

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 resources. 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, Department of Labor, National Aeronautics 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.

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 potentially 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 of

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.