown	03	RA	PRP	09/20/94			1	1995	new
				06	RA	PRP	09/29/94			1	2000	new
				07	RA	PRP	06/13/94			1	1995	new

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5	IL	Beloit Corp.	Rockton	01	RI/FS	PS	09/27/90	2	1995	2	1996	-4
5	IL	Byron Salvage Yard	Byron	03	RA	F	09/04/92	2	1999	2	1999	0
				04	RI/FS	EP	12/29/89	1	1994	3	1995	-6
5	IL	Central Illinois Public Service Co.	Taylorville	01	RI/FS	PS	09/12/90	4	1992	4	1992	0
				01	RA	PS	02/22/94			2	1995	new
5	IL	Cross Brothers Pail Recycling	Pembroke Township	01	RA	PRP	09/21/93	4	1995	4	1995	0
5	IL	DuPage County Landfill/Blackwell Forest Preserve)	Warrenville	01	RI/FS	PRP	09/29/89	1	1995	3	1995	-2
5	IL	H.O.D. Landfill	Antioch	01	RI/FS	PRP	08/20/90	1	1995	3	1995	-2
5	IL	Ilada Energy Co.	East Cape Girardeau	01	RI/FS	PRP	06/19/89	2	1993	2	1993	0
5	IL	Interstate Pollution Control, Inc.	Rockford	01	RI/FS	PS	09/27/90	3	1995	3	1995	0
5	IL	Joliet Army Ammunition Plant (Manufacturing Area)	Joilet	01	RI/FS	FF	06/09/89	4	1995	2	1995	2
5	IL	Joliet Army Ammunition Plant(Load-Assembly-Packing Area	Joliet	01	RI/FS	FF	06/09/89	4	1995	4	1995	0
5	IL	Kerr-McGee (Kress Creek/West Branch of Dupage River)	DuPage County	01	RI/FS	F	09/30/92	4	1995	3	1996	-3
5	IL	Kerr-McGee (Reed-Keppler Park)	West Chicago	01	RI/FS	F	05/20/92	3	1995	4	1996	-5
5	IL	Kerr-McGee (Residential Areas)	West Chicago/DuPage Cnty	01	RI/FS	F	09/17/93			4	1997	DNE
5	IL	Kerr-McGee (Sewage Treat Plant)	West Chicago	01	RI/FS	F	05/20/92	3	1995	4	1996	-5

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
5	IL	LaSalle Electric Utilities	LaSalle	02	RA	S	04/11/89	1	1994	1	2005	-44
5	IL	Lenz Oil Service, Inc.	Lemont	01	RI/FS	PRP	09/29/89	1	1995	3	1995	-2
5	IL	NL Industries/Taracorp Lead Smelter	Granite City	01	RA	F	09/30/92	4	1997	4	1997	0
				01	RI/FS	F	09/30/93			1	1995	DNE
5	IL	Ottawa Radiation Areas	Ottawa	01	RI/FS	F	03/26/93	2	1996	2	1996	0
5	IL	Outboard Marine Corp.	Waukegan	02	RI/FS	PRP	09/26/90	1	1996	1	1996	0
				03	RA	PRP	06/27/93	4	1994	2	1995	-2
5	IL	Pagel's Pit	Rockford	02	RI/FS	PRP	08/13/91	4	1993	1	1995	-5
5	IL	Parsons Casket Hardware Co.	Belvidere	01	RI/FS	S	09/29/88	1	1994	1	1995	-4
5	IL	Sangamo Electric Dump/Crab Orchard National Wildlife Refuge (USDOI)	Carterville	01	RA	FF	06/30/93	4	1996	4	1996	0
				03	RI/FS	FF	09/13/91	1	1995	2	1996	-5
				04	RI/FS	FF	09/13/91	1	1995	3	1996	-6
5	IL	Savanna Army Depot Activity	Savanna	01	RA	FF	10/22/92	1	1994	1	1995	-4
				02	RI/FS	FF	09/29/89	1	1995	1	1995	0
5	IL	Southeast Rockford Ground Water Contamination	Rockford	01	RI/FS	S	07/10/89	1	1995	2	1995	-1
5	IL	Wauconda Sand & Gravel	Wauconda	02	RA	PRP	09/30/91	1	1994	1	1995	-4
5	IL	Yeoman Creek Landfill	Waukegan	01	RI/FS	PRP	12/22/89	4	1994	2	1995	-2
5	IN	Carter Lee Lumber Co.	Indianapolis	01	RI/FS	F	04/09/92	2	1995	2	1995	0
5	IN	Columbus Old Municipal Landfill #1	Columbus	01	RA	PS	10/22/93			1	1995	new
5	IN	Continental Steel Corp.	Kokomo	01	RI/FS	S	05/25/90	2	1994	1	1998	-15
				02	RI/FS	S	08/26/91	1	1995	2	1996	-5
				03	RI/FS	S	03/27/92	2	1995	2	1996	-4

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5	IN	Douglas Road/Uniroyal, Inc., Landfill	Mishawaka	01	RI/FS	F	06/02/93	3	1995	3	1995	0
5	IN	Fort Wayne Reduction Dump	Fort Wayne	01	RA	PRP	09/20/90	1	1995	2	1995	-1
5	IN	Galen Meyer's Dump/Drum Salvage	Osceola	01	RI/FS	S	04/11/89	3	1995	3	1995	0
5	IN	MIDCO I Site	Gary	01	RA	PRP	07/22/93	3	1999	3	1995	16
5	IN	MIDCO II Site	Gary	01	RA	PRP	08/23/93	3	1999	3	1995	16
5	IN	Main Street Well Field	Elkhart	03	RA	PRP	09/30/93			1	1995	DNE
5	IN	Neal's Landfill (Bloomington)	Bloomington	01	RA	PRP	07/07/88	2	1989	2	1989	0
5	IN	Ninth Avenue Dump	Gary	02	RA	PRP	07/16/91	1	1995	1	1995	0
5	IN	Northside Sanitary Landfill, Inc.	Zionsville	01	RA	PRP	09/30/94			2	1999	new
5	IN	Reilly Tar & Chemical Corp. (Indianapolis Plant)	Indianapolis	04	RI/FS	PRP	09/21/92	1	1995	2	1995	-1
				05	RI/FS	PRP	09/21/92	1	1995	2	1995	-1
5	IN	Seymour Recycling Corp.	Seymour	01	RA	PRP	08/17/87	3	1995	3	1995	0
				02	RA	PRP	09/08/89	4	1994	3	1995	-3
5	IN	Southside Sanitary Landfill	Indianapolis	01	RI/FS	PS	09/29/89	1	1995	1	1995	0
5	IN	Tippecanoe Sanitary Landfill, Inc.	Lafayette	01	RI/FS	PRP	03/08/90	1	1995	2	1995	-1
5	IN	Tri-State Plating	Columbus	01	RA	F	03/29/91	2	1999	2	1999	0
5	IN	Wayne Waste Oil	Columbia City	01	RA	PRP	05/09/94			1	1995	new
				01	RA	PRP	06/20/94			2	1995	new

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5	IN	Whiteford Sales & Service/Nationale ase	South Bend	01	RI/FS	F	09/29/89	3	1994	1	1995	-2
5	MI	Adam's Plating	Lansing	01	RA	F	07/07/94			4	1995	new
5	MI	Albion-Sheridan Township Landfill	Albion	01	RI/FS	F	01/07/92	4	1994	1	1995	-1
5	MI	Auto Iron Chemicals, Inc.	Kalamazoo	02	RI/FS	PRP	06/01/90	2	1994	4	1994	-2
5	MI	Bendix Corp./Allied Automotive	St. Joseph	01	RI/FS	PRP	02/13/89	3	1994	3	1996	-8
5	MI	Bofors Nobel, Inc.	Muskegon	01	RA	F	09/25/92	4	1999	1	2000	-1
				02	RI/FS	S	03/31/90	2	1994	2	1996	-8
5	MI	Electrovoice	Buchanan	02	RI/FS	F	09/15/92	1	1995	3	1995	-2
5	MI	Folkertsma Refuse	Grand Rapids	01	RA	PRP	09/30/93			2	1995	DNE
5	MI	Kentwood Landfill	Kentwood	01	RA	PRP	03/17/94			1	1996	new
5	MI	LOWER ECORSE CREEK DUMP	NEED TO IDENTIFY	01	RI/FS	F	03/14/94			4	1996	new
5	MI	Liquid Disposal, Inc.	Utica	01	RA	PRP	09/30/92	1	1998	1	1998	0
5	MI	Metamora Landfill	Metamora	01	RA	PRP	03/30/93	2	1995	2	1995	0
5	MI	North Bronson Industrial Area	Bronson	01	RI/FS	S	06/24/87	1	1995	1	1996	-4
5	MI	OTT/Story/Cordova Chemical Co.	Dalton Township	01	RA	F	09/25/91	4	1995	1	1996	-1
				02	RA	F	09/28/92	2	1996	2	1996	0
5	MI	Organic Chemicals, Inc.	Grandville	01	RA	PRP	02/09/94			3	1995	new
				02	RI/FS	F	04/22/88	3	1995	4	1995	-1
5	MI	Parsons Chemical Works, Inc.	Grand Ledge	01	RI/FS	S	09/29/89	2	1995	2	1996	-4

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5	MI	Rockwell International Corp. (Allegan Plant)	Allegan	01	RI/FS	PRP	06/07/88	1	1995	3	1995	-2
5	MI	Rose Township Dump	Rose Township	01	RA	PRP	09/08/92	1	1996	1	1996	0
5	MI	Roto-Finish Co., Inc.	Kalamazoo	01	RI/FS	PRP	12/18/87	1	1995	3	1995	-2
5	MI	SCA INDEPENDENT LDFL	NEED TO IDENTIFY	01	RI/FS	PS	10/20/93			1	1997	new
5	MI	Shiawassee River	Howell	01	RI/FS	S	06/19/87	3	1994	3	1995	-4
5	MI	Sparta Landfill	Sparta Township	01	RI/FS	PRP	09/23/93	3	1995	4	1997	-9
5	MI	Spartan Chemical Co.	Wyoming	01	RI/FS	S	02/16/94			1	1996	new
5	MI	Spiegelberg Landfill	Green Oak Township	02	RA	PRP	07/19/94			3	1995	new
5	MI	Sturgis Municipal Wells	Sturgis	01	RA	PRP	05/12/93	1	1995	1	2000	-20
5	MI	Thermo-Chem, Inc.	Muskegon	02	RI/FS	PRP	09/21/87	3	1993	3	1993	0
5	MI	U.S. Aviex	Howard Township	01	RA	F	09/27/91	3	1994	1	1995	-2
5	MN	Arrowhead Refinery Co.	Hermantown	01	RA	PRP	08/15/90	1	1994	1	1996	-8
5	MN	Burlington Northern (Brainerd/Baxter Plant)	Brainerd/Baxter	01	RA	PRP	03/31/87	3	1995	4	1995	-1
5	MN	Koppers Coke	St.Paul	01	RI/FS	PRP	06/29/87	4	1993	4	1993	0
5	MN	Kurt Manufacturing Co.	Fridley	01	RA	PS	12/15/86	4	1994	1	1996	-5
5	MN	Long Prairie Ground Water Contamination	Long Prairie	01	RA	S	04/11/91	2	1997	2	2021	-96
				02	RA	S	04/11/91			2	2021	DNE
				03	RA	S	12/09/93			3	1995	new

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5	MN	MacGillis & Gibbs Co./Bell Lumber & Pole Co.	New Brighton	01	RA	S	09/30/94			3	1996	new
5	MN	Naval Industrial Reserve Ordnance Plant	Fridley	01	RA	FF	06/14/91	4	1999	4	1999	0
				02	RI/FS	FF	03/28/91	2	1995	2	1996	-4
5	MN	Oak Grove Sanitary Landfill	Oak Grove Township	02	RA	PRP	08/05/92	4	1999	4	1999	0
5	MN	Pine Bend Sanitary Landfill (once listed as Pine Bend Sanitary Landfill/Crosby American Demolition Landfill)	Dakota County	01	RA	PS	05/20/93	3	1994	1	1995	-2
5	MN	Reilly Tar & Chemical Corp.	St. Louis Park	02	RA	PRP	09/30/87	4	1999	1	1996	15
				03	RA	PRP	05/09/94			2	1995	new
				04	RA	PRP	04/01/91	4	1999	4	1999	0
				05	RI/FS	PRP	09/04/86	4	1994	2	1995	-2
5	MN	South Andover Site (Andover's Sites)	Andover	02	RA	PRP	06/16/94			3	1995	new
5	MN	University of Minnesota (Rosemount Research Center)	Rosemount	03	RA	PS	06/12/92	4	1994	1	1995	-1
5	MN	Washington County Landfill	Lake Elmo	01	RA	FE	10/18/93			1	1995	new
5	MN	Waste Disposal Engineering	Andover	02	RA	PRP	12/07/92	2	1994	1	1995	3
5	OH	Allied Chemical & Ironton Coke	Ironton	01	RA	PRP	07/15/93	1	1995	2	1995	-1
5	OH	Alsco Anaconda	Gnadenhutten	01	RA	PRP	09/30/91	1	1995	1	1996	-4
				02	RA	PRP	09/28/94			1	1996	new
5	OH	Big D Campground	Kingsville	01	RA	PRP	05/11/94			1	2016	new
				02	RA	PRP	09/24/92	4	1994	1	1995	-1

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5	OH	Coshocton Landfill	Franklin Township	01	RA	PRP	12/03/93			2	1996	new
5	OH	Dover Chemical Corp.	Dover	01	RI/FS	PRP	08/24/88	1	1995	2	1996	-5
5	OH	Feed Materials Production Center (USDOE)	Fernald	02	RI/FS	FF	04/09/90	3	1995	3	1995	0
				03	RI/FS	FF	04/09/90	2	1996	2	1996	0
				05	RI/FS	FF	04/09/90	3	1994	2	1995	-3
5	OH	Fields Brook	Ashtabula	02	RI/FS	PRP	03/22/89	2	1995	2	1995	0
				03	RI/FS	PRP	09/26/89	2	1995	2	1995	0
5	OH	Mound Plant (USDOE)	Miamisburg	01	RI/FS	FF	08/06/90	3	1995	3	1995	0
				02	RI/FS	FF	06/21/93	2	1997	3	2000	-13
				05	RI/FS	FF	02/04/93	1	1997	4	1997	-3
				06	RI/FS	FF	07/17/92	4	1999	1	2001	-5
				09	RI/FS	FF	05/22/92	4	1999	1	2008	-33
5	OH	Nease Chemical	Salem	01	RI/FS	PRP	01/27/88	1	1996	3	1995	2
5	OH	New Lyme Landfill	New Lyme	01	RA	F	04/11/88	4	1993	1	1995	-5
5	OH	Pristine, Inc.	Reading	04	RA	PRP	05/30/94			2	1995	new
5	OH	Reilly Tar & Chemical Corp. (Dover Plant)	Dover	01	RI/FS	PRP	03/29/89	2	1994	4	1995	-6
5	OH	Summit National	Deerfield Township	01	RA	PRP	06/22/93	3	1997	3	1997	0
5	OH	United Scrap Lead Co., Inc.	Troy	01	RA	F	09/17/92	4	1993	4	1995	-8
5	OH	Wright-Patterson Air Force Base	Dayton	01	RI/FS	FF	03/21/91	2	1994	3	1994	-1
				02	RI/FS	FF	07/10/92	3	1996	3	1996	0
				03	RI/FS	FF	10/01/92	2	1996	1	1996	1
				04	RI/FS	FF	10/01/92	4	1996	4	1996	0
				05	RI/FS	FF	10/01/92	4	1996	1	1996	3
				06	RI/FS	FF	03/16/93	4	1997	4	1997	0
				08	RI/FS	FF	06/28/94			4	1997	new
				09	RI/FS	FF	01/10/94			3	1998	new
				10	RI/FS	FF	07/28/93	3	1996	3	1996	0

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5	WI	Better Brite Plating Co. Chrome and Zinc Shops	DePere	01	RI/FS	S	09/28/90	2	1996	2	1996	0
				02	RA	F	08/05/91	3	1997	3	1997	0
5	WI	Delavan Municipal Well #4	Delavan	01	RI/FS	PS	09/28/90	3	1994	1	1996	-6
5	WI	Fadrowski Drum Disposal	Franklin	01	RA	PRP	05/21/93	1	1995	2	1994	3
5	WI	Hagen Farm	Stoughton	01	RA	PRP	08/14/91	1	1994	1	1997	-12
5	WI	Hechimovich Sanitary Landfill	Williamstown	02	RI/FS	PS	09/28/90	2	1994	1	1995	-3
5	WI	Kohler Co. Landfill	Kohler	02	FS	PS	07/31/92	3	1994	3	1995	-4
5	WI	Madison Metropolitan Sewerage District	Blooming Grove	01	RI/FS	PRP	09/24/92	1	1995	2	1995	-1
5	WI	Master Disposal Service Landfill	Brookfield	01	RA	PRP	03/29/94			3	1995	new
5	WI	Mid-State Disposal, Inc. Landfill	Cleveland Township	01	RA	PRP	03/22/93	2	1995	2	1995	0
5	WI	Muskego Sanitary Landfill	Muskego	01	RA	PRP	10/07/93			2	1995	new
				02	RI/FS	PRP	08/14/87	2	1994	1	1995	-3
5	WI	National Presto Industries, Inc.	Eau Claire	01	RA	PRP	11/12/93			2	1999	new
				03	RI/FS	PRP	06/04/86	3	1994	3	1995	-4
5	WI	Oconomowoc Electroplating Co., Inc.	Ashippin	01	RA	F	09/30/91	1	1995	2	1995	-1
				01	RA	F	05/12/94			3	1996	new
				02	RI/FS	F	09/20/90	1	1997	1	1997	0
5	WI	Onalaska Municpal Landfill	Onalaska	01	RA	F	02/28/92	4	1994	1	1995	-1
5	WI	Refuse Hideaway Landfill	Middleton	01	RI/FS	S	03/25/93	2	1995	2	1995	0
5	WI	Scrap Processing Co., Inc.	Medford	01	RI/FS	F	05/11/92	2	1995	2	1995	0

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5	WI	Sheboygan Harbor & River	Sheboygan	01	RI/FS	PRP	04/11/86	3	1994	1	1996	-6
5	WI	Spickler Landfill	Spencer	01	RA	PRP	02/23/94			1	1995	new
5	WI	TOMAH MUNICIPAL SAN LDFL	NEED TO IDENTIFY	01	RI/FS	PRP	01/11/94			2	1996	new
5	WI	Tomah Armory	Tomah	01	RI/FS	EP	05/27/93	1	1995	2	1996	-5
5	WI	Tomah Fairgrounds	Tomah	01	RI/FS	EP	05/27/93	1	1995	1	1996	-4
5	WI	Wheeler Pit	La Prairie Township	01	RA	PRP	05/21/92	1	1998	1	1998	0
6	AR	Frit Industries	Walnut Ridge	01	RA	PRP	09/08/83	2	1995	2	1995	0
6	AR	Gurley Pit	Edmondson	01	RA	F	03/29/89	2	1994	1	1995	-3
6	AR	Midland Products	Ola/Birta	01	RA	S	06/29/90	1	1994	1	1995	-4
6	AR	Monroe Auto Equipment Co. (Paragould Pit)	Paragould	01	RI/FS	PRP	06/28/91	1	1995	3	1995	-2
6	AR	Popile, Inc.	El Dorado	01	RI/FS	F	12/27/91	1	1993	1	1995	-8
				01	RA	F	09/27/94			1	1999	new
6	AR	ROGERS ROAD MUNICIPAL LANDFILL	NEED TO IDENTIFY	01	RA	F	01/19/94			2	1995	new
6	AR	Vertac, Inc.	Jacksonville	02	RA	F	09/26/94			2	1996	new
				03	RI/FS	PRP	07/12/89	4	1994	1	1995	-1
				06	RI/FS	F	07/12/89			4	1995	DNE
6	LA	American Cresote Works, Inc (Winnfield)	Winnfield	01	RA	F	09/28/93			1	1996	DNE
6	LA	Bayou Bonfouca	Slidell	02	RA	F	02/04/91	4	1997	4	1997	0
6	LA	Cleve Reber	Sorrento	01	RA	PRP	04/10/92	1	1997	1	1997	0

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6	LA	Combustion, Inc.	Denham Springs	01	RI/FS	PS	10/25/88	1	1995	1	1996	-4
6	LA	Dutchtown Treatment Plant	Ascension Parish	01	RI/FS	PRP	08/07/89	1	1994	1	1995	-4
6	LA	Louisiana Army Ammunition Plant	Doyline	02	RI/FS	FF	01/31/89	2	1994	4	1995	-6
				03	RI/FS	FF	09/30/93			4	1995	DNE
6	LA	OLD CITGO REFINERY(BOSSIER CIT	NEED TO IDENTIFY	01	RI/FS	F	09/22/94			4	1996	new
6	LA	Old Inger Oil Refinery	Darrow	01	RA	S	04/25/86	2	1999	2	1999	0
6	LA	Petro-Processors of Louisiana, Inc.	Scotlandville	01	RA	PRP	06/30/87	4	1997	4	1997	0
6	LA	SOUTHERN SHIPBUILDING, INC.	NEED TO IDENTIFY	01	RI/FS	F	06/24/94			1	1995	new
6	NM	AT & SF (Clovis)	Clovis	01	RA	PRP	08/07/89	4	1998	4	1998	0
6	NM	AT&SF (ALBUQUERQUE)	NEED TO IDENTIFY	01	RI/FS	PRP	06/06/94			4	1995	new
6	NM	Cal West Metals (USSBA)	Lemitar	01	RA	F	09/29/93			2	1995	DNE
6	NM	Cimarron Mining Corp.	Carrizozo	01	RA	EP	08/13/91	1	1994	1	1995	-4
				02	RA	EP	12/20/91	2	1995	2	1995	0
6	NM	Lee Acres Landfill (USDOI)	Farmington	01	RI/FS	FF	02/25/92	4	1994	1	1996	-5
6	NM	South Valley	Albuquerque	02	RA	PRP	10/04/90	2	1994	1	1995	-3
6	NM	United Nuclear Corp.	Church Rock	01	RA	PRP	09/12/89	4	1995	4	1995	0
6	OK	Fourth Street Abandoned Refinery	Oklahoma City	01	RA	F	09/20/94			1	1996	new
6	OK	National Zinc Corp.	Bartlesville	01	RI/FS	F	09/22/92	1	1995	1	1995	0

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6	OK	RAB VALLEY WOOD PRESERVING	NEED TO IDENTIFY	01	RI/FS	F	09/27/94			4	1995	new
6	OK	Sand Springs Petrochemical Complex	Sand Springs	01	RA	PRP	09/16/94			4	1996	new
6	OK	TAR CREEK (OTTAWA COUNTY)	NEED TO IDENTIFY	02	RI	F	08/25/94			1	1995	new
6	OK	Tenth Street Dump/Junkyard	Oklahoma City	01	RA	F	09/28/94			1	1996	new
6	TX	ALCOA (POINT COMFORT)/LAVACA B	NEED TO IDENTIFY	01	RI/FS	PRP	03/31/94			2	1997	new
6	TX	Air Force Plant #4 (General Dynamics)	Fort Worth	01	RI/FS	FF	08/20/90	3	1994	4	1995	-5
6	TX	Bailey Waste Disposal	Bridge City	01	RA	MR	02/19/92	2	1995	3	1996	-5
6	TX	Brio Refining Co., Inc.	Friendswood	01	RA	PRP	06/29/89	2	1997	2	1997	0
6	TX	French, Ltd.	Crosby	01	RA	PRP	06/28/89	4	1996	4	1996	0
				02	RA	PRP	06/28/89	3	1998	3	1998	0
6	TX	Geneva Industries/Fuhrmann Energy	Houston	02	RA	S	03/31/89	4	1999	4	1999	0
6	TX	Lone Star Army Ammunition Plant	Texarkana	01	RI/FS	FF	06/18/90	4	1995	4	1996	-4
				02	RI/FS	FF	06/18/90	4	1995	4	1996	-4
6	TX	Longhorn Army Ammunition Plant	Karnack	01	RI/FS	FF	10/16/91	4	1994	4	1995	-4
				02	RI/FS	FF	10/16/91	4	1994	1	1995	-1
				02	RI/FS	FF	10/16/91			2	1997	DNE
				03	RI/FS	FF	10/16/91	4	1994	3	1995	-3
				03	RI/FS	FF	10/16/91			2	1997	DNE
				04	RI/FS	FF	10/16/91	4	1994	3	1995	-3
				04	RI/FS	FF	10/16/91			2	1997	DNE
				05	RI/FS	FF	10/16/91	4	1994	2	1997	-10
				06	RI/FS	FF	10/16/91			1	1997	DNE

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6	TX	MOTCO, Inc.	La Marque	01	RA	PRP*	12/31/88	3	1996	3	1996	0
				02	RA	PRP	12/13/93			3	1996	new
6	TX	North Calvacade Street	Houston	01	RA	S	09/12/91	3	1996	3	1996	0
				02	RA	S	09/03/93	1	1998	1	1998	0
6	TX	Odessa Chromium #1	Odessa	02	RA	S	09/27/89	2	1997	2	1998	-4
6	TX	Odessa Chromium #2 (Andrews Highway)	Odessa	02	RA	S	03/30/90	2	1997	2	1997	0
				03	RA	PRP	04/18/93	4	1996	2	1998	-6
6	TX	RSR Corp.	Dallas	01	RI/FS	F	05/10/93	3	1994	2	1995	-3
				02	RI/FS	PRP	08/09/93	3	1994	2	1995	-3
				03	RI/FS	F	07/17/93	2	1995	3	1995	-1
				04	RI/FS	F	05/10/93	4	1994	3	1995	-3
				05	RI/FS	F	05/10/93	4	1994	3	1995	-3
6	TX	Sikes Disposal Pits	Crosby	01	RA	S	05/04/89	2	1997	3	1996	3
6	TX	Sol Lynn/Industrial Transformers	Houston	02	RA	S	09/10/91	4	1999	4	1999	0
6	TX	Texarkana Wood Preserving Co.	Texarkana	01	RA	S	05/21/93	4	1999	4	1999	0
6	TX	United Creosoting Co.	Conroe	03	RA	S	09/17/93	1	1996	4	1997	-7
				03	RA	S	09/17/93			2	1998	DNE
7	IA	Des Moines TCE (once listed as DICO)	Des Moines	02	RI/FS	PRP	08/08/89	2	1994	2	1995	-4
				04	RI/FS	PRP	04/15/94			4	1995	new
7	IA	Fairfield Coal Gasification Plant	Fairfield	01	RA	PRP	07/20/92	4	1994	4	1995	-4
7	IA	Iowa Army Ammunition Plant	Middletown	01	RI/FS	FF	09/20/90	2	1995	4	1996	-6
7	IA	Mason City Coal Gasification Plant	Mason City	01	RI/FS	PRP	10/01/91	4	1994	4	1996	-8

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7	IA	Peoples Natural Gas Co.	Dubuque	01	RA	PRP	03/29/94			4	1996	new
7	IA	Sheller-Globe Corp. Disposal	Keokuk	01	RI/FS	PRP	10/18/90	4	1993	2	1995	-6
7	IA	Vogel Paint & Wax	Orange City	01	RA	PS	05/20/91	2	1997	2	1997	0
7	IA	White Farm Equipment Co. Dump	Charles City	01	RA	PRP	06/27/94			3	1995	new
7	KS	29th & Mead Ground Water Contamination	Wichita	01	RI/FS	PS	09/27/89	4	1994	4	1995	-4
7	KS	57TH AND NORTH BROADWAY STREET	NEED TO IDENTIFY	01	RI/FS	F	09/15/94			4	1996	new
7	KS	FOURTH & CAREY SITE	NEED TO IDENTIFY	01	RI/FS	PS	05/03/94			4	1996	new
7	KS	Fort Riley	Junction City	01	RI/FS	FF	08/23/90	1	1995	3	1995	-2
				02	RI/FS	FF	01/22/92	1	1995	3	1996	-6
				03	RI/FS	FF	07/01/93			4	1996	DNE
7	KS	Pester Refinery Co.	El Dorado	02	RI/FS	PS	12/16/93			4	1996	new
7	MO	Kem-Pest Laboratories	Cape Girardeau	02	RA	F	02/10/93	4	1994	4	1996	-8
7	MO	Lake City Army Ammunition Plant (Northwest Lagoon)	Independence	01	RI/FS	FF	08/01/87	2	1996	1	1999	-11
				02	RI/FS	FF	04/21/92	4	1995	4	1996	-4
				03	RI/FS	FF	06/27/90	1	1996	4	1996	-3
				04	RI/FS	FF	09/30/92	3	1996	3	1999	-12
7	MO	Lee Chemical	Liberty	01	RA	PS	12/31/92	1	1994	1	1995	-4
7	MO	Oronogo-Duenweg Mining Belt	Jasper County	01	RI/FS	F	04/24/90	4	1995	3	1996	-3
				01	RI/FS	PRP	08/02/91			3	1996	DNE
7	MO	Quality Plating	Sikeston	01	RI/FS	S	12/31/88	1	1994	1	1995	-4

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7	MO	Solid State Circuits, Inc.	Republic	01	RA	PS	09/27/91	2	1994	2	1994	0
7	MO	St. Louis Airport/Hazelwood Interim Storage/Futura Coat	St. Louis County	01	RI/FS	PRP	06/26/90	2	1995	1	1996	-3
7	MO	Syntex Facility	Verona	01	RA	PRP	09/30/89	4	1994	4	1995	-4
7	MO	Times Beach Site	Times Beach	02	RA	PRP	09/30/94			1	1996	new
7	MO	Weldon Spring Quarry (USDOE/Army)	St. Charles County	05	RI/FS	FF	10/24/91	4	1995	4	1996	-4
7	MO	Weldon Springs Ordnance Works	St. Charles County	01	RI/FS	FF	02/16/90	4	1994	2	1995	-2
7	MO	Westlake Landfill	Bridgeton	01	RI/FS	PRP	03/03/93	2	1995	4	1996	-6
7	NE	10th Street Site	Columbus	01	RI/FS	F	12/08/89	1	1994	4	1994	-3
7	NE	AMERICAN SHIZUKI/OGALLALA ELEC	NEED TO IDENTIFY	01	RI/FS	F	09/29/94			1	1996	new
7	NE	Cleburn Street Well	Grand Island	01	RI/FS	F	09/16/91	1	1995	1	1995	0
7	NE	Cornhusker Army Ammunition Plant	Hall County	01	RI/FS	FF	03/15/90	1	1995	1	1997	-8
7	NE	Hastings Ground Water Contamination	Hastings	05	RI/FS	F	09/30/93			4	1996	DNE
				12	RI/FS	F	08/31/90	3	1994	1	1996	-6
				14	RI/FS	PRP	09/30/91	4	1995	2	1996	-2
				16	RI/FS	PRP	02/11/91	4	1995	2	1996	-2
				17	RI/FS	F	09/30/93			4	1995	DNE
				19	RI/FS	F	03/22/85			3	1999	DNE
7	NE	Lindsay Manufacturing Co.	Lindsay	01	RA	PRP	09/30/92	1	1995	1	2015	-80
				02	RA	PRP	06/20/94			2	1996	new

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7	NE	Nebraska Ordnance Plant (Former)	Mead	01	RI/FS	PRP	09/26/91	4	1993	3	1995	-7
				02	RI/FS	PRP	08/18/92	4	1995	2	1996	-2
7	NE	Waverly Groundwater Contamination	Waverly	01	RA	PRP	12/11/90	4	1994	4	1994	0
8	CO	Air Force Plant PJKS	Watertown	01	RI/FS	FF	02/07/89	4	1999	4	1999	0
8	CO	California Gulch	Leadville	00	RI/FS	F	06/12/92	2	1994	1	1995	-3
				00	FS	PRP	04/07/94			2	1996	new
				01	RA	PRP	03/29/94			1	1995	new
				02	RI/FS	PRP	04/07/87	2	1994	1	1995	-3
				02	RI/FS	PRP	04/07/87	2	1995	2	1995	0
				02	RI/FS	PRP	09/10/93	2	1994	2	1995	-4
				02	RI	FE	08/29/91	2	1993	1	1995	-7
				02	RI	PRP	08/29/91	2	1994	1	1995	-3
				02	RI/FS	PRP	09/15/94			3	1996	new
				03	RI/FS	PRP	08/29/91	3	1993	1	1995	-6
				03	RI/FS	PRP	03/02/94			4	1995	new
				03	RI/FS	PRP	08/17/94			2	1995	new
				03	RI/FS	PRP	12/15/92			2	1995	DNE
				03	FS	FE	03/30/94			2	1995	new
				03	FS	PRP	08/26/94			3	1995	new
				04	RI/FS	PRP	12/01/91	1	1994	1	1995	-4
8	CO	Central City - Clear Creek	Idaho Springs	02	RA	F	03/29/89	4	1991	1	1995	-13
				02	RA	F	09/21/92	4	1993	1	1995	-5
				03	RA	PRP	07/25/94			2	1997	new
				03	RA	S	09/29/93			2	1997	DNE
8	CO	Denver Radium Site	Denver	08	RA	PRP	03/31/93	4	1994	3	1995	-3
				09	RA	F	06/04/92	2	1994	2	1995	-4
8	CO	Eagle Mine	Minturn/Redcliff	01	FS	FE	09/25/90	4	1992	1	1995	-9
				01	RA	PS	09/01/88	4	1994	1	1996	-5
8	CO	Lincoln Park	Canon City	01	FS	F	03/11/92	4	1994	4	1994	0

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8	CO	Rocky Flats Plant (USDOE)	Golden	01	RI	FF	02/06/90	1	1995	2	1996	-5
				02	RA	FF	09/11/92	4	1994	4	1995	-4
				02	RI	FF	04/12/90	4	1995	4	1995	0
				04	RI	FF	06/08/90	3	1995	3	1995	0
				05	RI	FF	04/05/91	4	1999	4	1999	0
				06	RI	FF	04/19/91	4	1999	4	1999	0
				07	RI	FF	06/08/90	1	1996	1	1996	0
				08	RI	FF	05/01/92	4	1999	4	1999	0
				09	RI	FF	06/08/90	3	1996	3	1996	0
				10	RI	FF	11/26/91	3	1996	3	1996	0
				12	RI	FF	05/08/92	4	1999	4	1999	0
				13	RI	FF	05/15/92	4	1999	4	1999	0
				14	RI	FF	06/26/92	4	1999	4	1999	0
				15	RI	FF	05/27/92	4	1999	4	1999	0
				16	RI	FF	09/24/91	4	1999	4	1999	0
8	CO	Rocky Mountain Arsenal	Adams County	02	RI	FF	10/27/87	4	1991	1	1995	-13
				03	RI/FS	FF	02/15/85	2	1995	2	1996	-4
				04	RI/FS	FF	02/15/85	2	1994	3	1995	-5
				15	RA	FF	01/01/90			2	1998	DNE
				21	RA	FF	11/15/91	2	1995	2	1995	0
				22	RA	FF	11/30/90	2	1995	2	1995	0
				25	RA	FF	03/21/91	1	1995	2	1997	-9
				26	RA	FF	11/15/91	4	1994	2	1995	-2
				26	RA	FF	07/15/93			4	1995	DNE
				26	RA	FF	04/14/94			4	1995	new
				26	RA	FF	05/01/94			4	1995	new
8	CO	SUMMITVILLE MINE	NEED TO IDENTIFY	00	RI/FS	F	05/11/93			1	1996	DNE
				00	RI/FS	F	05/11/93			1	1995	DNE
				01	FS	F	06/14/94			1	1995	new
				02	FS	F	06/02/94			1	1995	new
				03	FS	F	09/21/94			4	1995	new
				04	FS	F	06/02/94			2	1995	new
8	CO	Smeltertown Site	Salida	01	RI/FS	F	04/13/93	4	1995	4	1995	0
				02	RI/FS	PRP	08/25/93			2	1997	DNE

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8	CO	Smuggler Mountain	Pitkin County	01	RA	F	09/28/90	4	1991	1	1996	-17
8	MT	Anaconda Co. Smelter	Anaconda	04	RI/FS	PRP	09/30/94			3	1996	new
				07	RA	PRP	05/19/94			3	1998	new
				11	RA	PRP	06/10/93	2	1996	2	1996	0
				16	RI/FS	PRP	09/30/94			1	1996	new
8	MT	East Helena Site	East Helena	01	RA	PRP	03/31/92	3	1999	3	1999	0
				02	RI/FS	PRP	06/23/87	3	1994	1	1998	-14
				03	RI/FS	PRP	06/27/87	3	1995	3	1996	-4
8	MT	Libby Ground Water Contamination	Libby	02	RA	PRP	10/18/89	4	1999	4	1999	0
8	MT	Silver Bow Creek/Butte Area	Silver Bow/Deer Lodge	04	RA	PRP	06/30/92	1	1995	2	1997	-9
				10	RA	F	09/19/94			4	1996	new
				12	RA	PRP	05/18/94			1	1997	new
8	SD	Annie Creek Mine Tailings	Lead	01	RI/FS	PRP	05/11/92	1	1994	4	1999	-23
8	SD	Ellsworth Air Force Base	Rapid City	01	RI/FS	FF	12/11/92	4	1996	4	1996	0
				02	RI/FS	FF	04/12/93	4	1996	4	1996	0
				03	RI/FS	FF	04/05/93	2	1997	2	1997	0
				04	RI/FS	FF	04/12/93	4	1996	4	1996	0
				05	RI/FS	FF	04/05/93	2	1997	2	1997	0
				06	RI/FS	FF	01/24/92	4	1993	3	1996	-11
				07	RI/FS	FF	04/05/93	2	1997	2	1997	0
				08	RI/FS	FF	04/05/93	2	1997	2	1997	0
				09	RI/FS	FF	01/26/93	1	1997	1	1997	0
				10	RI/FS	FF	01/26/93	1	1997	1	1997	0
				11	RI/FS	FF	02/03/94			1	1998	new
				12	RI/FS	FF	01/26/93	1	1997	1	1997	0
8	UT	Hill Air Force Base	Ogden	01	RI/FS	FF	06/28/91	1	1995	3	1996	-6
				05	RI/FS	FF	08/13/91	3	1996	3	1996	0
				06	RI/FS	FF	09/10/92			1	1997	DNE
				07	RI/FS	FF	05/15/92			1	1996	DNE

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8	UT	KENNECOTT - BINGHAM/SOUTH ZONE	NEED TO IDENTIFY	02	RI/FS	PRP	07/29/94			4	1996	new
8	UT	KENNECOTT TAILINGS/NORTH ZONE	NEED TO IDENTIFY	00	RI/FS	PRP	08/16/94			2	1995	new
				01	RI/FS	F	09/14/93			2	1995	DNE
8	UT	MURRAY SMELTER	NEED TO IDENTIFY	00	RI/FS	PRP	08/05/94			4	1996	new
8	UT	Midvale Slag	Midvale	01	RI/FS	S*	08/07/89	1	1994	1	1995	-4
8	UT	Monticello Mill Tailings (USDOE)	Monticello	01	RA	FF	06/22/92	1	1994	1	1994	0
				01	RA	FF	07/31/93	3	1994	3	1994	0
				03	RI/FS	FF	05/31/91	1	1998	1	1998	0
8	UT	Monticello Radioactively Contaminated Properties	Monticello	01	RA	PRP	09/06/84	3	1994	1	1996	-6
				02	RA	F*	11/09/90	2	1996	1	1997	-3
				03	RA	PRP	11/23/93			3	1996	new
				05	RA	FF	01/07/94			2	1998	new
8	UT	Ogden Defense Depot	Ogden	01	RA	FF	09/24/93	4	1996	4	1997	-4
				02	RA	FF	11/15/91	4	1994	2	1995	-2
				02	RA	FF	02/03/92	4	1997	4	1997	0
				03	RA	FF	10/25/93			3	1995	new
				04	RA	FF	11/01/93			1	1997	new
8	UT	Petrochem Recycling Corp./Ekotek Plant	Salt Lake City	01	RI/FS	PRP	07/10/92	2	1995	3	1995	-1
8	UT	SANDY SMELTER SITE	NEED TO IDENTIFY	00	RI/FS	F	11/15/93			1	1995	new
				01	FS	F	11/15/93			1	1995	new
8	UT	Sharon Steel Corp. (Midvale Tailings/Smelters)	Midvale	01	RI/FS	PRP	12/31/84	1	1994	1	1995	-4
				02	RA	F	06/25/92	1	1999	1	1999	0
				02	RA	S	11/22/93			2	1995	new
				02	RA	S	09/20/94			1	1997	new
8	UT	Tooele Army Depot (North Area)	Tooele	02	RI/FS	FF	12/31/91	1	1996	3	1997	-6
				04	RI/FS	FF	07/15/93	3	1996	3	1996	0
				05	RI/FS	FF	09/16/91	1	1995	3	1996	-6
				08	RI/FS	FF	03/19/93	3	1996	3	1996	0

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8	UT	Utah Power & Light/American Barrel Co.	Salt Lake City	01	RA	PRP	07/23/94			2	1995	new
8	UT	Wasatch Chemical Co.	Salt Lake City	01	RA	PRP	09/10/93			4	1995	DNE
8	WY	F.E. Warren Air Force Base	Cheyenne	01	RI/FS	FF	10/22/91	1	1995	3	1995	-2
				02	RI/FS	FF	01/06/94			3	1997	new
				03	RI/FS	FF	01/25/93	3	1995	3	1995	0
				05	RI/FS	FF	06/23/92	1	1995	3	1995	-2
				06	RI/FS	FF	03/09/94			1	1997	new
				07	RI/FS	FF	03/23/94			2	1997	new
				08	RI/FS	FF	01/01/94			2	1996	new
				09	RI/FS	FF	01/01/94			3	1996	new
				10	RI/FS	FF	01/01/94			1	1997	new
9	AZ	Hassayampa Landfill	Hassayampa	01	RA	PRP	04/14/94			1	1995	new
9	AZ	Indian Bend Wash Area	Scottsdale/Tmpe/Phnx	01	RA	PRP	02/20/92	4	1995	4	1995	0
				03	RI/FS	F	03/14/88	1	1995	4	1995	-3
				06	RA	PRP	02/08/94			4	1996	new
				06	RA	PRP	07/11/94			4	1996	new
				07	RI	F	09/26/90	1	1994	4	1997	-15
9	AZ	Luke Air Force Base	Glendale	01	RI/FS	FF	09/27/90	1	1996	3	1996	-2
9	AZ	Phoenix-Goodyear Airport Area	Goodyear	01	RA	PRP	09/30/94			1	1996	new
				01	RA	PRP	04/19/94			2	1995	new
9	AZ	Tucson International Airport Area	Tucson	01	RA	PRP	12/12/91	1	1995	2	1995	-1
				02	RI/FS	PRP	12/11/90	4	1995	2	1996	-2
9	AZ	Williams Air Force Base	Chandler	02	RA	FF	12/31/92	1	1996	1	1996	0
				03	RI/FS	FF	01/19/93	1	1996	2	1996	-1
				05	RI/FS	FF	09/01/93			3	1996	DNE
9	AZ	Yuma Marine Corps Air Station	Yuma	01	RI/FS	FF	09/30/91	4	1996	4	1996	0
				02	RI/FS	FF	09/30/91	3	1997	3	1997	0

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
9	CA	Aerojet General Corp.	Rancho Cordova	01	RI/FS	PRP	09/08/88	4	1996	4	1996	0
9	CA	Atlas Asbestos Mine	Fresno County	01	RA	PRP	06/22/94			2	1996	new
9	CA	Barstow Marine Corps Logistics Base (Nebo Area)	Barstow	01	RI/FS	FF	09/28/90	3	1996	3	1996	0
				02	RI/FS	FF	09/28/90	1	1996	2	1996	-1
				03	RI/FS	FF	09/28/90	2	1997	2	1997	0
9	CA	Brown & Bryant, Inc. (Arvin Plant)	Arvin	02	RI/FS	F	09/30/92	2	1995	2	1997	-8
9	CA	Camp Pendleton Marine Corps Base	San Diego County	01	RI/FS	FF	09/28/90	1	1995	1	1996	-4
				02	RI/FS	FF	09/28/90	3	1995	3	1996	-4
				03	RI/FS	FF	09/28/90	4	1995	4	1996	-4
9	CA	Castle Air Force Base	Merced	01	RI/FS	FF	07/21/89	1	1996	1	1996	0
				02	RA	FF	01/04/93	4	1999	4	1999	0
				03	RA	FF	11/12/93			4	1999	new
				04	RI/FS	FF	12/16/92	4	1995	2	1996	-2
9	CA	Coalinga Asbestos Mine	Coalinga	01	RA	PRP	01/11/94			2	1995	new
9	CA	Cooper Drum Co.	South Gate	01	RI/FS	F	08/12/93	4	1994	1	1997	-9
9	CA	Crazy Horse Sanitary Landfill	Salinas	01	RI/FS	EP	09/18/93	3	1995	4	1995	-1
9	CA	Del Amo Facility	Los Angeles	01	RI/FS	MR*	05/07/92	3	1995	2	1996	-3
				02	RI/FS	PRP	05/07/92	3	1994	1	1996	-6
9	CA	Edwards Air Force Base	Kern County	01	RI/FS	FF	09/26/90	3	1999	4	2004	-21
				02	RI/FS	FF	09/26/90	3	1996	2	1997	-3
				03	RI/FS	FF	12/18/92	2	1998	1	1999	-3
				07	RI/FS	FF	06/03/94			4	1999	new
9	CA	El Toro Marine Corps Air Station	El Toro	01	RI/FS	FF	09/28/90	2	1996	2	1996	0
				02	RI/FS	FF	09/28/90	3	1996	3	1996	0
				03	RI/FS	FF	09/28/90	3	1996	3	1996	0
				04	RI/FS	FF	09/28/90	3	1996	3	1996	0

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
9	CA	Fort Ord	Marina	01	RI/FS	FF	07/23/90	3	1997	3	1997	0
				02	RI/FS	FF	07/23/90	2	1995	3	1995	-1
				04	RA	FF	09/02/94			1	1995	new
				05	RI/FS	FF	07/23/90			3	1995	DNE
9	CA	Frontier Fertilizer	Davis	01	RI/FS	F	08/02/93	3	1996	3	1996	0
9	CA	GBF, Inc., Dump	Antioch	01	RI/FS	PS	07/28/93	3	1995	1	1996	-2
9	CA	George Air Force Base	Victorville	02	RI/FS	FF	09/21/90	2	1994	4	1999	-22
				03	RI/FS	FF	08/27/91	2	1995	2	1996	-4
9	CA	Hewlett Packard (620-640 Page Mill Rd.)	Palo Alto	01	RI/FS	PS	03/16/89	3	1994	1	1995	-2
9	CA	Hunter's Point Annex	San Francisco	01	RI/FS	FF	09/28/90	4	1995	4	1995	0
				02	RI/FS	FF	09/28/90	1	1995	3	1996	-6
				03	RI/FS	FF	09/28/90	2	1995	4	1996	-6
				04	RI/FS	FF	10/01/90	2	1995	1	1997	-7
				05	RI/FS	FF	01/22/91	4	1995	2	1997	-6
9	CA	Iron Mountain Mine	Redding	04	RI/FS	F	04/21/94			3	1996	new
9	CA	J.H. Baxter & Co.	Weed	01	RA	PRP	07/16/92	3	1995	3	1996	-4
9	CA	Jet Propulsion Laboratory (NASA)	Pasadena	01	RI/FS	FF	12/23/92	4	1995	3	1996	-3
				02	RI/FS	FF	07/07/93	2	1996	3	1996	-1
				03	RI/FS	FF	04/29/94			4	1996	new
9	CA	Koppers Co., Inc. (Oroville Plant)	Oroville	01	RA	PRP	08/27/93	2	1994	1	1996	-7
				01	RA	PRP	09/17/93	2	1994	1	1996	-7
9	CA	Lawrence Livermore National Laboratory	Livermore	01	RI/FS	FF	06/29/92	3	1995	1	1997	-6
				02	RI/FS	FF	06/29/92	3	1995	4	1995	-1
				03	RI/FS	FF	06/29/92	4	1995	4	1996	-4
				04	RI/FS	FF	06/29/92	1	1996	1	1998	-8
				05	RI/FS	FF	06/29/92	1	1996	4	1997	-7
				06	RI/FS	FF	06/29/92	2	1996	2	1997	-4

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9	CA	Lawrence Livermore National Laboratory (USDOE)	Livermore	01	RA	FF	08/05/92	1	1997	1	2000	-12
9	CA	Liquid Gold Oil Corp.	Richmond	01	RA	PS	01/11/94			1	1995	new
9	CA	Louisiana-Pacific Corp.	Oroville	01	RA	PRP	05/26/92	3	1995	1	1996	-2
9	CA	MGM Brakes	Cloverdale	01	RA	PRP	01/29/91	1	1994	4	1995	-7
9	CA	March Air Force Base	Riverside	01	RI/FS	FF	09/27/90	1	1997	1	1997	0
				02	RI/FS	FF	09/27/90	4	1994	1	1995	-1
				03	RI/FS	FF	08/06/91	3	1995	1	1996	-2
				04	RI/FS	FF	01/24/92	2	1996	3	1997	-5
9	CA	Mather Air Force Base (AC & W Disposal Site)	Sacramento	01	RI/FS	FF	06/06/91	3	1995	1	1996	-2
				02	RI/FS	FF	07/21/89	4	1994	3	1995	-3
				03	RA	FF	06/21/94			1	1996	new
9	CA	McClellan Air Force Base (Ground Water Contamination)	Sacramento	01	RI/FS	FF	07/21/89	4	1994	2	1995	-2
				04	RI/FS	FF	07/21/89	4	1997	1	2001	-13
				05	RI/FS	FF	08/21/90	4	1999	1	2001	-5
				06	RI/FS	FF	11/23/92	1	1995	3	1996	-6
				08	RI/FS	FF	01/13/93	1	1995	3	1996	-6
				09	RI/FS	FF	07/21/89			3	1996	DNE
9	CA	McColl	Fullerton	01	RA	S	06/11/84	4	1991	4	1991	0
9	CA	McCormic and Baxter Creosoting Co.	Stockton	01	RI/FS	F	06/30/92	1	1995	2	1997	-9
				02	RI/FS	F	03/24/93	2	1995	1	1996	-3
9	CA	Modesto Ground Water Contamination	Modesto	01	RI/FS	F	03/21/91	3	1994	2	1995	-3
9	CA	Moffett Naval Air Station	Sunnyvale	01	RI/FS	FF	08/08/89	1	1995	1	1996	-4
				02	RI/FS	FF	08/08/89	1	1995	2	1995	-1
				05	RI/FS	FF	08/08/89	1	1995	1	1996	-4
				06	RI/FS	FF	08/08/89	4	1995	4	1996	-4
				06	RI	FF	07/06/92			4	1995	DNE

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
9	CA	Monolithic Memories	Sunnyvale	01	RA	PS	09/11/91			1	1995	DNE
9	CA	Montrose Chemical Corp.	Torrance	01	RI/FS	PRP	10/10/86	2	1994	1	1996	-7
9	CA	National Semiconductor Corp.	Santa Clara	01	RA	PS	09/11/91			3	1995	DNE
9	CA	Newmark Ground Water Contamination	San Bernadino	02	RI/FS	F	09/25/92	2	1995	3	1995	-1
				03	RI/FS	F	02/09/94			1	1997	new
9	CA	Norton Air Force Base	San Bernardino	01	RA	FF	09/16/94			4	1995	new
				02	RI/FS	FF	06/29/89	1	1994	3	1996	-10
				03	RI/FS	FF	02/14/91	1	1995	3	1996	-6
9	CA	Operating Industries, Inc., Landfill	Monterey Park	01	RI/FS	F	09/15/89	1	1995	1	1997	-8
				02	RA	PRP	07/18/91	2	1994	3	1995	-5
9	CA	Purity Oil Sales, Inc.	Malaga	01	RA	PRP	06/29/93	4	1995	4	1995	0
9	CA	Ralph Gray Trucking Co.	Westminster	02	RI/FS	F	06/19/93	1	1996	1	1996	0
9	CA	Sacramento Army Depot	Sacramento	01	RI/FS	FF	12/16/88	4	1996	4	1996	0
				02	RA	FF	02/16/90	4	1999	4	2005	-24
				05	RA	FF	04/08/94			2	1996	new
9	CA	San Fernando Valley (Area 1)	Los Angeles	01	RI	PRP	02/18/94			1	1995	new
				03	RA	PRP	11/22/93			2	1996	new
9	CA	San Fernando Valley (Area 4)	Los Angeles	02	RI/FS	F	09/28/92	4	1995	4	1995	0
9	CA	San Gabriel Valley (Area 1)	El Monte	00	RI/FS	F	06/13/84			1	1997	DNE
9	CA	San Gabriel Valley (Area 4)	La Puente	01	RI/FS	PRP	09/30/93			1	1997	DNE
9	CA	Selma Treating Co.	Selma	01	RA	F	07/22/92	4	1996	4	1996	0

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9	CA	Sharpe Army Depot	Lathrop	02	RI/FS	FF	03/16/89			1	1996	DNE
9	CA	South Bay Asbestos Area (Alviso Dumping Area)	Alviso	01	RA	PRP	10/15/93			1	1997	new
9	CA	South Bay Basin	Silicon Valley	01	RI/FS	F	01/28/87	4	1991	4	1991	0
9	CA	Stoker Company	Imperial	01	RI/FS	F	05/01/92	2	1995	4	1996	-6
9	CA	Stringfellow	Glen Avon Heights	04	RA	PRP	09/23/93	2	1994	1	1995	-3
				05	RI/FS	S	10/01/90	4	1995	4	1996	-4
9	CA	Sulphur Bank Mercury Mine	Clear Lake	01	RI/FS	EP	09/28/90	4	1994	2	1995	-2
				02	RI/FS	F	11/18/91	3	1996	3	1996	0
				03	RI/FS	EP	09/28/90	4	1994	2	1995	-2
9	CA	T.H. Agriculture & Nutrition Co. (Thompson-Haywood Chem	Fresno	01	RI/FS	PS	02/06/87	3	1994	1	1995	-2
9	CA	Tracy Defense Depot	Tracy	01	RI/FS	FF	06/27/91	4	1996	1	1997	-1
				02	RA	FF	08/12/93	4	1995	2	1996	-2
9	CA	Travis Air Force Base	Solano County	01	RI/FS	FF	09/28/90	2	1996	2	1997	-4
				02	RI/FS	FF	04/01/94			4	1996	new
				03	RI/FS	FF	05/19/94			1	1998	new
9	CA	United Heckathorn Co.	Richmond	01	RI/FS	F	09/26/91	4	1994	1	1995	-1
9	CA	Watkins-Johnson Co. (Stewart Division)	Scotts Valley	01	RA	PRP	07/16/91	4	1994	1	1995	-1
9	CA	Westinghouse Electric Corp. (Sunnyvale Plant)	Sunnyvale	01	RA	PRP	06/28/94			2	1996	new
9	HI	PEARL HARBOR NAVAL COMPLEX	NEED TO IDENTIFY	01	RI/FS	FF	09/30/93			1	1999	DNE
				02	RI/FS	FF	09/30/93			1	1997	DNE
				03	RI/FS	FF	09/30/93			1	1998	DNE
				04	RI/FS	FF	09/30/93			1	1999	DNE
				05	RI/FS	FF	09/30/93			1	1999	DNE
				06	RI/FS	FF	09/30/93			1	1999	DNE
				07	RI/FS	FF	09/30/93			1	1999	DNE

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
				08	RI/FS	FF	09/30/93			2	1999	DNE
				10	RI/FS	FF	08/23/94			2	1999	new
9	HI	Schofield Barracks	Oahu	01	RI/FS	FF	09/27/91	4	1995	1	1997	-5
				02	RI/FS	FF	09/27/91	3	1997	3	1997	0
				03	RI/FS	FF	09/27/91	3	1996	3	1996	0
				04	RI/FS	FF	09/27/91	1	1997	1	1997	0
9	NV	Carson River Mercury Site (Trust Territories PC)	Lyon/Churchill County	01	RI/FS	F	09/28/90	3	1994	2	1995	-3
				02	RI/FS	F	09/28/90	2	1995	3	1996	-5
10	AK	ADAK NAVAL AIR STATION	NEED TO IDENTIFY	01	RI/FS	FF	11/24/93			1	1995	new
10	AK	Arctic Surplus	Fairbanks	01	RI/FS	PRP	07/24/92	4	1995	4	1995	0
10	AK	Eielson Air Force Base	Fairbanks N Star Borough	03	RI/FS	FF	05/06/92	3	1995	4	1995	-1
				04	RI/FS	FF	05/06/92	3	1995	4	1995	-1
				05	RI/FS	FF	05/06/92	3	1995	4	1995	-1
				07	RI/FS	FF	05/21/91	2	1996	2	1996	0
				08	RA	FF	05/05/93			1	1996	DNE
10	AK	Elmendorf Air Force Base	Greater Anchorage Borough	02	RI/FS	FF	04/01/92	4	1994	1	1995	-1
				03	RI/FS	FF	04/06/93	4	1995	1	1996	-1
				04	RI/FS	FF	02/15/93	2	1995	3	1995	-1
				05	RI/FS	FF	04/15/92	4	1994	2	1995	-2
				06	RI/FS	FF	01/18/94			4	1996	new
				08	RA	FF	08/05/93	1	1996	1	1996	0
10	AK	Fort Wainright	Fairbanks N Star Borough	01	RI/FS	FF	08/10/94			2	1997	new
				02	RI/FS	FF	11/01/93			2	1996	new
				03	RI/FS	FF	09/15/92	4	1995	4	1995	0
				04	RI/FS	FF	11/27/92	1	1996	1	1996	0
10	AK	Standard Steel and Metals Salvage Yard	Anchorage	01	RI/FS	FF	09/26/92	1	1995	3	1995	-2
10	ID	Bunker Hill Mining & Metallurgical	Smelterville	01	RA	PRP	09/27/94			1	2002	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
10	ID	Eastern Michaud Flats Contamination	Pocatello	01	RI/FS	PRP	05/30/91	4	1995	4	1996	-4
10	ID	Idaho National Engineering Lab (USDOE)	Idaho Falls	01	RI/FS	FF	12/20/91	1	1995	1	1995	0
				02	RA	FF	02/11/94			4	1996	new
				08	RI/FS	FF	01/29/93	1	1996	1	1996	0
				15	RI/FS	FF	12/27/91	1	1995	1	1995	0
				22	RA	FF	11/02/93			1	1995	new
				24	RI/FS	FF	12/14/93			4	1996	new
10	ID	Kerr-McGee Chemical Corp. (Soda Springs Plant)	Soda Springs	01	RI/FS	PRP	09/20/90	4	1994	4	1995	-4
10	ID	Monsanto Chemcial Co. (Soda Springs Plant)	Soda Springs	01	RI/FS	PRP	03/19/91	4	1994	1	1996	-5
10	ID	Mountain Home Airforce Base	Mountain Home	03	RI/FS	FF	05/12/92	3	1995	3	1995	0
10	ID	Pacific Hide & Fur Recycling Co.	Pocatello	02	RI/FS	F	07/28/93	2	1995	2	1995	0
10	ID	Union Pacific Railroad Co.	Pocatello	01	RA	PRP	05/19/94			1	1996	new
10	OR	Gould, Inc.	Portland	01	RA	PRP	03/02/92	4	1995	4	1998	-12
10	OR	MCCORMICK & BAXTER CREOS. CO.	NEED TO IDENTIFY	01	RI/FS	F	09/07/94			4	1995	new
10	OR	Martin-Marietta Products	The Dalles	[illegible]	RA	PRP	05/15/90	2	1995	2	1995	0
10	OR	Teledyne Wah Chang	Albany	03	RI/FS	PRP	05/05/87			4	1995	DNE
10	OR	Umatilla Army Depot (Lagoons)	Hermiston	01	RA	FF	02/15/94			1	1995	new
				02	RA	FF	06/20/94			3	1996	new
10	WA	American Crossarm & Conduit Co.	Chehalis	01	RA	F	09/01/94			4	1996	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
10	WA	American Lake Gardens	Tacoma	01	RA	FF	04/14/93	2	1994	1	1995	-3
10	WA	Bangor Naval Submarine Base	Silverdale	06	RI/FS	FF	10/14/91	2	1994	1	1995	-3
				07	RA	FF	02/04/93			4	1995	DNE
10	WA	Bangor Ordnance Disposal	Bremerton	01	RA	FF	03/05/93			2	1996	DNE
10	WA	Bonneville Power Administration Ross Complex	Vancouver	01	RA	FF	01/18/94			2	1995	new
				02	RA	FF	09/19/94			1	1995	new
10	WA	Colbert Landfill	Colbert	01	RA	MR	08/28/89	3	1995	4	1998	-13
10	WA	Commencement Bay, Near Shore/Tide Flats	Pierce County	04	RA	PS	11/12/91	2	1995	2	1995	0
				05	RA	PS	01/16/90	2	1996	2	1996	0
				06	RA	PS	12/17/93			2	1995	new
				07	RA	PS	04/11/91	1	1996	1	1996	0
				08	RA	PS	09/30/89	4	1995	4	1995	0
				09	RA	PS	07/31/92	3	1995	3	1995	0
				11	RA	PRP	06/25/93	2	1995	4	1996	-6
				20	RI/FS	PRP	09/10/86	3	1994	2	1995	-3
				21	RA	PRP	06/25/92	2	1995	2	1995	0
				22	RA	PRP	12/21/93			4	1997	new
				23	RA	PRP	05/15/92	1	1995	3	1995	-2
10	WA	Commencement Bay, South Tacoma Channel	Tacoma	03	RA	F	07/19/90	3	1994	2	1995	-3
				06	RA	PRP	03/15/92	3	1994	2	1995	-3
10	WA	Fairchild Air Force Base (4 Waste Area)	Spokane County	01	RA	FF	03/16/93			3	1996	DNE
				02	RA	FF	03/07/94			1	1997	new
				03	RI/FS	FF	09/15/92	1	1995	3	1995	-2
10	WA	Fort Lewis Logistics Center	Tillicum	01	RA	FF	01/15/92	4	1997	4	1995	8
10	WA	Hamilton Island Landfill (USA/COE)	North Bonneville	01	RI/FS	FF	09/24/93	4	1996	3	1995	5
10	WA	Hanford 100-Area (USDOE)	Benton County	01	RI/FS	FF	06/30/89	3	1995	2	1995	1
				02	RI/FS	FF	06/30/89	3	1995	2	1995	1
				03	RI/FS	FF	10/27/89	3	1995	2	1995	1
				04	RI/FS	FF	04/09/90	2	1995	2	1995	0
				05	RI/FS	FF	04/09/90	2	1995	2	1995	0

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				06	RI/FS	FF	06/05/90	1	1996	3	1995	2
				07	RI/FS	FF	06/05/90	1	1996	1	1996	0
				08	RI/FS	FF	10/12/90	2	1996	2	1996	0
				09	RI/FS	FF	10/12/90	4	1995	4	1995	0
				10	RI/FS	FF	04/15/91	4	1995	1	1996	-1
				11	RI/FS	FF	05/24/93	2	1997	1	1996	5
				12	RI/FS	FF	10/28/93			4	1995	new
				13	RI/FS	FF	06/30/93	3	1997	4	1995	7
				14	RI/FS	FF	04/15/91	3	1995	4	1996	-5
10	WA	Hanford 200-Area (USDOE)	Benton County	01	RI/FS	FF	05/15/89	2	1994	2	1995	-4
				02	RI/FS	FF	08/31/92	2	1997	2	1997	0
				11	RI/FS	FF	01/31/94			2	1997	new
				12	RI/FS	FF	04/28/93	4	1996	4	1996	0
				13	RI/FS	FF	02/25/93			2	1995	DNE
				14	RI/FS	FF	03/20/94			2	1995	new
10	WA	Hanford 300-Area (USDOE)	Benton County	01	RI/FS	FF	05/15/89	2	1995	4	1995	-2
				02	RI/FS	FF	09/27/89	2	1996	4	1995	2
10	WA	Harbor Island (Lead)	Seattle	07	RI/FS	F	09/07/88	4	1994	4	1995	-4
10	WA	McChord Air Force Base (Wash Rack/ Treatment Area)	Tacoma	01	RA	FF	07/30/93			2	1995	DNE
10	WA	Naval Air Station, Whidbey Island (Ault Field)	Whidbey Island	03	RI/FS	FF	12/13/91	3	1994	2	1995	-3
				04	RA	FF	07/26/93	1	1995	1	1995	0
				05	RI/FS	FF	07/14/94			4	1995	new
10	WA	Naval Air Station, Whidbey Island (Seaplane Base)	Whidbey Island	01	RA	FF	08/12/94			1	1995	new
10	WA	Naval Undersea Warfare Engineering Stn. (4 Waste Area)	Keyport	01	RI/FS	FF	07/17/90	3	1994	2	1995	-3
10	WA	Northside Landfill	Spokane	01	RA	PRP	03/16/92	2	1994	2	1995	-4

APPENDIX A

STATUS OF REMEDIAL INVESTIGATIONS, FEASIBILITY STUDIES, AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
10	WA	Northwest Transformer (South Harkness St.)	Everson	01	RA	PRP	09/30/92	1	1994	1	1995	-4
10	WA	PACIFIC SOUND RESOURCES	NEED TO IDENTIFY	01	RI/FS	PRP	09/29/94			4	1997	new
10	WA	SPOKANE JUNKYARD/ASSOCIATED PR	NEED TO IDENTIFY	01	RI/FS	F	07/19/94			3	1995	new
10	WA	Tulalip Landfill	Marysville	01	RI/FS	PRP	08/12/93	4	1996	4	1996	0
10	WA	Vancouver Water Station #4 Contamination	Vancouver	01	RI/FS	F	04/02/92	3	1996	3	1996	0
10	WA	Western Processing Co., Inc.	Kent	03	RA	PRP	07/01/93	4	1994	1	1995	-1
10	WA	Wycoff Co./Eagle Harbor	Bainbridge Island	02	RI/FS	F	09/16/92	2	1995	2	1996	-4

Appendix B
Remedial Designs in Progress on September 30, 1994

This appendix lists the remedial designs in progress at the end of FY94 and their estimated completion schedule. Activities at multiple operable units, as well as first and subsequent activities, are listed.

- **RG** — EPA region in which the site is located.
- **ST** — State in which the site is located.
- **Site Name** — Name of the site, as listed on the National Priorities List (NPL).
- **Location** — Location of the site, as listed on the NPL.
- **Operable Unit** — Operable unit at which the corresponding remedial activity is occurring; a single site may include more than one operable unit.
- **Lead** — The entity leading the activity, as follows:

  EP: Fund-financed with EPA employees performing the project, not contractors;

  F: Fund-financed and federal-lead by the Superfund remedial program;

  FE: EPA enforcement program-lead;

  FF: Federal facility-lead;

  MR: Mixed funding; monies from both the Fund and potentially responsible parties (PRPs);

  PRP: PRP-financed and conducted;

  PS: PRP-financed work performed by the PRP under a state order (may include federal financing or federal oversight under an enforcement document);

  S: State-lead and Fund-financed; and

  SE: State enforcement-lead (may include federal financing).

Remaining terms used in the CERCLA Information System (CERCLIS) database, **O** (other), **SN** (state-lead and financed, no Fund money), and **SR** (state-ordered PRP response activities), are excluded from this status report because they do not include federal financing.

- **Funding Start** — The date on which funds were allocated for the activity.
- **Present Completion Schedule** — The quarter and fiscal year of the planned completion date for the activity, as of 9/30/94. This information was compiled from CERCLIS on 11/15/94.

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APPENDIX B

STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
1	CT	Kellog-Deering Well Field	Norwalk	02	PRP	03/14/91	1	1995
1	CT	Laurel Park Inc. (once listed as Laurel Park Landfill)	Naugatuck Borough	02	PRP	04/24/91	2	1995
1	MA	Baird & McGuire	Holbrook	04	S	09/24/91	1	1995
1	MA	Charles-George Reclamation Trust Landfill	Tyngsborough	04	F	09/30/88	1	1995
1	MA	Groveland Wells	Groveland	01	F	09/24/92	1	1995
1	MA	Nyanza Chemical Waste Dump	Ashland	02	F	04/08/92	1	1996
				03	F	07/27/93	2	1996
1	MA	Re-Solve, Inc.	Dartmouth	03	MR	03/30/89	4	1995
1	MA	Sullivan's Ledge	New Bedford	01	PRP	03/15/91	1	1996
				02	PRP	04/05/93	1	1996
1	MA	Wells G&H	Woburn	01	PRP	04/27/90	4	1995
1	ME	Loring Air Force Base	Limestone	02	FF	09/30/94	4	1995
				06	FF	07/01/94	3	1995
				07	FF	09/30/94	4	1995
1	ME	O'Connor Co.	Augusta	01	PRP	12/14/90	4	1995
1	ME	Union Chemical Co., Inc.	South Hope	01	PRP	12/24/91	1	1995
1	NH	Auburn Road Landfill	Londonderry	02	PRP	09/30/90	4	1996
1	NH	Coakley Landfill	North Hampton	01	PRP	06/19/92	4	1995
1	NH	Dover Municipal Landfill	Dover	01	PRP	01/22/92	1	1996
1	NH	Ottati & Goss)	Kingston	02	S*	03/15/89	1	1995
				03	F	09/20/90	1	1996
1	NH	Pease Air Force Base	Portsmouth/Newington	03	FF	09/30/94	4	1995
1	NH	Savage Municipal Water Supply	Milford	01	F	09/30/93	1	1996

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
				02	PRP	04/28/94	3	1995
1	RI	Davis Liquid Waste	Smithfield	02	F	07/11/88	4	1995
				02	F	07/11/88	2	1996
2	NJ	A. O. Polymer	Sparta Township	02	PRP	04/20/92	4	1995
2	NJ	Burnt Fly Bog	Marlboro Township	02	S	09/29/89	1	1995
2	NJ	Chemical Leaman Tank Lines, Inc.	Bridgeport	01	PRP	01/03/91	1	1996
2	NJ	Cinnaminson Township (Block 702) Ground Water Contamination	Cinnaminson Township	01	PRP	07/09/91	4	1998
2	NJ	Combe Fill South Landfill	Chester Township	01	S	06/26/87	4	1994
2	NJ	DeRenewal Chemical Co.	Kingwood Township	01	F	09/30/89	3	1995
				01	F	09/30/89	1	1998
2	NJ	Diamond Alkali Co.	Newark	01	PRP	12/14/89	3	1995
2	NJ	Dover Municipal Well 4	Dover Township	01	F	07/06/93	1	1996
2	NJ	EVOR PHILLIPS LEASING	NEED TO IDENTIFY	01	SE	05/02/94	2	1995
2	NJ	Ellis Property	Evesham Township	01	S	06/30/93	2	1995
				02	S	09/30/93	1	1997
2	NJ	Federal Aviation Administration Technical Center	Atlantic City	02	FF	12/23/92	4	1995
2	NJ	Fried Industries	East Brunswick Township	01	F	09/30/94	2	1996
2	NJ	GEMS Landfill	Gloucester Township	01	S	05/22/86	4	1994

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
2	NJ	Garden State Cleaners Co.	Minotola	02	F	03/30/92	3	1995
2	NJ	Glen Ridge Radium Site	Glen Ridge	03	F	09/26/90	1	1998
2	NJ	Global Sanitary Landfill	Old Bridge Township	01	SE	11/15/93	3	1996
2	NJ	Higgins Farm	Franklin Township	01	F	02/09/93	1	1995
2	NJ	Imperial Oil Co., Inc./Champion Chemicals	Morganville	01 02	S S	09/30/91 03/31/93	1 4	1994 1995
2	NJ	Industrial Latex Corp.	Wallington Borough	01 01	F F	07/16/93 07/16/93	1 1	1995 1996
2	NJ	Metaltec/Aerosystems	Franklin Borough	02	F	03/29/91	2	1996
2	NJ	Montclair/West Orange Radium Site	Montclair/West Orange	03	F	09/26/90	1	1998
2	NJ	Montgomery Township Housing Development	Montgomery Township	02	S	03/24/89	4	1994
2	NJ	Myers Property	Franklin Township	01	PRP	05/12/92	2	1998
2	NJ	Nascolite Corp.	Millville	02	F	09/27/91	3	1995
2	NJ	Naval Air Engineering Center	Lakehurst	23	FF	04/01/94	1	1995
2	NJ	Reich Farms	Pleasant Plains	02	PRP	04/05/90	1	1996
2	NJ	Rockaway Borough Well Field	Rockaway Township	02	PRP	07/14/94	1	1997
2	NJ	Rockaway Township Wells	Rockaway	01	PS	04/20/94	4	1994
2	NJ	Rocky Hill Municipal Well	Rocky Hill Borough	01	S	03/24/89	4	1994

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
2	NJ	Roebling Steel Co.	Florence	03	F	09/25/91	1	1996
2	NJ	South Jersey Clothing Co.	Minotola	01	F	03/30/92	3	1995
				02	F	03/30/92	3	1995
2	NJ	Swope Oil & Chemical Co.	Pennsauken	02	PRP	06/07/93	3	1995
2	NJ	U.S. Radium Corp.	Orange	01	F	09/30/93	4	1998
2	NJ	Universal Oil Products (Chemical Division)	East Rutherford	01	PS	04/04/94	1	1996
2	NJ	Vineland Chemical Co., Inc.	Vineland	01	F	09/30/89	2	1995
				02	F	10/02/89	3	1995
2	NJ	Waldick Aerospace Devices, Inc.	Wall Township	02	F	06/28/91	1	1996
2	NJ	Woodland Route 532 Dump	Woodland Township	02	PS	08/30/90	1	1996
2	NJ	Woodland Route 72 Dump	Woodland Township	02	PS	08/31/91	1	1996
2	NY	Batavia Landfill	Batavia	02	PRP	11/01/93	1	1995
2	NY	Claremont Polychemical	Old Bethpage	01	F	09/28/90	3	1994
				01	F	09/30/92	3	1996
2	NY	Colesville Municipal Landfill	Town of Colesville	02	PS	04/01/91	1	1996
2	NY	Endicott Village Well Field	Village of Endicott	02	PRP	12/29/93	1	1996
				03	PRP	01/24/92	3	1994
2	NY	Facet Enterprises, Inc.	Elmira	01	PRP	05/25/93	3	1995
2	NY	Fulton Terminals	Fulton	02	PRP	11/28/90	2	1995
2	NY	General Motors (Central Foundry Division)	Massena	01	PRP	07/01/92	4	1996
				02	PRP	09/09/92	4	1996
2	NY	Genzale Plating Co.	Franklin Square	03	F	09/25/91	4	1994
2	NY	Haviland Complex	Town of Hyde	01	F	09/30/93	3	1995

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
			Park					
2	NY	Hertel Landfill	Plattekill	01	PRP	11/23/92	4	1995
2	NY	Hooker (102nd Street)	Niagara Falls	01	PRP	10/22/91	4	1995
2	NY	Islip Municipal Sanitary Landfill	Islip	01	PS	09/30/92	3	1995
2	NY	Kentucky Avenue Well Field	Horseheads	02	PRP	08/29/91	1	1995
2	NY	Mattiace Petrochemical Co., Inc.	Glen Cove	03 04	F F	09/30/92 09/30/92	3 3	1995 1995
2	NY	Pasley Solvents & Chemicals, Inc.	Hempstead	01	F	03/31/93	4	1995
2	NY	Port Washington Landfill	Port Washington	01 01	PRP PRP	09/28/90 09/28/90	4 3	1994 1996
2	NY	Robintech, Inc./National Pipe Co.	Town of Vestal	01	PRP	11/25/92	4	1995
2	NY	Rowe Industries Ground Water Contamination	Noyack/Sag Harbor	01	PRP	01/26/94	1	1996
2	NY	Sarney Farm	Amenia	01	F	03/29/91	3	1995
2	NY	Sinclair Refinery	Wellsville	02	PRP	12/09/92	1	1995
2	NY	Solvent Savers	Lincklaen	01	PRP	07/02/91	1	1996
2	NY	Syosset Landfill	Oyster Bay	01	PRP	04/03/91	1	1996
2	NY	Warwick Landfill	Warwick	01	PRP	04/20/92	4	1995
2	PR	Fibers Public Supply Wells	Jobos	02	PRP	11/18/92	4	1995
2	PR	Frontera Creek	Rio Abajo	01	PRP	08/19/92	4	1994
2	PR	GE Wiring Devices	Juana Diaz	02	PRP	09/14/94	3	1995
2	PR	Juncos Landfill	Juncos	01	PRP	12/21/92	4	1995

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
3	DE	Chem-Solv, Inc.	Cheswold	01	PRP	02/22/93	2	1995
3	DE	E.I. Du Pont de Nemours & Co.(Newport Pigment plant LdF	Newport	01	PRP	05/31/94	1	1998
3	DE	Halby Chemical Co.	New Castle	01	PRP	03/16/92	4	1995
3	MD	Sand, Gravel & Stone	Elkton	03	PRP	01/05/89	1	1995
				04	PRP	02/21/92	2	1994
3	PA	Aladdin Plating, Inc.	Scott Township	02	F	04/08/94	1	1995
3	PA	Avco Lycoming (Williamsport Division)	Williamsport	01	PRP	05/08/92	2	1995
3	PA	Bally Ground Water Contamination	Bally Borough	01	PRP	09/25/91	1	1995
3	PA	Blosenski Landfill	West Caln Township	03	PRP	02/23/94	2	1997
				04	F	02/14/90	1	1995
3	PA	Butz Landfill	Stroudsburg	01	F	09/29/92	1	1996
3	PA	CryoChem, Inc.	Worman	01	F	02/22/90	1	1995
				02	F	12/28/90	3	1995
				03	F	12/31/91	2	1995
3	PA	Delta Quarries & Disposal, Inc. (Stotler Landfill)	Antis/Logan Townships	01	PRP	06/01/92	4	1994
3	PA	Dorney Road Landfill	Upper Macungie Township	01	PRP	09/26/91	2	1995
				02	PRP	05/11/93	1	1995
3	PA	East Mount Zion	Springettsbury Township	01	F	01/09/91	2	1995
3	PA	Eastern Diversified Metals	Hometown	02	PRP	05/11/94	4	1996
				03	PRP	08/31/93	1	1997
3	PA	Heleva Landfill	North Whitehall	03	PRP	06/21/94	4	1996
3	PA	Hunterstown Road	Straban Township	01	F	09/12/94	2	1996

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
3	PA	Keystone Sanitation Landfill	Union Township	03	PRP	03/11/92	1	1996
				04	PRP	03/11/92	1	1996
3	PA	Lindane Dump	Lindane	01	PRP	09/24/93	4	1996
3	PA	MW Manufacturing	Valley Township	01	PRP	06/01/93	1	1996
				03	F	09/30/90	1	1996
				04	PRP	06/01/93	4	1995
3	PA	Modern Sanitation Landfill	Lower Windsor Township	01	PRP	07/07/93	1	1996
3	PA	Occidental Chemical Corp./Firestone Co.	Lower Pottsgrove Twp.	01	PRP	08/23/94	3	1996
3	PA	Old City of York Landfill	Seven Valleys	01	PRP	09/17/92	1	1995
3	PA	Osborne Landfill	Grove City	01	PRP	08/12/91	1	1995
3	PA	Paoli Rail Yard	Paoli	01	PRP*	07/22/93	1	1996
3	PA	Recticon/Allied Steel Corp.	East Coventry Twp.	01	PRP	05/11/94	2	1995
				02	PRP	05/11/94	1	1996
				03	PRP	05/11/94	1	1996
3	PA	Resin Disposal	Jefferson Borough	01	PRP	05/11/92	1	1995
3	PA	Saegerton Industrial Area	Saegertown	01	PRP	10/18/93	3	1995
				02	PRP	09/27/94	3	1995
3	PA	Strasburg Landfill	Newlin Township	01	F	06/23/94	3	1995
3	PA	Tonolli Corp.	Nesquehoning	01	PRP	12/21/93	1	1996
3	PA	Westinghouse Elevator Co. Plant	Gettysburg	01	PRP	03/16/93	3	1996

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
3	PA	Whitmoyer Laboratories	Jackson Township	03	PRP	03/05/92	1	1998
				04	PRP	03/05/92	1	1996
				05	PRP	03/05/92	3	1996
3	PA	William Dick Lagoons	West Caln Township	01	F	09/17/92	4	1995
3	VA	Arrowhead Associates/Scovill Corp.	Montross	01	PRP	09/07/94	1	1996
3	VA	Greenwood Chemical Co.	Newton	02	F	02/20/92	3	1995
3	VA	L.A. Clarke & Son	Spotsylvania County	04	PRP	03/03/90	3	1995
3	VA	Rentokil, Inc. (Virginia Wood Preservation Division)	Richmond	01	PRP	05/02/94	2	1996
3	VA	Saunders Supply Co.	Chuckatuck	01	F	07/22/92	1	1996
3	WV	Fike Chemical	Nitro	03	PRP	10/07/93	2	1995
3	WV	Ordnance Works Disposal Areas	Morgantown	01	PRP	08/06/90	1	1996
3	WV	West Virginia Ordnance	Point Pleasant	04	FF	06/28/91	2	1995
4	AL	Ciba-Geigy Corp. (McIntosh Plant)	McIntosh	02	PRP	05/26/92	2	1996
				04	PRP	07/12/93	2	1996
4	AL	Interstate Lead Co. (ILCO)	Leeds	01	F	09/30/91	4	1997
4	AL	Redwing Carriers, Inc. (Saraland)	Saraland	01	PRP	11/16/93	3	1995
4	AL	Stauffer Chemical Co. (Clemoyne Plant)	Axis	01	PRP	11/20/92	4	1995
				03	F	03/08/94	1	1996
4	AL	Stauffer Chemical Co. (Cold Creek Plant)	Bucks	03	F	03/08/94	1	1996
4	FL	Airco Plating Co.	Miami	01	PRP	09/20/94	1	1996
4	FL	American Creosote Works, Inc.	Pensacola	02	F	04/18/94	2	1996

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1994

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
		(Pensacola Plant)						
4	FL	Anodyne, Inc.	North Miami Beach	01	PRP	08/12/94	3	1996
4	FL	Madison County Sanitary Landfill	Madison	01	PRP	04/23/93	2	1995
4	FL	Piper Aircraft/Vero Beach Water & Sewer	Vero Beach	01	F	09/22/94	4	1997
4	FL	Reeves Southeast Galvanizing Corp.	Tampa	01	PRP	03/26/93	1	1995
4	GA	Cedartown Industries, Inc.	Cedartown	01	PRP	11/03/93	3	1995
4	GA	Firestone Tire & Rubber Co.	Albany	01	PRP	03/16/94	3	1995
4	GA	Hercules 009 Landfill	Brunswick	01	PRP	10/07/93	4	1995
4	GA	Marine Corps Logistics Base	Albany	02	FF	08/22/94	1	1995
4	GA	Mathis Brothers Landfill (South Marble Top Road)	Kensington	01	PRP	10/14/93	2	1997
4	GA	Robins Air Force Base (Landfill #4/ Sludge Lagoon)	Houston County	01 02	FF FF	08/01/91 07/15/94	1 4	1996 1995
4	GA	T.H. Agriculture & Nutrition Co.	Albany	01	PRP	11/01/93	3	1995
4	GA	Woolfolk Chemical Works, Inc.	Fort Valley	01	PRP	06/28/94	2	1996
4	KY	Airco	Calvert City	01	PRP	01/05/89	3	1995
4	KY	B.F. Goodrich	Calvert City	01	PRP	01/05/89	3	1995
4	KY	NATIONAL SOUTHWIRE ALUMINUM CO	NEED TO IDENTIFY	01	PRP	05/02/94	1	1995
4	KY	Paducah Gaseous Diffusion Plant (USDOE)	Paducah	06	FF	07/18/94	2	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
4	KY	Smith's Farm	Brooks	02	PRP	06/01/94	4	1995
4	NC	ABC One Hour Cleaners	Jacksonville	01	F	08/11/93	1	1995
				02	F	09/06/94	4	1995
4	NC	Aberdeen Pesticide Dumps	Aberdeen	01	PRP	08/24/93	2	1996
				01	PRP	08/24/93	3	1996
				01	PRP	08/24/93	3	1996
				01	PRP	08/24/93	4	1996
				01	PRP	08/24/93	4	1996
				03	PRP	08/25/94	1	1996
				04	PRP	08/24/93	1	1996
4	NC	Benfield Industries, Inc.	Hazelwood	01	F	09/24/92	2	1995
4	NC	Camp Lejeune Military Reservation (Marine Corp Base)	Onslow County	02	FF	08/15/94	1	1996
4	NC	Carolina Transformer Co.	Fayetteville	01	F	09/30/92	2	1995
4	NC	FCX, Inc. (Statesville Plant)	Statesville	01	F	08/03/94	3	1995
4	NC	FCX, Inc. (Washington Plant)	Washington	01	F	02/23/94	1	1995
4	NC	Geigy Chemical Corp. (Aberdeen Plant)	Aberdeen	01	PRP	05/21/93	2	1995
4	NC	JFD Electronics/Channel Master	Oxford	01	PRP	08/20/93	2	1996
4	NC	Jadco-Hughes Facility	Belmont	01	PRP	01/31/91	1	1995
4	NC	Koppers Co., Inc (Morrisville Plant)	Morrisville	01	PRP	06/14/93	2	1995
4	NC	New Hanover County Airport Burn Pit	Wilmington	01	PRP	04/18/94	1	1996
4	SC	Elmore Waste Disposal	Greer	01	F	07/16/93	1	1995
4	SC	Helena Chemical Co. Landfill	Fairfax	01	PRP	06/23/94	1	1996
4	SC	Kalama Specialty Chemicals	Beaufort	01	PRP	08/09/94	1	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
				01	PRP	08/09/94	1	1996
4	SC	Para-Chem Southern, Inc.	Simpsonville	01	PRP	08/04/94	4	1995
4	SC	SCRDI Bluff Road	Columbia	01	PRP	11/01/91	3	1995
4	SC	Sangamo Weston, Inc./Twelve-Mile Creek/Lake Hartwel PCB	Pickens	01	PRP	06/30/92	2	1995
4	SC	Townsend Saw Chain Co.	Pontiac	01	PRP	06/13/94	3	1995
4	SC	Wamchem, Inc.	Burton	01	PRP	01/31/89	4	1994
4	TN	Arlington Blending & Packaging	Arlington	01	PRP	03/30/92	1	1995
4	TN	Velsicol Chemical Corp. (Hardeman County)	Toone	01	PRP	11/27/91	1	1995
5	IL	Acme Solvent Reclaiming, Inc.	Morristown	04 08	PRP PRP	11/18/91 11/18/91	4 3	1996 1995
5	IL	NL Industries/Taracorp Lead Smelter	Granite City	01	F	03/08/91	4	1993
5	IL	Pagel's Pit	Rockford	01	PRP	12/14/92	3	1995
5	IL	Sangamo Electric Dump/Crab Orchard National Wildlife Refuge (USDOI)	Carterville	02	PRP	05/14/91	3	1995
5	IL	Tri-County Landfill Co./Waste Management of Illinois, Inc.	South Elgin	01	PRP	02/02/94	3	1995
5	IN	Fisher-Calo	LaPorte	01	PRP	11/07/91	4	1995
5	IN	Fort Wayne Reduction Dump	Fort Wayne	01	PRP	12/28/88	4	1994
5	IN	Lakeland Disposal Service, Inc.	Claypool	01	PRP	05/25/94	3	1996
5	IN	Neal's Dump (Spencer)	Spencer	01	PRP	08/22/85	3	1996
5	IN	Ninth Avenue Dump	Gary	02	PRP	09/20/89	4	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
5	IN	Reilly Tar & Chemical Corp. (Indianapolis Plant)	Indianapolis	01 03	PRP PRP	06/10/93 09/14/94	3 3	1995 1995
5	MI	Berlin & Farro	Swartz Creek	02	PRP	12/07/92	2	1995
5	MI	Butterworth #2 Landfill	Grand Rapids	01	PRP	02/23/93	3	1996
5	MI	Cannelton Industries, Inc.	Sault Sainte Marie	01	PRP	05/10/93	1	1996
5	MI	Carter Industrials, Inc.	Detroit	01	PRP	02/12/93	1	1995
5	MI	Chem Central	Wyoming Township	01	PRP	04/07/92	1	1995
5	MI	Clare Water Supply	Clare	02	PRP	09/17/93	3	1995
5	MI	Cliff/Dow Dump	Marquette	01	PRP	09/27/89	3	1995
5	MI	Duell & Gardner Landfill	Dalton Township	01	PRP	07/29/94	2	1996
5	MI	Electrovoice	Buchanan	01	PRP	09/29/93	1	1996
5	MI	Forest Waste Products	Otisville	02	F	06/27/88	1	1995
5	MI	G&H Landfill	Utica	01	PRP	09/10/92	2	1995
5	MI	H. Brown Co., Inc.	Grand Rapids	01	F	03/30/93	1	1996
5	MI	Hi-Mill Manufacturing Co.	Highland	01	PRP	09/20/94	2	1996
5	MI	Ionia City Landfill	Ionia	01	PRP	09/13/90	1	1996
5	MI	K & L Avenue Landfill	Oshtemo Township	01	PRP	09/18/92	1	1997
5	MI	Kysor Industrial Corp.	Cadillac	01	PRP	05/16/90	1	1995
5	MI	Metamora Landfill	Metamora	02	PRP	04/26/91	3	1996
5	MI	Motor Wheel, Inc.	Lansing	01	PRP	05/16/92	2	1995
5	MI	Northernaire Plating	Cadillac	02	PRP	05/16/90	1	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
5	MI	OTT/Story/Cordova Chemical Co.	Dalton Township	03	F	01/12/94	4	1995
5	MI	Peerless Plating Co.	Muskegon	01	F	09/21/92	1	1995
5	MI	Rasmussen's Dump	Green Oak Township	01	PRP	02/14/92	2	1995
5	MI	Rose Township Dump	Rose Township	01	PRP	07/18/89	2	1995
5	MI	Spartan Chemical Co.	Wyoming	02	S	09/28/93	1	1996
5	MI	Springfield Township Dump	Davisburg	01	F	03/15/91	1	1993
5	MI	Sturgis Municipal Wells	Sturgis	01	S	09/21/93	3	1996
5	MI	Tar Lake	Mancelona Township	01	PRP	03/09/93	2	1996
5	MI	Thermo-Chem, Inc.	Muskegon	01	F	09/25/92	3	1996
5	MI	Torch Lake	Houghton County	01	F	09/01/94	1	1996
5	MI	Verona Well Field	Battle Creek	02	F	09/08/92	1	1995
				02	PRP	05/04/92	1	1995
5	MI	Wash King Laundry	Pleasant Plains Twp	01	S	09/21/93	3	1995
				01	S	09/21/93	1	1996
5	MN	AGATE LAKE SCRAP YARD	NEED TO IDENTIFY	01	PS	01/13/94	1	1995
5	MN	Arrowhead Refinery Co.	Hermantown	01	PRP	09/06/91	1	1996
5	MN	MacGillis & Gibbs Co./Bell Lumber & Pole Co.	New Brighton	01	S	07/16/93	1	1995
				01	S	09/30/94	4	1995
				02	F	05/03/93	1	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
5	MN	New Brighton/Arden Hills	New Brighton	07	FF	09/30/93	3	1995
5	MN	Perham Arsenic	Perham	01	F	09/19/94	4	1995
5	MN	Twin Cities Air Force Reserve Base (Small Arms Range Landfill)	Minneapolis	01	FF	04/01/92	1	1993
5	OH	Allied Chemical & Ironton Coke	Ironton	02	PRP	06/16/93	2	1995
				02	PRP	06/16/93	2	1995
				02	PRP	07/23/93	2	1996
5	OH	Buckeye Reclamation	St. Clairsville	01	F	03/12/92	1	1995
5	OH	Fields Brook	Ashtabula	01	PRP	03/22/89	4	1995
5	OH	Fultz Landfill	Jackson Township	01	F	06/24/92	1	1995
5	OH	Industrial Excess Landfill	Uniontown	01	F	09/29/89	1	1995
				01	F	09/29/89	3	1995
5	OH	Miami County Incinerator	Troy	01	PRP	04/02/93	3	1995
5	OH	Powell Road Landfill	Dayton	01	PRP	06/21/94	1	1996
5	OH	Pristine, Inc.	Reading	05	PRP	10/29/91	1	1995
5	OH	Sanitary Landfill Co. (Industrial Waste Disposal Co.Inc	Dayton	01	PRP	06/06/94	4	1995
5	OH	Skinner Landfill	West Chester	02	PRP	03/29/94	3	1996
				02	PRP	03/29/94	3	1996
5	OH	Van Dale Junkyard	Marietta	01	PRP	09/23/94	2	1996
5	OH	Zanesville Well Field	Zanesville	01	PRP*	09/21/92	2	1995
				01	PRP	11/30/93	1	1995
5	WI	City Disposal Corp. Landfill	Dunn	01	PRP	04/23/93	3	1997
5	WI	Eau Claire Municipal Well Field	Eau Claire	01	F	09/29/88	3	1996
5	WI	Hagen Farm	Stoughton	02	PRP	01/06/93	4	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
5	WI	Hunts Disposal	Caledonia	01	PRP	05/05/92	4	1995
5	WI	Janesville Ash Beds	Janesville	01	PRP	07/12/91	1	1996
5	WI	Janesville Old Landfill	Janesville	01	PRP	07/12/91	1	1996
5	WI	Kohler Co. Landfill	Kohler	01	PS	07/30/92	4	1995
				01	PS	12/11/92	4	1995
5	WI	Lemberger Landfill, Inc. (Lemberger Fly Ash Landfill)	Whitelaw	01	PRP	06/01/92	1	1995
5	WI	Lemberger Transport & Recycling	Franklin Township	01	PRP	06/01/92	1	1995
5	WI	Master Disposal Service Landfill	Brookfield	01	PRP	08/13/91	3	1995
5	WI	Moss-American (Kerr-McGee Oil Co.)	Milwaukee	01	PRP	07/15/91	1	1996
5	WI	N.W. Mauth Co., Inc.	Appleton	01	F	05/12/94	3	1995
5	WI	Sauk County Landfill	Excelsior	01	PS	08/02/94	3	1996
5	WI	Stoughton City Landfill	Stoughton	01	F	09/28/92	2	1996
6	AR	Popile, Inc.	El Dorado	01	F	02/19/92	1	1995
6	AR	South 8th Street Landfill	Jacksonville	01	F	09/11/92	1	1996
6	AR	Vertac, Inc.	Jacksonville	05	PRP	04/19/94	2	1995
6	LA	American Cresote Works, Inc (Winnfield)	Winnfield	01	F	02/19/92	1	1995
6	LA	Gulf Coast Vaccuum Services	Abbeville	01	PRP	05/24/94	3	1996
				02	PRP	12/11/92	1	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
6	LA	OLD CITGO REFINERY(BOSSIER CIT	NEED TO IDENTIFY	01	F	09/22/94	4	1997
6	NM	Prewitt Abandoned Refinery	Prewitt	01	PRP	05/14/93	1	1995
				01	PRP	05/14/93	1	1995
6	NM	South Valley	Albuquerque	06	PRP	09/01/89	1	1995
6	OK	Double Eagle Refinery Co.	Oklahoma City	01	F	06/21/93	1	1996
				02	F	06/02/94	3	1995
6	OK	Fourth Street Abandoned Refinery	Oklahoma City	02	F	03/28/94	2	1995
6	OK	Mosley Road Sanitary Landfill	Oklahoma City	01	PRP	01/28/94	3	1995
				01	PRP	01/28/94	4	1995
				01	PRP	01/28/94	4	1995
6	OK	National Zinc Corp.	Bartlesville	01	F	09/22/92	2	1995
6	OK	Oklahoma Refining Co. (Pesses Chemical Co.)	Cyril	01	S	09/22/92	4	1996
6	TX	Crystal Chemical Co.	Houston	01	PRP	03/31/92	3	1996
				01	PRP	09/03/92	2	1995
6	TX	Koppers Co., Inc. (Texarkana Plant)	Texarkana	01	PRP	03/31/93	4	1997
				01	PRP	03/31/93	4	1997
6	TX	North Calvacade Street	Houston	02	S	03/28/91	1	1995
6	TX	Petro-Chemical Systems, Inc. (Turtle Bayou)	Liberty County	02	PRP*	09/25/92	2	1996
				03	PRP*	09/25/92	2	1996
6	TX	RSR Corp.	Dallas	03	F	07/15/93	2	1996
				04	F	05/10/93	2	1996
				05	F	05/10/93	2	1996
6	TX	Sheridan Disposal Service	Hempstead	01	PRP	12/29/89	1	1996
				02	PRP	03/29/90	2	1997
6	TX	South Cavalcade Street	Houston	01	PRP	07/30/90	1	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
6	TX	United Creosoting Co.	Conroe	03	S	03/26/92	1	1995
				03	S	03/26/92	2	1995
7	KS	29th & Mead Ground Water Contaminat ion	Wichita	02	PRP	05/18/94	4	1995
7	KS	Pester Refinery Co.	El Dorado	01	PS	09/29/93	2	1995
7	MO	Ellisville Site	Ellisville	04	EP	10/07/91	3	1995
				05	EP	10/07/91	3	1995
7	MO	MISSOURI ELECTRIC WORKS	NEED TO IDENTIFY	01	MR	09/26/94	3	1997
7	MO	Minker/Stout/Romaine Creek (Area 2: Fills 1 & 2)	Imperial	01	EP	05/01/91	3	1995
7	MO	Shenandoah Stables (once listed as Arena 1: Shenandoah Stables)	Moscow Mills	02	EP	05/01/91	3	1995
7	MO	Weldon Spring Quarry (USDOE/Army)	St. Charles County	02	FF	05/20/94	4	1996
				03	FF	11/09/93	3	1996
				03	FF	10/11/93	4	1996
7	MO	Weldon Springs Ordnance Works	St. Charles County	01	FF	04/04/94	4	1997
7	NE	Hastings Ground Water Contamination	Hastings	01	PRP	04/27/93	2	1996
				02	PRP	10/01/92	1	1995
				04	PRP	09/28/90	1	1997
8	CO	Broderick Wood Products	Denver	02	F	09/28/92	1	1995
8	CO	Central City - Clear Creek	Idaho Springs	01	S	06/15/88	1	1995
				03	S	09/30/91	1	1996
8	CO	Chemical Sales Co.	Commerce City	02	F	02/26/92	3	1995
8	CO	Denver Radium Site	Denver	08	PRP	06/07/92	1	1996
8	CO	Eagle Mine	Minturn/Redcliff	01	PS	05/20/88	2	1995
				01	PRP	06/08/94	2	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
8	CO	Rocky Flats Plant (USDOE)	Golden	02	FF	09/01/92	4	1995
8	CO	Rocky Mountain Arsenal	Adams County	27	FF	09/24/93	2	1995
				29	FF	12/09/93	2	1995
8	CO	SUMMITVILLE MINE	NEED TO IDENTIFY	00	F	09/16/94	1	1995
				01	F	09/30/94	2	1995
				02	F	09/16/94	2	1995
8	CO	Smuggler Mountain	Pitkin County	01	F	09/28/90	4	1991
8	MT	Idaho Pole Co.	Bozeman	01	PRP	09/08/93	2	1995
				01	PRP	09/08/93	2	1996
8	MT	Montana Pole and Treating	Butte	01	F	08/16/94	2	1996
8	UT	Hill Air Force Base	Ogden	04	FF	06/14/94	2	1996
8	UT	KENNECOTT TAILINGS/NORTH ZONE	NEED TO IDENTIFY	09	F	09/13/93	2	1995
8	UT	Monticello Mill Tailings (USDOE)	Monticello	01	FF	12/24/91	1	1996
				01	FF	10/29/91	1	1996
				01	FF	12/24/91	1	1996
				01	FF	01/12/93	2	1996
				02	FF	10/23/91	2	1995
				02	FF	05/12/92	3	1995
				02	FF	07/26/93	3	1995
8	UT	Monticello Radioactively Contaminated Properties	Monticello	03	F	11/23/93	4	1995
				05	FF	10/23/93	2	1995
8	UT	Sharon Steel Corp. (Midvale Tailings/Smelters)	Midvale	02	S	08/28/91	1	1995
				02	S	09/03/93	1	1995
				02	S	09/27/93	1	1996
8	UT	Utah Power & Light/American Barrel Co.	Salt Lake City	01	PRP	09/30/93	1	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
8	UT	Wasatch Chemical Co.	Salt Lake City	01	PRP	09/30/91	1	1995
9	AZ	Hassayampa Landfill	Hassayampa	01	PRP	04/26/93	3	1995
9	AZ	Indian Bend Wash Area	Scottsdale/Tmpe/Phnx	07	PRP	05/31/94	1	1995
9	AZ	Luke Air Force Base	Glendale	02	FF	04/01/94	3	1995
9	AZ	Nineteenth Avenue Landfill	Phoenix	01	PS	09/28/90	1	1995
9	AZ	Phoenix-Goodyear Airport Area	Goodyear	01	PRP	01/04/91	4	1996
				01	PRP	01/23/92	4	1998
9	AZ	Tucson International Airport Area	Tucson	01	PRP	01/07/89	1	1996
9	AZ	Williams Air Force Base	Chandler	01	FF	07/25/94	3	1995
9	CA	Brown & Bryant, Inc. (Arvin Plant)	Arvin	01	F	04/19/94	3	1995
9	CA	Castle Air Force Base	Merced	03	FF	03/01/93	2	1995
9	CA	Fairchild Semiconductor/Camera & (South San Jose Plant)	South San Jose	01	PRP	01/02/91	3	1996
				02	PRP	01/02/91	2	1996
9	CA	Fort Ord	Marina	03	FF	09/15/94	4	1997
				04	FF	05/17/94	1	1995
9	CA	George Air Force Base	Victorville	01	FF	03/07/94	2	1995
9	CA	Intel Corp. (Mountain View Plant)	Mountain View	01	PRP	05/14/91	4	1995
				02	PRP	05/14/91	3	1996
9	CA	Iron Mountain Mine	Redding	01	F	09/21/92	1	1995
				02	PRP	01/27/93	1	1995
				03	PRP	09/21/94	1	1995
9	CA	J.H. Baxter & Co.	Weed	01	PRP	08/19/91	1	1996
				01	PRP	08/19/91	1	1996

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
9	CA	Jasco Chemical Corp.	Mountain View	01	PRP	12/16/92	2	1995
9	CA	Koppers Co., Inc. (Oroville Plant)	Oroville	01	PRP	02/21/92	2	1996
				01	PRP	02/21/92	1	1995
9	CA	Lawrence Livermore National Laboratory (USDOE)	Livermore	01	FF	08/05/92	1	1998
9	CA	McColl	Fullerton	02	PRP	08/31/93	1	1996
9	CA	Moffett Naval Air Station	Sunnyvale	02	FF	02/04/94	3	1995
9	CA	Newmark Ground Water Contamination	San Bernadino	01	F	09/24/93	3	1995
9	CA	Operating Industries, Inc., Landfill	Monterey Park	03	PRP	04/01/92	3	1996
9	CA	Pacific Coast Pipe Lines	Fillmore	01	PRP	09/14/92	2	1995
9	CA	Purity Oil Sales, Inc.	Malaga	02	PRP	10/25/93	2	1996
9	CA	Raytheon Corp.	Mountain View	01	PRP	05/14/91	3	1996
				02	PRP	05/14/91	1	1996
9	CA	Riverbank Army Ammunition Plant	Riverbank	01	FF	03/23/94	2	1995
				01	FF	03/23/94	4	1995
9	CA	Sacramento Army Depot	Sacramento	04	FF	12/23/92	4	1995
				05	FF	08/31/93	4	1995
9	CA	San Fernando Valley (Area 2)	Los Angeles/Glendale	02	PRP	05/01/94	1	1996
				03	PRP	05/01/94	1	1996
9	CA	Stringfellow	Glen Avon Heights	04	PRP	07/25/90	3	1995
9	CA	Tracy Defense Depot	Tracy	02	FF	08/12/93	4	1995

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE	
9	CA	Valley Wood Preserving, Inc.	Turlock	01	F	06/25/92	4	1995
9	CA	Waste Disposal, Inc.	Santa Fe Springs	01	PRP	09/27/94	1	1996
10	ID	Bunker Hill Mining & Metallurgical	Smelterville	01	PRP	03/29/93	1	1995
				02	F*	03/29/93	4	1997
10	ID	Idaho National Engineering Lab (USDOE)	Idaho Falls	14	FF	02/17/94	3	1995
				18	FF	09/24/93	1	1996
10	OR	Umatilla Army Depot (Lagoons)	Hermiston	03	FF	09/12/84	2	1995
				04	FF	09/02/94	2	1995
				06	FF	09/02/94	2	1995
				07	FF	07/19/94	3	1995
10	WA	American Crossarm & Conduit Co.	Chehalis	01	F	01/14/94	4	1995
10	WA	Bangor Naval Submarine Base	Silverdale	01	FF	09/28/94	2	1995
				02	FF	09/13/94	1	1995
10	WA	Commencement Bay, Near Shore/Tide Flats	Pierce County	06	PS	01/15/93	2	1995
				07	PS	01/30/91	2	1995
				12	PRP	05/18/94	4	1998
				13	PRP	06/22/94	2	1997
10	WA	Fairchild Air Force Base (4 Waste Area)	Spokane County	02	FF	11/18/93	1	1995
10	WA	Fort Lewis Logistics Center	Tillicum	02	FF	10/15/93	2	1996
10	WA	Frontier Hard Chrome, Inc.	Vancouver	01	F	03/23/88	1	1996
10	WA	Hanford 100-Area (USDOE)	Benton County	01	FF	06/13/94	3	1995
10	WA	Naval Air Station, Whidbey Island (Ault Field)	Whidbey Island	01	FF	06/30/94	2	1995
				02	FF	08/05/94	2	1995

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10	WA	Queen City Farms	Maple Valley	01	PRP	09/20/94	3	1997
				02	PRP	09/22/94	4	1995
10	WA	Wycoff Co./Eagle Harbor	Bainbridge Island	03	PRP	04/04/94	1	1996

Appendix C
List of Records of Decision

This appendix provides a list of FY94 records of decision (RODs) signed from October 1, 1993, through September 30, 1994. Detailed descriptions of the feasibility studies, as required by CERCLA Section 301(h)(1)(A), are available in the publication *ROD Annual Report* FY94.

REGION	SITE	STATE	DATE
1	BFI Sanitary Landfill (OU1)	VT	09/21/94
	Brunswick NAS (OU6)	ME	09/30/94
	Central Landfill (OU1)	RI	06/17/94
	Coakley Landfill (OU2)	NH	09/30/94
	Loring AFB (OU2)	ME	09/30/94
	Loring AFB (OU6)	ME	04/04/94
	Loring AFB (OU7)	ME	09/30/94
	Old Southington Landfill	CT	09/22/94
	Pease AFB (Site 8)	NH	09/30/94
	Pease AFB (Sites 9 & 11)	NH	09/30/94
	Somersworth Sanitary Landfill	NH	06/21/94
2	Brook Industrial Park (OU1)	NJ	09/30/94
	Chemical Leaman Tank Lines	NJ	10/05/93
	Circuitron Corp	NY	09/30/94
	Cortese Landfill	NY	09/30/94
	Federal Aviation Admin. (OU4)	NY	09/30/94
	Federal Aviation Admin. (OU5)	NJ	08/17/94
	Fried Industries	NJ	06/27/94
	GCL Tie & Treating	NY	09/30/94
	Hooker Chem/Ruco Polymer Corp (OU1)	NY	01/28/94
	Jackson Township Landfill	NJ	09/26/94
	Juncos Landfill (OU2)	PR	10/05/93
	Kenmark Textile Corp	NY	03/30/94
	Naval Air Engineering (OU17)	NJ	09/26/94
	NL Industries	NJ	07/08/94
	Pollution Abatement Services	NY	12/29/93
	Radiation Technology (OU1)	NJ	05/09/94
	RCA Del Caribe (OU1)	PR	09/30/94
	Renora, Inc (OU2)	NJ	09/30/94

REGION	SITE	STATE	DATE
	Rockaway Township Wells	NJ	10/05/93
3	Aladdin Plating (OU2)	PA	12/30/93
	Austin Ave Radiation Site	PA	06/27/94
	Bell Landfill	PA	09/30/94
	Buckingham County Landfill	VA	09/30/94
	Dover Gas Light	DE	08/16/94
	Hranica Landfill (OU2)	PA	05/26/94
	Naval Weapons Sta. - Yorktown (OU1)	VA	09/29/94
	North Penn - Area 1	PA	09/30/94
	Revere Chemical Co	PA	12/27/93
	Stanley Kessler	PA	09/30/94
4	ABC One-Hour Cleaners	NC	09/06/94
	Aberdeen Pesticide Dumps	NC	10/07/93
	Agrico Chemical (OU2)	FL	08/18/94
	Airco Plating (OU1)	FL	10/01/93
	American Creosote (Pensacola) (OU2)	FL	02/03/94
	B&B Chemical	FL	09/12/94
	BMI Textron	FL	08/11/94
	Caldwell Lace Leather	KY	06/30/94
	Cedartown Municipal Landfill	GA	11/02/93
	Davie Landfill	FL	08/11/94
	Diamond Shamrock	GA	05/03/94
	Florida Steel	FL	03/30/94
	General Tire & Rubber (Mayfield)	KY	10/01/93
	Lexington County Landfill	SC	09/29/94
	Marzone/Chevron Chemical	GA	09/30/94
	Milan Army Ammo Plant	TN	09/30/94
	Murray-Ohio Dump (OU1)	TN	06/17/94
	National Starch & Chemical (OU3)	NC	10/07/93
	Peak Oil/Bay Drum (OU4)	FL	06/28/94
	Piper Aircraft/Vero Beach	FL	12/23/93
	Reeves Southeast Galvanizing (OU3)	FL	06/28/94
	Rock Hill Chemical	SC	06/27/94
	Sangamo Weston/Twelve Mile/Hartwell	SC	06/28/94
	Standard Auto Bumper	FL	12/10/93
	Townsend Saw Chain	SC	12/22/93
	USDOE Oak Ridge Reservation	TN	09/12/94
	USDOE Paducah Gas Diffusion	KY	03/28/94
	USDOE Savannah River (OU33)	SC	09/23/94
	USDOE Savannah River ((OU34)	SC	09/23/94
	USA Alabama Army Ammo Plant	AL	08/30/94
	USAF Homestead AFB (OU3)	FL	09/16/94
	USAF Robins AFB (OU2)	GA	03/29/94
	USMC Camp Lejeune (OU1)	NC	09/15/94
	USMC Camp Lejeune (OU5)	NC	09/15/94
	USMC Camp Lejeune (OU10)	NC	09/15/94
	USMC Logistics Base (OU1)	GA	09/24/94
	USN Air Sta. Cecil Field (OU2, Site 17)	FL	09/30/94

REGION	SITE	STATE	DATE
	USN Air Sta. Cecil Field (OU2, Site 5)	FL	09/30/94
	USN Air Sta. Cecil Field (OU6)	FL	09/14/94
	USN Air Sta. Cecil Field (OU7)	FL	03/31/94
	USN NAS Jacksonville (OU2)	FL	09/29/94
	USN NAS Jacksonville (OU1)	FL	08/11/94
	Woolfolk Chemical Works (OU1)	GA	03/25/94
5	Agate Lake Scrap Yard	MN	01/13/94
	Auto Ion Chemicals (OU2)	MI	09/23/94
	Conrail Railyard Elkhart (OU2)	IN	09/09/94
	Feed Materials Prod. Ctr.	OH	07/22/94
	Hechimovich Sanitary Landfill	WI	01/13/94
	J&L Landfill	MI	06/30/94
	Kent City Mobile Home Park	MI	09/13/94
	Lemberger Transport & Recycling (OU2)	WI	09/29/94
	MacGillis & Gibbs/Bell (OU3)	MN	09/22/94
	NW Mauthe Co.	WI	03/31/94
	Olmsted County Landfill	MN	06/21/94
	Ormet Corp	OH	09/12/94
	Perham Arsenic	MN	03/31/94
	Prestolite Battery	IN	08/23/94
	Ritari Post & Pole (OU1)	MN	06/30/94
	Sauk County Landfill	WI	03/24/94
	Torch Lake (OU2)	MI	03/31/94
	USAF Wright-Patterson AFB (OU1)	OH	06/30/94
	Van Dale Junkyard	OH	03/31/94
	Waite Park Wells	MN	07/14/94
	Waste Inc. Landfill	IN	08/18/94
6	D.L. Mud, Inc (OU1)	LA	09/22/94
	Double Eagle Refinery (OU2)	OK	04/19/94
	Dutchtown Treatment (OU1)	OK	06/20/94
	South 8th St. Landfill (OU1)	AR	09/29/94
7	Cornhusker Army Ammo Plant	NE	09/29/94
	Electro Coatings	IA	09/29/94
	Obee Road (OU1)	KS	06/30/94
	Strother Field Industrial Park (OU1)	KS	03/31/94
	Valley Park TCE (Wainwright OU)	MO	09/29/94
8	Anaconda Co. Smelter	MT	03/08/94
	Hill AFB (OU4)	UT	06/14/94
	Lowry Landfill	CO	03/10/94
	Sand Creek Industrial	CO	04/07/94
	Sharon Steel (Midvale Tailings)	UT	12/09/93
	Silver Bow Creek/Butte Area (OU3)	MT	09/29/94
	Tooele Army Depot (OU5,6,7,&10)	UT	09/29/94
	Williams Pipe Line Disposal Pit	SD	09/29/94
9	Apache Powder	CA	09/30/94

REGION	SITE	STATE	DATE
	Brown & Bryant (Arvin)	CA	11/08/93
	Castle AFB (OU2)	CA	11/12/93
	Fort Ord (OU2)	CA	08/23/94
	Fort Ord (OU4)	CA	03/15/94
	George AFB (OU1)	CA	03/08/94
	Luke AFB (OU2)	AZ	01/14/94
	Mather AFB	CA	12/29/93
	Norton AFB	CA	11/24/93
	Riverbank Army Ammo Plant	CA	03/23/94
	San Gabriel Valley (Baldwin Park)(Area 2)	CA	03/31/94
	Southern California Edison (Visalia)	CA	06/10/94
	Waste Disposal	CA	12/27/93
	Williams AFB (OU1)	AZ	05/02/94
10	Bangor Naval Sub Base (OU2)	WA	09/28/94
	Bangor Naval Sub Base (OU3)	WA	04/15/94
	Bangor Naval Sub Base (OU4)	WA	07/19/94
	Bangor Naval Sub Base (OU6)	WA	08/08/94
	Commencement Bay	WA	09/29/94
	Eielson AFB (OU1)	AK	09/27/94
	Eielson AFB (OU2)	AK	09/27/94
	Eielson AFB (OU6)	AK	09/27/94
	Elmendorf AFB	AK	09/29/94
	Harbor Island (Lead)	WA	06/28/94
	Idaho Nat Engineering Lab (OU7-12)	ID	01/27/94
	Idaho Nat Engineering Lab (OU8)	ID	09/27/94
	Naval Air Sta. Whidbey Is. (Seaplane)	WA	12/20/93
	Naval Air Sta. Whidbey Is. (OU1)	WA	12/20/93
	Naval Air Sta. Whidbey Is. (OU2)	WA	05/17/94
	Naval Undersea Warfare Sta. (OU2)	WA	09/28/94
	Northwest Transformer	WA	09/29/94
	Teledyne Wah Chang	OR	06/10/94
	Umatilla Army Depot (OU3)	OR	07/19/94
	Umatilla Army Depot (OU4)	OR	07/19/94
	Umatilla Army Depot (OU6)	OR	07/19/94
	Umatilla Army Depot (OU7)	OR	07/19/94
	Wycoff Co/Eagle Harbor (East Harbor OU)	WA	09/29/94
	Wycoff Co/Eagle Harbor (Groundwater OU)	WA	09/29/94

Appendix D
Progress Toward Meeting Superfund-Related Statutory Requirements

In response to a recommendation of the *Lautenberg-Durenberger Report on Superfund Implementation: Cleaning up the Nation's Cleanup Program*, EPA includes in this report the following matrix, which charts the progress of EPA and other government organizations in meeting statutory requirements imposed by SARA. The matrix lists all Superfund-related administrative and program implementation (rath-er than site-specific) requirements by statutory section, describes the mandated activity, indicates if the activity has been completed, and briefly describes what has been done to meet the requirement. If the activity has not been completed, its status is reported.

EPA and other government organizations have made significant progress towards meeting their statutory requirements. The matrix indicates that 34 of the 37 applicable one-time requirements with specific deadlines have been completed. Furthermore, 5 of the 12 requirements due annually have been completed for FY94 and the biannual requirement for FY94 has not been completed. Also, 25 of the 26 requirements with no specific deadline have been completed.

Progress Toward Meeting CERCLA-Related Statutory Requirements, as Amended by SARA[1/]

CERCLA Section	Statutory Deadline	Requirement	Status
102(a)	12/31/86[2/]	EPA to promulgate final regulations establishing reportable quantities (RQs) for all hazardous substances for which proposed RQs were published prior to March 1, 1986.	**Completed 05/08/92**—EPA promulgated final RQs for lead and methyl isocyanate in the *Federal Register* (*FR*) (56 *FR* 20014). **09/29/86, 08/14/89**—EPA promulgated final RQs for all hazardous substances (except for lead metal and methyl isocyanate) (51 *FR* 34534, 54 *FR* 33418, 54 *FR* 33426).
102(a)	12/31/86[2]	EPA to propose regulations establishing RQs for all hazardous substances for which proposed RQs were not published prior to March 1, 1986.	**Completed 03/16/87**—EPA proposed RQs for all hazardous substances for which proposed RQs were not published prior to March 1, 1986 (52 *FR* 8140). EPA proposed RQs for radionuclides (52 *FR* 8172).
102(a)	04/30/88[2/]	EPA to promulgate final regulations establishing RQs for all hazardous substances for which proposed RQs were not published prior to March 1, 1986.	**Completed 05/08/92**—EPA promulgated final RQs for the 16 remaining hazardous substances (56 *FR* 20014). **08/14/89**—EPA promulgated final RQs for all hazardous substances (except for 14 lead-containing wastes, lead acetate, and lead phosphate) (54 *FR* 33418, 54 *FR* 33426). **05/24/89**—EPA promulgated final RQs for radionuclides (54 *FR* 22524).

1/ In this matrix, requirements of CERCLA, as amended by SARA, precede requirements of SARA that do not amend CERCLA.

2/ Deadline specified in statute rather than correlated to date of enactment.

CERCLA Section	Statutory Deadline	Requirement	Status
104(c)(9)	10/17/89	States to provide assurances of availability of hazardous waste treatment or disposal facilities.	**Completed 03/19/90**—All 50 states and the District of Columbia have submitted plans. **12/29/88**—EPA issued guidance to state officials on providing assurances (53 *FR* 52783).
104(i)(2)(A)	04/17/87	Agency for Toxic Substances and Disease Registry (ATSDR) and EPA to produce list of 100 hazardous substances most commonly found at National Priority List (NPL) sites that pose significant human health risks.	**Completed 04/17/87**—ATSDR and EPA published a list of the first set of 100 hazardous substances (52 *FR* 12866).
104(i)(2)(B)	10/17/88	ATSDR and EPA to produce list of a total of 200 hazardous substances including the first set of 100 substances most commonly found at NPL sites that pose significant human health risks.	**Completed 10/20/88**—ATSDR and EPA published a list of 200 hazardous substances which includes the first and second set of hazardous substances (53 *FR* 41280).
104(i)(2)(B)	10/17/89[3]	ATSDR and EPA to add no fewer than 25 hazardous substances to list of those most commonly found at NPL sites that pose significant human health risks.	**Completed 10/26/89, 10/17/90, 10/17/91**—EPA published three lists of 25 hazardous substances each (54 *FR* 43619, 55 *FR* 42067, 56 *FR* 52166). **11/25/91**—Corrections to the 10/17/91 list were published (56 *FR* 59331).
104(i)(2)(B)	10/17/92[4]	ATSDR and EPA to revise list of hazardous substances most commonly found at NPL sites that pose significant human health risks.	**10/17/91**—EPA expects to revise the list annually (56 *FR* 52166). **Completed 10/28/92**—Notice of availability of revised CERCLA Priority List of 275 Hazardous Substances was published (57 *FR* 48801).

[3] Due annually on this date through 1991.

[4] Due annually on this date beginning in 1992.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(2)(B) (cont.)	10/17/92[4]	ATSDR and EPA to revise list of hazardous substances most commonly found at NPL sites that pose significant human health risks.	**Completed 02/28/94**—Notice of availability of revised CERCLA Priority List of 275 Hazardous Substances was published (59 *FR* 9486). **03/30/95**—Notice of Proposed Revised Publication Schedule for the Priority List of Hazardous Substances that will be the subject of Toxicological Profiles (60 *FR* 16478).
104(i)(3)	10/17/87[5]	ATSDR to prepare toxicological profiles on each of the hazardous substances on the list of those most commonly found at NPL sites that pose significant human health risks.	**Completed 10/15/87**—The first set of 25 profiles was announced for public comment (52 *FR* 38340). **04/06/89, 06/28/89, 12/01/89**—Notices of availability of 15 final profiles were published (54 *FR* 14037, 54 *FR* 26417, 54 *FR* 49816). **12/17/90**—Notice of availability of all 25 final profiles was published (55 *FR* 51775). **Completed 12/20/88**—The second set of 25 profiles was announced for public comment (53 *FR* 51192). **08/14/90**—Notice of availability of final profiles was published (55 *FR* 33172). **Completed 10/17/89**—The third set of 30 profiles was announced for public comment (54 *FR* 42568). **06/13/91**—Notice of availability of final profiles was published (56 *FR* 27261). **06/26/91**—Notice of availability of the correction to final profiles was published (56 *FR* 29308).

[4] Due annually on this date beginning in 1992.

[5] Profiles for original 100 hazardous substances on list must be completed at a rate of no fewer than 25 per year by 10/17/90.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(3) (cont.)	10/17/87[5]	ATSDR to prepare toxicological profiles on each of the hazardous substances on the list of those most commonly found at NPL sites that pose significant human health risks.	**Completed 10/16/90**—The fourth set of 30 profiles was announced for public comment (55 *FR* 41881). **09/12/91**—An additional three fluoride compound profiles were announced for public comment (56 *FR* 46436). **Completed 10/17/91**—The fifth set of 19 profiles was announced for public comment (58 FR 52036). **10/08/92**—An additional five profiles were announced for public comment (57 *FR* 46393). **03/26/93**—Notice of availability of final profiles was published for 28 of 30 draft profiles in the fourth set (58 *FR* 16410). **04/16/93**—Notice of availability of corrections to final profiles was published (58 *FR* 19823). **11/14/94**--Notice of availability of the sixth set of profiles comprised of 6 final and 9 updated finals profiles was published (59 *FR* 56498).
104(i)(3) (cont)	[6]	ATSDR to revise and republish toxicological profiles.	**10/17/91**—The first set of 20 updated draft profiles was published (56 *FR* 52086). **11/25/91**—Correction to the 20 updated profiles was published (56 *FR* 59330). **10/08/92**—Notice of availability of 10 updated draft profiles was published (57 *FR* 46393). **10/18/93**—Notice of availability of six updated drafts and five new draft profiles was published (58 *FR* 53739).

[5] Profiles for original 100 hazardous substances on list must be completed at a rate of no fewer than 25 per year by 10/17/90.

[6] Profiles for hazardous substances must be revised within three years after addition to list.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(3)	6/	ATSDR to revise and republish toxicological profiles.	**10/1/93**—Notice of the availability of 19 final updated profiles from the fifth set and two from the fourth set was published (58 *FR* 51352). **10/21/94**—Notice of availability of 8 updated draft profiles and 2 new draft profiles was published (59 *FR* 53186).
104(i)(5)(A)	7/	ATSDR, in consultation with EPA and the Public Health Service, to assess whether adequate information is available on the health effects of those hazardous substances most commonly found at NPL sites that pose significant human health risks.	ATSDR includes assessments in the "Adequacy of the Database" section of the toxicological profiles required by CERCLA Section 104(i)(3). Subsequently, ATSDR refines these assessments.
104(i)(5)(A)	7/	ATSDR, in cooperation with the National Toxicology Program (NTP), to assure the initiation of a program of research designed to determine the health effects (and techniques for development of methods to determine such health effects) of substances for which adequate information is not available (or under development).	**Completed 09/11/89**—ATSDR published *Decision Guide for Identifying Substance-Specific Data Needs Related to Toxicological Profiles* (54 *FR* 37618). **03/28/90**—ATSDR published the results of a pilot exercise that identified priority data needs for specific substances (55 *FR* 11566). **10/17/91**— The Substance-Specific Research Program was initiated, in which 38 substances were classified as priority leads (56 *FR* 52178).
104(i)(5)(D)	10/17/87	EPA to promulgate regulations for the payment and recovery of costs of health effects research programs established under CERCLA Section 104(i)(5).	**Completed 03/08/90**—The revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP) satisfies the statutory requirement (NCP Subpart B 300.160(d) (55 *FR* 8666)); see also preamble to proposed rule (53 *FR* 51402).

6/ Profiles for hazardous substances must be revised within three years after addition to list.

7/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(6)(A)	12/10/88[2/]	ATSDR to complete health assessments for facilities proposed for the NPL prior to SARA's date of enactment.	**Completed 12/08/88**—Health assessments were performed for 951 facilities.
104(i)(6)(A)	[8/]	ATSDR to complete health assessments for facilities proposed for the NPL after SARA's date of enactment.	**Ongoing**—During FY94, ATSDR completed 293 health assessments, including 17 petitioned assessments. (See ATSDR Section of Report.)
104(i)(10)	10/17/88[9/]	ATSDR to submit report to EPA and Congress on ATSDR activities.	**Completed August 1989, August 1990, February 1992, October 1994**—Volumes I and II of the 1987-88 biannual report, the 1989-90 biannual report, and the 1991-92 biannual report were submitted to EPA and Congress. As of May 1995 the 1993-94 report is being compiled.

[2/] Deadline specified in statute rather than correlated to date of enactment.

[8/] Health assessments to be completed within one year of date of proposal on NPL.

[9/] Due biannually from 10/17/88.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(14)	[1]	ATSDR to assemble and develop as necessary, educational materials (including short courses) on the medical surveillance, screening, and methods of diagnosis and treatment of injury or disease related to exposure to hazardous substances. The material will be distributed to the states and upon request to medical colleges, physicians, and other health professionals.	Completed 09/13/89—ATSDR created the Division of Health Education to implement the ongoing program. **FY90**—ATSDR developed 40,000 case studies in environmental medicine, which were distributed through states, counties, and professional organizations; ATSDR negotiated and implemented 20 state cooperative agreements for physician education training in environmental medicine; and ATSDR developed a state training course materials and provided support to conduct training (2,800 health professionals trained). **FY91**—ATSDR funded the Association of State and Territorial Health Officials to implement state courses in risk communication (56 *FR* 41693); ATSDR funded state departments of health and departments of the environment to educate health professionals on hazardous substance exposure in the environment (56 *FR* 41694); and ATSDR funded the Association of Occupational and Environmental Clinics to improve the methodology for diagnosing injury related to hazardous substance exposure (56 *FR* 41691).

[1] Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(14) (cont.)	[1]	ATSDR to assemble and develop as necessary, educational materials (including short courses) on the medical surveillance, screening, and methods of diagnosis and treatment of injury or disease related to exposure to hazardous substances. The material will be distributed to the states and upon request to medical colleges, physicians, and other health professionals.	**FY92**—More than 5,000 health professionals were trained during the fiscal year. ATSDR distributed over 110,000 copies of *Case Studies in Environmental Medicine* to health professionals. Five case studies were published in the *Journal of the American Academy of Family Physicians. Case Studies in Environmental Medicine: Nitrate/Nitrite Toxicity* was distributed to 38,000 members of the American Academy of Pediatrics. **FY93**—More than 5,000 health professionals were trained during the fiscal year. ATSDR distributed over 69,000 copies of *Case Studies in Environmental Medicine* to health professionals. Seven case studies were published in the *Journal of the American Academy of Family Physicians.* Nine additional case studies in environmental medicine were produced. Seventeen cooperative agreements with states were operational in FY93 through which six communication workshops were conducted.

[1] Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(14) (cont.)	[1]	ATSDR to assemble and develop as necessary, educational materials (including short courses) on the medical surveillance, screening, and methods of diagnosis and treatment of injury or disease related to exposure to hazardous substances. The material will be distributed to the states and upon request to medical colleges, physicians, and other health professionals.	**FY94**—More than 5,000 health professionals were trained during the fiscal year. ATSDR distributed over 136,400 copies of *Case Studies in Environmental Medicine* to health professionals. Approximately 4,700 health professionals received CME credit for their participation in the case studies program. Over 22,000 copies of guidance documents on managing chemically contaminated patients were operational in FY94. distributed. Twenty cooperative agreements with states and one with tribes were operational in FY94.
105(b)	04/17/88	EPA to revise the NCP.	**Completed 03/08/90**—EPA published the revised NCP (55 *FR* 8666).
105(c)(1)	04/17/88	EPA to promulgate amendments to the hazard ranking system (HRS).	**Completed 12/14/90**—EPA published the revised HRS (55 *FR* 51532).
105(c)(1)	10/17/88	EPA to establish effective date for the amended HRS.	**Completed 12/14/90**—The revised HRS became effective 03/14/91, 90 days after publication in the *Federal Register*.

[1] Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
107(f)(2)(A)	[1]	EPA to designate federal natural resource trustees in the NCP.	**Completed 11/20/85**—EPA designated federal natural resource trustees in Section 307.2 of the NCP (50 *FR* 47912). **03/08/90**—Section 300.72 of the NCP was revised and renumbered as Section 300.600 (55 *FR* 8666).
107(f)(2)(B)	[1]	States to designate state natural resource trustees and notify the Department of the Interior (DOI) of such designations.	48 states and four territories have officially designated natural resource trustees as of May 1995.
107(k)(6)	[1]	Comptroller General to conduct a study of options for the management of the liabilities associated with hazardous waste treatment, storage, and disposal sites after their closure.	**Completed 06/01/90**—The General Accounting Office (GAO) published a report entitled *Hazardous Waste—Funding of Post-Closure Liabilities Remains Uncertain* (GAO/RCED-90-64).
109(d)	[1]	EPA to prescribe criteria (by regulation) for paying an award to any individual who provides information leading to the arrest and conviction of any person for a violation subject to criminal penalty under CERCLA.	**Completed 05/05/88**—EPA issued an interim final rule (IFR) prescribing criteria for citizen awards for information on criminal violations under Superfund (53 *FR* 16086). **06/21/89**—EPA published a final rule identical to the IFR (54 *FR* 26142).
111(k)	Annually	Inspector General (IG) of federal agencies, departments, or instrumentalities to conduct audits and submit audit reports to Congress of all uses of the Hazardous Substances Trust Fund in the prior fiscal year.	**Completed September 1988, September 1989, September 1990, September 1991, September 1992, September 1993, and September 1994**—EPA submitted FY87, FY88, FY89, FY90, FY91, FY92, and FY93 reports to Congress.

[1] Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
111(o)	01/17/87	EPA to develop and implement procedures to adequately notify concerned local and state officials of limitations on the payment of claims for response costs incurred for sites on NPL.	**Completed 02/05/87**—EPA published the notice of regulatory limitations on response claims (52 *FR* 3699). **09/13/89**—Proposed rule for response claims procedures for hazardous substances Superfund was published (54 *FR* 37892). **01/21/93**—Final rule was published (58 *FR* 5460).
112(b)(1)	1/	EPA to prescribe appropriate forms and procedures for response claims filed under CERCLA.	**Completed 01/21/93**—EPA published the final rule (58 *FR* 5460). **09/13/89**—EPA published proposed regulations to establish response claims procedures (54 *FR* 37892). **02/08/93**—EPA published the IFR regarding administrative hearing procedures for claims asserted against Superfund (58 *FR* 7704). **01/03/94**—The final rule on administrative hearing procedures for claims asserted against Superfund was published (59 *FR* 25).
113(k)	1/	EPA to promulgate regulations that will establish procedures for public participation in the development of the administrative record.	**Completed 03/08/90**—Regulations were included in revised NCP Subpart I (55 *FR* 8666).
116(a)(1)	01/01/88 2/	EPA to complete preliminary assessments (PAs) of all facilities contained on the CERCLA Information System (CERCLIS) as of SARA's date of enactment.	**Completed 01/01/88**.

1/ Specific deadline not stated in statute.

2/ Deadline specified in statute rather than correlated to date of enactment.

CERCLA Section	Statutory Deadline	Requirement	Status
116(a)(2)	01/01/89[2/]	Following completion of PAs, EPA to complete site inspections (SIs) at facilities contained in CERCLIS as of SARA's date of enactment, as necessary.	Completed December 1994—All ten Regions have met the requirement.
116(b)	10/17/90	Following completion of PAs or SIs, EPA to complete evaluation of each facility listed in CERCLIS as of SARA's date of enactment, as warranted.	Following completion of PAs or SIs, EPA will take appropriate steps to mitigate, through remedial or removal authority or both, the threat at facilities based on the policy of addressing worst sites first.
116(d)(1)	10/17/89	EPA to start 275 remedial investigations/feasibility studies (RI/FSs).	Completed May 1989.
116(d)(2)	10/17/90	EPA to start a total of 450 RI/FSs only if 275 starts deadline not met.	Not applicable—Prior deadline met.
116(d)(2)	10/17/91	EPA to start a total of 650 RI/FSs only if 275 starts deadline not met.	Not applicable—Prior deadline met.
116(e)(1)	10/17/89	EPA to start 175 remedial actions (RAs) at individual NPL sites.	Completed 02/01/90.
116(e)(2)	10/17/91	EPA to start an additional 200 RAs at individual NPL sites.	Completed during FY93
117(e)	[2/]	EPA to promulgate regulations for issuing Technical Assistance Grants.	Completed 10/01/92—EPA published the final rule (57 *FR* 45311).
119(c)(7)	[2/]	EPA to develop guidelines and promulgate regulations on the indemnification of response action contractors.	Completed 01/25/93—EPA published the final guidelines (58 *FR* 5972).

[2/] Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
119(c)(8)	09/30/89[2]	Comptroller General to report to Congress on application of CERCLA's provisions for the indemnification of response action contractors.	Completed 09/26/89—GAO published a report entitled *Contractors Are Being Too Liberally Indemnified by the Government* (GAO/RCED-89-160).
120(c)	[1]	EPA to establish Federal Agency Hazardous Waste Compliance Docket and make available for public inspection.	Completed 02/12/88—Notice of the initial list of 1,095 federal facilities was published (53 *FR* 4280). The public may review and copy specific documents in the Docket by contacting the Federal Facilities Docket Hotline.
120(c)	Semiannually	EPA to publish updates of Federal Agency Hazardous Waste Compliance Docket.	Completed 11/16/88, 12/15/89, 08/22/90, 09/27/91, 12/12/91, 07/17/92, 02/05/93, 11/10/93—EPA published the first eight updates (53 *FR* 46364, 54 *FR* 51472, 55 *FR* 34492, 56 *FR* 49328, 56 *FR* 64898, 57 *FR* 31758, 58 *FR* 7298, 58 FR 59790).
120(d)	04/17/88	EPA shall take steps to assure that a PA is conducted for each facility on the initial Federal Agency Hazardous Waste Compliance Docket.	Completed 04/17/88—EPA took steps to assure that federal agencies complied with this process prior to the statutory deadline.[10]
120(d)	04/17/89	Following PAs, EPA where appropriate evaluates federal facilities with criteria established in accordance with Section 105 under the NCP for determining priorities among releases; those facilities meeting the criteria are to be included on the NPL.	EPA evaluates federal facilities where appropriate. During FY94, 10 federal facilities were proposed to the NPL, and 24 were listed as final, bringing the total number of proposed sites to 10 and the total number of final sites to 150. Hence, there were 160 listed and proposed federal facility sites at the end of FY94.

[2] Deadline specified in statute rather than correlated to date of enactment.

[10] The Administrator's duty was, by April 1988, to reasonably facilitate completion of the preliminary assessments, not to guarantee that the other agencies would complete them by that date. In fact, EPA believes that it did take the required steps. We note, however, that a federal district court reached a different conclusion. (See *Conservation Law Foundation of New England v. Reilly*).

CERCLA Section	Statutory Deadline	Requirement	Status
120(e)(1)	[7]	EPA and states to publish timetable and deadlines for completion of RI/FSs at federal facilities listed on NPL.	Schedules for completion of RI/FSs at federal facilities are routineiy developed pursuant to interagency agreements (IAGs), or are published by EPA and the state when IAG negotiations are unsuccessful. IAGs have been signed for 129 of the 150 federal facility sites as of FY94.
120(e)(1)	10/17/87	Federal departments, agencies, or instrumental-ities to begin RI/FSs for federal facilities listed on NPL prior to SARA's date of enactment.	Not applicable—No federal facilities were listed on NPL prior to SARA's date of enactment.
120(e)(1)	[11]	Federal departments, agencies, or instrumental-ities to begin RI/FSs for federal facilities listed on NPL.	**07/22/87**—The first federal facilities were listed the on NPL (52 *FR* 27620). CERCLIS reports that approximately 60 RI/FSs were started at federal facility sites during FY94.
120(e)(2)	[12]	Federal departments, agencies, or instrumental-ities to enter into IAGs with EPA for completion of RAs for federal facilities listed on NPL.	EPA policy is to enter into an IAG with federal facilities (listed on the NPL) during the RI/FS stage, prior to the RA stage. As a result, RA IAGs are completed well in advance of the statutory mandate. At the end of FY94, 129 IAGs had been signed including 9 IAGs signed during FY94. (See Federal Facility Cleanups Section of Report.)

[7] Specific deadline not stated in statute.

[11] Not later than six months after listing of federal facility on NPL.

[12] Within 180 days after EPA review of RI/FS.

CERCLA Section	Statutory Deadline	Requirement	Status
120(e)(2)	[13]	Federal departments, agencies, or instrumental-ities to begin RAs for federal facilities listed on NPL.	During FY94, approximately 40 RAs for federal facilities on the NPL began. (See Federal Facility Cleanups Section of Report.)
120(e)(3)	Annually with budget	Federal agencies to review alternative agency funding to provide for costs of RAs. Agencies to submit statement of the hazard posed by facilities and identify consequences of failure to begin and complete RAs.	**Completed January 1987, January 1988, January 1989, January 1990, January 1991, January 1992, January 1993, January 1994, January 1995**—Information is included in the annual budget submissions to Congress.
120(e)(5)	Annually	Federal agencies, departments, or instrumentalities to submit reports to Congress on progress in implementing CERCLA federal facility requirements.	**Completed May 1989, April 1990, September 1990, February 1992, and February 1994**—EPA's reports were included in FY87, FY88, FY89, FY90, and FY91 Reports to Congress, required under CERCLA Section 301(h)(1). **Ongoing May 1995**—FY92, FY93, and FY94 Reports to Congress are in review.
120(h)(2)	04/17/88	EPA, in consultation with the General Services Administration, to promulgate regulations on the form and manner of notice required whenever any federal department, agency, or instrumentality enters into a contract to sell or transfer property owned by the United States on which a hazardous substance was stored, disposed, or released.	**Completed 04/16/90**—The final rule was published (55 *FR* 14208).

[13] Not later than 15 months after completion of RI/FS.

CERCLA Section	Statutory Deadline	Requirement	Status
121(c)	1/	EPA to report to Congress a list of facilities for which a five-year review is required, the results of all such reviews, and any actions taken.	**Completed May 1989, April 1990, September 1990, February 1992, and February 1994**—EPA's reports were included in FY87, FY88, FY89, FY90, and FY91 Reports to Congress, required under CERCLA Section 301(h)(1). **Ongoing May 1995**—FY92, FY93, and FY94 Reports to Congress are in review.
121(f)	1/	EPA to promulgate regulations providing for state involvement in initiation, development, and selection of remedial activities.	**Completed 03/08/90**—Regulations are included in the revised NCP Subpart F (55 *FR* 8666).
122(e)(1)	1/	EPA to issue procedures for special notice regarding negotiation with potentially responsible parties.	**Completed 10/19/87**—EPA sent procedural guidelines to Regional Administrators from Assistant Administrator for OSWER (OSWER Directive #9834.10). **02/23/88**—Guidelines were published as *Interim Guidance on Notice Letters, Negotiations, and Information Exchange* (53 *FR* 5298). **02/07/89**—EPA published Appendix C to the Interim Guidance (Model Notice Letters) (OSWER Directive #9834.10).
122(e)(3)(A)	1/	EPA to develop guidelines for preparing nonbinding preliminary allocations of responsibility (NBAR).	**Completed 05/28/87**—EPA published the interim final guidelines (52 *FR* 19919). **May 1991**—EPA published *Summary of "Interim Guidelines for Preparing NBARs"* (OSWER Directive #9839.1FS).

1/ Specific deadline not stated in statute.

1/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
123(d)	10/17/87	EPA to promulgate regulations for reimbursement to local governments for costs incurred in responding to the release or threatened release of a hazardous substance, pollutant, or contaminant.	**Completed 01/15/93**—EPA published the final rule (58 *FR* 4816). **10/21/87**—IFR was published (52 *FR* 39386).
126(c)	FY88 budget request	EPA to submit report to Congress on hazardous waste sites on Indian lands.	**Completed 11/06/87**—Report entitled *Hazardous Waste Sites on Indian Lands* was submitted to Congress.
301(c)(1)	04/17/87	DOI to issue regulations for the assessment of damages for injury to, destruction of, or loss of natural resources resulting from a release of oil or a hazardous substance.	**Completed 02/22/88**—Final regulations were published (53 *FR* 5166).
301(g)	10/17/87	Comptroller General to submit report to Congress on the results of the insurability study.	**Completed 10/16/87**—GAO published a report entitled *Issues Surrounding Insurance Availability* (GAO/RCED-88-2).
301(h)(1)	Annually	EPA to submit report to Congress on CERCLA implementation.	**Completed May 1989, April 1990, September 1990, February 1992, and February 1994**—EPA's reports were included in FY87, FY88, FY89, FY90 and FY91 Reports to Congress, required under CERCLA Section 301(h)(1). **Ongoing May 1995**—FY92, FY93, and FY94 Reports to Congress are in review.

CERCLA Section	Statutory Deadline	Requirement	Status
301(h)(2)	7/	EPA IG to review EPA's Report to Congress required under CERCLA Section 301(h)(1).	**Completed May 1989, April 1990, September 1990, and February 1992, September 1993**—EPA's reports included in FY87, FY88, FY89, FY90 and FY91 Reports to Congress, required under CERCLA Section 301(h)(1). **Ongoing May 1995**—FY92, FY93, and FY94 Reports to Congress are in review.
306(a)	14/	Department of Transportation (DOT) to list and regulate hazardous substances, listed or designated under CERCLA Section 101(14), as hazardous materials under the Hazardous Materials Transportation Act.	**Completed 08/21/89**—DOT, through the Research and Special Programs Administration (RSPA), amended Hazardous Materials Regulations (HMR) by revising the *List of Hazardous Substances and Reportable Quantities* (54 *FR* 34666). **11/07/90**—RSPA published additional revisions to the list in the HMR (55 *FR* 46794).
310(d)(1)	7/	EPA to issue regulations describing manner of notice of citizen suits.	**Completed 11/23/92**—EPA published the final rule (54 *FR* 55038). **12/28/92**—Correction to the final rule was published (51 *FR* 61612).

7/ Specific deadline not stated in statute.

14/ Requirements to be completed by November 17, 1986, or at the time each substance is listed or designated as hazardous under CERCLA, whichever is later.

CERCLA Section	Statutory Deadline	Requirement	Status
311(a)(1)	[1]	Department of Health and Human Services (HHS) to establish and support a basic hazardous substance research and training program.	**Completed 09/14/87**—HHS published a notice of availability of final National Institute of Environmental Health Sciences (NIEHS) Hazardous Substances Basic Research and Training Plan (52 *FR* 34721). HHS previously initiated steps to establish the program, including a draft program description published by HHS on 11/28/86 (51 *FR* 43089); and the first public meeting to solicit comments on 12/15/86.
311(a)(5)	[1]	HHS to appoint an advisory council to assist in implementing and coordinating activities for the hazardous substance research and training program established under CERCLA Section 311(a)(1).	**Completed 03/13/87**—HHS appointed the NIEHS Advisory Council on Hazardous Substances Research and Training (52 *FR* 7934). **07/20/87**—Advisory Council was first convened.
311(a)(6)	07/17/87	HHS, through NIEHS, to issue a plan to implement the hazardous substance research and training program established under CERCLA Section 311(a)(1).	**Completed 09/14/87**—Notice of availability of the final version of the NIEHS Hazardous Substances Basic Research and Training Plan was published (52 *FR* 34721).
311(b)(1)	[1]	EPA to carry out a program of research, evaluation, testing, development, and demonstration of alternative or innovative technologies.	**Completed December 1986**—EPA published the Superfund Innovative Technology Evaluation (SITE) Strategy and Program Plan (EPA/540/G-86/001). The program is ongoing.

[1] Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
311(b)(5)(B)	01/17/87[15]	EPA to publish a solicitation for innovative or alternative technologies suitable for full-scale demonstration at Superfund sites.	Completed January 1986, January 1987, January 1988, January 1989, January 1990, January 1991, January 1992, January 1993, January 1994, January 1995—Solicitations were published.
311(b)(6)	[16]	EPA to initiate or cause to be initiated at least 10 field demonstration projects of alternative or innovative treatment technologies.	**FY87**—1 site demonstration was completed. **FY88**—6 site demonstrations were completed. **FY89**—7 site demonstrations were completed. **FY90**—4 site demonstrations were completed. **FY91**—7 site demonstrations were completed. **FY92**—15 site demonstrations were completed. **FY93**—8 site demonstrations were completed. **FY94**—13 site demonstrations were completed.

[15] First solicitation due January 17, 1987; subsequent solicitations to be published no less often than annually.

[16] Due in fiscal years 1987, 1988, 1989, and 1990.

CERCLA Section	Statutory Deadline	Requirement	Status
311(b)(8)	[1]	In carrying out the SITE program established under CERCLA Section 311(b)(1), EPA to conduct a technology transfer program and establish and maintain a central reference library on relevant information.	**Completed December 1986**—EPA announced the publication of program reports and documents (e.g., demonstration reports, bulletins) through the Center for Environmental Research Information. **09/01/87**—EPA established the electronic Bulletin Board System (BBS), including a "SITE Conference." **05/08/89**—EPA established the Alternative Treatment Technology Information Center (ATTIC). EPA eliminated the SITE Conference from the BBS; important program information is available through ATTIC. **08/07/91**—SITE announced an update of the ATTIC system which will include bioremediation technologies (56 *FR* 37543).
311(d)	[1]	EPA to make grants to universities to establish and operate not fewer than five hazardous substance research centers.	**Completed FY89, FY90, FY91**—EPA made $1 million grants to each of five hazardous substance research centers. **Completed FY92**—EPA made two-year grants to five hazardous substance research centers for a total of $1.4 million.
311(e)	Annually with budget	EPA to submit report to Congress on progress of the SITE program established under CERCLA Section 311(b)(1).	**Completed February 1988, March 1989, March 1990, September 1991, October 1992, October 1993, July 1994**—FY87, FY88, FY89, FY90, FY91, FY92, and FY93 SITE program reports were submitted to Congress. As of March 1995, the FY94 SITE program report was in review.

[1] Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
312(e)	[1]	EPA to conduct habitability and land use study of the Love Canal Emergency Declaration Area, and to work with New York State (NYS) to develop recommendations based upon the study results.	**Completed 07/28/88**—The study was submitted to the NYS Commissioner of Health. **September 1988**—The commissioner issued a follow-up report. **07/10/89**—Love Canal Land Use Advisory Committee issued recommendations. **May 1990**—Love Canal Area Revitalization Agency published a final generic environmental impact statement. **June 1990**—The Agency published the Love Canal Area Master Plan.

[1] Specific deadline not stated in statute.

Progress Toward Meeting SARA-Related Statutory Requirements

SARA Section	Statutory Deadline	Requirement	Status
118(b)	01/17/87	EPA to grant $7.5 million to New Jersey for removal and temporary storage of radon contaminated soil.	Completed 01/15/87—The grant was made to New Jersey.
118(d)	07/01/87[2]	Comptroller General to submit report to Congress on study of shortages of skilled personnel in EPA.	Completed 10/26/87—GAO published a report entitled *Improvements Needed in Work Force Management* (GAO/RCED-88-1).
118(f)	03/01/87[2]	ATSDR to submit report to Congress on the nature and extent of lead poisoning in children from environmental sources.	Completed 07/12/88—The report entitled *Nature and Extent of Lead Poisoning in Children in the United States* was submitted to Congress.
118(j)	04/17/87	EPA to submit report to Congress on joint use of vehicles for transportation of hazardous and non-hazardous substances.	Completed 04/20/87—The report entitled *A Study of Joint Use of Vehicles for Transportation of Hazardous and Non-Hazardous Materials* was submitted to Congress (OSWER Directive #9360.6-01).
118(k)(1)	10/17/87	EPA to submit report to Congress on radon site identification and assessment.	Completed 02/23/90—The report was submitted to Congress.
118(k)(2)(A)	[1]	EPA to conduct a demonstration program to test methods and technologies of reducing or eliminating radon gas and radon daughters where it poses a threat to human health.	Completed September 1985—EPA established the Radon Action Program. Since the enactment of SARA, EPA has focused its program efforts to meet the statutory mandate.

[2] Deadline specified in statute rather than correlated to date of enactment.

[1] Specific deadline not stated in statute.

SARA Section	Statutory Deadline	Requirement	Status
118(k)(2)(B)	02/01/87[2/,17/]	EPA to submit report on radon mitigation demonstration program.	**Completed 06/12/87, 01/18/89, 02/26/90, 01/15/91**—The FY86, FY87, FY88, and FY89 reports have been submitted to Congress. **Ongoing January 1995**—The FY90 and FY91 reports are in the review process.
118(n)(1)	04/17/87	Department of Energy (DOE) to carry out program at the Liquified Gaseous Spills Test Facility. Program to test and evaluate technologies utilized in responding to liquified gaseous and other hazardous substance spills that threaten human health or the environment.	**Completed 06/30/87**—Memorandum of understanding was developed among DOE, EPA, and DOT. **1990**—Determinations were made of aqueous foams' effectiveness in extinguishing chlorosilane fires and vapor suppression; and near field behavior and aerosol formation from pressurized releases of Superfund liquids. An assessment of totally encapsulated chemical protective (TECP) suits' effectiveness in very high concentrations of toxic/hazardous chemicals was also made. **1991**—Testing of TECP suits continued. **1992**—Testing of TECP suits continued. Hazardous materials training was developed for spill control, mitigation, and cleanup.

2/ Deadline specified in statute rather than correlated to date of enactment.

17/ Due annually on this date beginning in 1987.

SARA Section	Statutory Deadline	Requirement	Status
118(n)(3)	7/	EPA to enter into contracts and grants with a nonprofit organization in Albany County, Wyoming, to carry out program established under CERCLA Section 118(n)(1).	**Completed 1988**—EPA entered into contract with the Western Research Institute (WRI) to carry out technology transfer program requirements under CERCLA Sections 118(n)(2)(A), (B), and (D). **September 1990**—DOE entered into a second contract with WRI that is scheduled to run until 1995, which continues to address requirements under CERCLA Section 118(n)(2).
121(b)(2)	11/17/86	EPA Administrator to certify in writing that RODs or consent decrees covering RAs, signed within 30 days of enactment of SARA, comply to the maximum extent practicable with Section 121 of CERCLA.	**Completed 11/17/86**—All three RODs that were signed comply; no consent decrees were lodged during this period.
126(a)	10/17/87	Department of Labor (DOL) to promulgate standards for the health and safety protection of employees engaged in hazardous waste operations.	**Completed 03/06/89**—DOL published the standards (54 *FR* 9294).
126(f)	18/	EPA to promulgate worker protection standards for employees of state and local government in non-state program states. The standards are to be identical to those contained in the Occupational Safety and Health Act regulations established by DOL under CERCLA Section 126(a).	**Completed 06/23/89**—EPA published final standards (54 *FR* 26654).

7/ Specific deadline not stated in statute.

18/ Not later than 90 days after promulgation of DOL final regulations.

SARA Section	Statutory Deadline	Requirement	Status
211(a)	Annually	Secretary of Defense to submit report to Congress on progress in implementing Department of Defense Environmental Restoration Program.	**Completed March 1988, March 1989, February 1990, March 1991, February 1992, April 1993, March 1994, April 1995**—FY87, FY88, FY89, FY90, FY91, FY92, FY93, and FY94 reports were submitted to Congress.

Appendix E
Report to the EPA Inspector General

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 20 1996

THE INSPECTOR GENERAL

MEMORANDUM

SUBJECT: Review of The Superfund Annual Report To Congress
For Fiscal Years 1992, 1993 and 1994
Audit Report E1SFF5-11-0029-7100062

FROM: John C. Martin
Inspector General

TO: Carol M. Browner
Administrator

Background and Summary of Results

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 301 (h)(1), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) requires EPA (the Agency) to submit, by January 1st of each year, a report on the progress in implementing Superfund during the prior fiscal year. The Inspector General is required to review the report for reasonableness and accuracy and submit to Congress, as part of the Agency's report, a report on the results of the review (as cited in Section 301 (h)(2)).

We have completed a review of the Environmental Protection Agency's Annual Report to Congress (Annual Report), Progress Toward Implementing Superfund. This review covers fiscal years 1992, 1993 and 1994. We found that the Annual Reports for these years included the information required by the applicable statute as interpreted by the Agency. We believe the Annual Reports were generally accurate and reasonable, and displayed consistent data for the three fiscal years under review. Additionally, we followed up on our 1994 follow-up review report Superfund Performance Measures. We found that the Agency had acted on our recommendations to our satisfaction.

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Objectives and Scope

The objective of our review was to determine whether the Agency's Annual Reports, Progress Toward Implementing Superfund, are reasonable and accurate, as required by the statute. We began our review on September 20, 1995, and completed our work on October 31, 1996 We performed our review at EPA Headquarter's Office of Emergency and Remedial Response (OERR) in the Office of Solid Waste and Emergency Response (OSWER).

We received draft versions of each of the three Annual Reports as follows: 1) the Fiscal Year 1992 Annual Report (September 1994); 2) the Fiscal Year 1993 Annual Report (October 1995); and 3) the Fiscal Year 1994 Annual Report (May 1996) In early September, we received the Fiscal Year 1992, Fiscal Year 1993 and Fiscal Year 1994 Annual Reports that would later be sent to the Administrator for signature.

We conducted a limited scope review of the three Annual Reports to examine the internal consistency within each report and the consistencies between all three reports. We did not review CERCLIS data printouts. We did not perform in-depth audit work in the areas we examined in our past reports. Detailed reviews were reported in Consolidated Report regarding Fiscal 1992 CERCLIS Data Audit Report No. E1SFF3-11-0016-3100392, dated September 29, 1993, Reliability of CERCLIS Data. Superfund Performance Measures for Fiscal 1993 Audit Report No. E1SFF3-11-0029-4100229, dated March 30, 1994 and Follow-up Review Report No. E1SFG5-11-5005-5400014 Superfund Performance Measures, dated November 15, 1994. Due to the rigorous examinations performed during these and other previous reviews, we believe our review of the three Annual Reports coupled with the above-mentioned reports is sufficient to meet the requirements of the Act.

We began our field work by individually examining 100 percent of the numerical data in each Annual Reports' executive summary exhibits ("**Summary of Fiscal Year 1992 or 1993 or 1994 Superfund Activities**," "**Summary of Program Activity by Fiscal Year**" and "**Statutory Requirements for the Report**") and comparing the exhibits to data within the body of the Reports. We reviewed the data in each exhibit and made determinations whether that data was supported by and consistent to the data in the body of the Annual Reports. We then looked at the consistency between the three Annual Reports. We made determinations on whether Fiscal Year 1992 information in the Fiscal Year 1993 Annual Report was reasonable and consistent with information in the Fiscal Year 1992 Annual Report and used the same method of analysis for the Fiscal Year 1993 and Fiscal Year 1994 Annual Report and among the three Annual Reports. We also performed general calculations on selected data within the exhibits and body of the Annual Reports to verify their accuracy.

We also followed up on the status of actions taken on our recommendations following the issuance of our 1994 follow up review report on Superfund performance measures. We met with Agency officials to discuss their progress in completing our recommendations and obtained the relevant supporting documentation.

Results of Review

During our review of the exhibits of the three Annual Reports, we requested clarifications be made to minor portions of the Annual Reports' wording. Some of the items questioned did not warrant a change in the report; however, for those items that did require a change, the Agency agreed to the data corrections. The chart below summarizes the 26 items questioned.

QUESTIONED ITEMS IN ANNUAL REPORTS' EXHIBITS

YEAR	QUESTIONED ITEMS	SATISFACTORY SUPPORT OR CORRECTION PROVIDED
1992	4	4
1993	10	10
1994	12	12

The items we questioned were mostly ones where numbers in the exhibits did not agree with the corresponding information in the body of the Annual Reports. Other items needed further clarification with the addition of a sentence or change in wording. The Agency provided us with other supporting documents for two of the questioned items. To support the numbers in the Fiscal Year 1992 Annual Report for "Sites with Remedial Activities in Progress on September 30, 1992" and "Sites Proposed for Deletions During FY92," the Agency provided us with documentation from the Federal Register listings. Also, for the Fiscal Year 1992 Annual Report, the Agency provided us with a list indicating that 24 sites required 5-year reviews. As indicated in the Fiscal Year 1992 Annual Report, the Agency conducted 6 reviews for the fiscal year The remainder of questioned items did not require any further action.

We also followed up on the progress of actions taken on recommendations from our 1994 follow up review report on the Superfund performance measures. We found that the Agency's documentation for a change in CERCLIS to prevent certain inaccuracies from being recorded in the system is still in draft. However, we were informed that plans in the documents were being implemented. Other actions resulting from our Reliability of CERCLIS Data: Superfund Performance Measures for Fiscal 1993 audit report, were in process or implemented at the time of our 1994 follow up review.

We were told that the Mateer model, a strategy to stress accurate data management on the part of Remedial Project Managers and On-Scene Coordinators, had been terminated. The recommendation regarding this strategy was satisfied through other actions the Agency took to improve accomplishment reporting.

The Agency took the necessary actions to correct and clarify information and obtain necessary documentation during this review. Agency officials were responsive to our inquiries concerning the Annual Reports and recommendations from the follow up review report.

Appendix F
List of Sources

The following is a list of reference sources that were used in the preparation of this Report. Sources for data used in graphics within the text are cited on the graphics and also listed below. Reference sources are listed by chapter.

Executive Summary

EPA/OSWER/TIO. July 19, 1991. Superfund 30-Day Task Force Report; Accelerating Superfund Cleanups and Evaluating Risk at Superfund Sites.

Chapter 1

Comprehensive Housing and Urban Development Act. (1992)

EPA/OSWER. February 1995. Superfund Administrative Improvements Closeout Report (June 23, 1993 - September 30, 1994) PB95-963203.

EPA. January 1992. Estimatine Potential for Occurrence of DNPL at Superfund Sites. PB92-963338CHD.

EPA/OSWER. September 1993. Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration. PB93-96507CDH.

EPA. August 1994. Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. 9355.4-12.

EPA. December 1994. Soil Screening Guidance Quick Reference Fact Sheet. EPA/540/R-94/101.

EPA. November 1994. Technical Background for Draft Soil Screening Guidance. EPA/540/R-94/102.

EPA. Draft Soil Screening Guidance: Issues Document. EPA/540/R-94/105.

EPA. March 1994. This is Superfund: A Citizen's Guide to EPA's Superfund Program. EPA/540/K-93/008.

EPA. September 30, 1994. Allocations Among Potentially Responsible Parties for the Cost of Superfund Cleanup.

EPA/OWPE. July 30, 1993. Guidance on CERCLA Settlements with "De Micromis" Waste Contributors. 9834.17.

EPA. Report on Researching Prior Ownership and Use.

EPA/OERR. July 29, 1993. Supplemental Guidance on Federal Liens. PB93-963618CDH.

EPA/OSWER. April 24, 1994. OSWER Environmental Justice Task Force Report. 9200.3-16 Draft.

EPA December 1993. Status of Superfund Regional Pilots: End-of-Year Report. PB94-963216CDH.

EPA. Focusing Resources on Worst Sites First. 9360.0-35

EPA. August 1993. Site Inspection Prioritization Guidance. 9345.1-15FS.

EPA/OERR. August 1993. Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA. 9360.0-32.

EPA/OERR. August 1994. Superfund Accelerated Cleanup Model (SACM) Coordination Strategy. 9203.1-11.

EPA. September 1993. Integrating Removal and Remedial Site Assessment Investigations. PB93-963341CDH.

EPA. January 1993. HSED SACM Report. PB93-963289CDH

EPA. March 1994. Long-Term Contracting Strategy Review Final Report.

EPA. June 1994. Cost Management Manual for Superfund for the Superfund Remedial and Enforcement Program. PB94-963-401.

EPA/DOD/DOE. August 1994. Guidance on Accelerating CERCLA Environmental Restoration at Federal Facilities.

EPA. August 1994. EPA Policy for Innovative Environmental Technologies at Federal Facilities.

EPA. June 1989. Management Review of the Superfund Program. 9201.01-A.

EPA/OERR. September 30, 1990. Draft Soil Screening Levels Guidance For Superfund. PB93-963508.

Community Environmental Response Facilitation Act, P.L. 95-31, (October 19, 1992), 42 U.S.C. Section 2396, *et. seq.*

Chapter 2

EPA. January 18, 1994. National Priorities List for Uncontrolled Hazardous Waste Sites, Proposed Rule No. 16. 60 *FR* 2568.

EPA. February 23, 1994. National Priorities List for Uncontrolled Hazardous Waste Sites, Final Rule. 60 *FR* 8724.

EPA. May 31, 1994. National Priorities List for Uncontrolled Hazardous Waste Sites, Final Rule. 60 *FR* 27989.

EPA. August 23, 1994. National Priorities List for Uncontrolled Hazardous Waste Sites, Proposed Rule No. 17. 60 *FR* 43314.

EPA/OSWER. August 1994. Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. 9355.4-12.

EPA/OSWER/ORIA/DOE/NRC. 1994. A Technical Guide to Ground-Water Model Selection at Sites Contaminated with Radioactive Substances.

EPA/ORIA. 1994, Evaluating Technical Capabilities of Ground-Water Models Used to Support the Cleanup of Low-Level Radioactive Waste Sites: A Critique of Three Representative Models.

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Appendix G
Summary of the Superfund Program [1992-1994]

The Environmental Protection Agency (EPA) is committed to accelerating the pace of hazardous waste site cleanup. As part of this commitment the Agency has concluded construction activities at 237 National Priorities List (NPL) sites over fiscal years 1992-1994.

Implementation of the Superfund Accelerated Clean-up Model (SACM), the result of the 1991 30-Day Study Task Force[1] recommendations to streamline the activities in the clean-up process, changed the paradigm of doing business in Superfund. SACM allows for rapid reduction of risks at Superfund sites and restoration of the environment over the long term. SACM introduced significant improvements to the existing clean-up process by:

- eliminating sequential and duplicative studies as site assessment and investigation activities are combined;
- removing the existing overlap between the types of clean-up actions done under the Superfund removal program and those done under the remedial program, to save time and money; and
- redefining Superfund clean-up actions as early actions and long-term actions with complementary applications.

EPA Regions initiated SACM pilot projects during fiscal year 1992 to explore the benefits of the new clean-up model. The model implementation efforts continued through fiscal year 1993 to be fully operational in 1994.

[1] Superfund 30-Day Task Force Report; Accelerating Superfund Cleanups and Evaluating Risk at Superfund Sites. July 19, 1991.

The 30-Day Study Task Force also made a number of recommendations which have provided the framework for the continuous efforts to accelerate the pace of cleanup and streamline the Superfund program. Key recommendations implemented in fiscal year 1992 included:

- streamlining remedy planning, selection, and design;
- development of presumptive remedies, technology-based standards, and soil-trigger levels to standardize remedy planning and selection;
- shortening the remedy design phase for sites where the extent of remedial action cannot be readily determined;
- facilitate the resolution of site-specific issues that commonly cause delays in the clean-up process; and
- accelerating private party clean-ups.

The Agency also implemented measures to improve other aspects of the Superfund program:

- A National Superfund Director was appointed and the Superfund Revitalization Office created to strengthen program management and accountability, improve the effectiveness and efficiency of Superfund clean-up and administration, and ensure equity in Superfund enforcement.
- To better balance its environmental mission with effective contract management, the Agency

focused on improving contract management and accountability, eliminating excess contract capacity, controlling costs and securing quality work from contractors.

- A National Superfund Risk Management Workgroup was established to review Superfund risk assessment guidance and characterization practices, target areas needing improvement and coordination with other programs, and promote consistency in deciding the appropriate clean-up actions for sites.
- Demonstration of innovative treatment technologies and centralized access to information was designed to promote increased use of the technologies.
- New measures of Superfund progress and the development of informative publications enhanced public outreach and communications.

In fiscal year 1993, the Agency continued progress in improving the effectiveness of the program by further refining initiatives and identifying administrative changes that could be made within the existing statutory and regulatory framework. Continuing initiatives included preparing for full implementation of SACM and pilot projects to develop a single site assessment process and defining the role of the Regional decision teams. Other efforts included focusing resources on completing the evaluation and clean-up of sites, ensuring effective management of contracts and promoting consistency in assessing and managing risk. A special Superfund Administrative Improvements Task Force identified seventeen specific areas centered around four themes:

- Promoting enforcement fairness and reducing transaction costs;
- Enhancing clean-up effectiveness and consistency;
- Promoting increased community involvement and ensuring environmental justice; and
- Strengthening the role of the states.

Commencing in fiscal year 1993 and continuing on to 1994, the Agency successfully encouraged potentially responsible parties (PRPs) to undertake and finance clean-up efforts at Superfund sites. By the end of fiscal year 1994, PRPs were leading more than 75 percent of remedial designs (RDs) and remedial actions (RAs) started during the fiscal year.

Fiscal year 1994 initiatives anticipated the reauthorization of the CERCLA taxing authority and an opportunity to propose revisions to other provisions of the statute. The Agency focused efforts on identifying possible legislative amendments that would improve the efficiency and equity of the program. The Agency solicited input from advisory committees, stakeholders, and Agency and inter-Agency work groups to draft proposed legislation. The focus of the proposed legislation was on enhancing community involvement, expanding the role of states, reforming the remedy selection process, pursuing liability reforms to reduce transaction costs and increase fairness and create a fund, the Environmental Insurance Resolution Fund, to resolve coverage disputes between PRPs and their insurers.

Working within the existing statutory and regulatory framework, the Agency also continued to implement the recommendations of the 1993 Superfund Administrative Improvements Task Force as well as on-going initiatives including implementing SACM, achieving construction completion at sites, strengthening contracts management, promoting enforcement first, accelerating clean-up at military bases slated for closure, promoting the development and use of innovative technologies, enhancing compliance monitoring, and improving the effectiveness of cost recovery. The Agency set and achieved a goal to implement most of the task force's recommendations by the end of fiscal year 1994.

The major areas of progress in the Superfund Program include: Site Evaluation, Removal, Remedial, Enforcement, Federal Facility Clean-ups and Superfund Program Support activities.

Site Evaluation

Over the past three fiscal years, 1992-1994, EPA's progress in identifying and assessing newly discovered sites has resulted in a total of over 38,300 sites identified in the CERCLA Information System (CERCLIS). CERCLIS is the Superfund inventory of potentially threatening hazardous waste sites.

Based on evaluation of 94 percent of the sites identified in CERCLIS for potential threats, EPA has determined that 1,355 of those sites should either be proposed to, listed on, or deleted from the NPL. To date, a total of 64 sites have been deleted from the NPL.

During the 1992-1994 time period the Agency has undertaken projects to address the technical complexities associated with both lead- and radionuclide-contaminated sites. The Integrated Exposure Uptake Biokinetic Model (IEUBK) and the Three City Lead Study have been used to assess lead contamination. The IEUBK model is a tool to aid the development of risk assessment procedures for lead contaminated soil. The Three City Lead Study will determine whether a reduction of lead in residential soil will result in a decrease of blood-lead levels in children exposed to the contaminant. To improve assessment of sites involving radionuclide contamination, EPA generates guidance documents for conducting assessments, conducts technology demonstrations and increases Headquarters assistance to the Regions.

Removal

To protect human health and the environment from immediate or near-term threats, the Agency and potentially responsible parties (PRPs) started nearly 1,000 removal actions and completed more than 870 during the fiscal years 1992-1994. More than 3,660 removal actions have been started and nearly 3,050 have been completed since the inception of the Superfund program.

Since 1992, the removal authority for "early actions," has been expanded to reduce immediate risks and expedite cleanup at NPL sites. The expansion was a key element of SACM. Early actions may include emergency, time-critical or non-time critical removal responses or quick remedial responses. By the end of 1994, EPA had piloted the early actions approach at 38 sites. Under the reportable quantities (RQ) regulatory program, the Agency promulgated final RQ adjustments for 62 hazardous substances and added 5 to the list. The Agency also continued to work on regulations to establish administrative reporting exemptions for naturally occurring radionuclide releases.

Remedial

Accomplishments during fiscal years 1992-1994 reflect the Agency's continued efforts to accelerate the overall pace of clean-up and complete clean-up activities at an increasing number of sites. During the period clean-up activities resulted in the placement of 217 additional NPL sites in the construction completion category for an overall total of 278 NPL sites in the category. Also started by the Agency or PRPs were nearly 220 remedial investigation/ feasibility studies (RI/FSs), more than 410 remedial designs (RDs), and more than 350 remedial actions (RAs). The Agency signed 359 records of decision (RODs) at Fund-financed or PRP-financed sites.

Efforts to implement the 1991 30-Day Study continued during the 1992-1994 period and included development of presumptive remedies for municipal landfill, wood-treating, contaminated ground-water, solvent contaminated sites, and issuing policy for technical impracticability waivers. The Superfund Innovation Technology Evaluation Program and others designed to provide technical assistance, information and training were also encouraged for use at Superfund sites.

Towards the end of the period, the 1993 Administrative Improvements Task Force was a significant influence in the progress of remedial activities. The Agency:

- Demonstrated presumptive remedies developed for municipal landfills and sites contaminated with volatile organic compounds, while working to develop presumptive remedies for wood-treater, polychlorinated biphenyl, manufactured-gas-plan, grain storage, and polluted ground water sites;
- Released draft soil screening levels (SSLs) for 100 chemicals commonly found at Superfund sites;
- Implemented guidance for addressing Dense Non-Aqueous Phase Liquids (DNAPL) contamination of ground water and for invoking the technical impracticability waiver where performance standards cannot be achieved.

Enforcement

Accomplishments during the 1992-1994 period reflect the Agency's continuous commitment to maximize PRP involvement in financing and conducting cleanup and recovery of Superfund monies expended for response action. Over the three year period, the Agency has achieved enforcement agreements worth more than $3.3 billion in PRP response work. Through its cost recovery effort, EPA achieved approximately $676.6 million in settlements and collected more than $570.3 million for reimbursement of Superfund expenditures. By the end of fiscal year 1994, the Agency has collected over $5.7 million in CERCLA penalties.

The Agency has been working towards improving the efficiency and fairness of Superfund enforcement and through SACM, Administrative Improvements and promotion of "enforcement first" to secure PRP involvement in financing a significant goal has been to seek to reduce transaction costs. Over the three years *de minimis* settlements and most recently "de micromis" settlements have been encouraged as well as an increased use of alternative dispute resolution and increased use of mixed funding (EPA + PRP).

Federal Facility Clean-up

Federal departments and agencies are largely responsible for implementing CERCLA at Federal Facility sites. To ensure Federal Facility compliance with CERCLA requirements, EPA provides advise and assistance, oversees activities, and takes enforcement action where appropriate. At sites on the NPL, EPA must concur in remedy selection. By the end of fiscal year 1994 there were 1,945 Federal Facilities sites identified on the Federal Agency Hazardous Waste Compliance Docket. Of the sites on the docket, 160 were proposed to or listed on the NPL, including 150 final and 10 proposed sties.

During the 1992-1994 period the closure of military bases became an important issue. The President announced a Five-Point Plan in 1993 to accelerate the economic recovery of communities near military bases scheduled for closure. Through 1994 the Agency, in conjunction with the Department of Defense, states and local citizens, implemented the Fast Track Clean-up Program to expedite cleanup and reuse of bases scheduled for closure. Guidance was issued that identified SACM components that provide opportunities for speeding cleanup.

Superfund Program Support

Throughout 1992-1994, EPA has taken measures to enhance support activities in the Superfund program, including efforts to improve community relations, enhance public access to information, strengthen EPA's partnership with states and Indian tribes, and increase minority contractor utilization.

In its community involvement efforts, EPA tailors activities to the specific needs of individual communities and identifies ways to enhance community involvement efforts. The Agency emphasized the importance of effective community involvement in its administrative improvements and reauthorization efforts. The Agency also continued to provide technical outreach to communities, hold national conferences on community involvement, offer training and workshops, and facilitate community access to technical assistance grants (TAGs). To aid communities in obtaining technical assistance, EPA awarded 85 TAGs during the 1992-1994 fiscal years, bringing the total number of TAGs awarded since FY88 to 151, for a total worth more than $8.6 million.

To enhance public access to Superfund information, the Agency continued its partnership with the National Technical Information Service (NTIS), which provides Superfund document distribution services. The Agency has expanded the Superfund document collection available through NTIS, continued outreach to inform the public of the services available, and began implementing a communications and outreach plan using NTIS services.

To support state and tribal involvement in the Superfund response activities, EPA has awarded nearly $1.3 billion in cooperative agreements (CAs), including $79 million awarded in FY94 through site-specific CAs.

Overall, EPA has granted Core Program CAs (CPCAs) worth nearly $103 million in its continuing efforts to assist states and tribes in developing comprehensive Superfund programs.

To promote small and disadvantaged business participation in Superfund contracting, EPA, through direct and indirect procurement, awards contracts and subcontracts to minority contractors to perform Superfund work. Direct procurement involves any procurement activity in which EPA is a direct party to a contractual arrangement for supplies, services or construction. Under financial assistance programs (indirect procurement), EPA awards grants and/or cooperative agreements to states, local municipalities, universities, colleges, non-profit or profit-making institutions or firms, hospitals and individuals or otherwise known as recipients. This amount represents more than 4.3 percent of the total dollars obligated to finance Superfund work during the year.

Resource Estimates

Under Executive Order 12580, EPA is required to estimate the resources needed to implement Superfund. Since the enactment of CERCLA in 1980, Congress has provided Superfund with $13.6 million in budget authority (FY81 through FY94).

Estimates of the long-term resources required to implement Superfund are based on the Outyear Liability Model (OLM). The OLM estimate of the cost of completing cleanup of current NPL sites is more than $17.4 billion for FY95 and beyond, bringing the total estimated cost for the program to $31.0 billion.