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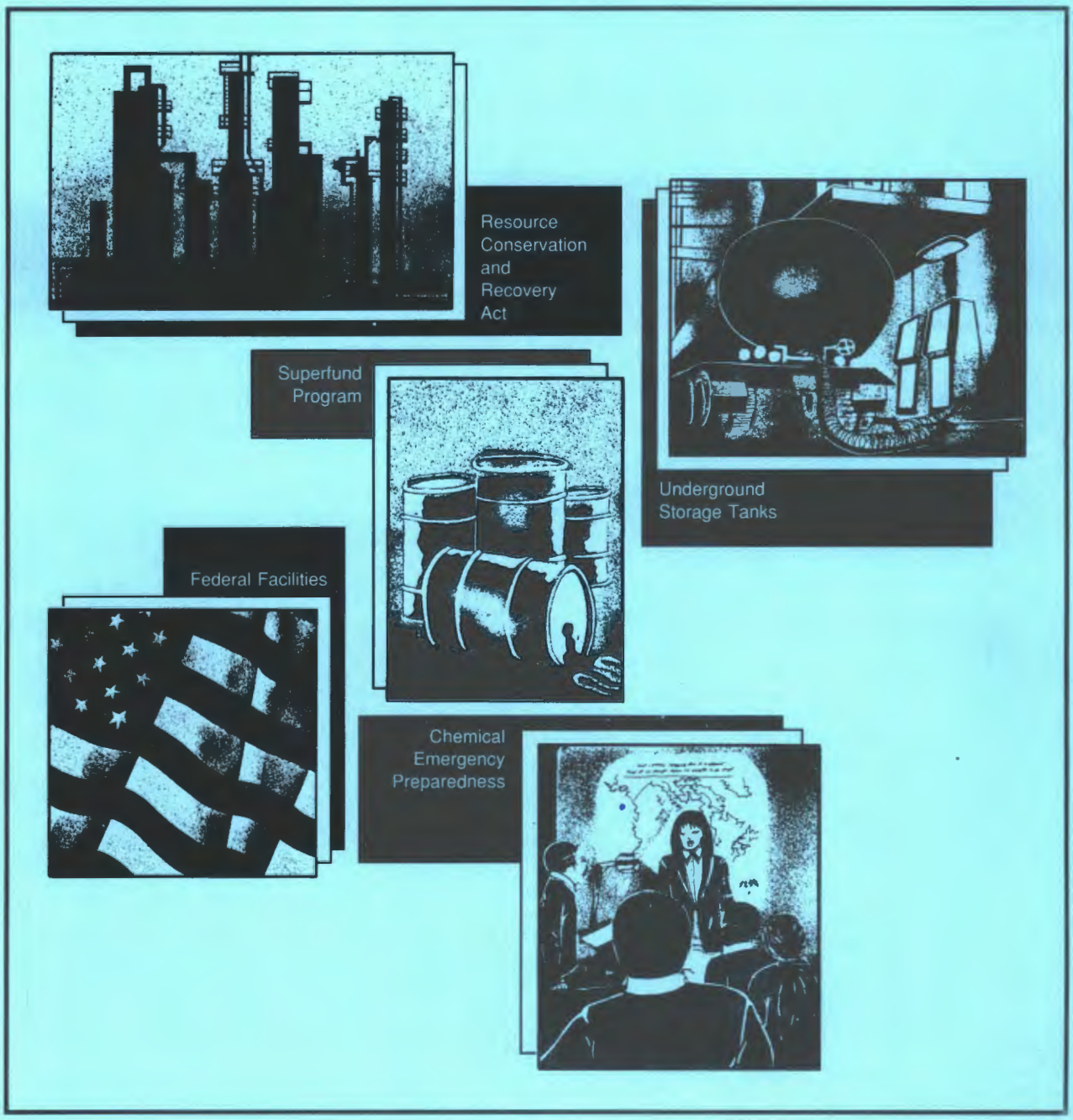


Annual Report for Fiscal Year 1988

Office of Solid Waste and Emergency Response
U.S. Environmental Protection Agency

November 1988

FOREWORD

I am pleased to provide a summary of the accomplishments of the Office of Solid Waste and Emergency Response (OSWER) of the U.S. Environmental Protection Agency (EPA) for Fiscal Year 1988. Considerable progress was made over the last twelve months in both the development and implementation of programs supporting the Resource Conservation and Recovery Act (RCRA) and Superfund.

Clearly, the hard work and dedication of the EPA Headquarters and Regional staff, combined with our State partners, has resulted in a "banner year" of achievements in the RCRA and Superfund programs. I want to give special recognition to the many career staff, at both the State and Federal levels, for their perseverance and commitment to carry out their responsibilities under the national solid and hazardous waste management programs.

Looking ahead to 1989, we face many new commitments. The dynamic nature of these programs, combined with intense public and congressional interest, will continue to present new challenges. However, with the strong base we have developed in support of these programs, we can continue to build upon the momentum achieved.

I hope that this report will provide a more complete understanding of the numerous accomplishments within the national solid and hazardous waste management programs over Fiscal Year 1988. You are invited to comment on any information presented herein.

J. Winston Porter
Assistant Administrator

TABLE OF CONTENTS

FOREWORD i

EXECUTIVE SUMMARY 1

SECTION 1 SUPERFUND PROGRAM 7

RESPONSE ACTIVITIES 7

Pre-Remedial Actions 8

Removal Actions 10

Remedial Actions 11

ENFORCEMENT ACTIVITIES 16

Overview of Enforcement Authorities 16

Enforcement Accomplishments 16

REGULATIONS, GUIDANCE, AND OTHER ACTIVITIES 21

National Contingency Plan 22

Hazard Ranking System 23

RI/FS Guidance 23

ROD Guidance 24

Release Notification Program 24

Removal Program Guidance 24

Technical Assistance Grants (TAGs) 25

Cost Recovery Strategy 25

Other Superfund Enforcement Guidance 26

Superfund Innovative Technology Evaluation (SITE) Program 26

Emerging Technologies Program 26

Outreach and Training Activities 27

TABLE OF CONTENTS

SECTION 2 RESOURCE CONSERVATION AND RECOVERY ACT 29

PROGRAM IMPLEMENTATION 29

Permitting 29

Corrective Action 31

Enforcement 32

Data Management 34

SOLID WASTE MANAGEMENT INITIATIVES 34

MAJOR REGULATORY AND GUIDANCE DEVELOPMENT ACTIVITIES 37

Land Ban 37

Permit Modifications 37

Mobile Treatment Units 38

RCRA Inspection Manual 38

Technical Case Development Guidance 38

Laboratory Audit Inspection Guide 38

Other Rulemakings 39

Reports To Congress 39

Guidance Documents Issued 40

SECTION 3 FEDERAL FACILITIES 43

IDENTIFICATION OF FEDERAL FACILITIES OF CONCERN 43

ENFORCEMENT AND COMPLIANCE MONITORING 44

TABLE OF CONTENTS

PLANNING AND MANAGEMENT OF RESOURCES TO ADDRESS CONCERNS 46

SECTION 4 CHEMICAL EMERGENCY PREPAREDNESS AND PREVENTION PROGRAM 47

REGULATORY ACTIVITIES 47

BUILDING REGIONAL AND STATE EMERGENCY PREPAREDNESS CAPABILITY 49

PREVENTION 50

OUTREACH 50

INTERNATIONAL ASSISTANCE 50

SECTION 5 UNDERGROUND STORAGE TANKS 53

REGULATORY ACTIVITIES 53

Technical Standards 53

State Program Approval Standards 55

Financial Responsibility Standards 55

IMPLEMENTATION ACTIVITIES 55

Building State and Local Programs 55

LUST Trust Fund Activities 57

Outreach Activities 58

Measuring OUST's Progress 59

APPENDICES

APPENDIX A: Records of Decision (RODs) Signed in FY 1988

APPENDIX B: FY 1988 Remedial Design/Remedial Action (RD/RA) Settlements

APPENDIX C: Superfund Innovative Technology Evaluation (SITE) Program Participants

APPENDIX D: Emerging Technology Program (ETP) Participants

EXECUTIVE SUMMARY

Fiscal year (FY) 1988 was an important year for all programs of the Office of Solid Waste and Emergency Response (OSWER). Greater emphasis was placed on implementation activities and accelerating the pace of the programs. Our ability to make impressive gains in many areas over the past year can be attributed to a solid base of experience, the issuance of a substantial number of key guidance and policy documents, increased delegations of authority to the Regions, and the presence of a strong regulatory framework. This Executive Summary highlights some of the major accomplishments and key initiatives undertaken by the OSWER programs in FY 1988. More detailed information is provided in later sections of the report.

ACHIEVEMENT OF RCRA PERMITTING GOALS

EPA worked jointly with the States towards meeting the permitting goals established in the 1984 Hazardous and Solid Waste Act Amendments (HSWA). HSWA requires that EPA issue all land disposal permits by November 8, 1988 and all incinerator permits by November 8, 1989. During FY 1988, EPA processed 117 land disposal permit applications under the Resource Conservation and Recovery Act (RCRA), issuing final permits for 82 and denying permits for 35. By November 8, 1988, EPA had processed 248 of 264 land disposal facility permit applications (94%). Significant progress towards the 1989 goal for incinerator permits was also achieved, with 33 incinerator permit applications reviewed and 30 permits issued during FY 1988. The Agency reviewed closure plans and conducted inspections for the more than 1,100 land disposal facilities that have elected to close their waste management operations rather than continue to operate under RCRA permits.

PROGRESS TOWARDS MEETING MAJOR SUPERFUND TARGETS

The Superfund program experienced considerable growth over the past year with a major emphasis on moving more sites into the design and construction phase of the program. A great deal of progress was made towards meeting the statutory goal of remedial action starts at 175 sites by October 1989. During FY 1987 and 1988, the Agency achieved 74 remedial action starts toward this goal. By the close of the fiscal year, the program started 231 of the 275 Remedial Investigation/Feasibility Studies (RI/FSs) mandated for initiation within three years of the Superfund Amendments and Reauthorization Act (SARA) of 1986. Moreover, over 150 Records of Decision (RODs) were signed in FY 1988 -- double the number signed the previous year. In addition, 332 removal actions were initiated during FY 1988, with 279 removals completed. The Superfund enforcement program had the highest number of settlements in any year, bringing our total to over 500 and a dollar value of more than one billion. The program

is now in full swing with good momentum towards meeting the many important statutory commitments.

NEW EMPHASIS PLACED ON SOLID WASTE MANAGEMENT

In FY 1988, building on efforts in prior years, OSWER proposed an Agenda for Action for managing solid waste in the future. This Agenda signals a major milestone for the solid waste programs. Over the past several years, most program attention focused on hazardous waste. The strategy demonstrates the Agency's recognition that municipal and other categories of solid waste can pose equally severe problems for the environment. It establishes a hierarchy of integrated waste management techniques to solve the nation's municipal waste problems, including source reduction, recycling, incineration, and landfilling. Also, a national goal to recycle 25% of municipal solid waste by 1992 was set.

A new leadership role for EPA is also defined, including the following activities: (1) promote national source reduction and recycling; (2) provide leadership on Federal procurement of recyclable and reusable products; (3) improve safety of incinerators and landfills; (4) support a national research agenda; and (5) facilitate State and local planning through activities such as an information clearinghouse.

IMPLEMENTATION OF RCRA CORRECTIVE ACTION

OSWER made significant progress in implementing the corrective action provisions established under the Hazardous and Solid Waste Act Amendments (HSWA) Sections 3004(u) and 3008(h). OSW continued work on regulations for the program throughout the fiscal year and sent them to the Office of Management and Budget (OMB) in October 1988 for final approval before proposal. Despite the absence of regulations, the Regions continued their implementation efforts using a variety of guidances issued by OSW and the Office of Waste Programs Enforcement (OWPE). In FY 1988, the Regions completed 353 RCRA Facility Assessments (RFAs) at facilities seeking RCRA permits or closing their waste management operations. In addition, the RCRA enforcement program greatly expanded its use of Section 3008(h) orders to require RCRA facilities to undertake corrective action investigations, issuing 20 on consent and 5 unilaterally. Of the 180 permits issued to RCRA facilities in FY 1988, 110 contained schedules of compliance requiring the facilities to undertake corrective action investigations.

FURTHER FEDERAL FACILITIES COMPLIANCE INITIATIVES

OSWER continued to focus special attention on improving compliance with requirements under RCRA and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) at Federal facilities. The Federal Facilities Task Force, established in FY 1987, made substantial progress in FY 1988, including publication of the Federal Agency Hazardous Waste Compliance Docket. This docket lists over 1,000 facilities that must conduct Preliminary Assessments (PA) to determine the need for further investigations and possible listing on the National Priorities List (NPL). In addition, OSWER negotiated model interagency compliance agreements for cleanups under CERCLA and RCRA with both the Department of Defense and the Department of Energy. These models will be used to develop site-specific agreements during FY 1989. Current plans call for developing 40-45 Federal Facility Agreements in FY 1989.

INCREASED DELEGATION OF RESPONSIBILITIES TO THE REGIONS

EPA has recognized and chosen to have these complex programs implemented by those officials closest to the problem -- either EPA Regional offices or States. Thus, increasingly more responsibility for contracting and program management has been delegated to the Regional Offices to enhance their ability to obtain the resources needed to manage ongoing activities without obtaining Headquarters review and approval. For example, the Regions have been delegated full responsibility for RODs as well as significant responsibility for Superfund settlements. Many Regions have been delegated responsibility for issuing Section 3008(h) corrective action orders as well. Superfund and RCRA are now "the most delegated" programs in the Agency. This continued delegation of responsibilities is part of OSWER's effort to expedite program implementation activities.

CHEMICAL EMERGENCY PREPAREDNESS AND PREVENTION PROGRAM

The Chemical Emergency Preparedness and Prevention (CEPP) Program focused on building State capability through a wide range of technical assistance efforts. To date, 56 State Emergency Response Committees (SERCs) and more than 3,800 Local Emergency Planning Committees (LEPCs) have been established. In FY 1988, CEPP assisted these groups with training and guidance for developing required emergency preparedness plans, and assisted 41 States and territories in planning and conducting a total of 67 emergency preparedness exercises. In June and July, 1988, CEPP conducted five information management workshops for SERC and LEPC members. During the fiscal year, five million dollars were allocated for SERCs' and Indian tribes' Title III training through the Federal Emergency Management Administration's (FEMA's) comprehensive cooperative agreement with each State.

DEVELOPMENT OF AN EFFECTIVE UNDERGROUND STORAGE TANK PROGRAM

In addition to finalizing the Underground Storage Tank (UST) technical standards and State program approval regulations, the Regions had awarded Cooperative Agreements to 50 of the 56 States and territories by the end of FY 1988, enabling the States to spend Trust Fund resources for corrective action and related program costs. The Office of Underground Storage Tanks (OUST) awarded approximately $35 million from the Leaking Underground Storage Tank (LUST) Trust Fund in FY 1988. In addition, OUST is undertaking a number of activities to build State and local capability, including development of a handbook on compliance and enforcement techniques ("Building State Compliance Programs"), which provides information on outreach activities, compliance monitoring and enforcement actions.

MAJOR RULES AND GUIDANCES DEVELOPED

In addition to the accomplishments outlined above, the programs also made substantial progress in promulgating the rules and guidances that provide the foundation for the implementation activities. Major efforts in this area include:

- The Office of Emergency and Remedial Response (OERR), working with OWPE, completed revision of the Superfund National Contingency Plan (NCP) in FY 1988 in preparation for proposal in early FY 1989.

- OSW issued final land disposal restriction rules for the "First Third" of scheduled wastes in August 1988, as required by HSWA.

- OSW issued final rules governing permit modifications that provide owner/operators with greater flexibility in the types of changes they can make in their processes without triggering major permit modification procedures.

- OERR, working with the Superfund Enforcement Division, issued interim final guidance on conducting RI/FSs in compliance with CERCLA, SARA, and other laws, and finalized the strategy on achieving the target of 175 Remedial Design/Remedial Action (RD/RA) starts. Final RI/FS guidance will be issued after the NCP has been promulgated.

- The Preparedness staff promulgated the final rule for SARA Sections 311-312 on October 15, 1987. This rule establishes requirements for material safety data sheets (MSDS) and hazardous chemical inventory reporting.

- OUST promulgated final technical standards for USTs and State program approval regulations in FY 1988 to provide an effective regulatory base for implementing this new program.

- OWPE issued an interim policy on the determination of acceptability of facilities for off-site disposal of wastes from Superfund response actions. Work was completed on the proposed rule embodying this policy which will be published for comment in FY 1989.

- SARA required States to certify that they have adequate capacity to properly dispose of wastes from Superfund cleanups. EPA, working with the National Governors' Association (NGA), developed draft guidance for the States to follow in meeting the certification requirement. EPA expects to issue this guidance in early FY 1989.

SECTION 1
SUPERFUND PROGRAM

Since the passage of the Superfund Amendments and Reauthorization Act (SARA) early last fiscal year, the Superfund program has made substantial progress in terms of site activity as well as regulatory and policy efforts. Fiscal year 1988 was the first full year of SARA implementation. Also during FY 1988, the Superfund program issued interim guidance on preparing Records of Decision (RODs). The Superfund program's accomplishments in all of these areas during FY 1988 are described more fully below.

RESPONSE ACTIVITIES

Under the authority of the Superfund site response program, two types of response activity may be undertaken -- removal and remedial actions. These response actions are carried out as either fund-lead or enforcement-lead activities, depending upon the availability of responsible parties and other considerations.[1] A pre-remedial Preliminary Assessment (PA) of existing site information provides the basis for determining whether a removal or remedial action should be performed. At sites warranting additional study prior to determining the appropriate type of response, pre-remedial site inspections (SIs) are conducted to further evaluate potential hazards.

Selection of a long-term remedy for a Superfund site is based on two major studies -- a Remedial Investigation (RI) and a Feasibility Study (FS). During the RI, EPA personnel or contractors collect site-related data with which to develop a detailed understanding of the contamination problem at the site. During the FS, alternative approaches for site remediation are developed and evaluated, and a recommended approach is identified.

Section 116 of SARA prescribes goals and timetables for completing pre-remedial work (PAs and SIs) and for initiating remedial work (RI/FSs and RAs). These goals and schedules and EPA's progress toward meeting them are detailed below in the sections on pre-remedial and remedial actions. It has become more apparent that Superfund cleanups are complex, long-term efforts that involve more scientific uncertainty, and are more difficult to complete than anticipated in the earlier days of the program. In spite of these challenges, however, the program is making a concerted effort to meet the statutory schedules.

[1] *For purposes of this report, enforcement-lead activites are those carried out by potentially responsible parties (PRPs). All federally-financed Superfund activities are referred to as "fund-lead."*

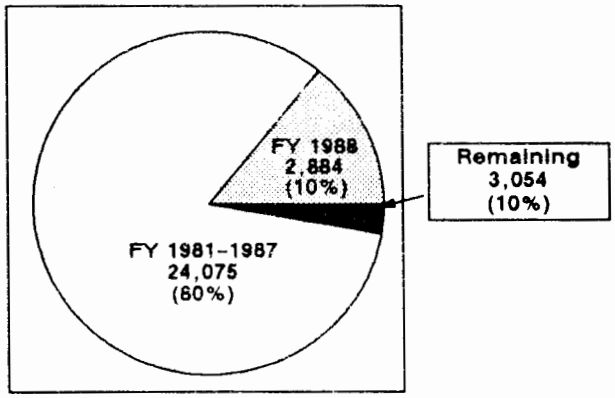
Pre-Remedial Actions

Section 116 of SARA specifies that PAs are to be completed by January 1, 1988 for all facilities listed in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) as of October 1986. In January 1988, the Agency announced that it had met the statutory target for achieving PAs. Achieving this goal required the completion of almost 1,000 sites in the first quarter of the fiscal year.

Overall, Superfund's pre-remedial program substantially increased its productivity in FY 1988, exceeding Agency goals for both PAs and SIs. The PA target of 2,432 for FY 1988 was exceeded by 21% for a total of 2,884 completions. There are now 27,000 sites listed in CERCLIS that have completed PAs. Elimination of the PA backlog allowed the Agency to establish a new policy requiring that all sites entered into CERCLIS recieve PAs within one year. This action was taken to prevent buildup of a new backlog. Exhibit 1 illustrates the cumulative percentage of PAs completed through FY 1988. The FY 1988 SI target of 1,117 was exceeded by 11% for a total of

Exhibit 1

Percent of CERCLIS* Sites with Preliminary Assessments Completed Through FY 1988 (Cumulative)



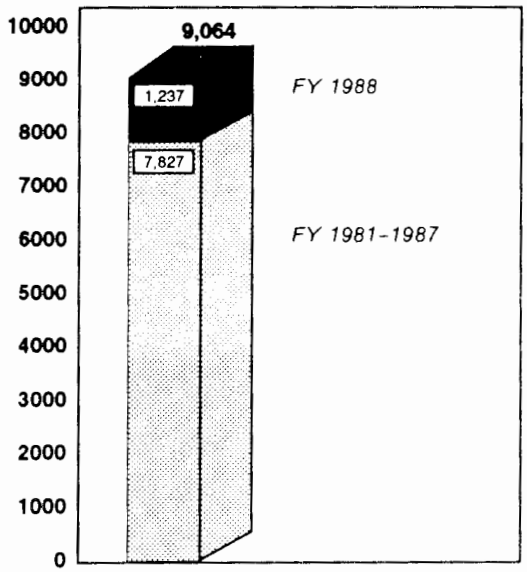
Total CERCLIS = 30,013 (estimate)

* *Inventory of potential Superfund sites*

1,237 completions. Approximately 30% or 9,000 of the sites entered in CERCLIS through FY 1988 now have completed SIs. Exhibit 2 compares the number of SIs conducted in FY 1988 with the number completed in previous years.

Exhibit 2

Number of Site Investigations Completed



The Agency also conducted a full-scale reassessment of past low priority sites. It was necessary to re-evaluate approximately 5,000 existing PAs in order to more accurately assess the future SI workload. Through the PA reassessment process it was determined that no further remedial action was necessary at approximately 3,000 sites that had previously been given low priority site inspection recommendations. This project saved substantial resources for use at more serious sites.

An additional 229 sites were listed on the NPL during FY 1988, bringing the total number of sites on the NPL to 1,175.

The FY 1987 management initiative to design a strategy that would expedite the pre-remedial process was further developed and partially implemented in FY 1988. This initiative has resulted in a restructuring of the pre-remedial program. The purpose of this restructuring is to provide EPA with enough specific site information early in the pre-remedial process to decide expeditiously which sites require further EPA evaluation. The PA has been expanded in scope and involves more site-specific research, and considers Hazard Ranking System (HRS) factors at both the PA and SI stages in order to develop a projected HRS score. Sites that have no probability of being listed on the NPL are designated "No Further Remedial Action Planned (NFRAP)" and will receive no further Superfund evaluation. Approximately 11,000 sites have been so designated.

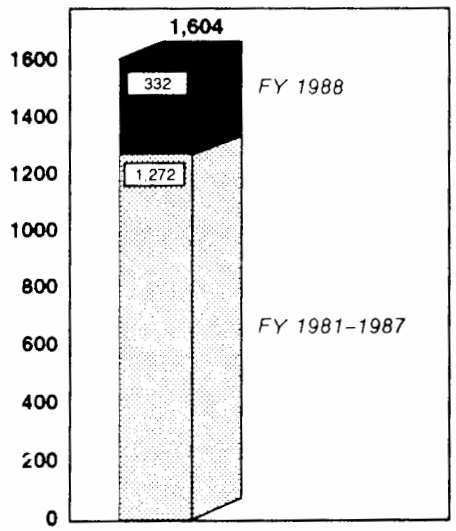
The SI is now divided into two steps: (1) the Screening SI, in which a sampling plan is developed for a limited number of on-site samples to determine which contaminants exist on-site and whether they are migrating; and (2) the Listing SI, in which more extensive analysis is conducted to better determine the extent of contamination and a draft HRS score is produced. Using this redesigned pre-remedial system, EPA can more quickly determine which sites do not pose a threat significant enough to require placement on the NPL. Field tests are currently being performed at seven to ten sites in each Region to fine-tune these changes in the pre-remedial program. Testing will be complete in 1989 and will result in revised guidance documents, a finalized computer scoring system (PRESCORE), and a complete pre-remedial training program.

Removal Actions

Removal actions generally are short-term actions intended for responding to immediate threats to human health, welfare, or the environment. SARA Section 104(e) imposes limits of one year and $2 million upon removal actions, although exemptions may be granted in some cases. Removals may be undertaken to temporarily stabilize or clean up an incident or site until longer-term response actions can be implemented. In some cases, no further response action is necessary. Since the inception of the Superfund program, the removal program has been highly successful. Exhibit 3 shows the total number of removal actions initiated since the enactment of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980. Fiscal year 1988 accomplishments contribute to the program's good record. In FY 1988, 332 removal actions were initiated, and 279 actions were completed using CERCLA funds or enforcement authorities.

Exhibit 3

Number of Removal Actions Initiated*



* *Includes PRP and fund-lead removals at both NPL and non-NPL sites*

Removal actions are characterized according to the urgency of the response required. Incidents or sites requiring immediate attention are considered emergencies. Those that require attention within six months are time-critical, and those that can be postponed for more than six months are non-time-critical. Classic emergencies, such as fires and explosions, and time-critical situations that cannot be addressed by other authorities are the removal program's highest priority. Approximately one-third of the removal actions carried out each year are classic emergencies. Of the remaining removals, time-critical removals comprise the vast majority. Additional FY 1988 accomplishments relating to Superfund removal actions include implementation of recommendations made by the On-Scene Coordinator (OSC) Management Support Task Force. Specifically, the Regions: (1) began hiring administrative assistants to support OSCs; (2) installed a removal cost management system using portable computers at many sites; and (3) produced and distributed a site-file guidance kit.

Remedial Actions

Remedial actions are long-term cleanup actions that are undertaken in non-emergency situations. Remedial actions usually take longer to complete than removal actions, require extensive study to select the most effective remedial alternative, and may cost millions of dollars to implement. Overall progress in the remedial program for fiscal years 1987 and 1988 is shown in Exhibit 4.

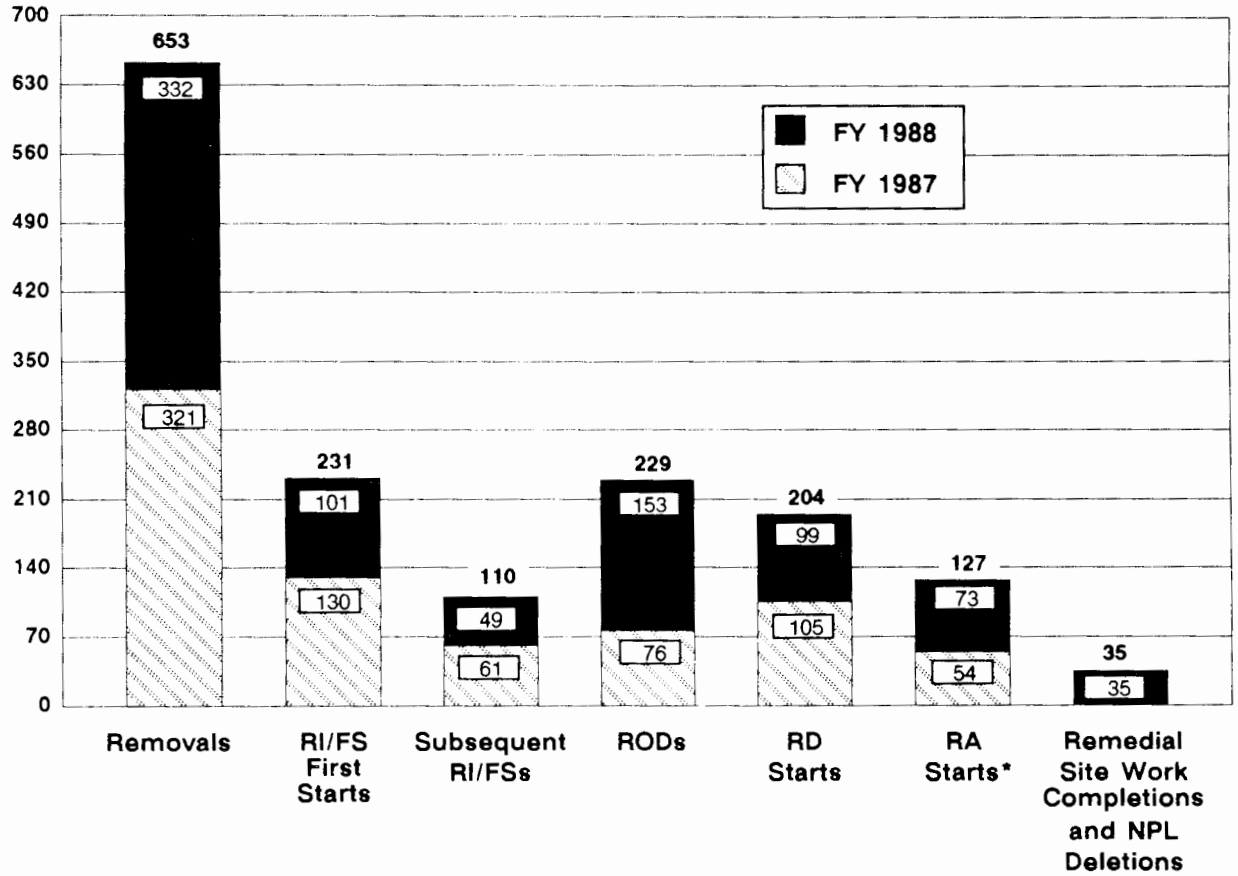
Selection of a long-term remedy for a Superfund site is a multi-step process involving many factors. Remedial alternatives are developed by screening all potentially applicable technologies and process options (including innovative technologies) on the basis of technical implementability. Technologies and process options that cannot be effectively implemented are screened out using site characterization data from the RI. The RI and FS are often conducted concurrently.

Each remedial alternative is evaluated with respect to nine criteria developed by EPA to address the statutory requirements of CERCLA Section 121. The criteria include: (1) overall protection of human health and the environment; (2) long-term effectiveness; (3) short-term effectiveness; (4) reduction of toxicity, mobility, and volume of contaminants; (5) compliance with Applicable or Relevant and Appropriate Requirements; (6) implementability; (7) cost; (8) State acceptance; and (9) community reaction.

Based on the results of the evaluation, the Regional Administrator or Assistant Administrator, in consultation with appropriate State personnel, selects the remedy for the site. EPA's proposed plan for remediating the contamination is then announced to the affected community at a public meeting. After the public has had a chance to comment on the plan, a ROD is prepared. The ROD formalizes the selection of a

Exhibit 4

Major Superfund Program Accomplishments FY 1987 and 1988



* *RA Starts includes both first and subsequent starts.*
(NOTE: Only "first starts" count towards statutory goal of 175 by October 1989.)

remedy from the alternatives analyzed in the FS. The ROD also describes the ways in which the selected remedy satisfies the statutory requirements of CERCLA Section 121.

The following SARA-mandated schedule governs RI/FSs at facilities placed on the NPL prior to October 1986:

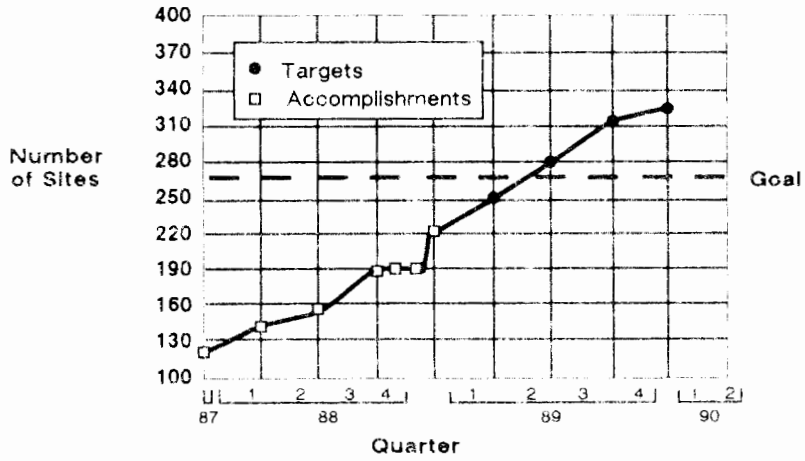
- RI/FSs must be commenced for at least 275 sites by October 1989; or

- RI/FSs must be commenced for at least 450 sites by October 1990 and for an additional 200 sites by October 1991 for a total of 650 sites by October 1991.

Exhibit 4 illustrates the RI/FS accomplishments in FY 1988. These included 101 "first start" RI/FSs and 49 subsequent RI/FSs. As shown in Exhibit 5, EPA has already accomplished 231 RI/FSs, or 84% of the SARA prescribed goal of initiating RI/FSs at 275 sites by October 1989. A national goal of completing most RI/FSs within 18 months continues to be a high priority.

Exhibit 5

Progress Toward Meeting SARA Goal of 275 RI/FS Starts



One hundred and twelve initial RODs and 41 subsequent RODs were signed in FY 1988, for a total of 153. (Appendix A provides a list of these RODs by Region.) Selected remedies and costs in FY 1988 are summarized in Exhibit 6.

Exhibit 6

Records of Decision (RODs) Summary FY 1988

	Fund	Enforcement	Total
I. Source Control RODs			
A. Treatment Technologies			
Incineration/Thermal Destruction	18	4	22
Solidification/Stabilization/Neutralization	8	10	18
Volatilization/Soil Aeration	5	2	7
Soil Washing/Flushing	3	4	7
Biodegradation/Land Application	4	2	6
Vacuum Extraction	4	6	10
Other	2	2	4
B. Containment	7	25	32
C. Other	4	1	5
Subtotal	55	56	111
II. Non-Source Control RODs			
A. Ground Water Management	23	14	37
B. Leachate Treatment	1	3	4
C. Other	1	0	1
Subtotal	25	17	42
III. No Further Action RODs	11	5	16
Total*	91	78	169

** Some of the RODs signed in FY 1988 (totalling 153) involve more than one remedy.*

Remedy Costs

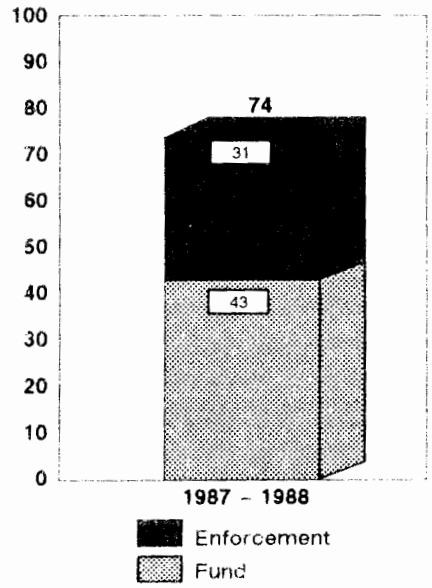
	0–$2M	2–$5M	5–$10M	10–$20M	20–$50M	$50M+
Program	35	18	11	6	10	3
Enforcement	24	12	16	13	4	1
Total	59	30	27	19	14	4

As shown in this exhibit, 111 remedies selected during FY 1988 required source control, either through treatment or containment. Treatment technologies included incineration and thermal destruction; solidification; stabilization and neutralization; soil aeration; soil washing and flushing; biodegradation; and vacuum extraction. Of the remaining RODs, 42 involved ground-water action and 16 required no further action. Five RODs contained both source control and ground-water remedies.

Under SARA Section 116(e), EPA is further required to start remedial action at 175 NPL sites by October 1989, and to initiate such activities at an additional 200 sites within the following two years. The program made good progress toward achievement of the target of remedial action at 175 sites. Since SARA, the program has initiated remedial action at a total of 74 sites (see Exhibit 7). Site completions and NPL deletions were accomplished at 35 sites in FY 1988, raising the total to almost 50. In addition, 99 remedial designs were initiated during FY 1988.

Exhibit 7

Progress toward Meeting SARA Goal of 175 RA First Starts by October 1989



Two key management initiatives relating to remedial work that were introduced in FY 1987 were further developed in FY 1988. These include the Alternative Remedial Contracts Strategy (ARCS) and the RI/FS Improvements Initiative. Central to ARCS are the concepts of promoting continuity of remedial performance from the RI/FS stage to construction management, increasing the level of competition for contract awards, and facilitating delegation of contract management responsibility to the Regions.

Awarding an ARCS contract is a two-step process. Negotiations are conducted with a pool of firms selected as potential ARCS contractors. ARCS contracts then are

awarded to several firms within the pool. EPA completed ARCS negotiations in all Regions in FY 1988, and awarded ARCS contracts in Regions II, III, and V. The RI/FS Improvements Initiative is discussed later in this chapter. (see "Regulations, Guidance, and other Activities.")

ENFORCEMENT ACTIVITIES

The Superfund enforcement program made substantial progress in FY 1988. SARA provided strong enforcement provisions in order to compel potentially responsible parties (PRPs) to conduct site cleanups or to reimburse the government for costs it incurred in conducting cleanups.

Overview of Enforcement Authorities

EPA uses three major types of efforts to enlist PRP involvement in cleanups and reimbursements. First, if the PRP is willing and capable of doing the work, EPA will attempt to negotiate an enforcement agreement (settlement) with the PRP. The enforcement agreement may be an agreement entered in court (such as a judicial consent decree for RD/RA) or it may be an administrative order for RI/FS removals (where EPA and the PRP sign an agreement outside of court). Both of these agreements are enforceable in Federal District Court, and under both agreements, EPA oversees the PRP. Section 122 of SARA provides EPA the authority and parameters for negotiating these settlements.

If a settlement is not reached, EPA can use its authority under Section 106 of SARA to issue a unilateral judicial and administrative action against the PRP. Under this course of action, the PRP is directed to perform removal or remedial actions at a site. If the PRP chooses not to respond to an administrative order, EPA has the option of filing a law suit to compel performance and seek statutory penalties, and in some instances, treble damages.

Finally, if PRPs do not perform the work and EPA undertakes the work, EPA will file suit against the PRPs to recover money spent by the Agency and return it to the Trust Fund. EPA's authority to conduct these cost recovery efforts is provided under Section 107 of SARA.

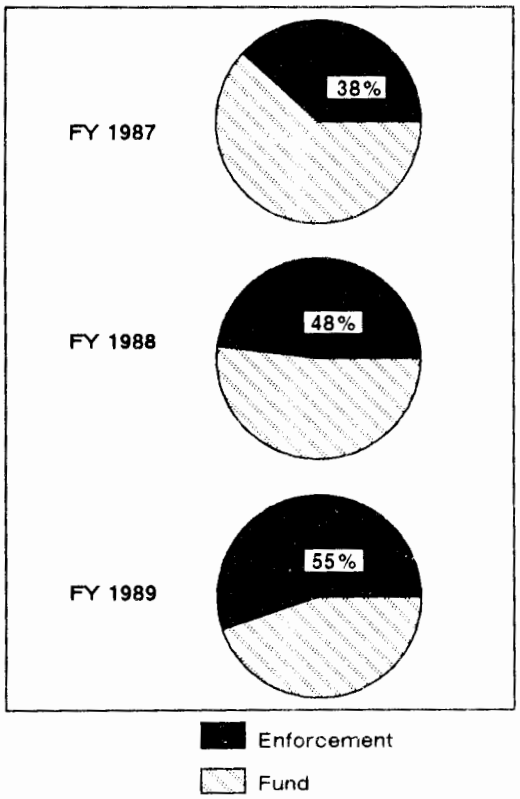
Enforcement Accomplishments

In FY 1988, the Superfund enforcement program met or exceeded most targets, resulting in record-setting accomplishments for the year. By the end of the fiscal year, EPA had reached settlements with PRPs for them to conduct responses worth more than one billion dollars since the start of the program in 1980. These responses include emergency removals of hazardous substances, remedial investigation/feasibility studies, and remedial actions.

RI/FS first starts by responsible parties (RPs) were targeted at 35 sites, and 48 were achieved. This is representative of the increasing role PRPs are playing in the conduct of RI/FSs. Exhibit 8 shows that while PRPs conducted only 38% of RI/FSs in FY 1987, they are expected to conduct 55% of all RI/FSs in FY 1989. RODs where the RI/FS was conducted by RPs increased significantly with a total of 51 signed (43 initial RODs and 8 subsequent). The Agency also exceeded its commitment of 20 RP remedial action starts by accomplishing 21. Cost recovery referrals under Section 107 also exceeded the target of 49, with 56 cases referred to the Department of Justice (DOJ), seeking more than $120 million.

Exhibit 8

Increasing Enforcement Role in RI/FS First Starts

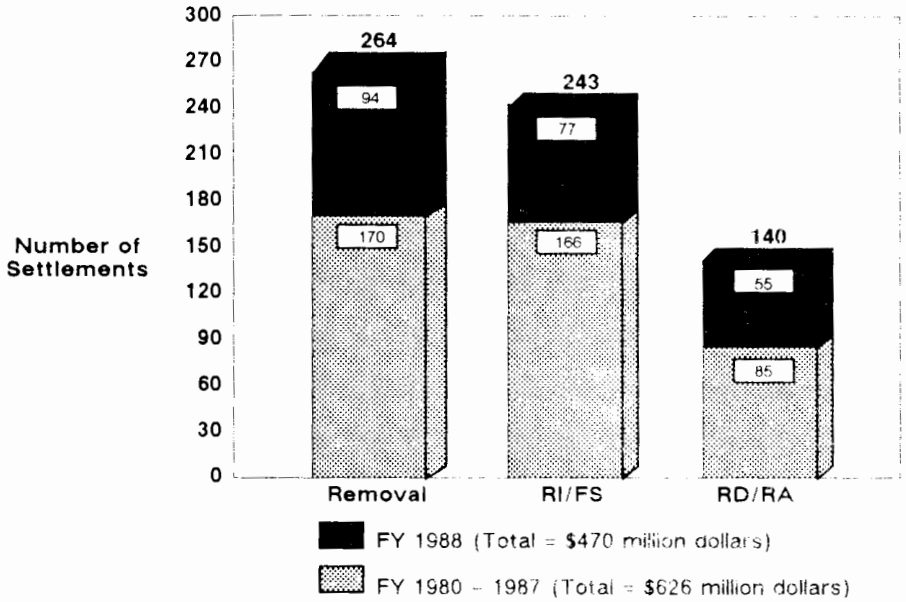


Settlements. In FY 1988, EPA negotiated more settlements than in any prior year. This included 29 consent decrees lodged worth approximately $270 million in RD/RA work. Another 19 consent decrees signed by PRPs for RD/RA are in government concurrence (value of response is yet to be determined). There were an additional 7 sites where the Agency issued an unilateral order for RD/RA which resulted in settlements worth approximately $50 million. (See Appendix B for a listing of these 36 FY 1988 RD/RA settlements.) The number lodged represents a 300 percent increase over the number of decrees lodged in FY 1987. In addition, EPA negotiated RI/FS

settlements at 77 sites worth approximately $85 million and removal settlements at 94 sites valued at approximately $67 million. These settlements are for first or subsequent starts or for takeover of a project the Agency has started. Exhibit 9 summarizes the settlements lodged in FY 1988 and the approximate value of these settlements. The information in the exhibit is a combination of data reported in CERCLIS and data manually compiled by the Office of Waste Programs Enforcement (OWPE).

Exhibit 9

Number and Value of Superfund Settlements



A few of the more noteworthy settlements for FY 1988 include:

- Cannons Engineering, NH and MA. This settlement was reached with the largest waste generators and the owners of two of the four sites involved in the case. The comprehensive settlement includes cost recovery of $17.1 million, implementation of RD/RA at two sites, and a removal action at a third site. The settlers will reimburse oversight costs as a percentage of actual costs. Two additional de minimis settlements and three Administrative Orders on Consent added to this Consent Decree to bring the total recovery to $48.1 million of the $58.57 million in total costs expected.

- Prices Landfill, NJ. The cashout provides for payment of $17.24 million in exchange for a covenant not to sue for past and future liability.

- Tysons Dump, PA. The settlement with the PRPs provided for 100 percent cost recovery, an agreement to conduct the remedy, and payment of all oversight costs. The estimated value of this settlement is $10.2 million plus oversight costs.

- Seymour Recycling, IN. After eight years of litigation, some of the defendants have agreed to pay $6.5 million in past costs and conduct the remedy for an estimated value of settlement of $25 million.

- Outboard Marine Corporation (OMC), MI. The settlement provides for the PRPs to implement RD/RA involving construction of three containment cells, slurry walls and a cap with a synthetic liner. PCB contaminated soils will be excavated, treated, and disposed of off-site. The estimated value of the remedy is $20 million. The PRPs will also pay future oversight costs to EPA and the State. Past costs of $1.7 million were waived.

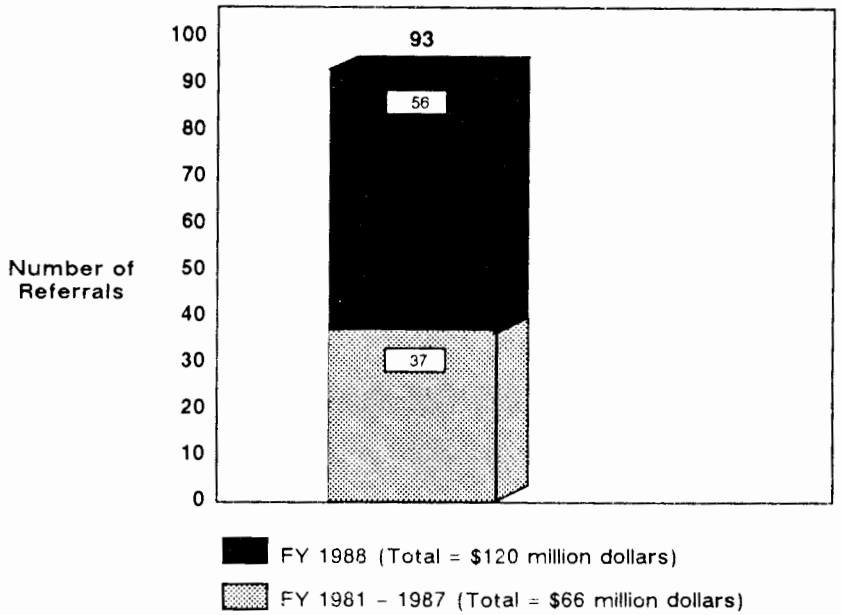
- Bayou Sorrel, LA. The settlement provides for the PRPs to fully finance RD/RA consisting of construction of a RCRA compliant cap over the site, construction of a slurry wall and installation of a storm water/leachate collection system. The remedy is valued at $25 million. The PRPs will also pay $800,000 towards past costs and up to $1.8 million in future costs.

- B.F. Goodrich and Airco Sites, KY. These two adjacent sites were settled in one consent decree. The remedy for each was identical: the pumping and treating by air stripping of contaminated groundwater and the excavation and capping in place of contaminated soils. The settlement calls for the conduct of 100 percent of the remedy for the two sites, and the payment of 100 percent of EPA's past costs and future oversight costs although EPA may take action against a non-settling party through an AOU to seek these costs. The value of the remedy is approximately $6 million and the total past and future costs are estimated to be $800,000.

Cost Recovery. Exhibit 10 highlights the key accomplishments of the cost recovery program prior to and during FY 1988 and shows the number and dollar value of actions referred to DOJ or settlements filed by DOJ. During FY 1988, EPA Regional offices initiated 56 cost recovery referrals with a combined dollar value of $120 million. In addition to the referrals, 36 Administrative Cost Recovery settlements, valued at over $20 million dollars, were achieved in FY 1988.

Exhibit 10

Number and Value of Cost Recovery Referrals



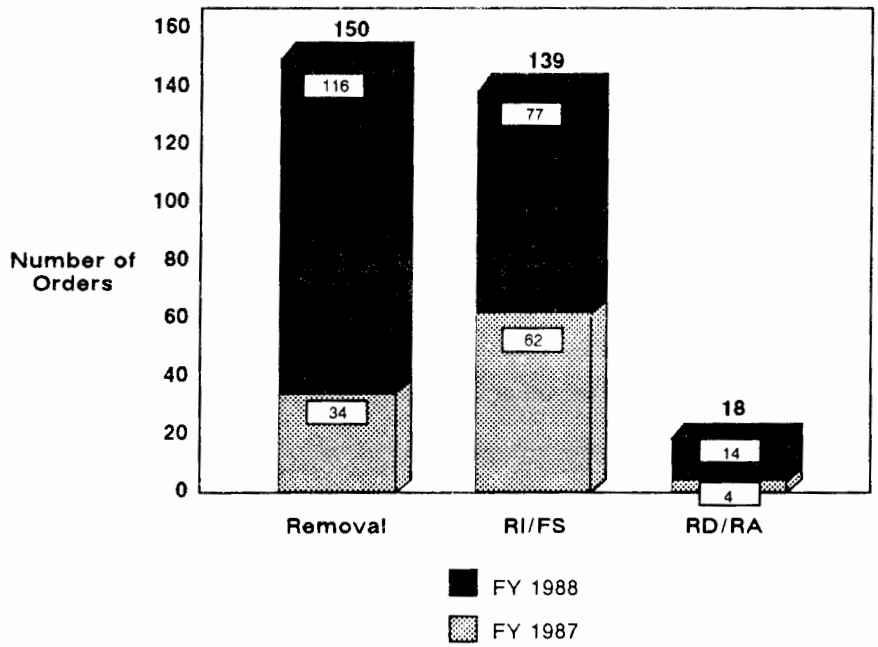
Two guidance documents for the cost recovery program were also released in 1988. The first is titled, "The Superfund Cost Recovery Strategy," (OSWER Directive 9832.13). It provides a framework for planning and initiating actions to recover Federal funds expended by EPA or a State during CERCLA response actions. The second is titled, "Guidance on Documenting Decisions Not to Take Cost Recovery Actions," (OSWER Directive 9832.11). This guidance document discusses the information to be included in EPA close-out memoranda written to document the basis of EPA decisions when cost recovery of unreimbursed Superfund monies is not being sought.

EPA also delegated concurrence on most Section 107 cost recovery actions to the Regions on June 7, 1988 (OSWER Directive 9012.10-a). EPA Regional offices now have a greater amount of authority to resolve Section 107 claims without approval from EPA Headquarters. Referrals subject to the new delegation criteria may be referred directly to the Department of Justice.

Section 106 Enforcement. In FY 1988, EPA issued 14 unilateral administrative orders under Section 106 of SARA for RD/RA worth more than $136 million (Exhibit 11). Of these 14, 7 resulted in settlement, 1 resulted in settlement under a lodged consent decree, 2 cases were referred to DOJ, and the remaining orders are waiting for a PRP response. The Agency referred one additional case to the Department of Justice for injunctive relief for RI/FS and remedial action, the value of which has not yet been determined.

Exhibit 11

Administrative Orders Issued Since SARA



For the removal program, 116 orders were issued in FY 1988 for removal activities valued at over $78 million dollars. Of these, 94 resulted in compliance, with a value of over $67 million dollars. One hundred and two of these resulted in removal starts.

For FY 1988, there were a total of 156 Administrative Orders on Consent and 61 unilateral Administrative Orders. The overall total of 217 represents a 62 percent increase over the total number of orders issued in FY 1987 (135).

REGULATIONS, GUIDANCE, AND OTHER ACTIVITIES

Concurrent with a significant amount of site activity, there was a substantial amount of regulatory and guidance development in the Superfund program during FY 1988. Some of these activities were mandated by CERCLA or SARA. Other efforts stemmed from the need to improve the pace of the Superfund program. Proposed revisions to the NCP and the HRS are almost complete and scheduled to be published in early FY 1989. Extensive guidance was drafted on how to conduct RI/FSs. Interim guidance for preparing RODs and proposed plans was released in FY 1988; a final guidance document, however, will not be issued until the revisions to the NCP are promulgated. The following sections outline these and other regulatory and guidance activities undertaken by both Superfund program staff and Superfund enforcement staff during the past year.

National Contingency Plan

During FY 1988, OSWER announced major revisions to the National Contingency Plan (NCP), which comprises the bulk of the Superfund regulatory program. In addition to incorporating the changes mandated by SARA, the NCP is being revised to: (1) more accurately reflect the sequence of response actions taken pursuant to the NCP; (2) clarify existing language on roles, responsibilities, and activities of affected parties; and (3) incorporate changes indicated by program experience. The revised NCP will reflect the Agency's bias toward active remedies for Superfund cleanups. The proposed rule:

- Proposes using the following nine criteria for evaluating and selecting cleanup remedies: (1) overall protection of human health and the environment; (2) compliance with Applicable or Relevant and Appropriate Requirements (ARARs); (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) State acceptance; and (9) community reaction;

- Incorporates the new statutory requirement that remedies must comply not only with ARARs under Federal law, but also with ARARs under State environmental or facility-siting laws that are more stringent than corresponding Federal standards;

- Implements the SARA requirement that States play a "substantial and meaningful" role in the initiation, development and selection of remedial actions, by introducing the Superfund Memorandum of Agreement (SMOA) and the process of EPA/State concurrence in remedy selection;

- Specifies public participation requirements including conducting community interviews, developing community relations plans, making available for public comment the proposed cleanup alternatives and responding to comments received;

- Incorporates the new statutory requirements for the expansion of short-term action expense and time limits from $1 million dollars and six months to $2 million dollars and one year; and

- Requests comment on a proposal to defer sites from listing on the NPL if the sites can be addressed by other Federal and State environmental authorities or by PRPs under enforcement authorities.

Hazard Ranking System

During FY 1988, OSWER undertook a major revision of the Hazard Ranking System (HRS), the Superfund pre-remedial tool used to identify sites warranting inclusion on the NPL. The proposed changes to the HRS will make it a more comprehensive ranking system, taking into consideration two new exposure pathways – the human food chain and direct contact with soils – and making the definition of "sensitive environments" more inclusive. In addition, the revised HRS will consider both acute and chronic health effects. The revisions will result in a ranking system that is more accurate in assessing potential for exposure, contaminant concentration and contaminant toxicity. As a result, the HRS will provide a more selective tool for identifying the most problematic sites.

The HRS rulemaking effort passed several important milestones during FY 1988, including: (1) workgroup closure; (2) Agency review; and (3) Science Advisory Board (SAB) review. The proposed HRS incorporating Agency and SAB revisions was sent to OMB in February 1988 for review and is scheduled to be proposed early in FY 1989. In addition, work was initiated during FY 1988 on a two stage field testing project to test the implementability of the HRS provisions.

RI/FS Guidance

During FY 1988, the Office of Solid Waste and Emergency Response (OSWER) issued detailed guidance for implementing the RI/FS Improvements Initiative of FY 1987. The goal of the RI/FS Improvements Initiative is to improve the schedule and cost efficiency of the RI/FS process while concurrently improving the technical quality of RI/FS work. The guidance, focusing on easily implemented short-term initiatives, was distributed to the Regions in April 1988. EPA established workgroups to address more complex and longer term issues, including: (1) enforcement; (2) State considerations; (3) interim action response; (4) technical/procedural aspects (e.g., laboratory support and treatability studies); (5) procurement actions (e.g., subcontract procurement) and; (6) program management aspects (e.g., performance-based goals and risk taking in decision-making).

An interim final version of the RI/FS guidance document on addressing these issues was distributed to the Regions in October 1988. This document reflects a new RI/FS process outlined in the NCP. The RI/FS is no longer a two-phase process in which the RI is completed prior to the start of the FS. Instead, the RI/FS process is now a one-phase process with stages feeding into each other and sometimes occurring simultaneously. The interim final guidance also reflects other FY 1988 proposed revisions to the NCP and will be finalized after promulgation of the revised NCP.

ROD Guidance

In addition, EPA began revising the draft ROD guidance in FY 1988 to reflect proposed revisions to the NCP. The draft guidance now provides more specific guidance on: (1) implementing remedies organized into several operable units; (2) proposing sites for deletion from the NPL; and (3) selecting a "no action" alternative.

Release Notification Program

Timely notification of hazardous substance releases is critical to the success of the response program. CERCLA Section 103 and SARA Section 304 contain release notification requirements for hazardous substances listed under CERCLA. FY 1988 regulatory activity in the hazardous substance release notification program consisted mainly of designation and reportable quantity (RQ) adjustment rulemakings pursuant to CERCLA Sections 102(a) and (b).

Removal Program Guidance

In order to promote the most efficient use of limited removal program funds and resources, the Emergency Response Division (ERD) issued four guidance documents in FY 1988. These guidance documents assist Regions in setting priorities so that the most serious threats to human health and the environment can be addressed. First, in February 1988, ERD issued the revised "Superfund Removal Procedures Manual." This manual describes all of the procedural and administrative requirements for removal actions, and provides step-by-step directions for preparation and approval of documentation.

Second, the "Removal Program Priorities" memorandum distributed on March 31, 1988, identifies national priorities for use of removal resources (e.g., time-critical removals at NPL sites and at non-NPL sites posing major threats which cannot be addressed by other authorities). It also allows Regional discretion in conducting other types of removals within program authorities, if site-specific conditions necessitate such action.

Third, the "Removal Cost Management Manual" provides comprehensive cost management procedures for use by EPA at CERCLA-authorized removals. Revised and reissued in April 1988, the manual includes: (1) a discussion of the concept and an approach to cost management; (2) techniques for cost projection and tracking; and (3) techniques for cost control, cost recovery, and cost documentation.

Fourth, the "Removal Actions Universe Study" provides information on the universe of removals (i.e., numbers of removals, average costs, types of removals, and removals by Region). This study will be used by EPA to develop policy and prepare future budgets that accurately reflect the program's needs.

Technical Assistance Grants (TAGs)

Section 117(e) of SARA provides for technical assistance grants of up to $50,000 to be made available to groups of individuals to obtain assistance in interpreting information related to activities at Superfund sites. In June 1987, EPA issued an advance notice of rulemaking and requested comments on the Technical Assistance Grant Program. In March 1988, EPA issued an interim final rule which discussed Technical Assistance Grants (TAG) Program requirements so the Agency could immediately begin to accept applications from citizens' groups for financial assistance, while simultaneously accepting comments on and developing the final rule.

From the time of publication of the interim final rule to the end of fiscal year 1988, EPA Regional offices received 79 letters expressing intent to apply for grants and 28 draft or final grant applications from citizens' groups. As of September 30, EPA awarded grants to four citizens' groups at sites listed on the NPL. Many more are in progress. The four grants awarded in FY 1988 are listed in Exhibit 12. Before the creation of the TAG Program, EPA provided financial assistance to citizens' groups at both the Lipari Landfill Site in Pitman, NJ and the Stringfellow Site in Glen Avon Heights, CA. The citizens, as well as EPA, have benefitted from the independent advisors' input -- the groups have a greater understanding of the Superfund process and there is enhanced communication between EPA and the citizens.

Exhibit 12

NPL Sites Where TAGs Were Awarded in FY 1988

Region	Name of Site	Grant Recipient	Grant Amount
II	Love Canal Site, Niagara Falls, NY	Love Canal Environmental Action Committee	$43,067
II	Fulton Terminals Site, Fulton, NY	Fulton Terminals Safe Drinking Water Action Committee	$50,000
III	Lackawanna Refuse Site, Old Forge Borough, PA	Old Forge Toxic Waste Removal Committee	$50,000
V	Industrial Excess Landfill Site, Uniontown, OH	Concerned Citizens of Lake Township, Inc.	$50,000

Cost Recovery Strategy

OWPE issued its final Superfund Cost Recovery Strategy on July 29, 1988. This strategy lays out the Agency's case selection priorities and guidelines and describes the cost recovery process for removal and remedial actions.

Other Superfund Enforcement Guidance

- Administrative Record Strategy. OSWER has developed a strategy for ensuring that complete administrative records are kept on the processes used for selection of response actions. The strategy includes assessment and training in all ten Regions to ensure that adequate records are being compiled. The strategy also includes the issuance of a guidance document which is being used by the Regions in draft form pending publication of proposed regulations on administrative records. The regulations are slated to be Subpart I of the revised NCP.

- Dispute Resolution Initiative. OSWER has developed a strategy for the use of third party neutrals to help resolve Superfund disputes. The strategy includes Regional pilot projects to investigate the feasibility of using alternative dispute resolution during the Superfund process. OSWER is monitoring these Regional activities and will develop a suitable policy after conducting an analysis of the pilots.

Superfund Innovative Technology Evaluation (SITE) Program

SARA's emphasis on cleanup and the new cleanup standards established by the statute require the development of new treatment technologies. The Superfund Innovative Technology Evaluation (SITE) Program's objective is to develop, demonstrate, and subsequently encourage the use of such technologies as alternatives to land disposal. In FY 1988, the SITE Program accepted an additional ten technologies, bringing the total number of accepted technologies to 29 (see Appendix C). EPA will distribute a fourth request for proposals in January 1989. Seven field demonstrations were completed in FY 1988 for new treatment technologies, including infrared incineration, solidification, in-situ vacuum extraction, oxygen-enhanced incineration, and solvent extraction.

Emerging Technologies Program (ETP)

The Emerging Technologies Program (ETP) encourages the investigation and development of technologies that may be useful for remediation at Superfund sites, but that are not yet ready for full-scale demonstration. ETP's goal is to validate such innovative, alternative remediation technologies and prepare them for demonstration.

ETP is interested in developing cutting-edge technologies for recycling, separation, detoxification, destruction, and stabilization of hazardous wastes. Two year funding is available to technology developers through competitive cooperative

agreements. An individual developer may receive up to $150,000 per year for a maximum of $300,000 over two years to bring a promising technology from laboratory scale to the pilot stage.

ETP accepted its first set of proposals from developers in October 1987. Seven projects were awarded a total of $1,000,000 in funding during FY 1988 (see Appendix D). A second solicitation was released in September 1988, and 81 responses are currently being evaluated. A third solicitation is planned for September 1989, with preproposals due to EPA in October 1989.

Outreach and Training Activities

OSWER is involved in numerous training activities aimed at improving the effectiveness of its regulatory and enforcement programs. In FY 1988 OSWER began implementing a new five-year training strategy. This plan is a result of the shift in emphasis from the development of regulations to implementation of programs, expedited enforcement activities, congressionally mandated acceleration of activities, and assisting the States in managing and implementing their own solid and hazardous waste programs.

The Office of Emergency and Remedial Response (OERR) also initiated a variety of new Superfund training courses and guidance documents in FY 1988. New training courses begun in this fiscal year include: (1) training courses on Applicable or Relevant and Appropriate Requirements (ARARs) of RCRA and the Clean Water Act in Regions II, III, IV, V, and IX; (2) three new Emergency Response Team (ERT) courses; (3) a course in Systematic Development of Informed Consent; and (4) a Superfund Task Manager course. In addition, OERR initiated development of a course on Construction Management in Superfund and a Remedial Design Scheduling course.

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SECTION 2

RESOURCE CONSERVATION AND RECOVERY ACT

The Resource Conservation and Recovery Program made substantial progress in addressing the priorities outlined for FY 1988. Most notably, the program issued 82 land disposal permits under the Resource Conservation and Recovery Act (RCRA) and denied another 35 in an effort to meet the November 1988 land disposal permitting deadline established in the Hazardous and Solid Waste Act Amendments (HSWA). Municipal solid waste issues were studied by a special Task Force, which developed an agenda for changing the ways in which the nation produces and disposes of solid waste, emphasizing source reduction and recycling. Significant progress was also made in implementing the RCRA requirements and improving data management in the programs. This section reviews the specific achievements of FY 1988.

PROGRAM IMPLEMENTATION

The RCRA program continued to make progress towards its goal of protecting human health and the environment through the hazardous waste permitting and enforcement programs. Priorities for FY 1988 included working toward meeting the land disposal and incineration facility permitting deadlines; imposing corrective action requirements at facilities through permits and enforcement orders; and taking appropriate enforcement actions for high priority violations identified. Summaries of key activities are provided below.

Permitting

The Agency made significant progress toward meeting the November 1988 deadline for land disposal permits in FY 1988. EPA and the States issued 82 permits for land disposal facilities and denied another 35 such permits. (See Exhibit 13.) Progress toward the November 1988 goal for land disposal facility permitting actions is shown in Exhibit 14. Progress was also made toward the November 1989 deadline for incinerator permits, as can be seen in Exhibit 15. EPA easily met its target of 30 by issuing or denying 33 permits to incineration facilities. The Agency and States also approved 14 closure plans for incinerators and 237 closure plans for land disposal facilities during this period (see Exhibit 16).

Exhibit 13

Land Disposal Facility Permit Actions, FY 1988

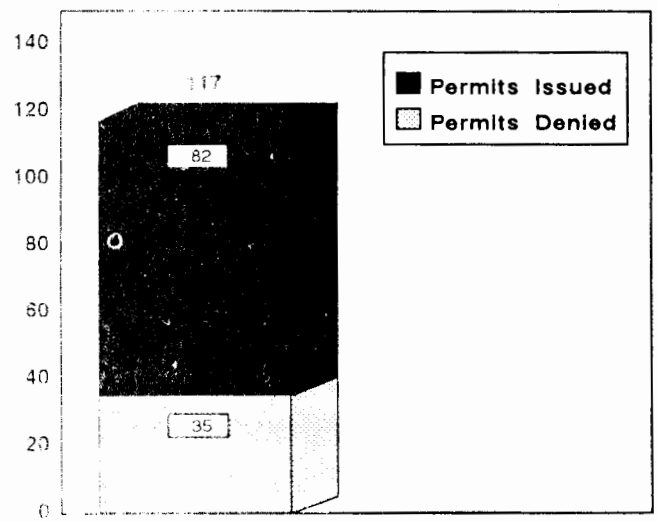


Exhibit 14

Progress Toward November 1988 Goal of 264 Land Disposal Facility Permitting Actions

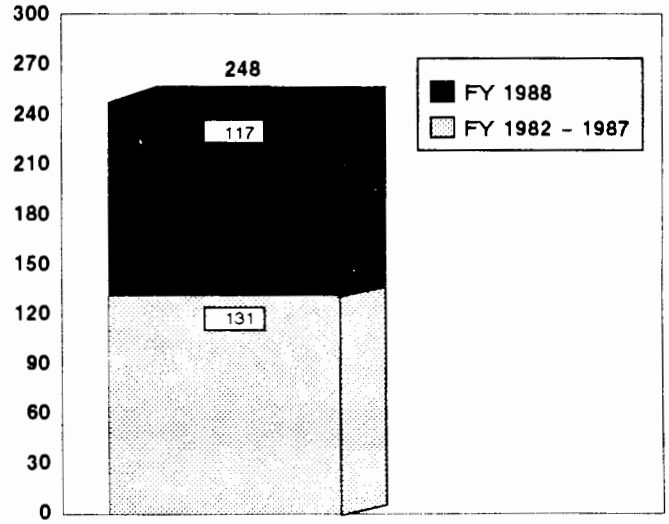


Exhibit 15

Incinerator Permit Actions FY 1988

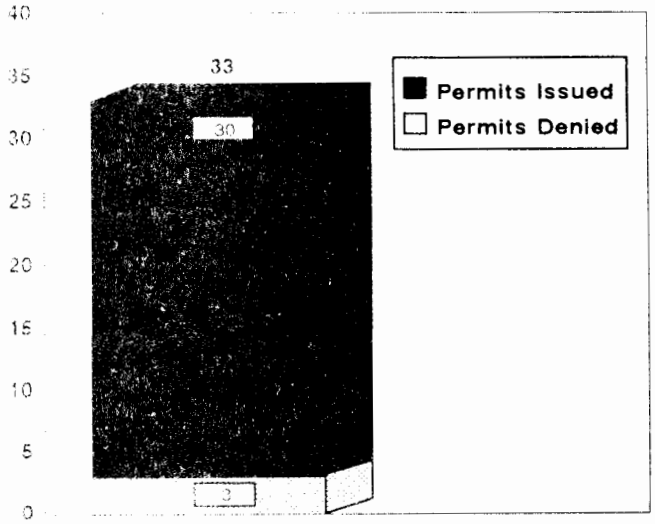
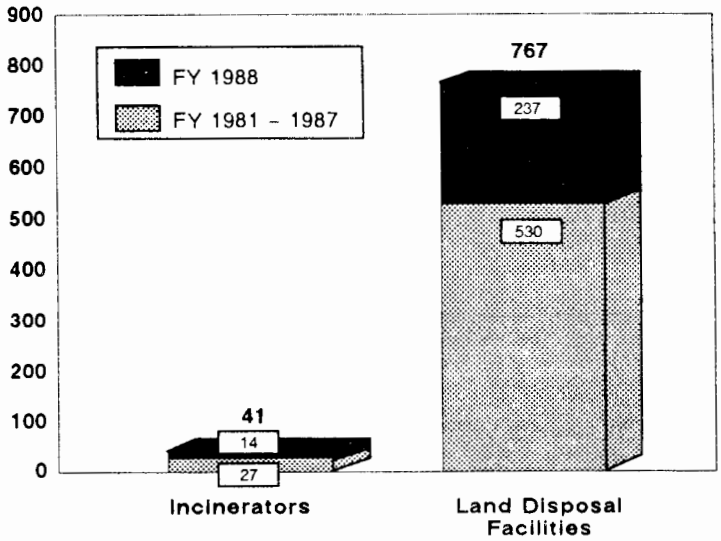


Exhibit 16

Closure Plan Approvals



Corrective Action

The HSWA corrective action authorities greatly expanded EPA's ability to ensure that owners and operators correct releases resulting from past waste management practices at RCRA facilities. In FY 1988, the Regions undertook the following activities to implement the corrective action program: RCRA Facility Assessments (RFAs) were conducted at 228 land disposal facilities, 40 incinerators, and 85 storage facilities. In addition, RCRA Facility Investigations (RFIs) were initiated or in progress at 87 land disposal facilities, 8 incinerators, and 15 storage facilities. A new corrective action measure is being developed for the Strategic Planning and Management System (SPMS) that will assist in tracking the number and progress of RFIs underway.

In FY 1988, the RCRA enforcement program made substantial progress in effectively using the Section 3008(h) authority for corrective action. Regions issued twenty consent orders and five unilateral orders. In addition, seven Regions were delegated authority for issuing consent orders (Regions 3, 4, 5, 6, 8, 9, and 10), while Regions 4, 8, and 9 also received authorization for issuing unilateral orders. The Section 3008(h) model consent order was made final, and is in use throughout the Regions. A draft model unilateral order is in use and is expected to be finalized in early FY 1989.

Guidance was issued in May 1988 to direct the Regions in implementing the Environmental Priorities Initiative (EPI) developed last year. EPI is an integrated RCRA/CERCLA management system designed to enable the Agency and the States to identify and clean up first those sites that present the greatest threat to human health and the environment. In FY 1988, in accordance with guidance provided by Headquarters, the Regions and States ranked storage and treatment facilities and closing land disposal facilities as high, medium or low priority based on each facility's environmental significance. Facilities that are ranked "high priority" are to be entered onto CERCLIS and receive CERCLA Preliminary Assessments (PAs) and preliminary and projected Hazard Ranking System (HRS) scores in FY 1989. Medium and low priority facilities will be entered onto CERCLIS and receive CERCLA PAs in FY 1990 and 1991. Certain high priority facilities will also receive a CERCLA Site Inspection. By using the CERCLA screening mechanism in this way the Agency will be able to focus its cleanup efforts on the sites that pose the greatest threat to human health and the environment.

Close coordination with the CERCLA cleanup program includes policies being developed to address corrective action at RCRA NPL sites. The Office of Waste Programs Enforcement (OWPE), in cooperation with the Office of Emergency and Remedial Response (OERR), has been working on expanding and clarifying the RCRA/NPL Listing Policy. This policy explains under what circumstances RCRA sites may be listed on the National Priorities List (NPL), and thus become eligible for

Superfund monies for remedial activities. During FY 1988 the criteria for listing RCRA sites on the NPL was expanded in a Federal Register Notice. RCRA sites which had been proposed during the first four NPL updates were reviewed to determine whether they met the new criteria for listing RCRA sites on the NPL. Thirteen of these sites were found to meet these criteria and will be reproposed for the NPL, while 30 of these sites are to be dropped from the NPL. In FY 1988, Update 7 to the NPL was proposed, which included 43 RCRA facilities that meet the criteria for listing on the NPL.

A revised corrective action order workshop was conducted in Washington, DC and five Regions in FY 1988 for audiences of Headquarters staff from OWPE and the Office of Solid Waste (OSW), Regional permits and enforcement personnel, Regional counsel, and State personnel. The two-day workshops covered the authorities that can be used to compel corrective action as well as the language and provisions of the 3008(h) order. The curriculum addressed planning and oversight issues encountered throughout the corrective action process, from the RFI through the Corrective Measures Study (CMS) and the Corrective Measures Implementation (CMI) phase. The workshops were taught by staff of the Technical Implementation and Policy Sections of the RCRA Enforcement Division.

Enforcement

In addition to corrective action orders, FY 1988 RCRA enforcement priorities included: conducting required high-quality inspections; pursuing actions against Significant Non-Compliers (SNCs); enforcing land ban disposal restrictions, and ensuring the adequate availability of appropriate Superfund treatment and disposal capacity through development of the CERCLA Off-site Policy.

In December 1987, the Agency issued a revised Off-site Policy that incorporates the requirements set out by SARA. The revised policy ensures that wastes from CERCLA sites are sent only to facilities capable of handling them in an environmentally sound manner. The policy also formalizes the Agency's commitment to according due process to facilities that are potential recipients of CERCLA wastes. The Off-site Policy further applies to actions taken jointly under CERCLA and other Agency statutes. EPA expects to propose a rule to codify the Off-site Policy in early 1989. The rule, however, will not apply to actions taken under RCRA Section 7003. The draft rule has completed Agency and Office of Management and Budget (OMB) review.

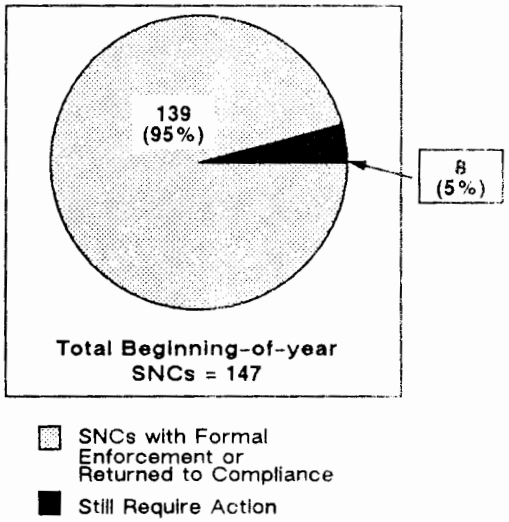
A key goal of FY 1988 was to conduct at one third of the land disposal facilities either a Comprehensive Monitoring Evaluation (CME) or an Operation and Maintenance (O&M) Inspection. CMEs were conducted at 402 facilities and O&Ms were conducted at 25 facilities in FY 1988. Compliance Evaluation Inspections (CEIs) were conducted at 1,338 land disposal facilities by either EPA or the States in FY 1988, as required by HSWA. In addition, treatment and storage facilities owned or operated by Federal,

State, or local governments were inspected, as required by Sections 3007(c) and (d). The RCRA Inspection Enhancement Strategy was developed to increase the quality of inspections. Final guidance on the strategy was issued in July 1988, and is now being implemented in the Regions.

Emphasis continued to be placed on assuring enforcement against SNCs (i.e., land disposal facilities that have Class I violations of groundwater monitoring, closure, or financial responsibility requirements). At the beginning of the year, there were 147 SNCs that required formal enforcement action. At the end of FY 1988, all but 8 had been addressed by EPA or the States with enforcement actions or had returned to compliance (see Exhibit 17). A revised Environmental Response Policy (ERP) was finalized in December 1987. The new ERP provided additional flexibility in selecting enforcement actions by changing the method of defining high priority violations. Another initiative to increase the Regions' flexibility in tailoring enforcement activities to better fit their own priorities is the "RIP-flex." Under this initiative, the Regions may negotiate with Headquarters to redirect resources and alter priorities within their SPMS commitments to better reflect Region or State-specific priorities.

Exhibit 17

Beginning-of-year SNCs with Formal Enforcement Action or Returned to Compliance



In addition to Regional and State inspections, OWPE supported enforcement of the land disposal restrictions through workshops and training. OWPE, in conjunction with the Regions and States, conducted an intensive RCRA Inspector Workshop in all ten Regions, the State of Florida, and Washington, DC. Approximately 1,000 EPA, State, and contractor personnel attended the three and one half day workshops, in which they learned procedures to be used when conducting inspections of hazardous waste generators, transporters, and treatment, storage and disposal facilities. Topics

covered included evidence, generator requirements, permitted facility inspections, access issues, regulatory interpretations, industrial processes, photo interpretation of hazardous waste facilities, the inspector as a witness, report writing, sampling and site reconnaissance, environmental crime, enforcement authorities, and HSWA.

Training on the Technical Enforcement Guidance Document was conducted in five locations nationwide during FY 1988. The training was revised and updated to include new information on the Compliance Order Guidance and Laboratory Audit Inspection.

Data Management

Significant progress was made in FY 1988 in streamlining reporting requirements and procedures. The Resource Conservation and Recovery Information System (RCRIS) is under development to better manage the RCRA program at both the State and national levels. Conversion of data from the Hazardous Waste Data Management System to RCRIS began in FY 1988. Design and programming continued throughout the fiscal year for RCRIS's seven major components, which include:

- Handler Identification;
- Permitting/Closure/Post Closure;
- Compliance Monitoring and Enforcement;
- Corrective Action;
- Data Quality/Data Management;
- Program Management; and
- Facility Management Planning.

Field tests of the various aspects of the system (e.g., conversion of HWDMS data to RCRIS) began in August 1988 in conjunction with several States. These field tests are being used to refine the system before a three-month pilot project is conducted in March 1989. The pilot project will be conducted in Region IV and will involve the States of Florida, Georgia, Kentucky, and Mississippi.

SOLID WASTE MANAGEMENT INITIATIVES

HSWA required the Agency to conduct a study of the extent to which the existing Subtitle D land disposal criteria are adequate to protect human health and the

environment from groundwater contamination. This study resulted in a Report to Congress that concluded the criteria were inadequate and recommended their revision. OSWER followed up on this recommendation by proposing revised criteria for land disposal on August 30, 1988.

Concurrent with the study of land disposal criteria, the Agency created a Municipal Solid Waste Task Force in February 1988 to fashion a strategy for improving the nation's management of municipal solid waste. The Task Force's report was released for public comment in September 1988, with the final report due in January 1989. The report recommends using a hierarchy of integrated waste management to solve municipal waste problems at the local, regional, and national levels. The hierarchy favors source reduction to first decrease the volume and toxicity of wastes. Recycling is the preferred management option to further reduce potential risks to human health and the environment, divert wastes from diminishing landfill capacity, and slow the depletion of nonrenewable natural resources. The EPA action agenda calls for reducing landfill use from the current 80% level to 55% by 1992, while incineration would rise from 10% to about 20% (see Exhibit 18).

Perhaps the most significant feature of EPA's proposed Agenda for Action is that it commits the Federal Government to a renewed leadership role in solid waste management. There are a number of significant activities planned, as follows:

1. EPA intends to promote source reduction and recycling and has set a national recycling goal of 25% by 1992.

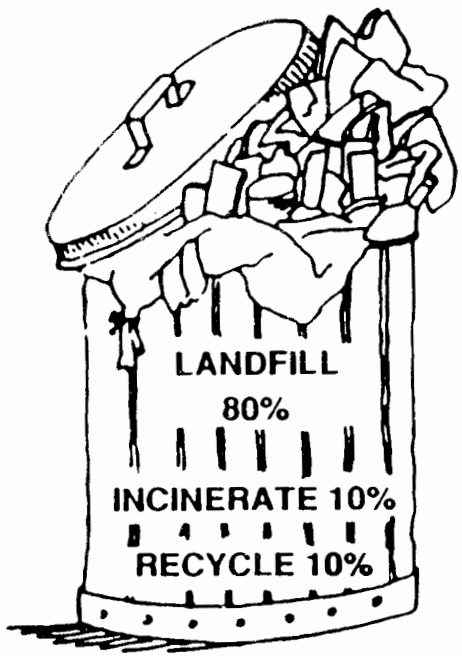
2. EPA is committed to providing leadership on Federal procurement of recyclable and reusable products. Guidelines in several areas have already been issued (e.g., used oil, tires, paper, etc.).

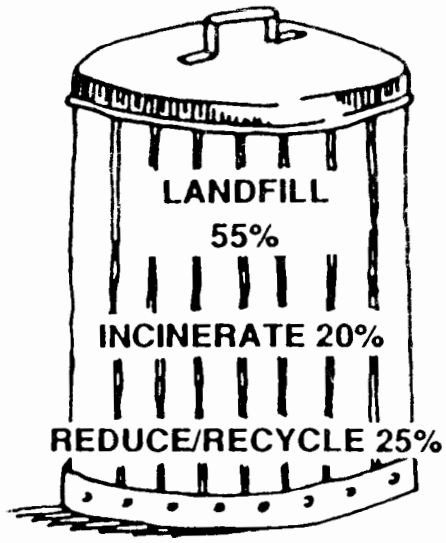
3. EPA is continuing its work towards making incinerators and landfills safer. For example, new criteria for municipal landfills were recently proposed; in 1987, technical guidance was provided to the States for new major solid waste incinerators; and air emission regulations for both new and existing incinerators will be proposed in late 1989.

4. EPA supports a national research agenda to lead to a better understanding of municipal waste management. Among other things, EPA will look at how ash residues should be characterized; the presence and fate of toxic substances in the municipal waste stream; techniques for the recycling and reuse of ash through solidification; how plastics break down after disposal; and technical and other issues related to development of degradable plastics.

Exhibit 18

EPA Goals For Municipal Solid Waste Management





5. EPA will help facilitate State and local planning and is committed to establishing a national information clearinghouse.

MAJOR REGULATORY AND GUIDANCE DEVELOPMENT ACTIVITIES

Land Ban

HSWA recognized that land disposal should be the least favored method of managing hazardous waste because of the potential for groundwater contamination and other hazards associated with land disposal. The program for restricting land disposal of waste includes a series of deadlines for issuing regulations that specify levels of treatment needed before the residues left after treatment are acceptable for land disposal. During FY 1988, the Agency continued to meet the schedule set for issuing rules under the land ban. EPA issued regulations in August 1988 covering disposal of the "First Third" of RCRA hazardous wastes.

In addition to rulemaking and enforcement, OSWER is providing orientation training to the Regions to educate them about the land ban. A Land Disposal Restriction Strategy and Inspection Manual has been developed to assist the Regions and States in implementing the regulations.

Permit Modifications

EPA issued new permit modification regulations on September 28, 1988 which replace the previous major/minor categories with a new three-class system. Under the old system, any change to the permit initiated by the permittee required prior approval from EPA, which was often a time-consuming and resource-intensive process. As a result, facilities found it difficult to make routine changes necessary to maintain effective operations, to introduce improved technologies, and to respond quickly to shifts in the types of waste generated. The new three-class system makes it easier for facilities to make changes that are administrative or routine in nature (Class 1) or do not substantially alter the facility's design or management practices (Class 2) by requiring notification of EPA but not requiring prior approval. (EPA still has the right to review and deny Class 1 and 2 permit modifications.) Changes that substantially alter the facility or its operation (Class 3) still require a draft permit modification to be submitted and approved by EPA before the facility may initiate them. This rule, developed as a result of OSWER's participation in a negotiated rulemaking effort, also expands public involvement opportunities during significant permit modifications.

Mobile Treatment Units

Regulations for a new system for permitting mobile treatment units (MTUs) were proposed on June 3, 1987. During FY 1988, the Agency revised the proposed rule and placed it into Agency review. The new rule, which is expected to be promulgated in early 1989, should have a significant impact on streamlining the process for bringing MTUs on-line. By promoting faster permitting of MTUs, the new system should expedite cleanup at facilities required to conduct remedial actions, increase capacity development, and facilitate the use of alternative treatment systems.

RCRA Inspection Manual

In March 1988, OSWER issued a new RCRA Inspection Manual to replace the 1981 Compliance Evaluation Inspection Manual. The revised manual is a comprehensive guide for State and Regional staff and contractors on how to conduct effective RCRA inspections. Topics discussed in the manual include preparation for inspections, permit review, communicating with owner/operators, post-inspection activities, report preparation, and keeping up to date with RCRA. The manual also provides inspection procedures and checklists for generators and treatment, storage, and disposal facilities.

Technical Case Development Guidance

In June 1988, OSWER issued final guidance that for the first time consolidates information useful to RCRA inspectors, enforcement officers, and attorneys for reference in the development of enforcement cases. The guidance covers various aspects of technical case development including: the role of inspectors, pre-inspection activities, investigative procedures, sampling, administrative procedures, and preparing technical information to support litigation. The guidance includes a number of technical resources available to assist RCRA case development and a bibliography of references.

Laboratory Audit Inspection Guide

In September 1988, OSWER issued this guidance detailing Laboratory Audit Inspection (LAI) procedures. The LAI is designed to supplement the existing RCRA groundwater monitoring inspection process by evaluating the adequacy of the laboratory program used for the analysis of a facility's groundwater samples. The guidance includes procedures for evaluating the owner/operator's sampling and analysis plan, general staffing, equipment, the maintenance program, quality assurance and control procedures, sample tracking, and analytical procedures.

Other Rulemakings

OSWER staff devoted a significant effort to developing corrective action regulations in FY 1988 under Section 3004(u) of HSWA. The proposed rule went through final Work Group closure and received concurrence during Agency review. In addition, the Economic Analysis Staff completed its regulatory impact analysis and the Agency anticipates proposing RCRA corrective action regulations in early FY 1989. Other major rulemakings completed or underway include:

- Land Disposal Restrictions: First Third Wastes;
- Codification Rule for the 1984 Amendments;
- Revision of Subpart H Liability Regulations: Corporate Guarantee;
- Deferred Closure Rule;
- Groundwater Monitoring at Hazardous Waste Facilities (proposed);
- Hazardous Waste Incinerator Amendments;
- Revisions to Definition of Solid Waste;
- Exemption for Samples Used in Treatability Studies; and
- Regulations Covering Hazardous Waste Burning in Boilers and Industrial Furnaces (Administrative portion issued as final; technical portion is proposed).

Reports To Congress

OSWER submitted three major reports to Congress in FY 1988. The Report to Congress on Wastes from Combustion of Coal by Electric Utility Power Plants was delivered in March 1988. In the report, the Agency concluded that coal combustion waste streams do not exhibit hazardous characteristics under current RCRA regulations and, therefore, the Agency does not intend to regulate them under Subtitle C. The report expressed the Agency's concern, however, that several other wastes

may exhibit corrosivity or EP toxicity characteristics and may merit regulation under Subtitle C. These include wastes produced during equipment maintenance and water purification.

The final Report to Congress on Subtitle D concluded that the existing criteria do not contain adequate provisions to ensure protection of human health and the environment, and that even if they did, the criteria are not being effectively implemented by States. The report recommended revision of the Subtitle D criteria, greater emphasis on recycling, and technical assistance for the States.

The Report to Congress on the Management of Wastes from Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy was submitted to Congress in December 1987 and was followed by a regulatory determination on June 29, 1988. The determination concluded that Subtitle C controls were not warranted for these wastes.

Guidance Documents Issued

OSWER issued a number of guidances on various technical and policy aspects of the RCRA program in FY 1988, including:

- Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements;

- Minimum Technology Guidance on Double Liner Systems -- Design, Construction, and Operation;

- Guidance on Limiting Metals Emissions from Hazardous Waste Incinerators;

- Guidance on Carbon Monoxide Controls for Hazardous Waste Incinerators;

- Guidance on Trial Burn Reporting and Setting Permit Conditions;

- Minimum Technology Guidance on Leak Detection Systems for Land Disposal Units;

- Hazardous Waste Incineration Measurement Guidance;

- Clean Closure of Hazardous Waste Tank Systems and Container Units;
- Off-Site Policy;
- RCRA Evaluation Guide;
- RCRA Inspection Manual;
- RCRA State Oversight Inspection Guide;
- RCRA Case Development Guidance;
- Hazardous Waste Tank Systems Inspection Manual;
- Revised Enforcement Response Policy;
- RCRA Inspection Enhancement Strategy;
- Incinerability Index (primary index developed: ongoing over next one to two years); and
- Surface Impoundment Retrofitting Requirements Enforcement Strategy.

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SECTION 3
FEDERAL FACILITIES

FY 1988 brought recognition for the effectiveness of the Federal Facilities Compliance Task Force, established during FY 1987 to serve as a focal point for solving compliance issues under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at Federal facilities. This year the Task Force was given permanent organizational status. It is now known as the Federal Facilities Hazardous Waste Compliance Office and is located within OSWER.

The Office of Solid Waste and Emergency Response (OSWER) has made significant progress in bringing order to the array of complex and controversial issues involved in managing and cleaning up solid and hazardous waste at Federal facilities. OSWER has responded to this challenge with the following three-part strategy:

(1) Identification of Federal facilities of concern;

(2) Enforcement and compliance monitoring at these facilities; and

(3) Planning and management of resources to address concerns at these facilities.

IDENTIFICATION OF FEDERAL FACILITIES OF CONCERN

OSWER has accomplished part one of this strategy – identification of Federal facilities of concern – by developing and publishing in the Federal Register the Federal Agency Hazardous Waste Compliance Docket, a computerized data base defining the universe of potential Federal facilities with hazardous waste problems. This Docket, required under the Superfund Amendments and Reauthorization Act (SARA) Section 120(c) and involving the cooperation of over twenty Federal agencies, lists over 1,000 facilities. Each of these facilities must conduct a Preliminary Assessment (PA) to determine whether the facility poses a threat to health and the environment significant enough to warrant further investigation. EPA estimates that half of the 1,170 Federal facilities on the Docket will warrant further investigation and Hazard Ranking System (HRS) scoring to determine whether the facility should be placed on the National Priorities List (NPL).

Publication of the Docket set into motion a series of statutory deadlines for these assessments of hazardous waste problems at Federal facilities, as well as for the

evaluation and potential listing of Docket facilities on the NPL. In conjunction with the compilation of the Docket, OSWER developed comprehensive guidance for Federal agencies to use in assessing Federal facilities for possible NPL listing, resulting in the evaluation of over 100 facilities this fiscal year of which between 30 and 40 will be included in a special NPL Update to be promulgated in early 1989. In addition, the first biannual update of the Federal Agency Hazardous Waste Compliance Docket was issued in November 1988.

ENFORCEMENT AND COMPLIANCE MONITORING

The second part of OSWER's Federal Facilities strategy -- enforcement and compliance monitoring at facilities of concern -- has been accomplished during FY 1988 by developing practical, action-oriented policies for resolving compliance disputes, selecting an enforcement approach, and developing interagency agreements governing cleanups. Of special note, in January 1988, OSWER developed a comprehensive enforcement strategy entitled, "Enforcement Actions Under RCRA and CERCLA at Federal Facilities," which discusses the range of enforcement options available to EPA under RCRA and CERCLA to obtain environmental compliance and cleanup at Federal facilities. In addition, this policy document identifies criteria for the EPA Regions to consider in selecting an enforcement strategy.

In March 1988, OSWER issued another important guidance document entitled, "Elevation Process for Achieving Federal Facility Compliance Under RCRA," which identifies procedures for elevating compliance disputes at Federal facilities to higher levels of authority within EPA in order to keep the enforcement process moving. This guidance document was designed to ensure timely resolution of significant RCRA compliance issues. These guidelines have helped achieve RCRA compliance agreements at three facilities during FY 1988, including:

(1) Iowa Army Ammunition Plant (Region VII);

(2) Picatinny Arsenal (Region II); and

(3) Holloman Air Force Base (Region VI).

Thirdly, during the spring and summer of 1988, OSWER successfully negotiated model provisions with both the Department of Energy (DOE) and Department of Defense (DOD) to be included in all Federal Facility Agreements for Superfund cleanup of DOE and DOD facilities. The model provisions clearly establish the relative

responsibilities and working relationships between the agencies during the Superfund cleanup process.

EPA, DOE, and DOD have agreed that the model provisions should be incorporated into site-specific agreements for Federal facilities. These agreements will be negotiated among representatives of EPA, the Federal facility, and the appropriate State. In the course of these negotiations, States will be encouraged to participate in all phases of the cleanup process. Individual State concerns will be integrated, as appropriate, into the final site-specific agreement.

Key elements of the model provisions are as follows:

- Establishes the DOE and DOD commitment to fully study the environmental problem at the Federal facility and perform the EPA-approved cleanup of the facility.

- Establishes the EPA commitment to review and comment on DOE and DOD plans and studies at the facility.

- Establishes a mechanism for resolution of disputes arising under the agreement, including technical disputes. The Administrator will resolve any disputes under the agreement which cannot otherwise be resolved by EPA and DOE and DOD staff.

- Establishes the significance of specific timetables, deadlines, and schedules for completion of the major tasks to be performed pursuant to the agreement.

- Establishes that EPA may assess stipulated penalties in the event of a DOE or DOD failure to comply with the timetables, deadlines, or the remedial requirements established pursuant to the agreement.

- Establishes that the agreement, and the commitments of the parties established by the agreement, will be fully binding and enforceable by the parties to the agreement, States (even if not a party to the agreement), and citizens.

The model provisions will expedite site-specific cleanup negotiations and, therefore, cleanup of Federal facilities. There are currently 25 Federal Facility

Agreements under EPA/State/Federal facility negotiation. OSWER anticipates that FY 1989 will yield 40–45 Federal Facility Agreements. During FY 1990, OSWER expects Records of Decision (RODs) to be signed and implementation of technical remedies to begin at numerous Federal facilities.

PLANNING AND MANAGEMENT OF RESOURCES TO ADDRESS CONCERNS

Under part three of the Federal Facilities Compliance Strategy – planning and management of resources to address concerns at these facilities, OSWER has succeeded in having Federal facility targets incorporated into the agency's accountability and resource allocation systems for the first time.

Finally, OSWER's staff analyzed five different legislative proposals relating to waste management at Federal facilities during FY 1988 and coordinated the Agency's comments and testimony on each of them. In addition, OSWER developed the Federal Real Property Transfer Regulations, as required by SARA Section 120(h). These proposed regulations, which govern the manner in which notice is given to buyers of Federal land where hazardous materials have been released or stored for one year or more, are currently being reviewed by OMB.

SECTION 4

CHEMICAL EMERGENCY PREPAREDNESS AND PREVENTION PROGRAM

FY 1988 was the second year of implementation for Title III of the Superfund Amendments and Reauthorization Act (SARA) - The Emergency Planning and Community Right-to-Know Act (see Exhibit 19). The principle objectives of the Chemical Emergency Preparedness and Prevention (CEPP) Program Staff were to complete the rulemaking process in accordance with statutory requirements, to build State and local capabilities to implement Title III's preparedness provisions, and to initiate a program to help prevent chemical accidents. Highlights of the CEPP program are presented below.

REGULATORY ACTIVITIES

The Preparedness Staff met all statutory deadlines under Title III and began new rulemaking initiatives. The final rule for SARA Sections 311-312 was promulgated on October 15, 1987. This rule established requirements for material safety data sheets (MSDS) and hazardous chemical inventory reporting. The initial rate of compliance for Section 311 MSDS or list submissions (due October 17, 1987) and for Section 312 inventory submissions (due March 1, 1989) was estimated at less than 50 percent of the anticipated levels. The scope of this rule was expanded as of September 24, 1988 to the non-manufacturing sector as a result of the Occupational Safety and Health Administration's (OSHA) expansion of the Hazard Communication Standard. The Preparedness Staff also began analyses of alternatives for a rule establishing a permanent reporting threshold for Sections 311-312 reporting. This rule is scheduled to be published in January of 1989.

The Preparedness Staff supported the publication of the proposed rule for claiming trade secrets in Title III on October 15, 1987 and the final rule on July 29, 1988. The Staff continued to coordinate with the Office of Toxic Substances, which has the lead for the SARA Section 313 toxic chemical release inventory. The final rule for this Section was published on February 16, 1988. Over 72,500 inventory forms have been filed from over 17,500 facilities.

The Preparedness Staff has coordinated the development of the Enforcement Strategy for Title III with the Office of Waste Programs Enforcement (OWPE) and Regional Offices. The Staff also held three Regional meetings with Indian tribes to develop a coordinated Indian policy for Title III.

Exhibit 19

Major Responsibilitites Under Title III

EPA/Federal

Provides support to States and local agencies by:

- Issuing regulations and maintaining list of regulated chemicals;
- Maintaining the Toxic Chemical Release Inventory data base (Section 313);
- Developing policy and guidance; and
- Providing technical assistance to States, SERCs, and LEPCs.

States

Provide support to SERCs and LEPCs by:

- Appointing SERCs;
- Receiving and disseminating information; and
- Under certain circumstances, designating additional facilities or chemicals as subject to Title III requirements.

State Emergency Response Commissions (SERCs)

Provide support to LEPCs by:

- Designating local emergency planning districts;
- Appointing LEPCs for each district;
- Reviewing local emergency plans; and
- Receiving and disseminating information.

Local Emergency Planning Commissions (LEPCs)

Foster emergency preparedness assistance to local communities by:

- Developing and maintaining emergency plans; and
- Receiving and disseminating information.

Facilities

Plan for and respond appropriately to chemical emergencies by:

- Designating emergency coordinators;
- Providing inventory information to LEPCs and SERCs;
- Notifying LEPCs and SERCs of emergency chemical releases; and
- Providing information about chemical releases to the community.

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BUILDING REGIONAL AND STATE EMERGENCY PREPAREDNESS CAPABILITY

In accordance with the "cascading" approach to Title III implementation, which entails a minimal support role in implementation for EPA Headquarters and an expanded role for local agencies, the Preparedness Staff focused on assisting States and localities to plan for and respond to major chemical accidents. One highlight of this effort was the Deputy Regional Administrators' White Paper on Title III Implementation. This paper, written from the perspective of the Regions and States with Headquarters assistance, evaluated the implementation effort to date and provided recommendations for improvement. The White Paper was presented to the Administrator on February 25, 1988 and the Title III workgroup has used the recommendations to guide its efforts in FY 1988. EPA Regions also assisted 41 States and territories in planning and conducting a total of 67 table top and field simulation exercises in emergency preparedness.

To date, 56 active State Emergency Response Committees (SERCs) and over 3,800 Local Emergency Planning Committees (LEPCs) have been established. Regional Offices continued to assist in increasing the capability of these groups through five information management workshops for SERC and LEPC members held in June and July. Five million dollars in funding for Title III training for SERCs and Indian tribes was allocated through the Federal Emergency Management Administration's (FEMA's) comprehensive cooperative agreement with each State. SERC and LEPC representatives attended a National Governors' Association/EPA conference in June 1988 to share information and discuss successful implementation techniques.

Another highlight of the year was the 1988 Hazardous Spills Conference in May, which EPA co-sponsored with the American Institute of Chemical Engineers and National Response Team (NRT). The Preparedness Staff was an active participant in the conference, with personnel serving on the conference program committee, presenting papers, moderating discussions, and participating on panels of many subcommittees.

In December 1987, EPA, FEMA, and the Department of Transportation published the Technical Guidance for Hazards Analysis. Preparedness Staff, with the technical support of the Office of Toxic Substances, contributed to this document. This key guidance was used by the SERCs and LEPCs as they developed their plans for the October 17, 1988 plan submission deadline. A training module on this guidance was developed and implemented. The NRT developed its Criteria for Regional Response Team Review of Hazardous Materials Emergency Plans and the Regions distributed an exercise guide to assist SERCs and LEPCs in testing their plans. The Preparedness Staff supported the National Oceanic and Atmospheric Administration in refining the CAMEO II software to include planning, hazards analysis, and Title III information management components.

The National Incident Coordination Team (NICT) was established in May of 1988. The NICT is a mechanism for coordinating Agency response to incidents and emergency situations of national and international significance. The Team will provide a contact mechanism for media, Congress, and Federal agencies while serving to coordinate information internally.

PREVENTION

This year, the Preparedness Staff launched its prevention program, which complements preparedness efforts by seeking ways to foster efforts to prevent chemical accidents from occurring. In FY 1988, the prevention program focused on developing an understanding of the problem and the role of government in addressing the problem.

One highlight of the prevention initiative was presentation of the SARA Section 305(b) Review of Emergency Systems to Congress in June 1988. The study, completed by OSWER with the cooperative effort of several Agency offices and FEMA, described systems for detecting, monitoring, preventing, and alerting the public to releases of extremely hazardous substances. The Chemical Process Safety Training developed for site visits performed in the study has been modified for presentation to the Regions in preparation for chemical safety audits to be performed in FY 1989. In addition, the Agency reconvened the Prevention Work Group to identify and discuss issues relating to accident data bases, audits, research, and further areas of study.

The Accidental Release Information Program was evaluated and revised in September and will continue to collect data for a national database on the causes of accidental releases and prevention technologies. The Preparedness Staff also continued analysis of the potential impacts of air toxics provisions in pending Clean Air Act reauthorization legislation.

OUTREACH

The outreach subcommittee of the Title III Workgroup coordinated various publications in FY 1988 to assist in educating the public and the regulated community on the provisions of Title III. The revised Title III Fact Sheet was published in August. Over 40 organizations supported development of a brochure targeted at LEPC members entitled "It's Not Over in October" and a generic Title III brochure. A brochure for small businesses detailing the provisions of SARA Sections 311–312 was published in September 1988.

INTERNATIONAL ASSISTANCE

The Preparedness Staff has also coordinated with emergency response and preparedness and prevention organizations around the world. The Joint Contingency

Plan (JCP) with Mexico was signed in January and work continues on the Canadian plan. The Organization for Economic Cooperation and Development Ad Hoc Workgroup on Chemical Accidents, in which the Preparedness Staff participates, has developed plans for conferences over the next two years concerning preparedness and prevention. The Preparedness Staff is also assisting the United Nations Environmental Program in developing a pilot preparedness project that combines elements of the Community Awareness and Emergency Response program and NRT Hazardous Materials Emergency Planning Guide for use in developing countries.

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SECTION 5
UNDERGROUND STORAGE TANKS

During FY 1988, the Office of Underground Storage Tanks (OUST) completed two major rulemakings, neared completion on a third, and undertook a variety of program activities to build an effective national Underground Storage Tank (UST) program and improve UST management. (Exhibit 20 displays UST program responsibilities and relationships.) In September 1988, EPA promulgated final technical standards for USTs and State program approval standards. OUST responded to comments on the financial responsibility regulations proposed in April 1987 and will issue the final rules during the first quarter of FY 1989. Implementation activities have increased during the past fiscal year with the primary emphasis on building strong State and local programs. These activities include the awarding of Leaking Underground Storage Tank (LUST) Trust Fund cooperative agreements and the development of LUST Trust Fund guidance, the development of a handbook on State program approval, and technical assistance in the form of Targeted Improvement Projects (TIPs) and outreach materials. A variety of measures suggest that OUST's efforts are resulting in improved UST management.

REGULATORY ACTIVITIES

Technical Standards

OUST responded to more than 5,000 public comments on the proposed technical standards for USTs. More than 1,100 manufacturers, owners, installers, tank testers, environmental groups, and State and local regulators submitted comments on the proposed standards. These comments and additional information obtained through EPA's research efforts contributed to the development of OUST's final technical standards regulation. The final rule establishes requirements for new tank design, construction, and installation; existing tank upgrade and repair; release detection standards; and release investigation, confirmation, and corrective action requirements. The rule was published in the Federal Register on September 23, 1988 and will be effective 90 days later (December 23, 1988).

OUST prepared a Draft Report to Congress and Background Document in response to a request by Congress for additional information about heating oil and motor fuel tanks, which are exempt from Subtitle I of RCRA. The Report and Background Document were completed in two stages. In the first stage, OUST assessed the size, geographic location, and other characteristics of the exempt UST population, including the extent of known releases from these tanks. This information was reviewed by EPA, State government, and industry representatives. During the

Exhibit 20

The National UST Program

56 STATE UST PROGRAMS

- Manage Program
- Develop/Revise Program
- Support County & Local Program Implementation
- Inform Regulated Community
- Monitor Compliance & Enforce Requirements
- Coordinate Public Participation
- Conduct Cleanups
- Oversee RP Cleanups
- Conduct Cost Recovery
- Manage Trust Fund Monies

10 REGIONAL UST OFFICES

- Support State Program Development
- Implement Targeted Improvement Projects
- Administer Trust Fund
- Manage Grants
- Provide Technical Assistance to States & Local Governments

OUST

- Develop Regulations & National Policy
- Provide Support and Technical Assistance to Regions
- Support Trust Fund Administration
- Measure National Program Progress
- Manage National Program

Note: Arrows indicate direction of flow of support and services.

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second stage, these comments -- augmented with additional analyses and data obtained from UST industry representatives and government officials -- were incorporated into the draft report. The final report will discuss the leak potential of exempt USTs, assess the hazards, and recommend regulatory and non-regulatory measures that might be appropriate. The report is scheduled for delivery to Congress in the winter of 1988.

State Program Approval Standards

OUST responded to over 200 comments received on the proposed State program approval regulation. The final rule, which becomes effective on the same date as the Technical Standards rule, establishes requirements for the approval of State UST programs to operate in lieu of the Federal requirements. The regulation uses an innovative Federal objectives approach to provide flexibility for judging the stringency and adequacy of enforcement under State programs. OUST's strategy is to ensure that a baseline level of environmental protection is maintained while allowing flexibility in the methods the States may select to obtain that protection.

Financial Responsibility Standards

Final financial responsibility requirements were published in the Federal Register on October 26, 1988. OUST analyzed and responded to more than 1,000 comments received on the April 1987 proposed rules. Major issues raised by commenters included coverage requirements; timing of requirements; applicability of requirements to municipalities; and suspension of enforcement provisions. In addition to analyzing the financial responsibility requirements, OUST continues to assist States in the development of State financial assurance programs as well as working with the insurance industry to help them understand the risks associated with underground storage tanks. EPA's primary objective in these efforts is to encourage the availability and use of financial assurance mechanisms so that funds will be available to pay for cleaning up leaks from USTs and for third party damages caused by leaks.

IMPLEMENTATION ACTIVITIES

Building State and Local Programs

OUST's focus is on the achievement of long range goals and the need to build a relationship with State and local governments so that all levels of government can work together to improve tank management over the next decade. The Office's approach to the task of implementing its program is different from that undertaken by most of EPA's other regulatory programs. This difference is due to three factors: the large number of facilities to be regulated; the nature of the regulated community; and the nature of the regulatory work. Consequently, OUST believes that, in the long run, UST

systems will be most successfully regulated by State and local governments. EPA will provide leadership, technical assistance, and enforcement backup as necessary. In February 1988, UST staff met with franchise managers from several major corporations to discuss ways in which EPA could use franchising principles in effectively supporting State programs.

Many States and localities already have UST programs in place. The number of States that regulate USTs grew from three in 1980 to 42 in 1988. Today, 88 percent of the nation's underground tanks are subject to State legislation. Fifty States and territories have LUST Trust Fund Cooperative Agreements in place. Nearly 30 States have UST regulatory programs and many hundreds of counties and cities have developed local UST ordinances and programs that often operate independently of the State. The number of people working on UST programs at the State level has grown dramatically from approximately 100 State staff in 1984 to over 600 today. Because many of the States and localities plan to use EPA's rules to guide their programs' development, EPA expects the current high level of UST program activity nationwide to increase rapidly with promulgation of the Federal technical standards.

EPA expects most of the States to apply for approval to administer their own UST programs in compliance with Federal requirements. OUST has simplified the application process by providing clear guidance as to what constitutes an approvable State program, and what constitutes a complete application. The Regional offices conducted test runs of the guidance and sample application in eleven States. The objectives of these test runs were to evaluate the usefulness of this guidance and promote State delegation as soon as possible.

To assist States in developing effective compliance and enforcement programs, OUST developed a handbook on compliance and enforcement techniques ("Building State Compliance Programs," EPA/530/UST-88/003). Included in the handbook is information on outreach activities, compliance monitoring, and enforcement actions. The handbook does not present any one "right" way to do enforcement but gives State and local program officials several examples of successful techniques that might be applicable to their program. The handbook also contains a "users guide to selected compliance techniques" which provides selected examples of the forms, fliers, letters, data sources, etc. that have been useful in compliance monitoring and enforcement in States and localities.

EPA Regional offices are working closely with States to enhance their level of performance. The Regions have awarded UST grants to help States develop their programs. States and Regions have worked together to address problem areas through specific Targeted Improvement Projects (TIPs), including training and technical support services. For example, Region X is assisting the State of Washington

in developing a decentralized compliance inspection program. Region I is working with Rhode Island to establish a targeting system for inspecting facilities.

Headquarters continues to foster the development of State and local UST programs by producing the following:

- A report on funding options for State and local governments;
- Guidance on the development of State financial assurance programs;
- Technical studies on UST corrective action, release detection, and release prevention technologies;
- Grants to the New England Interstate Water Pollution Association of State and Territorial Waste Management Organizations, and U.S. Conference of Mayors; and
- A transition strategy that provides guidance for the period between the effective date of the regulations and program approval for the States.

LUST Trust Fund Activities

At the end of FY 1988, the Regions had negotiated with and awarded cooperative agreements to 50 of 56 States and Territories. Cooperative agreements between States and EPA enable the States to spend Trust Fund resources for cleanups and associated program costs. During the fiscal year, the Regions had awarded approximately $35 million from the LUST Trust Fund

States have already identified thousands of sites where responsible parties are beginning cleanups, and States have begun more than 155 corrective actions using Trust Fund monies. States will continue to encourage owners and operators to conduct corrective actions, and will take appropriate response and enforcement actions where owners and operators are unable or unwilling to perform corrective actions.

OUST laid the foundation for its cost recovery program and took significant steps toward its implementation during FY 1988. OUST worked closely with other EPA offices and Department of Justice (DOJ) to develop a cost recovery policy that allows the States to use the monies recovered from responsible parties at LUST Trust Fund funded cleanup sites for additional LUST work and to achieve settlements without the

direct involvement of EPA. This approach is consistent with OUST's strategy to implement the program at the State level. It provides an incentive to States to aggressively pursue cost recovery actions. States can use these funds to enforce responsible party cleanups or to undertake State-lead corrective actions. OUST has developed and issued an OSWER directive that presents the key elements of the program and provides the States with guidance for implementing a sound program. Currently, OUST is conducting three pilot studies in New York, Minnesota and Maryland to explore innovative and effective ways to pursue cost recovery.

Outreach Activities

OUST has developed an outreach strategy that identifies various potential audiences (e.g., owners and operators, State and local officials, trade associations, Congress) for UST outreach material and determines how to make materials available to various potential audiences. Consistent with the overall OUST position that UST regulatory activities should occur at the State and local levels, OUST prepares the materials and then makes them available to States, trade associations, and other groups who, in turn, deliver the materials to owners and operators. In some cases, OUST provides camera-ready copy to States who can add State-specific information and then reproduce and distribute the product.

During FY 1988, OUST continued its production of materials that will help owner/operators understand and comply with the new requirements and help specific audiences, such as inspectors, States, and local officials, to do a better job of program implementation. OUST developed the following materials to inform the regulated community about the UST Program:

Bulletin and Newsletter:

- A quarterly bulletin, "Lustline," aimed at State officials, discusses the latest UST issues and developments;
- A technical newsletter focusing on technical information exchange;

Videos:

- Demonstrating proper tank installation (for inspectors and owner/operators);
- Demonstrating safe tank closure practices (for inspectors);

Brochures:

- A summary of the final regulations ("Musts for USTS") (for owner/operators);
- A description of external leak detection methods ("Leak Lookout") (for owner/operators); and
- A description of State financial assurance programs ("Dollars and Sense");

Handbooks:

- "Corrective Action Technologies";
- "Building State Compliance Programs"; and
- "Funding Options for State and Local Governments."

Slide Show:

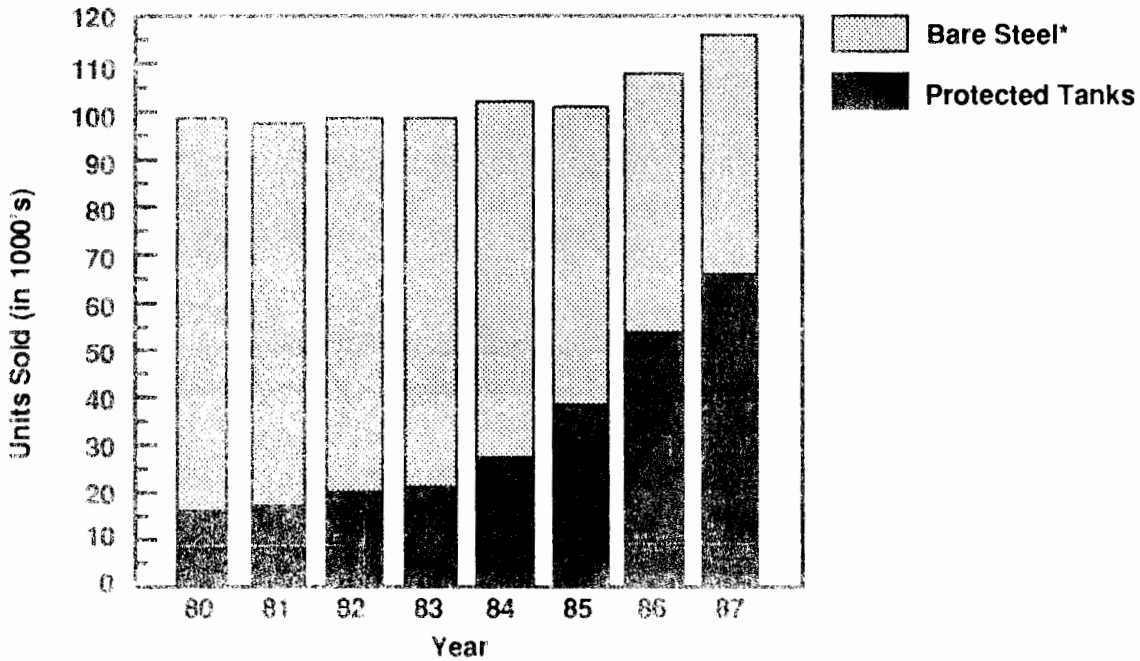
- "Tank Talk II" — on the final regulations.

Measuring OUST's Progress

According to a variety of measures, OUST's efforts are resulting in improved UST management performance. The most dramatic evidence of the program's impact has been the increased pace of tank replacement and tank replacement programs undertaken by the major oil companies. According to experts interviewed by OUST, over 90 percent of the new tanks sold are used to replace existing tanks. Although tank sales between 1980 and 1986 remained flat, we have seen a 15 percent increase in tank sales over the past two years (see Exhibit 21).

Exhibit 21

Underground Storage Tank Production (1980-1987)



*Includes unregulated tanks

Sources: Fiberglass Petroleum Tank and Pipe Institute, Technomics, STI registration files.

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More significantly, most tank systems sold in the United States are protected. In 1980, bare steel tank systems comprised 84 percent of the market. In 1984 bare steel had slipped to a 74 percent share, and in 1987 bare steel tanks had less than half (43 percent) of the market. While this figure includes tanks which are not covered by UST legislation or regulation, there is little question that Federal law (and anticipated regulations), State and local regulations, and the fear of liability judgments have radically changed the purchasing patterns of UST owners. Tank owners are investing in tanks that are less likely to leak. As more data become available, OUST will analyze other measures (e.g., numbers of leaks reported, number of corrective actions taken) to evaluate program accomplishments.

APPENDICES

Appendix A

Record of Decision (RODs) Signed in FY 1988

Appendix A

RODs Signed in FY 1988

Site	Region	Site	Region
Cannon Engineering, MA	1	Bendix Flight Systems, PA	3
Charles George Landfill, MA (two RODs)	1	Berks Sand Pits, PA	3
Groveland Wells, MA	1	Chisman Creek, VA	3
Iron Horse Park, MA	1	Delaware Sand and Gravel, DE	3
Keefe Environmental Services, NH	1	Dorney Road, PA	3
Landfill and Resource Recovery, RI	1	Douglassville Disposal, PA	3
Laurel Park, CT	1	Drake Chemical, PA	3
Old Springfield Landfill, VT	1	Fike Chemical, WV	3
Rose Disposal Pit, MA	1	Henderson Road, PA	3
Yaworski, CT	1	Kimberton, PA	3
American Thermostat, NY	2	L.A. Clarke, VA	3
Asbestos Dump, NJ	2	Middletown Airfield, PA	3
Beachwood/ Berkeley Well, NJ	2	New Castle, DE	3
Brewster Well Field, NY	2	Ordnance Works Disposal, WV	3
Burnt Fly Bog, NJ	2	Palmerton Zinc, PA	3
Ewan Property, NJ	2	Rhinehart Tire Fire Dump, VA	3
GE Wiring Devices, PR	2	Southern Md Wood, MD	3
Kin-Buc Landfill, NJ	2	Tyson's Dump, PA	3
Lipari Landfill, NJ	2	Voortman, PA	3
Love Canal, NY (two RODs)	2	West Virginia Ordnance, WV	3
Ludlow Sand and Gravel, NY	2	Westline, PA	3
Marathon Battery, NY	2	Wildcat Landfill, DE	3
Montgomery Township, NJ	2	Airco, KY	4
Nascolite, NJ	2	Alpha Chemical, FL	4
Old Bethpage, NY	2	Brown Wood Preserving, FL	4
Reich Farms, NJ	2	Celanese, NC	4
Ringwood Mines, NY	2	Flowood, MS	4
Rocky Hill, NJ	2	Chemtronics, NC	4
Tabernacle, NJ	2	Goodrich, B.F., KY	4
Upjohn Facility, PR	2	Independent Nail, SC	4
York Oil, NY (two RODs)	2	National Starch, NC	4
Aladdin Plating, PA	3	Perdido Groundwater, AL	4
Ambler Asbestos, PA	3	Wamchem, SC	4
Avtex Fibers, VA	3	Zellwood, FL	5

RODs Signed in FY 1988

Site	Region	Site	Region
Allied/Ironton Coke, OH	5	Odessa Chromium I, TX	6
Belvidere Landfill, IL	5	Odessa Chromium II, TX	6
Coshocton, OH	5	Old Midland Products, AR	6
Eau Claire, WI	5	Sand Springs, OK	6
Forest Waste Disposal, MI	5	Sol Lynn, TX (two RODs)	6
Fort Wayne Reduction, IN	5	South Cavalcade, TX	6
IMC Terre Haute, IN	5	South Valley, NM (three RODs)	6
Kummer Sanitary Landfill, MN	5	Stewco, TX	6
LaSalle Electrical, IL	5	United Nuclear, NM	6
Long Prairie, MN	5	Arkansas City Dump, KS	7
Mason County Landfill, MI	5	Big River Sand, KS	7
Mid-State Disposal, WI	5	Cherokee County, KS	7
NL Ind Taracorp Golden Auto, MN	5	Deere, John, IA	7
Ninth Ave. Dump, IN	5	Fulbright Landfill, MO	7
Oak Grove Landfill, MN	5	Hastings Groundwater, NE (two RODs)	7
Petersen Sand and Gravel, IN	5	Midwest Manufacturing, IA	7
Poer Farm, IN	5	Minker Stout/Romaine Creek, MO	7
Pristine, OH	5	Shenandoah Stables, MO	7
Republic Steel Quarry, OH	5	Syntex Verona, MO	7
South Andover, MN	5	Times Beach, MO	7
Summit National, OH	5	Anaconda Smelter, MT	8
U.S. Aviex, MI	5	Broderick Wood, CO	8
United Scrap Lead, OH	5	California Gulch, CO	8
Velsicol Chemical, IL	5	Central City/Clear Creek, CO	8
Waste Disposal, MN	5	Indiana Bend, AZ	9
Atchison/Santa Fe Clovis, NM	6	Lorentz Barrel and Drum, CA	9
Bailey Waste Disposal, TX	6	MGM Brakes, CA	9
Brio Refining, TX	6	Motorola (52nd Street), AZ	9
Dixie Oil, TX	6	Operating Industries, CA (two RODs)	9
French Limited, TX	6	Ordot Landfill, GU	9
Gurley Pit, AR	6	San Gabriel (Area 1), CA	9
Industrial Waste Control, AR	6	San Gabriel (Area 2), CA	9
Koppers/Texarkana, TX	6	San Gabriel (Area 4), CA	9
North Cavalcade, TX	6	Selma Treating, CA	9

RODs Signed in FY 1988

Site	Region	Site	Region
South Bay Asbestos, CA	9	Frontier Hard Chrome, WA (two RODs)	10
Tucson Airport, AZ	9	Gould, OR	10
Commencement Bay/ Nearshore, WA	10	Martin Marietta, OR	10
Commencement Bay/ Tacoma, WA	10	Pacific Hide, ID	10

Appendix B

FY 1988 Remedial Design/Remedial Action (RD/RA) Settlements

Appendix B

FY 1988 RD/RA Settlements*

Site	Region	Approximate Value (M)**
McKinn	I	7.0
Cannons (4 sites)	I	33.0
Picillo	I	2.0
GEMS	II	27.4
Goose Farm	II	9.0
Maryland Sand Gravel & Stone	III	7.8
Tysons	III	20.0
Harvey and Knott	III	10.0
Limestone Road	III	1.2
Chisman Creek (OU1)	III	15.0
McAdoo	III	3.0
Saltville Waste	III	5.4
Palmerton Zinc	III	8.0
Middletown Airfield	III	4.0
N.W. 58th St.	IV	11.0
Celanese	IV	2.0
Brown Wood	IV	9.0
Hipps Road	IV	4.0
Tower	IV	7.0
Pioneer Sand	IV	3.0
Gold Coast	IV	3.7
Powersville	IV	4.2
Laskan Poplar	V	8.5
Industrial Excess	V	2.0
Seymour	V	25.0
Rose Township	V	25.0
Forest Waste	V	1.8
Johns Manville	V	3.5
Bayou Sorrell	VI	25.0
Mid-South	VI	4.0
Conservation Chemical	VII	20.0
California Gulch	VIII	2.5
Anaconda Smelter	VIII	2.0
Litchfield Airport	IX	5.5
Stringfellow	IX	3.9
Commencement Bay	X	3.5

* *Does not include consent decrees in government concurrence*
** *M = Millions of Dollars*

Appendix C

Superfund Innovative Technology Evaluation (SITE) Program Participants

Appendix C

Superfund Innovative Technology Evaluation (SITE) Program Participants

Developer	Technology	Demonstration Completed[3]
First Solicitation, RFP SITE 001		
1. American Combustion, Inc. Norcross, GA	Pyretron™ Oxygen Burner	January 1988
2. DETOX Industries, Inc. Sugarland, TX	Biological Degradation	(Early 1989)
3. Hazcon, Inc. Katy, TX	Solidification/ Stabilization	October 1987
4. Haztech/EPA Region 4 Atlanta, GA	Shirco Infrared Thermal Destruction	August 1987
5. International Waste Technologies Wichita, KS	In-Situ Stabilization	April 1988
6. Ogden Environmental Services San Diego, CA	Circulating Fluidized Bed Combustor	(Spring 1989)
7. Resources Conservation Company Bellevue, WA	Solvent Extraction	
8. Shirco Infrared Systems, Inc. Dallas, TX	Infrared Thermal Destruction	November 1987
9. Terra Vac, Inc. Dorado, PR	In-Situ Vacuum Extraction	April 1988
10. Westinghouse Electric Corporation Madison, PA	Pyroplasma System	(Spring 1989)
Second Solicitation, RFP SITE 002		
11. Geosafe Corp Kirkland, WA	In-Situ Vitrification	(Spring 1989)
12. CF Systems Corporation Cambridge, MA	Solvent Extraction	September 1988
13. Chemfix Technologies, Inc. Metairie, LA	Chemical Fixation/ Stabilization	(February 1989)
14. MoTec, Inc. Mt. Juliet, TN	Liquid/Solid Contact Digestion	(Spring 1989)
15. Retech, Inc. Ukiah, CA	Plasma Heat	(Summer 1989)
16. Sanitech, Inc. Twinsburg, OH	Ion Exchange	
17. Separation & Recovery Systems, Inc. (SRS) Irvine, CA	Solidification/ Stabilization	
18. Soliditech, Inc. Houston, TX	Solidification	December 1988
19. Zimpro Environmental Control Systems Rothschild, WI	Powdered Activated Carbon/Biological	(April 1989)

[3]*Dates in parentheses indicate expected dates of completion.*

Superfund Innovative Technology Evaluation (SITE) Program Participants

Developer	Technology	Demonstration Completed
Third Solicitation, RFP SITE 003[4]		
20. Biotrol, Inc. Chaska, MN	Soil Washing	(Spring 1989)
21. Biotrol, Inc. Chaska, MN	Biological Degradation	(Spring 1989)
22. CBI Freeze Technologies, Inc. Plainfield, IL	Separation By Freezing	
23. Chemical Waste Management, Inc. Riverdale, IL	Low-Temperature Desorption	
24. Detox, Inc. Dayton, OH	Fixed-Film Biological	
25. E.I. Du Pont de Nemours, Inc. Newark, DE	Microfiltration	
26. Freeze Technologies Corp. Raleigh, NC	Separation By Freezing	
27. Silicate Technology Corp. Scottsdale, AZ	Pozzolonic/ Silicate Based	(Spring 1989)
28. Toxic Treatments Inc. San Mateo, CA	In-situ Steam/ Air Stripping	(February 1989)
29. Ultrox International Inc. Santa Anna, CA	Ultra-violet Radiation and Ozone	(March 1989)

[4]*Third solocitation represents technologies selected during FY 1988.*

Appendix D

Emerging Technology Program (ETP) Participants

Appendix D

Emerging Technology Program Participants

Developer	Technology
1. Atomic Energy of Canada Limited Research, Inc. Chalk River, Ontario	Ultrafiltration
2. Battelle Memorial Institute, Columbus Division Columbus, OH	In-Situ Electro-acoustic Decontamination
3. Bio-Recovery Systems, Inc. Las Cruces, NM	Biological Sorbtion
4. Colorado School of Mines Golden, CO	Wetlands-Based Treatment
5. Energy and Environmental Engineering, Inc. Somerville, MA	Laser Stimulated Photochemical Oxidation
6. Envirite Field Services, Inc. Atlanta, GA	Solvent Washing
7. Western Research Institute Laramie, WY	Contained Oil Recovery of Wastes

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