



United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-277797

September 24, 1997

The Honorable Bud Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives

Subject: Superfund: Duration of the Cleanup Process at
Hazardous Waste Sites on the National Priorities List

Dear Mr. Chairman:

In congressional testimony in February 1997¹ and in a March 1997 report,² we discussed the time that the Environmental Protection Agency (EPA) took to complete the cleanup of hazardous waste sites in its Superfund program. We said that the cleanup of sites completed in fiscal year 1996 had taken an average of 10.6 years. We also said that the length of time to complete cleanups at sites had increased over the history of the program. In responding to our report, EPA said that our analysis did not reflect recent improvements in the Superfund program, which, it said, were speeding up the pace of cleanups. EPA presented data showing that some sites that were recently added to the National Priorities List (NPL) had been cleaned up in less time than that for earlier sites.³ Moreover, EPA said that it expected that the sites listed in 1993 through 1996 would be cleaned up in an average of 8 years.

¹*Superfund: Times to Assess and Clean Up Hazardous Waste Sites Exceed Program Goals* (GAO/T-RCED-97-69, Feb. 13, 1997). Testimony before the Subcommittee on National Economic Growth, Natural Resources, and Regulatory Affairs, House Committee on Government Reform and Oversight.

²*Superfund: Times to Complete the Assessment and Cleanup of Hazardous Waste Sites* (GAO/RCED-97-20, Mar. 31, 1997).

³We believe that the completed sites referred to by EPA are too small a segment of the recently listed sites to reliably indicate how long the cleanup of recently listed sites will take, on average. The great majority of recently listed sites are still in the cleanup process.

You asked us to compare EPA's estimate of future cleanup times with the program's historical performance. We did this by calculating, for the sites that began the cleanup process in fiscal years 1986 through 1994, (1) how long it took to clean up completed sites and (2) how long the uncompleted sites have been in the cleanup process.

BACKGROUND

In 1980, the Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act, known as Superfund, to clean up highly contaminated hazardous waste sites. EPA places the sites that qualify for long-term Superfund cleanup action on the NPL. As of November 1996, 1,205 sites were on the NPL.

Once listed on the NPL, a Superfund site may be divided into "operable units" corresponding to different physical areas at the site or different environmental media (such as soil or groundwater) to be cleaned up. Sites (or operable units, if a site is subdivided) pass through various processing phases that include studies of the sites' risks, the selection and design of cleanup remedies, and the implementation of the cleanup remedies. This last phase is called "remedial action." Some sites may complete remedial action faster than others, and still others may not reach remedial action at all. The calculation of the duration of the cleanup process from a site's listing on the NPL through remedial action is straightforward for any given site. However, until all sites have completed remedial action, the average length of time needed to complete remedial action for the NPL's entire inventory will be uncertain. EPA has estimated that the cleanup durations for sites listed in 1993 through 1996 will average 8 years.

RESULTS IN BRIEF

As of July 1, 1997, remedial action had been completed at 13 percent (95) of the 752 sites placed on the National Priorities List⁴ in fiscal years 1986 through 1994. These remedial actions were completed in an average of 6.3 years after the sites were listed. As of the same date, remedial action had not been completed at 87 percent (657) of the sites listed in fiscal years 1986 through 1994. These uncompleted sites had been in the cleanup process an average of 8.1 years, that is, they had been listed on the National Priorities List an average of 8.1 years earlier. Assuming that all remedial actions at these "in process" sites had been completed on July 1, 1997, the average cleanup duration for all sites listed on the National Priorities List during the 9-year period would have

⁴At all operable units.

been 7.9 years,⁵ almost as long as EPA's 8-year estimate of the cleanup time for recently listed sites. But because such a large proportion of the sites listed in the 9-year period are still in process, the average cleanup time for these sites will exceed 8 years, possibly by a substantial margin. Furthermore, for EPA to meet its 8-year estimate for cleaning up recently listed sites will require much faster cleanup times than the program has produced in the past.

CLEANUP ACTIVITIES HAVE ALREADY TAKEN ALMOST 8 YEARS

In order to calculate the duration of the Superfund process—from a site's listing on the NPL to its completion of remedial action—for the sites listed in fiscal years 1986 through 1994, we allocated the sites into two groups according to their cleanup status as of July 1, 1997. The first group contains those sites whose entire set of operable units has completed remedial action. For these sites, we calculated duration from the date of the site's listing to the date of the completion of the last remedial action at the site's operable units.

Approximately 13 percent (95 of 752) of the sites listed in fiscal years 1986 through 1994 were in this group. The second group contains the 87 percent (657 of 752) of the sites listed in fiscal years 1986 through 1994 where not all operating units have completed remedial action. (See table 1.)

⁵Represents the weighted average of cleanup times for completed sites and processing times for uncompleted sites.

Table 1: Average Durations for (1) Completed Sites From Listing to Completion of Remedial Action and (2) Uncompleted Sites From Listing to July 1, 1997, by Fiscal Year of Listing

Fiscal year of listing	Sites where remedial action has been completed		Sites where remedial action has not been completed	
	Number	Average duration in years ^a	Number	Average duration in years ^b
1986	32	7.7	138	11.1
1987	17	6.8	82	9.9
1988	0	-	0	-
1989	11	6.5	89	8.3
1990	34	4.7	266	7.3
1991	1	0.1	6	6.3
1992	0	-	0	-
1993	0	-	33	4.7
1994	0	-	43	3.1
Total	95	6.3	657	8.1

^aRepresents time from listing on the NPL to the completion of remedial action at all operable units.

^bRepresents processing time from listing on the NPL to July 1, 1997, for sites where remedial actions had not been completed at all operable units.

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For the 95 sites where remedial action has been completed, the average duration from listing to completion was 6.3 years. These 95 sites contained 115 operable units, all of which have completed remedial action. The 657 sites that have at least one operable unit that has not completed remedial action had already been in the Superfund process for an average of 8.1 years as of July 1, 1997. Combining the weighted average durations for these two groups shows the average time taken so far on cleanup activities—a combined duration of 7.9 years. Because of the amount of remaining cleanup work, the actual average cleanup time can only exceed this combined average. For example, only 1 of the 82 sites listed since fiscal year 1991 has been cleaned up, and 138 of the 170 sites listed in fiscal 1986 have not yet been cleaned up.

SCOPE AND METHODOLOGY

Our analysis was based on data supplied by EPA showing the cleanup status for all sites listed on the NPL in fiscal years 1986 through 1994. The data came from the Comprehensive Environmental Response, Compensation, and Liability Information System—EPA's primary database for the Superfund program. These data showed the sites that had completed remedial action as of July 1, 1997, and the processing stage of sites where remedial actions had not been completed. We chose the fiscal year 1986-94 period for our analysis because the last major legislative changes were made to the program in fiscal 1986 and because few cleanups would have been completed on the sites listed after fiscal 1994.

We performed our work from June 1997 through September 1997 in accordance with generally accepted government auditing standards. We did not verify the accuracy of the data EPA sent to us. However, the database came from EPA's Office of Emergency and Remedial Response, which is responsible for Superfund cleanups.

AGENCY COMMENTS

We provided EPA with copies of a draft of this report for review and comment. EPA maintains that cleanup time frames are and will be decreasing because recent policy decisions will shorten the cleanup times for sites that were listed more recently. EPA noted that our study ended in fiscal year 1994, reflecting only the first year that the current reforms were implemented. EPA expressed concern that our report does not focus on the recent improvements in the time taken to clean up Superfund sites in comparison with the time taken to clean up the sites listed in the early years of the program. EPA also noted that insufficient time had passed to assess the impact of all of the current program reforms and that anecdotal information will be the best available data for the next 3 to 5 years. EPA's comments appear in enclosure I.

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Our objective was to estimate the cleanup times for all sites listed during the 9-year period, fiscal years 1986 through 1994, so that we could calculate (1) how long it took to clean up the completed sites and (2) how long the uncompleted sites have been in the cleanup process. Examining the impact of EPA's recent reforms was not within the scope of this review. Regarding EPA's concern that our analysis attempts to project future trends, we are not making such projections; rather, our report presents the minimum average time—8 years—that it would take for all sites currently in the inventory to be cleaned up.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 15 days after the date of this letter. At that time, we will send copies to the Administrator of EPA. We will also make copies available to others on request.

Please call me at (202) 512-6111 if you or your staff have any questions about this report. Major contributors to this report were Alice Feldesman and Mitchell Karpman.

Sincerely yours,



Peter F. Guerrero
Director, Environmental
Protection Issues

Enclosure

COMMENTS FROM THE ENVIRONMENTAL PROTECTION AGENCY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D C 20460

SEP 17 1997

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Peter F Guerrero
Director
Environmental Protection Issues
U S General Accounting Office
Washington, DC 20548

Dear Mr Guerrero:

Thank you for the opportunity to review and comment on the Draft Report entitled "Superfund. Duration of the Cleanup Process at Hazardous Waste Sites on the National Priorities List (GAO/RCED-97-238R) and the Draft Fact Sheet "EPA's Fiscal Year 1998 Superfund Budget." This letter formally transmits our comments on these draft documents

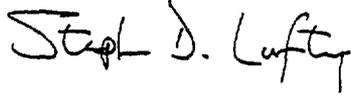
EPA has shown improvements in the time required to cleanup Superfund sites as reflected in the fact that more sites have been completed in the past four years than were completed in the first twelve years of the program. Our reform efforts have been key to this success. However, as demonstrated in our attached comments, we are concerned that not enough time has passed to see the results of all of our reforms in a statistically significant way in terms of average time savings or cost. However, we feel the anecdotal results demonstrated in the FY 1996 Superfund Administrative Reforms Annual Report are good measures of the success of our reform efforts. In addition, we have provided a chart which demonstrates a trend toward reduced durations. We feel this is an analysis which appropriately depicts programmatic trends.

EPA's discussions with GAO on the FY 1998 President's Budget request took place during the same time period that significant data gathering for several Congressional offices was underway. Our projection methods estimated an incremental need of approximately \$650 million in FY 1998 to address the site backlog and accelerate cleanup in the Superfund program. The results of our more current site-by-site analysis have demonstrated that our budget projections were sound and validated our need for the incremental funding. It is my understanding that your office has received this updated site specific information which supersedes the resource estimates made over a year ago and which should be the foundation for validating our FY 1998 budget request.

Again, we thank you for the opportunity to review these draft documents and hope our comments will be strongly considered as the report and fact sheet are finalized. Should you have

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any questions or concerns regarding these comments, please contact Robin Richardson at (703)603-8912.



Stephen D. Luftig
Director
Office of Emergency and Remedial Response

Enclosures

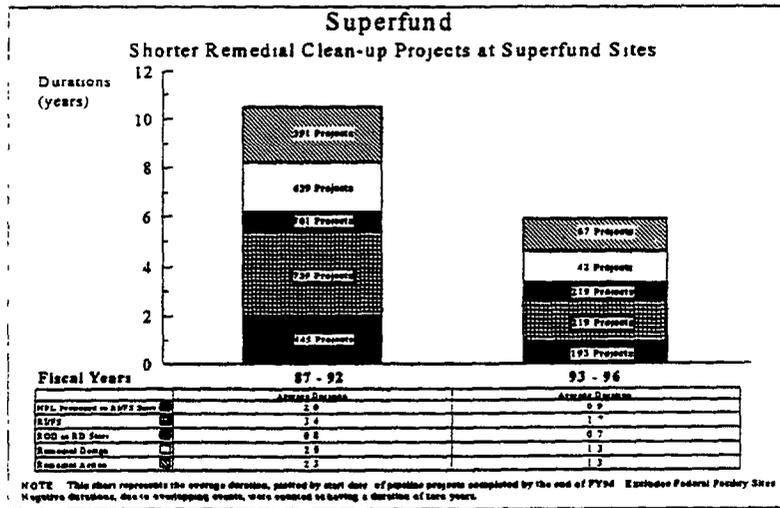
cc: Timothy Fields, Jr.
Steven A. Herman
Sallyanne Harper
Cliff Rothenstein
Barry Breen
Steve Tiber

U.S. EPA Comments

SUPERFUND: DURATION OF THE CLEANUP PROCESS AT HAZARDOUS WASTE SITES ON THE NATIONAL PRIORITIES LIST (GAO/RCED-97-238R, Job Code 160398)

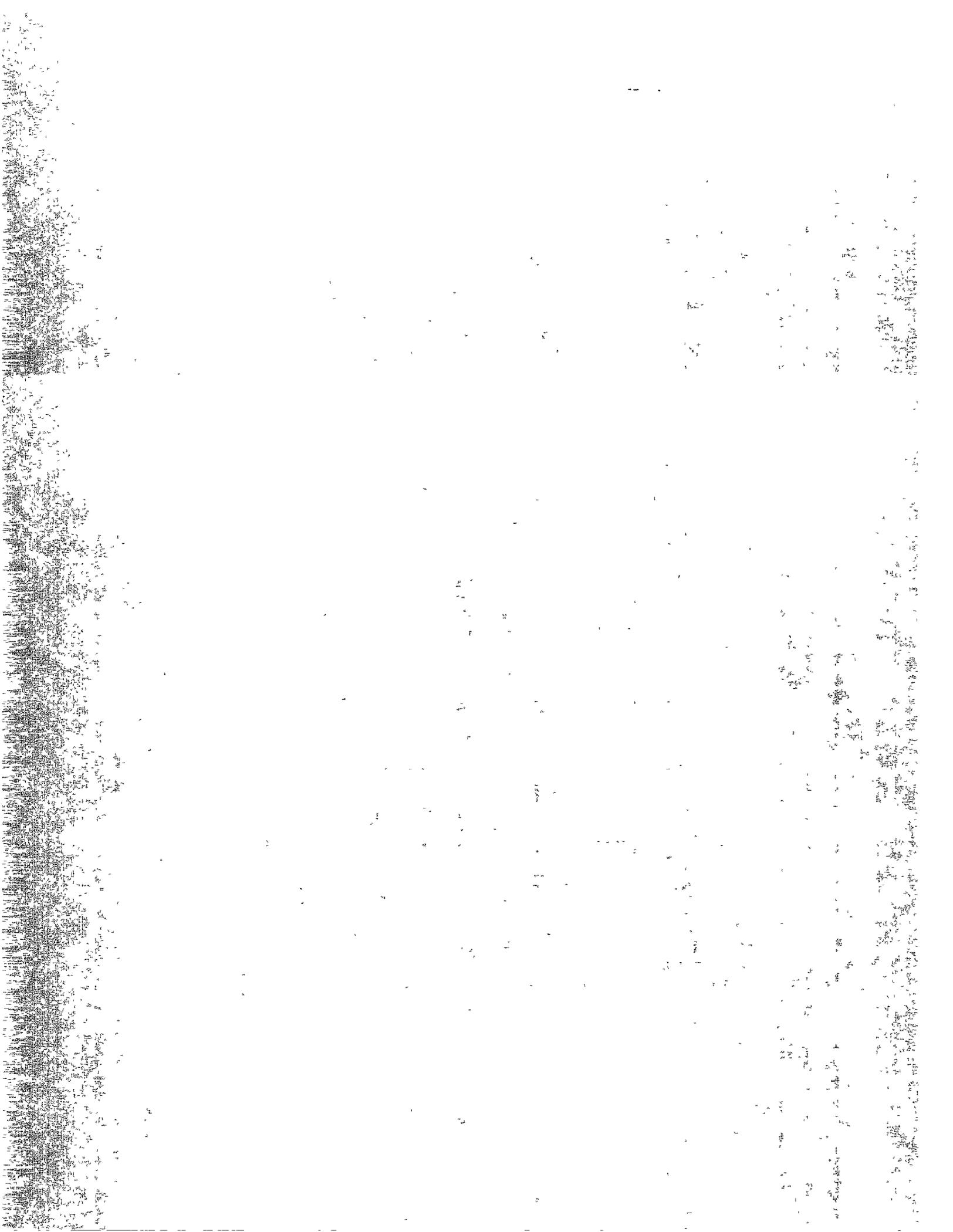
EPA estimates that cleanup timeframes are and will be decreasing as more sites are cleaned up under the administrative reforms. However, the draft GAO report suggests that the time necessary to complete site cleanup will exceed current EPA projections. GAO's study ends in the 1994 fiscal year, reflecting only the first year of the current reforms implementation. Our comments to GAO's previous (March 1997) noted that insufficient time had passed to see all of the quantifiable and statistically significant changes in durations attributable to the three rounds of administrative reforms. EPA remains concerned with the draft findings in the current report because, lacking this durations data, it is not possible to adequately validate the impacts of all of the very important improvements in the Superfund cleanup process. Anecdotal information will be the best available data for the next 3-5 years. Our concerns arise because this analysis attempts to project future trends based on a universe of data which highlights earlier decision processes.

EPA recommends utilizing the program guidance on durations cited by GAO in the March report on durations and reviewing individual pipeline milestone durations based on the start date of the activity in order to reflect the policies in place at the time the activity began. Below is a chart which displays the individual milestone durations for each discrete pipeline activity, demonstrating program trends in more detail than the current GAO report. Again, based on these individual cleanup event durations, EPA estimates that cleanup timeframes are and will be decreasing as more sites are cleaned up under the administrative reforms.



The truest current measures of durations success can be seen in the site-specific examples presented in the FY 1996 Superfund Administrative Reforms Annual Report. Additionally, the Superfund Reforms Project report displays the reductions in time and cost which have been realized through the reforms. These reports show real reductions in the time to achieve cleanup at many Superfund sites.

(160398)



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