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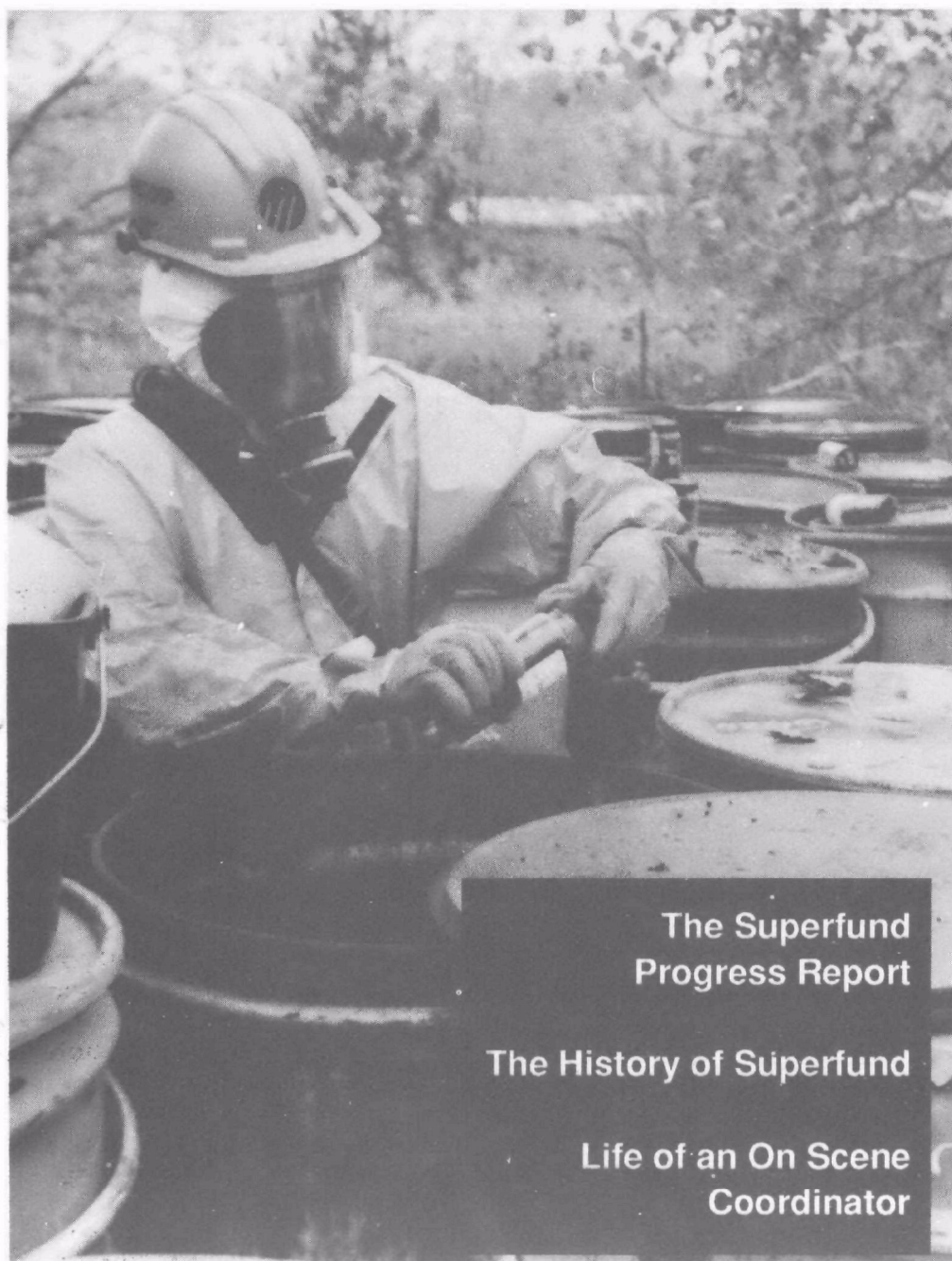
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Superfund

Superfund Progress

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**The Superfund
Progress Report**

The History of Superfund

**Life of an On Scene
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Focus: The Removal Program

The Life of an On-Scene Coordinator

The phone in Pat Hammack's bedroom rang at 3 in the morning. A train wreck 300 miles away near San Antonio, Texas, had released an unknown amount of sulfuric acid, said the EPA duty officer. He'd better check it out. Hammack wouldn't sleep again for more than 48 hours.

He called out his Superfund Emergency Response Team, a contractor available 'round the clock to assist at spills of hazardous materials. One team member lived nearby in the same Dallas suburb; he and Hammack rode to the airport together. By 8:30 a.m., five-and-a-half hours after the duty officer called, they were at the scene. It was a mess.

A trestle spanning the Medina River had collapsed and 21 tank cars each carrying 10,000 gallons of sulfuric acid lay in a crumpled heap on the river's left bank. Two hundred and ten thousand gallons of acid lay on the ground and streamed into the river.

Strapping on bottled air and donning a hard hat and protective clothing to inspect the damage, Hammack was wading in four inches of concentrated sulfuric acid as far as 650 yards from the wreck. His first concern was the Medina River. Near the spill, the river was mostly acid. Trees and shrubs hanging over the river were eaten away at the water line.

"I started working with the railroad company and the Texas Water Commission to make sure they cleaned up the spill site and other environmental hazards. In this situation, we wanted to keep the acid from going too far down the river," Hammack recalls.

Acting as an advisor only and not in charge of the cleanup, he recommended neutralizing the acid with lime. However, the state's decision to apply the lime directly to the river at various locations, rather than first mix the lime with water, resulting in alternating stretches of highly

On-Scene Coordinators have been called the stars of the Superfund Program. Working on the front lines at accidental spills and emergency removals, this talented group of dedicated professionals protects the public and the environment.

acidic and highly alkaline water for 35 miles downstream. Eventually, natural processes corrected the situation.

In the six years or so since that train wreck, Pat Hammack has supervised dozens of emergency cleanups and removals of hazardous materials. One of about 160 EPA on-scene coordinators (OSCs) nationwide, he is in his eighth year on the job.

EPA Region 6, which encompasses Arkansas, Louisiana, New Mexico, Oklahoma, and Texas has 13 OSCs; Hammack is a senior OSC. There's no such thing as a typical job for an OSC; there may be no such thing as a typical OSC. But Pat Hammack's experience and dedication are emblematic of the Superfund program's Emergency Response Branch.

Emergencies and Removals

The National Contingency Plan (NCP), Superfund's blueprint for confronting the nation's hazardous materials problem, gives OSCs broad authority. Often the first EPA official at accidental spills, the OSC is responsible for seeing that cleanup efforts protect public health and the environment. If need be, an OSC can "federalize" an emergency response, mobilizing Superfund dollars and contractors to make sure the job is done right.

The Superfund Amendments and Reauthorization Act (SARA) of 1986 shifted the focus of OSC work from handling emergencies to removing hazardous materials that threaten public health or the environment. Both aspects of the job are important, but Hammack firmly believes that making decisions under the pressure of an emergency makes an OSC more adept at handling routine removals. Being an OSC, he says, has three main attractions.

"First, the job is exciting. You get a real adrenalin rush when you're out working at an

emergency removal. Also, there's the responsibility. No other job in the Agency, from manager on down, has the responsibility an OSC does. And I know of no other job with the immediate gratification that this one has. You can have a major hand in helping people back into their homes or in making a site safe," Hammack explains. The pay may not be great, but "the benefits of this job far outweigh the detriments," he adds.

Among the detriments are long hours and even longer separations from friends and family. Married for 22 years to his high school sweetheart, Donna, Pat Hammack says his wife is very supportive. Sons Ken and Keith are in the Navy and college, respectively, so Hammack's schedule is no longer troublesome for them.

"I can't say I've gotten used to it, but we take it as it comes," says Donna Hammack. "He enjoys his job, and that makes it a lot easier to accept."

Independence and Judgment

As a group OSCs appear to be an independent

lot, more comfortable in the field than in the office. Besides technical skills and judgment, the job requires a certain temperament for cooperating with public safety officials, contractors, the press, and the public. Disagreements between OSCs and reporters, for example, aren't unknown, but an OSC doesn't necessarily need confrontation to assert his or her authority.

"You can be in charge in one of two ways," explains Hammack. "You can be in charge because you say you're in charge and federal law supersedes state law. The other way is just by knowing your abilities and responsibilities."

National Zinc Site

Currently Hammack is managing a major removal in Bartlesville, Oklahoma, a community of 50,000 residents about an hour's drive north of Tulsa in the northeast corner of the state. Two-thirds of Bartlesville's residents may be at risk from exposure to lead and cadmium from a smelting operation. The site is listed on the National Priorities List of the nation's worst hazardous waste sites. Hammack's job is to

Michigan Site Is Scene of Superfund Removal Number 2,800

In December 1991, Superfund's Emergency Response Program started its **2,800th emergency removal** since Congress established Superfund in 1980. The program deals with hazardous materials that directly threaten public health and the environment and removes them for proper disposal.

The site where thousands of barrels of paint-related wastes were dumped is in rural Sumpter Township, Michigan, about 20 miles southwest of Detroit. Crews began the removal on December 6, after tests showed elevated levels of heavy metals, paint-related volatile organic chemical wastes, and polychlorinated biphenols (PCBs). Several of the compounds may cause cancer in people, and removing them was a top priority. Later, EPA will address potential ground-water contamination. About 260 people live within a mile of the 15-acre site, part of it planted with vegetable gardens.

On-scene coordinator Ralph Dollhopf calls the removal "fairly classic in that it was buried drums of waste. The winter weather made the field work difficult, but when you're

working with volatile organic chemicals, the cold weather can be a blessing." Volatile organic chemicals evaporate less readily in cold weather.

Workers already have removed more than 2,000 barrels, 20,000 smaller containers, 10,000 gallons of spilled liquids, and 100 cubic yards of contaminated sludge. They also found contaminated documents, which, along with labeling and other information on drums, have led investigators to a potentially responsible party (PRP).

Within four or five months, EPA Region V moved in to stabilize a dangerous situation, gathered information to identify who was responsible, and began the process of making the PRP assume responsibility for the cleanup. Region officials anticipate the PRP, a major automobile manufacturer, will complete the site cleanup under EPA supervision.

By late March, EPA had spent about \$1.2 million on work at the site, and estimated that completing the drum removal phase could require an additional \$2 million.

assess the situation in Bartlesville and, if he finds a problem, recommend a solution.

The OSC is part manager, part scientist, and part community-relations practitioner, as he explains what's been done and what remains to do.

A study by the Oklahoma Department of Health in the 1980s disclosed that people living within three miles of the smelter had dangerously high levels of lead in their blood. A toxic metal found throughout the environment, lead is especially dangerous to unborn and very young children, who can suffer physical and mental impairment when exposed even to low doses of the metal. Cadmium can cause liver and kidney damage.

Hammack directs a crew of 10 technicians and chemists. Their headquarters is a cinder block building that once housed a rental car company. Aerial photographs and maps of the National Zinc Site and environs cover the walls. One map displays the 60 sites in a 36-square-mile area where soil samples are being taken. A mobile chemistry lab is parked outside.

A white board in Hammack's office records the sampling sites. They include day-care centers and schoolyards, places where children might be exposed to lead thrown out by the smelter's smokestack. "If we can show where the deposits from the smokestack's plume are on the ground, then we can go in and clean them up," he explains.

Hammack's crew takes 16 to 20 samples from each of the 60 sites. Their computerized siting system uses orbiting satellites to precisely locate where the samples were taken. They'll plot on a map the results of analyzing more than 1,000 soil samples. By connecting sampling sites with the same concentrations, they will generate what looks like a topographical map. But rather than show hills and valleys, this map will show lead and cadmium concentrations. Areas with more than 500 to 1,000 parts per million (ppm) of lead or 30 ppm of cadmium will be candidates for a removal action. That is, the contaminated soil most likely will be dug up and trucked away for proper disposal.

"This job is very much a fluctuating type of job," Hammack says of his current assignment.

"Sometimes it's very much an office job. You coordinate all the activities necessary to get the job done. My job is to determine whether a removal action is warranted and, if so, what type." That means the OSC is part manager, part scientist, and part community-relations practitioner, as he explains at public meetings what's been done, what's going on, and what remains to do.

Removal Types

Bartlesville is a "time-critical" removal. That means removal work will begin within six months of EPA's determining that public health is threatened. "Classic emergency removals" are situations so dangerous an OSC can't walk away. Instead, he or she will open the Superfund and commit up to \$50,000 to start removal work immediately. The Regional Administrator can authorize spending up to \$2 million on the removal. Hammack found just such a situation one day in Dallas.

He was working with investigators from the region office's criminal investigation division, checking out some 55-gallon drums that had been dumped. Their investigation led to a warehouse in a densely populated industrial area. Inside were 400 to 500 55-gallon drums containing hydrofluoric acid, other acids, and flammable liquids. Many drums were corroded and leaking; some were tipped over on their sides. Iridescent chemicals pooled on the cement floor of the warehouse. Acid ran out a door, across a parking lot, and into a drainage ditch that ran beside a mobile home park behind the warehouse. Children played near the ditch.

"There was no way in the world I could walk away from that," Hammack recalls.

The removal took three months and cost \$1.5 million. Crews built sand dikes to capture the acid in the parking lot and keep it out of the drainage ditch. They cleaned up the spilled chemicals on the warehouse floor and removed barrels of acid and other materials. "We got everything packed up, cleaned up, and shipped out," he says.

Hammack's proud of that removal and of being an OSC. He is a founder, and currently the chairman, of the national OSC association. Despite the occasional frustrations and the long separations from his wife, Hammack isn't about to change jobs. "I probably will remain an OSC until I retire," he says. "I've got the job I want. Nothing else has really attracted my attention."

Superfund Progress Report

Employing the Latest Technology

Contaminated drinking water at a Superfund site in Groveland, Massachusetts will be cleaned up with the latest technology, according to a plan selected late last year by EPA Region 1 and the Massachusetts Department of Environmental Protection.

Workers will use ultraviolet light and oxidation to destroy industrial chemicals found in the groundwater used by the northeastern Massachusetts community of 6,000 residents. The advantage of this method, according to federal and state officials, is that it destroys contaminants, rather than transfer them to the air or capture them in filters which will eventually require treatment and disposal. EPA estimates the project will cost \$8.9 million.

The contamination forced town officials to close two drinking water wells in 1979. EPA placed the 850-acre site on the National Priorities List in

1982, making it eligible for cleanup under Superfund. The site was analyzed, and the Agency installed a filter on one of the closed wells in 1987 to ensure the town had adequate clean drinking water. The other well remains closed. Groveland is also served by a third well, which draws water from an unpolluted aquifer.

The Groveland site is an example of Superfund's growing emphasis on treating, rather than burying or burning, hazardous waste. During FY 1991, innovative treatment technologies such as the one to be used in Massachusetts were part of the clean-up plans for 141 Superfund sites. In FY 1989, the number was 95. (Unlike us citizens, the federal government runs on a fiscal year that starts on October 1 and ends on September 31. Superfund, as part of a federal agency, tracks its performance on the basis of the federal fiscal year.)

A Two-Pronged Approach

In many ways, Superfund is two programs whose aim is to protect us and the environment from uncontrolled releases of dangerous chemicals. The **emergency program** handles short-term problems such as train wrecks, truck accidents, and fires that involve chemicals. It also handles emergencies at Superfund sites. The **site clean-up program** addresses long-standing problems, like the Groveland Superfund site, which took years to develop and will take years to correct.

At most emergencies, work crews will clean up the chemicals and haul them away for proper disposal or treatment. If that's not possible, the workers will treat the chemicals at the site to make them safer, or they will make sure the chemicals can't escape to harm people or animals. By law, emergency teams can spend up to \$2 million and must be finished within one year.

During FY 1991, Superfund responded to 346 emergencies involving dangerous chemicals.

Since Superfund began in 1980, teams have responded to more than 2,808

Superfund Progress Report

Cleanups at Superfund Sites

(Excluding Federal Facilities)

(Data as of 4/30/92)

	Sites	
	Total FY 1992	FY 1980 to Date
Emergency Cleanups	96	1,916
Sites Investigated	1,309	32,496
Cleanups Begun	11	340
Cleanups Completed*	21	84
	Total Number	Total Dollars
Total RP Response Settlements (\$ Million)**	78	\$285.8
Total Cost Recovery Settlements (\$ Million)	63	\$22.6

* as of May 1, 1992

** Does not include State Lead Settlements, and Federal Facilities Inter-Agency Agreements.

emergencies at 2,271 locations nationwide.

Site Cleanups

Mention Superfund to most people, and chances are they'll think about places like Love Canal, New York where decades of chemical dumping contaminated the ground and water, threatening the health of nearby residents and forcing a large-scale evacuation. EPA's site cleanup program works to correct long-standing hazardous waste problems, although most Superfund sites are not as notorious as Love Canal.

Currently there are 1,275 Superfund sites listed on the National Priorities List of the nation's worst hazardous waste sites. Superfund sites are eligible for cleanup under the federal program. In addition, there are hazardous waste sites in each state whose cleanup is the responsibility of state or local governments or private organizations.

Depending on the work to be done—treatments to be used, structures to be built—a cleanup may take as long as six years. If contaminated ground water must be treated, the cleanup may take decades. Cleanups were successfully concluded at 84 Superfund sites as of May 1992.

Since 1980 when the program began, 84 Superfund sites have been cleaned up, and surface cleanups at another 196 sites have been completed. Almost a tenth of the nation's population, 23 million people, have been protected by Superfund actions since 1980. About 450,000 (roughly the population of Atlanta, Georgia) have been given alternate sources of safe drinking water. Another 4,000 people living near Superfund sites have been temporarily or permanently relocated. In addition, more than 25,000 people (about the size of a standing-room-only crowd at Boston's Fenway Park) have been temporarily relocated due to emergencies not involving Superfund sites.

Site Investigations and Clean-up Plans

Before actual cleanup begins, EPA carefully investigates a site to identify what chemicals are there, how dangerous they are, and who is most likely to be harmed by them. The Agency also considers its cleanup options and, after much review, recommends a course of action.

The public is encouraged to comment on the clean-up options and on EPA's recommended

course of action. EPA will tailor its clean-up plans to meet public desires whenever possible, but the Agency is responsible for deciding which clean-up option will be used at a site.

Two-way communication between EPA and the public is a crucial component of the Superfund process. It begins early, as the Agency explores community concerns and finds out what residents want to know from EPA. The information community residents provide can also help EPA plan its investigation of the site and tailor the site cleanup to satisfy community needs.

Making Responsible Parties Pay

Whenever possible, EPA makes individuals, companies, and government agencies responsible for creating a Superfund site—known as "potentially responsible parties" (PRPs), or "responsible parties" (RPs) when their links to the pollution are established—pay for its cleanup. PRPs financed 52 percent of the cleanups started (and 46 percent of the cleanups completed) between Superfund's start in 1980 and December 31, 1991. For each enforcement dollar EPA spent in FY 1991 (\$173 million), it received eight dollars in PRP commitments to site work (\$1.4 billion). In fact, these commitments equaled Superfund's entire FY 1991 budget.

Since 1980, RPs have committed to spending more than \$5 billion on site work; half that amount has been committed in the two years since EPA began its get "tough policy."

EPA can take to court PRPs and RPs who fail to comply with federal cleanup orders. By law, the federal government can recover its cleanup costs plus triple that amount in damages. Since 1980, the Agency has referred to the U.S. Justice Department 459 cost recovery cases worth an estimated \$798 million, achieved 1,113 settlements to recover \$592 million, and returned \$359 million total U.S. Treasury.

For More Information

Detailed information about the Superfund program's performance is available in a new publication. *Superfund Progress—Afficionado's Version* is available from the Office of Emergency and Remedial Response's Communications and Special Projects Staff, (202) 260-2180.

How Superfund Works

Arduous and exacting, the Superfund process requires the best efforts of hundreds of experts in science and engineering, public health, administration and management, law, and numerous other fields. The goal of the process is deceptively simple, to protect people and the environment from the affects of hazardous wastes. The problem the process is designed to correct is enormously complex.

The average site takes seven to ten years to work through the system, from discovery to start of cleanup. Actual cleanup can take years—decades if ground water must be treated. The diagram at the right presents a streamlined view of the process. At every step, the public has the right and the opportunity to comment on the work being done. As the process continues, EPA works to compel those responsible for site contamination to pay for cleanup.

Site Discovery

Reports of potential hazardous waste sites come from many sources. Citizens can make reports to the National Response Center's 24-hour hotline (800/424-8802). Federal, state and local officials, businesses, and the U.S. Coast Guard also file reports of hazardous waste problems.

Emergency Cleanups and Site Investigations

When dangerous chemicals are spilled, Superfund teams move in immediately. Most emergencies are cleaned up quickly, the chemicals hauled away for proper disposal or treatment, or they are treated on-site to render them safe.

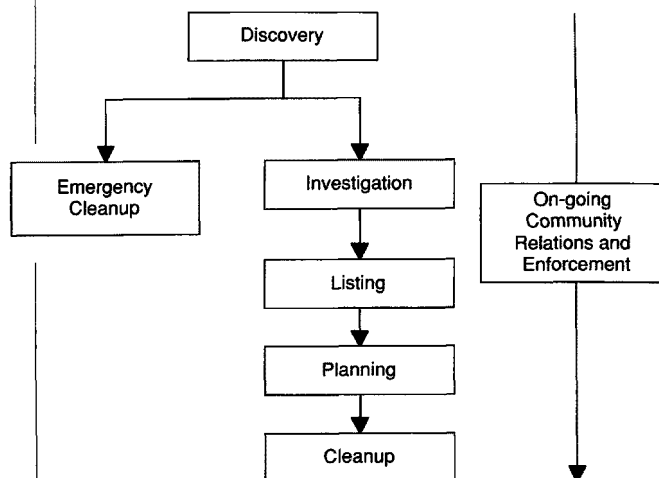
Sites that don't require emergency cleanups usually are investigated first by local or state officials. If the site seems dangerous enough, EPA will check it out. Only the worst hazardous waste sites require federal cleanup. The rest are the responsibility of state or local governments, companies, or private citizens. These are not necessarily safe; they just don't meet the Superfund criteria.

If investigators find that a site poses an immediate threat to public health, Superfund will send in an emergency team to fix the problem. Superfund will respond to hazardous waste emergencies at any time during the clean-up process.

Site Listing

Superfund responds to emergencies wherever and whenever they occur; but only sites on the federal National Priorities List (NPL) are eligible for long-term cleanup under Superfund. EPA ranks sites according to the danger they pose to public health and the environment. Sites that score high enough are eligible for the NPL; EPA refers the rest to the states for further action. Between 5 percent and 10 percent of the sites EPA evaluates become Superfund sites.

The Superfund Process



Currently there are 1,275 sites on the NPL. These are the nation's worst hazardous waste sites. About 100 sites are added to the NPL each year, and EPA expects the list to total more than 2,000 by the end of the century. EPA inspects each NPL site every other year to see if conditions have changed or if an emergency cleanup is required.

Planning

Preparing a long-term cleanup of a Superfund site begins with a detailed study of the site and an evaluation of various cleanup options. This step in the planning process can take up to 30 months and cost as much as \$1 million. EPA strives to use new technologies to treat hazardous waste, rather than haul them away for disposal elsewhere. Wherever possible EPA negotiates with responsible parties to conduct these studies, but ultimately EPA with public input, chooses the long-term cleanup method.

Once a clean-up method has been chosen, it must be adapted to the unique conditions at the site where it will be used. The design adds another 12 to 18 months to the cleanup process, and an average of \$1 million to the cost of the cleanup.

Cleanup

The actual site cleanup is the culmination of the Superfund process. No matter who cleans up the Superfund site, EPA is always in charge. Cleanup work may take years, and often a site must be carefully monitored once the cleanup is completed. Cleanup costs average \$25 million per site. Because of these high costs and limited trust fund resources, it is necessary to compel Responsible Parties (RPs) to conduct the cleanup. Due to EPA's enforcement efforts RPs, under EPA's direction, now conduct more than 50 percent of new cleanup actions taken since 1980. RPs' contribution to actual cleanup work has been an estimated \$359 million.

A History of Superfund

In the second half of this century, the environmental effects of more than 100 years of industrial growth in the United States became increasingly clear. Authors such as Rachel Carson wrote persuasively about the often hidden environmental consequences of widespread chemical use in our modern society.

By the 1970s, environmental issues were firmly part of the national consciousness. The first Earth Day was observed in 1970, and by the end of the decade Love Canal in New York and the Valley of the Drums in Kentucky had entered the popular lexicon as synonyms for pollution and environmental degradation.



Responding to growing concern over the public health and environmental threats from uncontrolled releases of hazardous materials, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980. CERCLA, popularly known as Superfund, established a comprehensive program to identify and cleanup hazardous materials spills and contaminated sites.

Identifying these sites and gauging their public health and environmental threats is a rigorous process. It must be to make sure that Superfund takes care of the worst problems first. The article and flow chart on page 6 details the steps of the Superfund process.

The Removal and Remedial Programs are two major parts of Superfund. The Removal Program takes quick action to correct short-term emergencies such as accidental spills of hazardous materials or long-standing contamination that immediately threatens public health. The Remedial Program pursues long-term solutions to contamination problems caused by hazardous releases.

An Enormous Problem

A decade ago, Congress and others believed relatively few sites in the nation were contaminat-

ed with hazardous wastes. Superfund, they thought, would be a short-lived program involving at most a few hundred sites and requiring relatively few resources. But experience was to prove them wrong.

As EPA began uncovering sites and evaluating their potential to do harm, one discovery led to another and the inventory of hazardous waste sites grew rapidly. Today, close to 36,000 sites are in EPA's computerized database of hazardous waste sites. The National Priorities List (NPL), the roster of the nation's worst sites eligible for Superfund cleanup, holds more than 1,200 sites and is over three times as large as Congress original-

ly expected. EPA continues to add about 100 sites a year, and the NPL may reach 2,000 sites by the end of the century.

The cost of cleaning up the hazardous waste mess has risen as the magnitude of the problem has increased. Congress originally set aside \$1.6 billion for NPL cleanups; when the program was reauthorized six years later \$7.0 billion was added to the fund. Last year, Congress added another \$5.1 billion when it authorized continuing Superfund through 1994. EPA's FY 1989 Annual Report to Congress estimates that Superfund will spend an additional \$19 billion to clean up sites currently on the NPL.

The Early Years

CERCLA was signed into law in early January 1980. The early years of the Superfund program were slow going. Decision-making was highly centralized and conservative. Expertise in hazardous waste cleanup was limited, and cleanup technologies were practically nonexistent. This was in marked contrast to other EPA programs, which were able to use proven technologies to improve other aspects of the environment.

In 1984, administrative hurdles were lowered and more authority was delegated to the 10 EPA regional offices. As a result the program's pace increased, and 1984 saw much activity and

many accomplishments in all aspects of Superfund.

Delays in Congressional reauthorization of the program severely curtailed Superfund activities in late 1985 and 1986. Almost all non-emergency work stopped as taxing authority ran out and managers carefully rationed remaining funds.

Congress passed the Superfund Amendments and Reauthorization Act (SARA) in October 1986. Besides increasing the size of the cleanup Trust Fund, SARA expanded EPA's enforcement and cleanup authority, and it established the emergency preparedness and public right-to-know programs.

By the time Congress passed SARA, the scope of the nation's hazardous materials problem was becoming clear. EPA struggled to reduce the public health risks posed by a growing list of increasingly complex sites, but incomplete information, immature technology, and relentless pressure on limited resources plagued the Agency's efforts. Rampant public criticism added pressure and an increased sense of urgency. Clearly, Superfund was in trouble.

A New Direction

In 1989, EPA's new administrator, William K. Reilly, commissioned a candid evaluation of Superfund. The *Superfund Management Review*, also known as the *90-Day Study*, established a new strategy for the program based on four guiding principles. A year later, EPA was well on the way to implementing the precepts of the *90-Day Study*:

- **Use Enforcement First to Compel Private Party Response.** EPA routinely acts to force potentially responsible parties (PRPs) to pay for cleanups. The percentage of sites where work is funded by PRPs, and the value of work undertaken with PRP funding, have increased since 1989.
- **Make Sites Safer by Controlling Acute Threats.** Last year, EPA completed evaluations of the more than 1,200 NPL sites. As a result, the Agency took immediate actions at 50 sites to protect public health and the environment. Since 1980, more than 2,000 emergency actions have been taken at sites on and off the NPL.

- **Tackle the Worst Problems at the Worst Sites First.** Because EPA has more sites ready for cleanup than it can fund, the Agency is targeting the most serious problems for immediate attention. Using the Remedial Action Prioritization Strategy, EPA Headquarters and regional offices establish a national consensus on which sites get funding priority. EPA also has improved its procedures for evaluating the public health and environmental threats posed by individual sites.
- **Use More Treatment at Superfund Sites.** In the early days of Superfund, site cleanup of-

Superfund Environmental Indicators

Contaminated Material	Volume Addressed
Soil	4.13 million cubic yards
Solid Waste	5.27 million cubic yards
Liquid Waste	1,000 million gallons
Ground Water	3,880 million gallons
Surface Water	104.00 million gallons

ten meant incinerating hazardous wastes or "containing" them either on site or in a specially designed landfill. Such techniques often just relocated, rather than corrected, the problem. EPA continually has sought more effective cleanup techniques, and by FY 1990 75 percent of the plans to control hazardous waste sources included some type of treatment to address the most serious threats. Half these treatment choices employed innovative technologies developed or refined since Superfund began.

The strategy arising from the *90-Day Study* also calls for EPA to improve program efficiency, encourage public involvement in program decisions, and communicate program successes more clearly. And successes there have been.

Observers judge the success or failure of Superfund by how many hazardous waste sites are removed from the NPL. While that number is one measure of progress, it does not tell the whole story. Because the health and environmental threats that Superfund addresses are numerous and varied, a better measure of program

progress is the successive, incremental cleanups that quickly protect people and the environment while providing long-term protection:

- Surface cleanup has been completed at almost 200 sites, rendering them fit for use.
- Substantial progress has been made toward permanent cleanup of land, ground water or surface water at another 400 sites.
- Direct threats from contact with contaminated lands have been eliminated at 196 NPL sites.
- Another 373 NPL sites are moving toward cleanup.
- All construction has been completed at 84 NPL sites. EPA wants to increase that number to 200 by the end of 1993 and 650 by the end of the century.

Attacking the nation's hazardous waste problems is a herculean task. In its site cleanup work, Superfund has:

- handled enough hazardous soils and solids to cover more than 680 football fields to a depth of 10 feet;
- handled more than 4 gallons of contaminated liquids for each man, woman, and child in the country; and
- treated more than 25 gallons of contaminated ground water for each U.S. resident.

EPA is proud of the hard-won accomplishments of the Superfund program. There are no easy answers to the hazardous waste problem, but program administrators and managers are confident they have the managerial and technical tools, as well as the cogent national strategy, required to meet the program's challenges well into the next century.

Revitalization Team Targets Superfund Program Improvements

EPA Administrator William K. Reilly announced in October 1991 ambitious plans to trim the clean-up time for the average Superfund site by two or three years and to make sure that every available dollar pays for direct clean-up work. Turning these goals into reality is the job of the Superfund Revitalization Team and Director Tim Fields.

The 20-member team is charged with making Superfund more effective, more efficient, and more equitable. A more effective program will clean up sites faster. A more efficient program will use its limited resources to have the greatest effect, and a more equitable program will treat fairly everyone involved in a site cleanup.

"With the Revitalization Team, people living near, or concerned about, Superfund sites will see activities going on that will speed up the cleanup of sites in their community," says Fields. "And they will know the Agency's expectations for completing those cleanups."

Cleanup work has been completed at 84 Superfund sites, and Reilly wants to increase that number to reach 130 by the end of the current federal fiscal year, September 30, 1992. He also wants completed cleanups to total 200 by September 30, 1993 and 650 by the end of the century. EPA has published lists of the sites expected to be cleaned up by the end of

the current and the next federal fiscal year. The Revitalization Team will help speed site cleanups by ensuring that risk assessments and other site study work are as streamlined as possible. It also will review risk management techniques so that site cleanups provide the same level of protection nationwide. The team will review contracts management procedures to hold the line on administrative costs and provide more funds for actual cleanup work. This review will focus on the Alternative Remedial Contracts System and Contract Laboratory Program contracts.

In addition, the Revitalization Team is:

- planning a Revitalization Public Forum, on June 24, where EPA officials and other people involved with Superfund will discuss how to speed site cleanups;
- promoting pilot projects that will test new and innovative clean-up technologies; and
- publicizing Superfund Program successes to show how the program is protecting people and the environment.

EPA remains fully committed to implementing Superfund, and the Revitalization Team is one way the Agency is responding to the constructive criticism of critics and working to improve the program.

A Final Word on *Superfund Progress*

This issue marks the debut of the quarterly, *Superfund Progress*. Its aim is simple—to report on the strides we are making to protect people and the environment from the hazards of uncontrolled chemical releases.

Historically, Superfund's critics and supporters alike have measured the program's progress by the number of hazardous waste sites removed from the National Priorities List (NPL). But this focus is too narrow. It diverts attention from the major gains Superfund makes by reducing the major risks at the nation's worst sites, long before all the clean-up work is done. And it ignores our Removal Program, where we have been remarkably successful in meeting our twin mandates of public health and environmental protection.

Superfund Progress is one way we are working to improve our communication with the public. We've designed it to be different from other Superfund publications. We'll use feature stories, like the one about on-scene coordinators in this issue, to portray facets of

our program that often go unnoticed or unpublicized. We'll also use *Superfund Progress* as a forum for reporting new developments. And, of course, there will be numbers to show what we've accomplished.

Often, it seems, the Federal Government runs mainly on numbers, and EPA and Superfund are no exception. But many of the numbers that track our work are of little or no meaning to most people. For example, we record how many cleanups are led by states or EPA Regional offices. With that in mind, we've tried our best to report only those numbers that will have the most significance for our readers. We have, in effect, kept our focus on "the bottom line."

Readers who want more details on the Superfund Program—including more numbers—can get a copy of another new publication, *Superfund Progress—Aficionado's Version*. It's available from the Office of Emergency and Remedial Response's Communications and Special Projects Staff, (202) 260-2180.



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Want More Information?

Learn more about Superfund's performance by reading the *Superfund Progress—Aficionado's Guide*. This new publication is available by writing or calling:

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