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SUPERFUND

Times to Assess and Clean Up Hazardous Waste Sites Exceed Program Goals

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Mr. Chairman and Members of the Subcommittee:

We are pleased to present the results of our examination of trends in the time taken to complete (1) evaluations of hazardous waste sites for placement on the National Priorities List (NPL)—the Superfund program's list of the nation's worst hazardous waste sites—and (2) cleanup of sites following their listing. This work was done at the request of the Chairman, House Government Reform and Oversight Committee. We plan to issue a report on our findings to the Committee within the next month. The pace of Superfund cleanups has been a long-standing concern of the Congress and the Environmental Protection Agency (EPA). In the 1986 Superfund Amendments and Reauthorization Act (SARA), the Congress set time goals for EPA to (1) evaluate sites for possible placement on the NPL and (2) begin various cleanup actions. EPA has also established targets for processing Superfund sites for budgeting and planning purposes.

In summary, we found that:

- For sites listed in 1996, it took an average of 9.4 years from site discovery to final listing on the National Priorities List. While this is some improvement over 1995, it is still longer than earlier listing times. For sites listed from 1986 to 1990, it took an average of 5.8 years from discovery to listing. SARA requires EPA to evaluate nonfederal sites for listing, where warranted, within four years of their discovery.¹ Listing decisions were made within four years of discovery for 43 percent of the sites discovered from 1987 through 1991. A number of factors contributed to the long time needed to list a site, including a backlog of sites awaiting evaluation and EPA's emphasis on completing already listed sites.
- Cleanup completion times have also lengthened. From 1986 to 1989, cleanup projects were finished, on average, 3.9 years after sites were placed on the National Priorities List. By 1996, however, cleanup completions were averaging 10.6 years. SARA did not set deadlines for completing cleanups within a certain number of years, but EPA set an expectation for fiscal year 1993 for its regions to complete cleanup within 5 years of a site's listing. At ten percent of sites listed from 1986 through 1990, cleanup projects were completed within 5 years of listing. Much of the time taken to complete cleanups is attributable to the early planning phases of the cleanup process, when cleanup remedies are selected. Less time has been spent on actual construction work at sites than on selecting remedies. EPA officials attributed the increased completion times for

¹This statement focuses on nonfederal sites, since they make up about 87 percent of all Superfund sites. However, our upcoming report to the House Government Reform and Oversight Committee on Superfund evaluation and cleanup times will present data on both federal and nonfederal sites.

cleanups to the growing complexity of sites, efforts to reach settlements with parties responsible for site contamination, and resource constraints.

Background

In 1980, the Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, to clean up highly contaminated hazardous waste sites. The act gave EPA the authority to clean up the sites or to compel the parties responsible for the contamination to perform the cleanups. As of November 6, 1996, there were 1,205 sites on the NPL and another 52 had been proposed for listing. One hundred fifty-one of the currently listed sites are federal sites. Currently, EPA has completed constructing cleanup remedies at 418 sites and has construction underway at another 491 sites.

Cleanup actions fall into two broad categories: removal actions and remedial actions. Removal actions are usually short-term actions designed to stabilize or clean up a hazardous site that poses an immediate threat to human health or the environment. Remedial actions are generally longer-term and usually costlier actions aimed at implementing a permanent remedy. Sites referred to EPA for consideration under Superfund are screened through a number of evaluations leading to a decision about whether to place the site on the NPL. Once listed, sites are further studied for risks and cleanup remedies are chosen, designed, and constructed. (See app. I for a more detailed description of the Superfund evaluation and cleanup processes.)

To promote timely cleanups, SARA required EPA to evaluate sites for listing within four years of their discovery if EPA determines that such evaluation is warranted.² In 1992, EPA developed techniques to speed up the evaluation and cleanup of sites. These techniques included the expanded use of removal actions and the merging of certain site evaluations. EPA pilot-tested these techniques in 1992 and declared them operational in 1994. For planning its Superfund activities, EPA set an expectation for 1993 that sites would be cleaned up within 5 years of being listed. EPA officials said that they have not formally revised the expectation, but now believe that sites will be cleaned up within 7 or 8 years of their listing.

For our review, we asked EPA to provide us with data on the time taken to evaluate sites for possible placement on the NPL and to complete cleanups of listed sites. The source of the data was EPA's Comprehensive

²SARA requires that this determination be made on the basis of a site inspection or a preliminary assessment.

Environmental Response, Compensation, and Liability Information System (CERCLIS), which is the official repository of Superfund data. To measure the time taken to evaluate sites for listing, we identified sites that were added to the NPL each year and calculated the time between their listing and their “discovery”, i.e., their entry into CERCLIS. To measure the time for the cleanup process following listing, we identified the “operable units”³ at which remedial actions had been completed each year and calculated the time between the end of the remedial action and the date the site was added to the NPL.

This use of a “date of event” analysis (NPL listing, completion of cleanup) was chosen because of its usefulness in showing the productivity and management of Superfund resources over time. It takes into consideration the actual number of listings or cleanup completions in a given year regardless of when sites were first discovered or listed on the NPL. Our approach is consistent with how EPA has measured the program’s accomplishments.

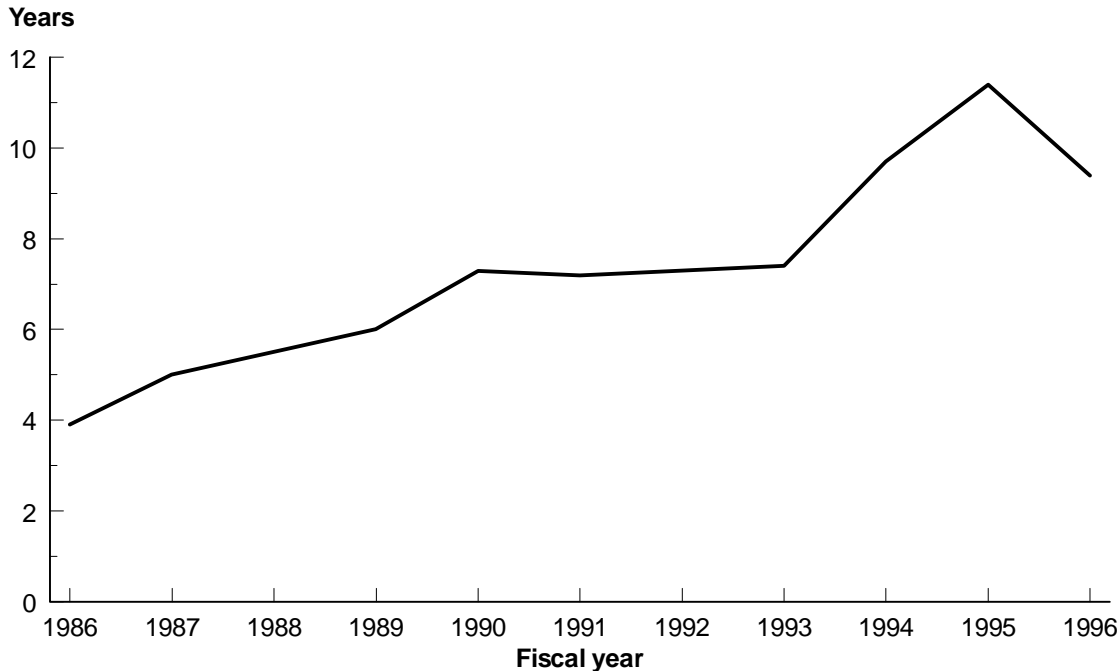
We also attempted to measure the trends in time taken to complete listings and cleanups, using SARA’s and EPA’s own standards as benchmarks. Because these standards set four and five year completion goals, our analysis was limited to sites discovered or listed not later than 1991. Because EPA’s initiatives to speed up cleanups were introduced after this time, their effect on achieving the standards cannot yet be determined. We are, however, currently reviewing the implementation and possible effects of these initiatives.

Placing a Site on the NPL Takes Longer

The time between discovering a site and placing it on the NPL has increased over the life of the Superfund program. (See fig. 1.)

³EPA may divide a site into two or more “operable units” corresponding to different physical areas at a site or different environmental media (such as soil or groundwater) to be cleaned up. There are an average of 1.8 operable units at nonfederal Superfund sites.

Figure 1: How Long It Took on Average to Place Sites on the NPL



No sites were placed on the NPL in fiscal years 1988 and 1992. Data for fiscal year 1996 exclude three sites that were added to the NPL without undergoing the usual evaluation because they posed imminent public health risks.

As figure 1 indicates, sites listed in fiscal year 1996 had been discovered an average of 9.4 years earlier, down from 11.4 years in fiscal year 1995.⁴ SARA required EPA to evaluate nonfederal sites for listing, where warranted, within four years of their discovery. For those sites discovered from fiscal years 1987 through 1991, 43 percent had decisions regarding whether or not to list the site made within four years of discovery. However, the percentage of sites for which decisions were made within four years of discovery decreased in each succeeding year from 51 percent in fiscal year 1987 to 36 percent in fiscal year 1991.

⁴Sites listed in the first quarter of fiscal year 1997 had discovery dates averaging 11.2 years before listing. The sites added to the NPL during this first quarter were discovered as recently as 1993 and as long ago as 1979.

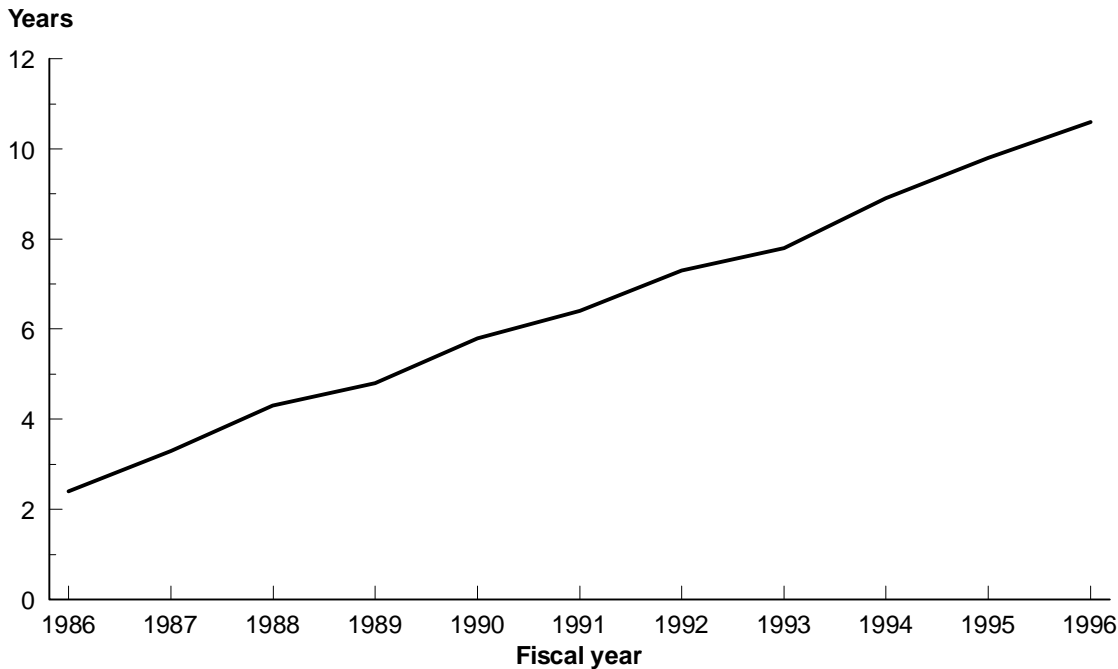
Although average processing times have lengthened, EPA can move quickly to list some sites if circumstances warrant. For example, in 1996, it listed three sites within about 9 to 12 months of their discovery when the Public Health Service's Agency for Toxic Substances and Disease Registry issued a public health advisory concerning the sites. EPA used an expedited process that bypassed its normal evaluation process to list these sites. In addition, EPA may undertake removal actions at sites to deal with imminent threats before the sites are listed. However, listing is necessary before the full range of problems presented by many sites can be addressed under Superfund.

The increase in the time taken to complete site listing is primarily a result of delays in processing sites during the end stage of the listing process, that is, after the sites have been inspected and the final analysis needed to evaluate their eligibility is done. (See app.I for a description of the Superfund process for evaluating sites for listing and cleanup.) The time to complete this end stage rose from 1.7 years for sites proposed for the NPL in fiscal year 1986 to about 6 years for sites proposed for the NPL in fiscal year 1996.

Cleaning Up Sites Is Taking Longer

The average time between placing sites on the NPL and completing cleanups at these sites increased from 2.4 years for sites completed in 1986 to 10.6 years for sites completed in 1996. Figure 2 shows, for fiscal years 1986 through 1996, the average time between placing sites on the NPL and completing the cleanups at the operable units at these sites.

Figure 2: How Long It Took on Average to Complete Superfund Cleanup Projects



As the figure shows, the average time taken to complete cleanups of operable units has grown progressively longer. In 1996, cleanup completions averaged 10.6 years for operable units. SARA did not set deadlines for completing cleanups within a certain number of years, but EPA set an expectation for fiscal year 1993 that its regions would complete cleanup within five years of a site's listing. Ten percent of sites listed from 1986 through 1990 had cleanup completions on at least one operable unit within 5 years of listing.⁵ The percentage of sites with five-year completions increased from 7 percent for sites listed in fiscal year 1986 to 15 percent for sites listed in fiscal year 1990.

The increase in overall cleanup times was accompanied by a marked increase in the time it has taken to complete the selection of cleanup

⁵Four percent of the sites listed from 1986 to 1990 had cleanups at all operable units within five years of listing.

remedies—the study phase of the cleanup process and a time during which attempts are made to reach settlements with parties responsible for contaminating sites. Sites that completed this phase in 1986 had been listed an average of about 2-1/2 years earlier and sites that completed the phase in 1996 had been listed an average of about 8 years earlier.

Factors Influencing the Time Taken to List and Clean Up Sites

The Superfund database, which was the primary source for the data presented in this statement, does not contain all of the information needed to fully explain the reasons for the changes in evaluation/listing and cleanup times over the history of the program. However, our past reviews and discussions with EPA officials indicate some of the factors that have lengthened listing and cleanup times.

There are a number of reasons why the time from discovery to listing has increased over the years. A major factor was that the Superfund program started with a backlog of sites awaiting evaluation so that not all sites could be processed at once.⁶ In addition, program changes—such as revisions to eligibility standards requiring the reevaluation of many sites, the need to seek state concurrence for listing sites, and reductions in the annual number of sites that EPA added to Superfund—have also caused delays. In addition, EPA reallocated its budget between 1994 and 1996, cutting funds for assessing sites by some 50 percent. EPA officials said that the agency's current priority is to finish cleaning up sites that have already been listed. The challenge for the future is indicated by the large number of sites that could enter the program in the future and the small number of sites that have been admitted to the Superfund program in recent years. In a 1996 report,⁷ we estimated that between 1,400 and 2,300 sites could be added to Superfund in the future. In contrast, an average of 16 sites per year were admitted to the program in the period from 1992 through 1996.

EPA officials said that the upward trend in cleanup times might be linked to the completion of more difficult cleanups. Our work supports this explanation. In September 1994, we reported⁸ that EPA's data revealed longer average cleanup times for ongoing projects than for those already completed. In that report, we said that despite EPA's efforts to expedite cleanups, cleanup times might grow longer because these ongoing projects

⁶Of the 40,665 sites referred to EPA for Superfund evaluation through 1996, 14,697 came into the program by 1982.

⁷Impact on States of Capping Superfund Sites (GAO/RCED-96-106R, Mar. 18, 1996).

⁸Superfund: Status, Cost, and Timeliness of Hazardous Waste Site Cleanups (GAO/RCED-94-256, Sept. 21, 1994).

were more complex. EPA officials also said that the time taken to find the parties responsible for contaminating sites and reach cleanup settlements with them can increase cleanup times. The officials thought that funding had affected the pace of cleanups. For example, they said that because of budget constraints, EPA was not able to fund \$200 million to \$300 million in cleanup projects in fiscal year 1996. In addition, EPA has shifted funding away from selecting remedies and toward the design and construction phases of the cleanup process. As indicated, the Superfund phase ending in the selection of remedies has increased greatly over the years.

Observations

Sites that have recently completed the Superfund listing process have taken over 9 years and those that have recently completed the cleanup process have taken over 10 years. These completion periods have generally lengthened over the history of the program. Increasing completion times are a concern because of the amount of remaining listing and cleanup activity still to be addressed in the Superfund program.

EPA has made progress at many sites—completing the construction of remedies at 418 sites—but construction work remains to be completed at about 800 NPL sites, and 1,400 to 2,300 sites could still be added to Superfund in the future. EPA officials believe that recent initiatives will speed up both the listing and cleanup of sites. They told us that they expect to report on the effects of some of these initiatives in the near future.

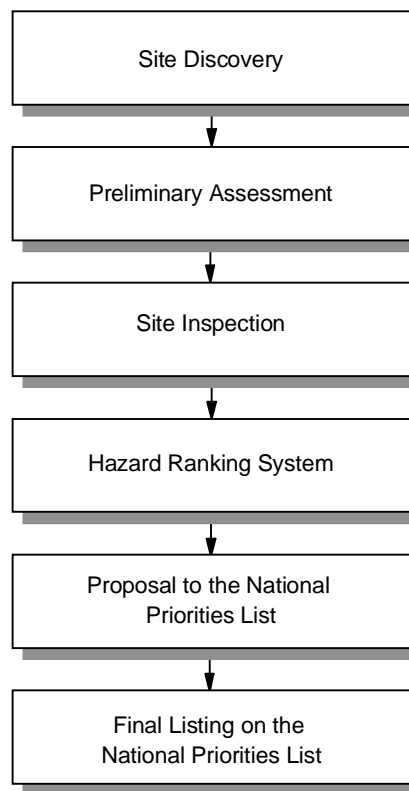
Our analysis identified where times have risen, but further evaluation is needed to pinpoint the causes. We will be working with this Committee and others during the year to help answer some of these questions. For example, we are currently reviewing EPA's recent initiatives to speed up site processing and implement other administrative reforms.

Mr. Chairman, this concludes my prepared statement. I will be happy to respond to your questions or the questions of Committee members.

The Superfund Process Steps in the Process of Listing a Site

The Environmental Protection Agency's (EPA) regulation implementing the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) outlines a formal process for placing hazardous waste sites on the National Priorities List (NPL). (See fig.I.1.)

Figure I.1: How Sites Get on the NPL



Source: EPA.

The listing process starts when EPA receives a report of a potentially hazardous waste site. State governments or private citizens most often report nonfederal sites. EPA enters potentially contaminated private sites into a database known as the Comprehensive Environmental Response,

Compensation, and Liability Information System (CERCLIS). EPA or the state in which a potentially contaminated site is located then conducts a preliminary assessment to decide whether the site poses a potential threat to human health and the environment.

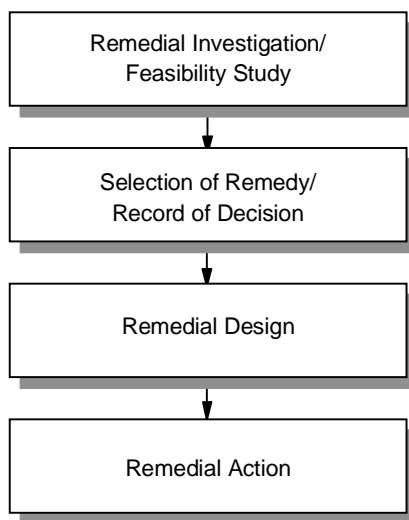
If the site presents a serious, imminent threat, EPA may take immediate action. If the preliminary assessment shows that contamination exists but does not pose an imminent threat, or if the site continues to pose a problem following an immediate action, EPA may proceed to the next step of the evaluation process, the site inspection, which takes a more detailed look at possible contamination. If at any point the site is found not to pose a potential threat, the site can be eliminated from further consideration under CERCLA.

Using information from the site inspection, EPA applies the hazard ranking system to evaluate the site's potential risk to public health and the environment. The hazard ranking system is a numerically based scoring system that uses information from the preliminary assessment and the site inspection to assign each site a score ranging from 0 to 100. This score is used as a screening tool to determine whether a site should be considered for further action under CERCLA. Sites with a score of 28.50 or higher are considered for placement on the NPL. EPA first proposes a site for placement on the NPL and then, after receiving public comments, either places it on the NPL or removes it from further consideration. Hazardous waste sites on the NPL represent the highest priorities for cleanup nationwide.

Steps in the Process of Cleaning Up Sites

EPA's regulation implementing CERCLA also outlines the remedial process for cleaning up sites on the NPL. (See fig.I.2.)

Figure I.2: How Sites Are Cleaned Up



Source: EPA.

Remedial responses to NPL sites consist of several phases. First, through the remedial investigation and feasibility study, conditions at a site are studied, problems are identified, and alternative methods to clean up the site are evaluated. Then, a final remedy is selected, and the decision is documented in a record of decision. Next, during an engineering phase called the remedial design, drawings and specifications are developed for the selected remedy. Finally, in the remedial action phase, a cleanup contractor begins constructing the remedies according to the remedial design. Once EPA and the state in which the site is located determine that the work at a site has achieved the desired cleanup goals, the site can be removed (deleted) from the NPL.

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