

August 2000

# HAZARDOUS WASTE

## EPA Has Removed Some Barriers to Cleanups



G A O

Accountability \* Integrity \* Reliability





United States General Accounting Office  
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Resources, Community, and  
Economic Development Division

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The Honorable Robert C. Smith  
Chairman, Committee on Environment  
and Public Works  
United States Senate  
The Honorable Lincoln Chafee  
Chairman, Subcommittee on Superfund,  
Waste Control and Risk Assessment  
Committee on Environment and Public Works  
United States Senate

The Resource Conservation and Recovery Act of 1976, as amended, (RCRA) establishes three key requirements governing the treatment, storage, and disposal of hazardous waste. First, under what is referred to as the land disposal requirements, hazardous waste generally must be treated to minimize threats to human health and the environment before it is disposed of on land. Second, under so-called minimum technology requirements, facilities that treat or dispose of waste, such as landfills, must meet certain design standards, such as installing a double liner under the landfill to protect soil and water from contamination. Finally, facilities that treat, store, or dispose of hazardous waste, including carrying out cleanup activities, must generally obtain a permit to do so. In general, a facility that has ongoing industrial activity and is requesting a permit to clean up a portion of the site must agree to clean up all parts of its property that are contaminated from past industrial operations. The Environmental Protection Agency (EPA) manages the cleanups at those operating facilities posing a high potential health or environmental risk under its “corrective action” program.

In 1997, we reported that, although these three RCRA requirements were successful at ensuring that process waste—that is, waste newly generated by currently operating industrial operations—is managed safely, the requirements had the unintended consequence of deterring the cleanup of sites contaminated with old, previously generated waste.<sup>1</sup> Such sites include not only operating facilities conducting cleanups under EPA’s

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<sup>1</sup>*Hazardous Waste: Remediation Waste Requirements Can Increase the Time and Cost of Cleanups* (GAO/RCED-98-4, Oct. 6, 1997).

corrective action program but also abandoned sites posing high risks that are subject to EPA's Superfund program and less risky sites that states are addressing under their own programs. More specifically, RCRA did not distinguish process waste from waste that results from site cleanups, known as remediation waste, even though remediation waste was often more lightly contaminated and posed less risk than process waste. As a result, parties planning to move, excavate, or temporarily store hazardous waste on land in connection with a site cleanup faced the three RCRA requirements. Because complying could mean taking actions considered more stringent and costly than necessary for the less risky remediation waste, some parties simply did not clean up certain sites or decided to leave waste in place when they would have preferred to treat or permanently remove it. We recommended that the agency take steps to address this cleanup disincentive.

Also in 1997, we separately evaluated the corrective action program and reported that facilities had made limited progress in conducting cleanups.<sup>2</sup> Specifically, only about one-quarter of the 3,698 nonfederal facilities in the program were implementing final cleanup actions or had completed cleanup. We identified four management factors that limited the progress of cleanups under this program, including (1) a burdensome cleanup process that required multiple reporting and review steps and (2) resource shortfalls that prevented EPA from taking more aggressive enforcement actions to accomplish cleanups. We also made several recommendations to the agency to help it address these barriers.

Because of your continuing concern about the pace of hazardous waste cleanups, you asked us to review the actions EPA has taken since our two 1997 reports and assess their effects on (1) cleanups of remediation waste at sites subject to the three RCRA requirements and (2) the management factors that had slowed the pace of cleanups under the corrective action program in particular. To identify EPA's actions since our last reports, we compared relevant EPA regulations and guidance from 1997 with their subsequent revisions and interviewed the EPA headquarters officials responsible for revising the remediation waste regulations and for managing the corrective action program. To assess the effects of these actions on cleanups, we interviewed the key officials responsible for cleanup policies and program management within EPA, in state programs,

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<sup>2</sup>*Hazardous Waste: Progress Under the Corrective Action Program Is Limited, but New Initiatives May Accelerate Cleanups* (GAO/RCED-98-3, Oct. 21, 1997).

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in industry, and in the environmental community. State officials included the managers in charge of cleanup programs in eight states that we selected because they had a large inventory of sites or were geographically dispersed. We also interviewed the directors for cleanup policies at the two national associations for state cleanup programs. Industry officials included the directors for cleanup policies at three national associations representing industries involved in cleanups, as well as directors at a number of Fortune 500 companies conducting cleanups. We also interviewed the directors for cleanup policies at the two national environmental associations most involved with these issues. To determine the progress of corrective action cleanups, we compared EPA program data for fiscal years 1997 and 2000. Our detailed scope and methodology are in appendix I.

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## Results in Brief

Several actions EPA has taken to revise its regulatory requirements for handling remediation waste have removed some barriers to cleanups. First, in response to our 1997 recommendation that EPA better inform cleanup managers of the existing options that could exempt remediation waste from the RCRA requirements, EPA, in October 1998, issued a memorandum on these options. State cleanup program managers reported that their staff are now using these options to accomplish more site cleanups. Second, EPA issued new regulations governing the management of remediation waste that provided some relief from the barriers the three RCRA requirements posed, especially more flexible treatment requirements for soil. The state and industry cleanup program managers believed that some portions of the new rules, such as the soil standards, would help promote cleanups. Third, in February 2000, EPA settled a lawsuit in which groups had charged that a proposed 1993 rule providing flexibility under the RCRA requirements for certain on-site storage and disposal units for remediation waste<sup>3</sup> did not sufficiently protect human health. EPA agreed to amend the 1993 rule so that certain wastes would still be subject to somewhat more stringent requirements. According to state and industry officials, EPA's agreement will reduce the flexibility that the 1993 rule allowed for cost-effective cleanups and will thus deter some cleanups. On the other hand, EPA officials believe that these cleanups may increase now that the legal uncertainty surrounding on-site storage units has been removed. The state, industry, and environmental officials differed as to whether any legislative

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<sup>3</sup>The on-site storage and disposal units for remediation waste that are referred to here and throughout the report are also known as CAMUs (Corrective Action Management Units).

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changes were necessary to address any remaining cleanup barriers that EPA was unable to address through its regulatory actions. EPA does not currently have a position on whether legislative changes are warranted.

In 1999, EPA implemented a set of administrative reforms that address several of the management factors we previously identified as slowing the pace of corrective action cleanups. The reforms include (1) issuing new guidance on a more flexible process for selecting and implementing cleanup methods and providing cleanup managers training on this guidance, an action we had recommended in our 1997 report, and (2) establishing new goals under the Government Performance and Results Act of 1993 (the Results Act)<sup>4</sup> to control human exposure to contamination and the migration of contaminated groundwater at “high-priority” facilities by 2005. In addition to the administrative reforms, EPA noted that a new rule issued in 1998 should increase the pace of cleanups by allowing parties to close portions of a facility as part of a corrective action cleanup rather than go through the separate closure program. These reforms have helped to increase the number of facilities that have at least begun the initial steps of the cleanup process, such as site investigations, and the number of facilities with documented control of contamination. However, industry officials expressed a concern—acknowledged also by EPA headquarters program managers—that some EPA regional and state staff who are responsible for managing individual site cleanups will resist using the more flexible options the reforms provide. EPA is taking action to try to monitor reform implementation. It has also just begun to address the resource shortfall that we cited as one factor preventing the agency from achieving more cleanups. We are making a recommendation that the agency take additional steps to focus more attention on achieving final cleanups under the corrective action program.

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## Background

In our 1997 report on the management of remediation waste under RCRA, we identified three RCRA requirements—land disposal, minimum technology, and permitting requirements—that, while effective at controlling contamination from newly generated waste, posed barriers to the management of remediation waste, thereby discouraging some cleanups. The land disposal restrictions pose barriers because they can lead to complex and costly cleanups that involve large volumes of relatively

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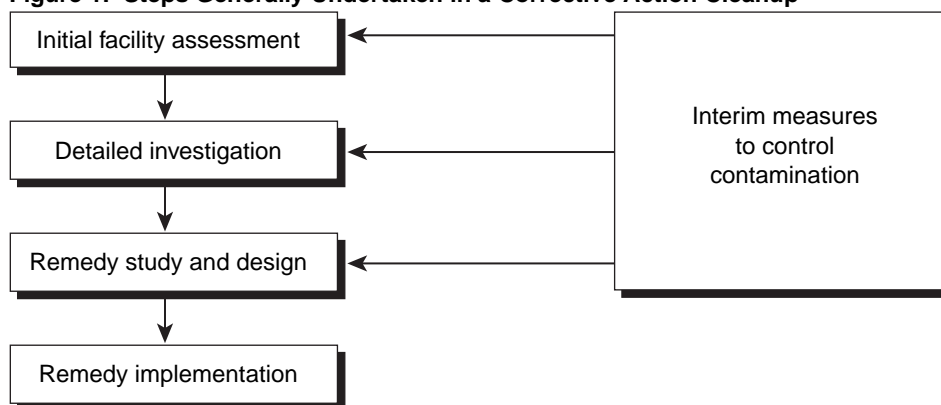
<sup>4</sup>This act requires that agencies, among other actions, prepare annual performance plans that establish goals and measures to assess the results of individual programs.

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lightly contaminated cleanup waste. The RCRA cleanup standards are such that for some hazardous waste, the only way to meet the standards is by incineration, one of the most costly cleanup methods. Furthermore, the standards do not consider the fact that new technologies developed since the RCRA requirements were established, such as using organisms to decompose waste in place, can result in cleanups that are as protective at much lower costs. Cleanup managers from EPA, industry, and the states believed that the RCRA requirements increased the time and cost of some remediation waste cleanups and caused parties to select cleanup methods that can be too stringent, given the health and environmental risks posed by the waste.

In addition, the minimum technology requirements posed barriers, according to the managers, because it was unnecessary and too costly to require that certain waste, which did not pose a health or environmental risk, be taken to a disposal facility meeting the RCRA design requirements, rather than to less costly facilities. Finally, because the permitting process required large volumes of information and could take several years, the process slowed cleanups, thereby jeopardizing the redevelopment and reuse of some properties. To avoid triggering any of these RCRA requirements, parties did not conduct some cleanups or chose to leave the waste in place rather than permanently remove it, which is the preferred option in some cases. Ultimately, these requirements can discourage the cleanup of some sites, particularly those that states manage under their own programs.

In our prior report on the corrective action program, we stated that the limited cleanup progress under the program was due to in part to program management factors, including a burdensome cleanup process. This process required parties to follow a set of sequential steps, with multiple reporting and review requirements between each step that were time-consuming and costly and therefore a barrier to some cleanups. Figure 1 shows the steps parties generally follow to clean up an operating facility.

**Figure 1: Steps Generally Undertaken in a Corrective Action Cleanup**

Note: At any point in this process, the facility may be required to take interim measures to address contamination that poses an immediate threat to human health or the environment.

Source: EPA.

These key steps include the following activities:

- **Initial facility assessment.** EPA, or the state authorized to implement the program for EPA, assesses the facility to characterize the risks posed.
- **Detailed investigation.** The company that owns the facility, with EPA or state oversight, conducts a more detailed investigation to establish the nature and extent of the contamination present.
- **Remedy study.** The company conducts this study to describe the advantages, disadvantages, and costs of various cleanup options, and EPA or an authorized state approves the final method selected.
- **Remedy implementation.** The company designs, constructs, operates, maintains, and monitors the selected method. This is the most costly step in the process.

We found in 1997 that few facilities were implementing final remedies because of this burdensome process, frequent disagreements on the extent of cleanup required, a lack of EPA resources to fully implement the program, and industry reluctance to initiate cleanups without an economic incentive.



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## EPA Actions on Remediation Waste Requirements Have Addressed Some Disincentives to Cleanups

EPA has undertaken several actions that address the three RCRA requirements applicable to remediation waste—land disposal, minimum technology, and permitting requirements—although the actions did not comprehensively reform the requirements and remove all cleanup barriers, as EPA had originally intended. First, states found that EPA's consolidated guidance explaining the tools available to help them better manage remediation waste subject to the RCRA requirements helped them accomplish more cleanups. Second, EPA's new rules for managing remediation waste provided some relief from the barriers posed by the RCRA requirements. Third, a recent legal settlement that EPA negotiated will reinstate some of the RCRA requirements for the on-site storage and disposal of waste that were relaxed in a 1993 rule, and state and industry program managers predicted these requirements will be a disincentive to some cleanups. State, industry, and environmental managers differed in their opinions on the need for legislative changes to address any remaining barriers that the RCRA requirements for remediation waste pose.

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## EPA's Consolidated Guidance on Remediation Waste Management Is Helpful for Removing Some Cleanup Barriers

In our prior review, we found that EPA had several policies in place that, under certain circumstances, would allow parties to manage remediation waste without triggering the three RCRA requirements. However, the state cleanup program managers we contacted were not aware of these options and did not understand them. Therefore, we recommended that EPA consolidate all of these options into a single guidance document and provide cleanup managers training on the options. In 1998, EPA took both of these actions. Since then, states reported that the guidance has been very helpful, their staff have been able to take more advantage of these options, and they are proceeding with significantly more cleanups under their own programs. Under one option, when the party conducting the cleanup makes a good-faith effort to determine if waste present at the site is a "listed" hazardous waste, but documentation is unavailable or inconclusive, the party may assume the waste is not hazardous, as long as it does not exhibit any hazardous characteristics.<sup>5</sup> Another option allows parties to consolidate and treat on site any remediation waste that lies within contiguous areas of contamination without triggering the RCRA requirements. A third option provides that certain remediation waste can

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<sup>5</sup>EPA classifies hazardous wastes as either "listed" wastes, meaning they were generated during specific industrial processes that are listed in EPA's regulations, or as "characteristic" wastes, meaning that they display at least one of the following characteristics: ignitability, corrosivity, reactivity, or toxicity.

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be excluded from the RCRA requirements if it does not pose risks to human health. Several state program managers acknowledged, however, that when these options and more flexible approaches cannot be applied, some facilities continue to refrain from conducting cleanups or use less preferred cleanup methods.

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### EPA's New Remediation Waste Rules Have Removed Some Cleanup Barriers

Prior to our 1997 review, EPA had proposed a rule that would have relaxed RCRA requirements for certain higher-risk remediation wastes and excluded lower-risk wastes from the requirements entirely. EPA could not obtain a consensus on the proposed rule, however. Industry asserted that certain provisions requiring testing and sampling remediation waste would have been cost-prohibitive. Environmental groups stated that some remediation waste was just as hazardous as process waste and should not be managed any less stringently. As a result, the final rule EPA issued in 1998 did not achieve the comprehensive reform intended, but it did provide several changes.<sup>6</sup> These included provisions intended to make permits for managing remediation waste easier to obtain and to allow for more flexible ways to store remediation waste over the short term in "staging piles" while conducting a cleanup. EPA noted that in addition to these provisions, the rule removed the requirement that facilities not needing a RCRA operating permit but conducting cleanup actions had to address the entire facility at once; instead, it now allows these facilities to manage the cleanup in stages. EPA also noted that it issued a related rule in 1998 establishing less stringent treatment standards for hazardous contaminated soils. Under the previously applicable treatment standards, contaminated soils generally had to be treated by incineration, a costly process. However, parties may now use a variety of treatment technologies to achieve the new standards.

The industry and state managers we contacted acknowledged that these rules provided some relief from the three RCRA requirements when managing remediation waste. For example, several managers expected that eliminating a requirement for facilitywide corrective action would be a cleanup incentive. In addition, many of the managers thought that the less stringent soil treatment requirements would provide significant relief and more cleanup methods that could be implemented. Most industry representatives did not think the rules went far enough to remove the three requirements as barriers to some cleanups, however. Most state managers

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<sup>6</sup>"The Hazardous Remediation Waste Management Requirements (HWIR-Media); Final Rule," November 30, 1998 (40 C.F.R. part 260).

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did not think that the rule provided them significantly more flexibility than they have been able to build into their own cleanup programs using the existing management options described in EPA's consolidated memorandum. EPA acknowledged that the new remediation waste rule is more limited than the agency intended but maintains that states do find it helpful for their cleanups. EPA pointed out that 16 states had already adopted the rule and 15 more were in the process of doing so.

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**Amendments to the 1993 Rule Governing On-site Waste Storage and Disposal Units Will Limit Cleanup Flexibility, but Environmental Groups Believe the Changes Better Ensure That Cleanups Remain Safe**

RCRA generally prohibits the storage of hazardous waste, except to accumulate sufficient quantities to make treatment or disposal cost-effective. However, using an existing portion of a site, such as an old landfill, to store or dispose of remediation waste, especially over the long term, could be a very cost-effective alternative, according to EPA, state, and industry representatives. In 1993, EPA issued a rule authorizing the on-site storage and treatment of remediation waste in units tailored to design and operating standards appropriate to a specific site rather than under RCRA's prescriptive land disposal and minimum technology requirements. Therefore, parties could use an area of a facility, such as an old landfill, to manage remediation waste, including storage and disposal.

However, two environmental organizations and a hazardous waste treatment industry association disagreed with this 1993 action. They sued EPA, contending that it did not have the authority to issue a rule that allowed for the disposal of hazardous waste in a manner that was inconsistent with RCRA's land disposal and minimum technology requirements. According to the litigants, the new rule provided too much discretion in managing remediation waste and did not ensure that the on-site storage and disposal would remain intact and safe over the years. Therefore, they argued, some of the remediation waste should be subject to minimum treatment requirements and the units should be subject to minimum design standards. This is especially important, the litigants further stated, because they did not believe EPA and the states had sufficient resources to monitor the continued effectiveness of the potentially high number of units that facilities might request.

In settling the lawsuit in February 2000, EPA agreed to propose amendments to the rule that would impose minimum treatment standards for certain contaminants found in remediation waste intended for on-site storage and disposal, and minimum design standards for the units. EPA officials and representatives for the litigants we contacted believed the proposed rule would provide parties with greater flexibility to better

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manage remediation waste than RCRA's land disposal and minimum technology requirements while also protecting public health and the environment. For example, EPA predicted that as a result of the settlement, parties would typically only have to treat 3 or 4 contaminants at a site rather than about 30, as they would have under the original RCRA requirements, and would not have to treat them as extensively, thereby saving time and money. EPA officials did acknowledge that the proposed rule would provide less flexibility than parties had had under the 1993 rule, in part because the 1993 rule did not specifically require any treatment activities. EPA and the litigants also pointed out that the proposed rule would provide options for parties to seek waivers or exemptions from some of the design and treatment requirements if site-specific conditions and risks warrant it. They acknowledged, however, that the proposed rule would cost parties extra time and money to seek these waivers or exemptions. However, they did not expect the costs or burden to be high enough to discourage parties from requesting approval for new on-site storage and disposal units. EPA anticipated that by settling the lawsuit, it had removed the legal uncertainties that discouraged parties from requesting to use such units and that their use could even increase in the future.

The representatives of industries subject to cleanup disagreed. While they gave EPA credit for soliciting their views during settlement negotiations, they believed the agency gave up a significant amount of the flexibility that would have been provided under the 1993 rule when it negotiated the settlement. They believed the proposed rule would reimpose redundant and unnecessarily costly requirements that will discourage some cleanups. These officials further argued that a 1998 EPA review of the existing units demonstrated that they are protective, proving that the 1993 rule was working and did not warrant changes.<sup>7</sup> Finally, these officials pointed out that because EPA and state regulators had to approve all requests for these units, they could ensure that units built under the 1993 rule would remain effective and safe.

State reaction to the settlement was mixed. Few of the state managers we contacted were familiar with the details of the settlement, but several said they did not expect that it would have a significant effect on their cleanups. These managers believed that their state cleanup programs provided enough flexibility and other options to manage remediation waste and

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<sup>7</sup>CAMU Survey Results Final Report, prepared for EPA by ICF, Incorporated, May 27, 1998.

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proceed with cleanups. On the other hand, officials from the two associations representing state cleanup agencies expressed concerns. They asserted that the resulting proposed rule, if consistent with the terms of the settlement, would provide for more stringent restrictions on cleanups using units than were in the provisions of many state programs. These representatives feared that such a revision could force the state cleanup programs to adopt similar restrictions, thus limiting the efficiency of the programs and discouraging cleanups. Because of these concerns, the associations jointly issued a resolution calling on EPA to work with them to design a more effective alternative and obtain any needed statutory changes to RCRA to implement it. The representatives said that states would, at a minimum, like EPA to include language in the preamble to the new rule to ensure that their cleanups will not be negatively affected. EPA managers drafting the proposed rule said that the preamble to the rule will clarify that the rule only affects the way hazardous cleanup wastes are managed in on-site storage and disposal units.

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### Views Differ on the Need to Initiate Legislation to Further Remove Cleanup Barriers

Because EPA was not as successful as it had originally hoped in achieving the comprehensive regulatory reform of RCRA requirements for the management of remediation waste, the agency does not plan to pursue such broad regulatory changes in the future, according to RCRA program managers. The managers also said the agency is not pursuing any comprehensive statutory changes at this time. Stakeholders had mixed views on trying to achieve further reform through new legislation. Representatives of industries managing remediation waste cleanups and several state cleanup agencies said that two types of legislative change could be helpful:

- amending RCRA, which was designed to control process waste, to clearly exempt remediation waste, or
- amending RCRA to specifically authorize EPA to issue regulations, such as the proposed 1993 CAMU rule, to relax some of the RCRA requirements that stakeholders have found are impediments to cleanups, especially cleanups conducted under state programs.

These groups did not want the Congress to simply codify one of the CAMU rules because they feared that it would be harder to change a law rather than a regulation in the future if, for example, better cleanup technologies became available that made the rule somewhat obsolete. The environmental and waste industry association representatives were satisfied with the status of remediation waste management rules and did

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not see a need for legislation. EPA said that it will continue to pursue reforms on a limited scale but did not take a position on the need for legislative changes.

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## EPA's Reforms of the Corrective Action Program Are Promising

EPA's administrative reforms of the correction action program, including new guidance on a more flexible cleanup process and related training, have moved more facilities into the cleanup process but may continue to face management challenges. One of EPA's reforms, new 2005 performance goals for the program, has brought focus to the program, but some stakeholders question its impact on cleanups. Beginning in fiscal year 2001, EPA requested more program funds to address the resource shortfalls that have continued to impair cleanup progress.

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## EPA's Corrective Action Guidance and Training Initiatives Could Address Some of the Management Factors Impeding Cleanups

In 1990, EPA announced that it intended to establish a detailed process and substantive rules for conducting cleanup steps under the corrective action program. EPA did not issue these rules. Instead, the agency decided to administratively reform the program as much as it could within its existing statutory authority. For the most part, EPA chose administrative rather than regulatory changes because that route was the least disruptive to the 33 state programs already authorized to carry out the corrective action program. In 1996, EPA proposed a new corrective action initiative designed to make cleanup actions more protective, faster, and more efficient by focusing on achieving results rather than following procedural steps. That is, EPA intended to hold facilities accountable for achieving cleanup results but to give them flexibility in determining the best ways to achieve these results. For example, under the initiative, EPA or state cleanup managers could consider whether the site would be used for residential or industrial purposes in the future when deciding on the cleanup actions to conduct. In general, cleanups having to meet standards for residential use are more stringent, and therefore more costly, than those for industrial use. The initiative also urged parties and states to pursue cleanup actions under other available programs and authorities when possible, such as clean water and state hazardous waste cleanup programs, in order to achieve more results. The provisions under the initiative became the primary guidance for cleanup actions under the program.

Also as part of its administrative reforms, EPA developed, or has plans to develop, among other things, more streamlined processes for authorizing cleanup actions and ways to have more community involvement in cleanup decisions and better information on cleanup progress. To ensure that the

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state and EPA staff overseeing individual cleanups understood the new guidance and reforms and could use them properly, the agency began a series of 3-day workshops in 1999 and is making such training available over the Internet. State and industry cleanup managers found the training very helpful. In our 1997 report, we had recommended that EPA undertake such training.

In addition to the administrative reforms, EPA initiated a regulatory reform for the corrective action program. Prior to the reform, if parties wanted to close down a portion of a facility subject to corrective action, such as an old landfill, they would have to conduct the cleanup under one rule and conduct the closure under a separate and less flexible process. Determining that this was inefficient, EPA issued a rule in 1998 to allow certain facilities to conduct both cleanups and closure activities as part of the same corrective action process. EPA believes that this rule will increase the pace of cleanups by reducing the potential for confusion and inefficiency created by the application of two different regulatory requirements.

Several EPA regions have also initiated reforms. For example, Region V worked with General Motors (GM) to devise a new "model order" that GM can use to get EPA approval on cleanup requirements and activities at the company's facilities throughout the region. GM managers said that, as a result, they could get a cleanup plan approved within several months rather than several years, as was their experience in the past. Similarly, Region III has developed a letter of commitment that it signs with a facility to conduct a cleanup in lieu of the more rigid permitting process. The letter more simply specifies the amount of cleanup to be achieved, the proposed schedule, and plans for public participation in the cleanup decisions. Regional cleanup managers said that using the letter provides for faster action at a site and less money spent on process steps, such as sequentially submitting, reviewing, and approving numerous documents. Region VI is working on a number of innovations that would allow parties to better consider site-specific risks when designing a cleanup. Cleanup managers in this region explained that under the draft cleanup guidance the region has proposed, it would be easier for facilities to assume that their properties will continue to be used for industrial rather than residential purposes in the future and consider more realistic, less extensive, but protective cleanup measures. EPA program managers in headquarters have continued to work with the region on the guidance and believe it has potential. EPA noted another initiative in Region IX: If a party conducts a cleanup under a state program that is analogous to the corrective action program, the

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region recognizes the state cleanup as fulfilling the requirements of the federal corrective action program.

In general, the stakeholders we contacted gave EPA credit for the significant investment it made in the administrative reforms and training and believed that, overall, the agency is committed to the reforms. Cleanup managers in the regions also hoped that by using the reforms, they can cut cleanup times. For example, a cleanup manager in Region V estimated that managers could cut the time needed for a final cleanup from an average of 12 years to about 6 years. However, given their experience to date, industry representatives in general were less optimistic about how quickly some EPA regional and state cleanup managers directly responsible for overseeing cleanup at a specific site will adopt the flexibility provided by the administrative reforms. EPA program managers acknowledged this concern. They stated that it will take time to change the prior cleanup culture and that they have used the workshops to begin this change. EPA noted that in response to our 1997 recommendation to monitor the use of more flexible cleanup approaches, the agency has used meetings with regions, states, and industry representatives to identify problems or obstacles to implementation and monitor progress and will continue to do so. While the managers said they did not have the resources to continue to provide the workshops, they planned to conduct some limited follow-up work to assess the training's impact on promoting the reforms. The managers also reported that private sector groups have agreed to sponsor additional training sessions because of their value and success.

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### **EPA's Performance Goals Have Brought Focus to the Program, but Some Stakeholders Question the Extent of Their Impact**

As part of the administrative reforms to the corrective action program, EPA emphasized attaining by 2005 two performance goals set for the program—to control both (1) human exposure to contamination at 95 percent of high priority facilities and (2) the migration of contaminated groundwater at 70 percent of these facilities. EPA stated that it had decided as early as 1990 to use its limited resources to first focus on stabilizing contamination at facilities and recognized it could not also afford to concurrently focus on pushing for final cleanups. EPA subsequently set these two goals in response to the Results Act and considers this action a part of its administrative reforms because it gave the program a new focus. According to RCRA managers, the agency considers achieving these goals to be more important at this point than diverting resources to implement final cleanup actions. With these goals, EPA is not just counting the number of activities completed, such as facility investigations under way, but is also measuring to some extent the impact of these activities on protecting public health. In



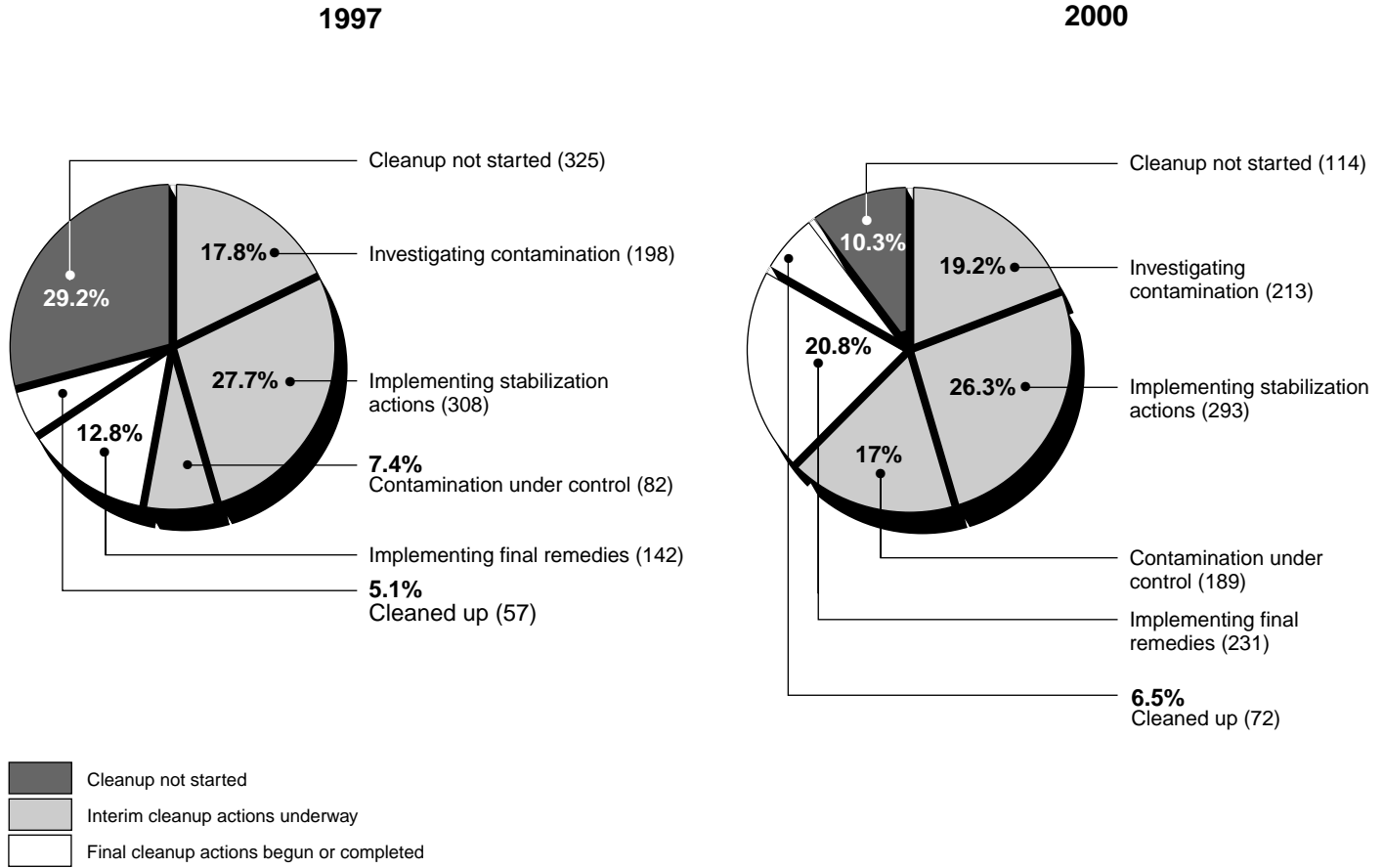
addition, the stakeholders we contacted agreed the goals have brought a consistent focus to the program and have caused regions, states, and industry to at least begin assessing facilities that had not undertaken even the initial cleanup steps.

As figure 2 shows, the goals may be having an effect on the program. In February 2000, in contrast to April 1997, more nonfederal facilities were in the initial cleanup step of investigating the contamination present, were taking interim steps to stabilize contamination, or had already met the 2005 goals of controlling contamination.<sup>8</sup> The number of facilities implementing final cleanup actions increased from 142 to 231, a rate of about 30 facilities per year. EPA program managers pointed out that the goals were not designed to focus on implementing final cleanups, only controlling contamination.

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<sup>8</sup>In 1997, EPA had 1,304 nonfederal, high-priority facilities in its workload; and in 2000, it had 1,309 such facilities. We compared the list of individual facilities in these two groups and determined that 1,112 facilities were on both lists and conducted our analyses on this subset. The two lists differed primarily because EPA updated the corrective action information system and made adjustments for sites whose priority levels were inaccurate. We do note, however, that using 1,112 as our analytical baseline did not limit our results. The percentage of sites in each step of the cleanup process did not differ significantly whether we used 1,112 or the total fiscal year 2000 workload as our baseline.

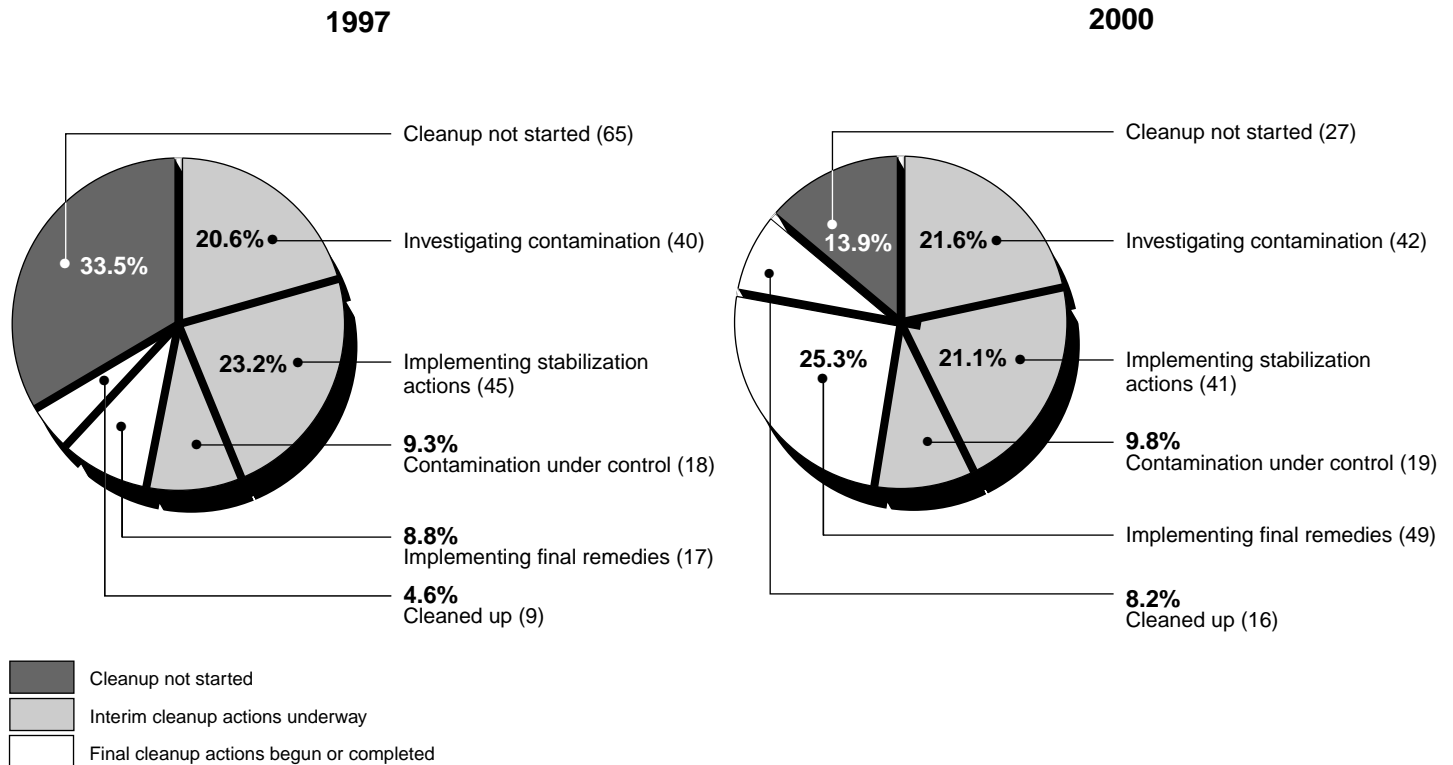
Figure 2: Status of Nonfederal, High-Priority Facilities in the Corrective Action Process by Cleanup Step, 1997 and 2000.



Source: EPA data as of April 7, 1997, and February 16, 2000.

As figure 3 shows, federal facilities subject to corrective action had made more progress than the nonfederal facilities. For example, about 16 percent more federal facilities were implementing final cleanup remedies in February 2000 than in April 1997.

Figure 3: Status of Federal, High-Priority Facilities in the Corrective Action Process by Cleanup Step, 1997 and 2000.



Source: EPA data as of April 7, 1997, and February 16, 2000.

A number of stakeholders observed that the goals have been successful in pushing EPA and states to begin investigating more sites and ensuring that contamination has been controlled. However, they also believed that the emphasis on meeting the goals to date may have been more of a paperwork exercise to document that the facilities are meeting the goals rather than an effort to bring about additional cleanup actions. For example, the industry representatives said that they would not jeopardize public health and would have already controlled any human exposure to contamination prior to EPA's establishing its goals. Therefore their facilities will easily meet the 2005 goal for controlling human exposure without the need for additional work. Several state managers questioned the usefulness of the goals in achieving cleanup progress and also considered them to be more of a paperwork exercise for the agency. In 1997, we reported that parties tended not to initiate final cleanup actions unless they had an economic incentive

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to do so. Therefore, by focusing only on controlling contamination and not on implementing final cleanup actions, cleanups could continue to be postponed well into the future. At the current rate of 30 facilities implementing final cleanups per year, it will take about 27 years for the remaining 809 facilities that we analyzed to at least begin to implement final cleanups, and years more before they are completed. EPA managers predicted that for some facilities, these interim actions to control contamination may be sufficient and the facility may not need to pursue any additional final cleanup actions. Expediently identifying and removing these facilities from the corrective action program helps to minimize federal expenditures and encourages the productive reuse of the property.

EPA program managers stated that documenting whether a facility had controlled contamination, not just relying on industry assertions of this, was necessary to ensure that a facility had taken adequate actions. The managers acknowledged that some facilities had already controlled contamination, but they said a number of facilities still needed to take some measures to control it. These actions could include, for example, installing a fence and using security personnel to restrict access to the site. The managers also predicted that as the agency approaches 2005, it may become more of a challenge to meet the goals because the remaining facilities that had not yet controlled contamination will be the larger, more complex, and, therefore, more difficult sites.

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### EPA Is Just Beginning to Address Its RCRA Funding Shortfall

In 1997, we reported that a lack of resources for the corrective action program was a major barrier to cleanups. Subsequently, in September 1999, we identified insufficient funding for the corrective action program as a material weakness for EPA. In fiscal year 1997, EPA requested about \$45 million for the program. Over the next 3 years, the agency actually decreased the amount of funds it requested, from about \$42 million in fiscal year 1998 to about \$39 million in fiscal year 2000. Also in fiscal year 1999, the agency took about \$10 million from the program, in part to help pay for unanticipated projects that the Congress had authorized that year. The following year, the Congress restricted EPA from using fiscal year 2000 corrective action funds for these unanticipated projects. Finally, in fiscal year 2001, the agency increased its budget request for the program to \$50 million.

Similarly, states reported that they did not have sufficient funding to implement the corrective action program. EPA provides those states

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authorized to implement the program with grants to help pay for this activity. However, the states had not received an increase in funding for several years but had to pay increasing salary and labor costs. States reported that each of their cleanup managers already had too many facilities to manage, but EPA was asking states to increase their activities in order to achieve the 2005 goals. The agency requested \$8 million more for states for fiscal year 2001. The program managers said that the agency requested the \$50 million increase specifically so that it could achieve, at a minimum, its annual goals for controlling contamination. The managers said even this increase, however, will not provide them the resources they would need to try to concurrently focus on increasing the number of facilities that have selected and are implementing their final cleanup actions. Also, EPA expects that as it approaches 2005 it will be harder to achieve the goals because the facilities that had not yet controlled contamination will be the larger and more complex facilities and the program will continue to need more resources.

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## Conclusions

EPA actions have helped to remove some of the cleanup barriers posed by the RCRA remediation waste requirements that we reported in 1997. However, these actions' collective effects on cleanups are uncertain. State and industry cleanup program officials expect that the revised regulations governing the management of remediation waste will not have as significant an effect on cleanups as possible and that EPA's settlement of litigation concerning the use of on-site storage and disposal units for remediation waste will reduce flexibility and thus deter some cleanups. Because EPA does not plan to pursue any future comprehensive regulatory or statutory reforms, agency, industry, state, and environmental managers we contacted did not expect more comprehensive reforms unless the Congress legislates them. Stakeholders did not agree on the need for, or content of, legislative reforms.

EPA actions to encourage more corrective action cleanups have achieved some progress, but three management factors may continue to hamper this progress. These factors include individual cleanup managers' reluctance to adopt the more flexible approaches that EPA has provided through its administrative reforms; a focus on achieving EPA's 2005 goals without a similar focus on implementing final cleanup actions; and continuing resource shortfalls. EPA's continued actions to address our prior recommendation that it monitor cleanup managers' implementation of the reforms and provide training may help to address the first factor. The agency's fiscal year 2001 budget request also represents an effort to address

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the resource shortfalls that were impeding cleanup progress, although the amount of increase may not be enough to allow the agency to accomplish more final cleanups, especially in the longer term.

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## Recommendations

To achieve more cleanup progress in the corrective action program, we recommend that the Administrator of EPA direct the Assistant Administrator for Solid Waste and Emergency Response to (1) establish long-term and annual goals that delineate the number or portion of facilities that are implementing final cleanup actions and (2) identify the additional funding the program would need to achieve these goals and consider these needs during annual budget deliberations.

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## Agency Comments

We provided a draft copy of this report to EPA for its review and comment. EPA appreciated the recognition we gave the agency for its efforts to remove cleanup barriers and acknowledged the remaining issues we identified. It also acknowledged that at some point in the future, as more of the facilities achieve the short-term goals, it will need to shift more resources toward achieving final cleanup goals. In general, EPA had two concerns with the report.

First, while the agency agreed that implementing final remedies under the corrective action program is critical, it maintained that in 1990 it had decided to use its limited available resources to focus on controlling contamination at the worst sites. The agency subsequently set GPRA goals to achieve this for most sites by 2005 and designed its administrative reforms to support these goals. EPA further stated that the program did not have sufficient resources to concurrently focus on implementing final cleanup actions. EPA maintained that this is the best strategy for the program and that the focus on controlling contamination has had the indirect effect of encouraging facilities to implement final cleanups. The agency pointed out that between 1997 and 2000, the number of facilities implementing final cleanups increased from 142 to 231, the largest rate of increase in the history of the program. We made changes to the report to more clearly present EPA's position on this issue. The gains equate to about one-quarter of the corrective action facilities progressing into final cleanup. Therefore we continue to encourage the agency to seek additional resources for the program in order to focus more attention on moving the remaining three-quarters of the corrective action facilities into final cleanup.

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Second, in terms of its regulatory reforms, EPA pointed out that although its remediation waste rule did not achieve as extensive a reform as all stakeholders would have liked, a number of states have adopted the rule, and EPA expects many more to do so in the near future. In addition, EPA pointed to other regulatory changes it made that the agency believes are important reforms. We have added this information to the report, where appropriate. In addition to these overall comments, EPA provided technical and clarifying comments, which we incorporated into the report as appropriate. EPA's comments are included as appendix II.

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Unless you announce its contents earlier, we plan no further distribution of this report until 10 days after the date of this letter. At that time, we will send copies of the report to appropriate congressional committees and interested Members of Congress. We will also send copies of this report to the Honorable Carol M. Browner, Administrator, EPA; and the Honorable Jacob J. Lew, Director, Office of Management and Budget. In addition, we will make copies available to others on request.

We conducted this review from March through July 2000 in accordance with generally accepted government auditing standards. Key contributors to this report were Rich Johnson, Karen Kemper, Eileen Larence, and Karla Springer. Please contact me at (202) 512-6111 if you or your staff have any questions about this report.

*David G. Wood*

David G. Wood  
Associate Director, Environmental Protection  
Issues

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# Objectives, Scope, and Methodology

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Our overall objectives were to identify and assess the extent to which initiatives the Environmental Protection Agency (EPA) implemented since our 1997 reviews of issues regarding remediation waste management and the corrective action cleanup program have (1) improved the management of such wastes and (2) helped cleanups to progress. We reviewed applicable statutory excerpts and proposals, regulations, policies, and other documents related to these issues. We also interviewed representatives from EPA and all major stakeholder groups that have been actively involved in negotiating new policy and regulatory initiatives for remediation waste and corrective action issues, implementing the RCRA rules and corrective action program, and overseeing cleanups. These groups include the following:

## The Environmental Protection Agency (EPA)

- Managers within the Office of Solid Waste and Emergency Response and the Superfund cleanup program.
- Cleanup managers in Regions III, V, and VI.

## State Environmental Agencies

- Policy directors from the Association of State and Territorial Solid Waste Management Officials and the Environmental Council of States, and officials from associations representing state cleanup managers.
- Managers in eight states responsible for overseeing cleanups under the corrective action program or their own state cleanup programs. We selected five of the states—California, Illinois, New Jersey, New York, Pennsylvania—because they collectively generate about 35 percent of the nation’s contaminated media. The remaining three states—Texas, Washington, and Wisconsin—were selected for geographic diversity. All states, except Wisconsin, were also included in our 1997 review.

## Industry Groups

- Attorneys and cleanup managers representing major corporations who are members of three national associations representing industries involved in conducting cleanups. The three associations were the RCRA Corrective Action Project, the Technical Group, and the Risk-Based Corrective Action Leadership Council.
- Executive officers of the Environmental Technology Council, which represents private waste companies.



Environmental Groups

- A principal attorney from Environmental Defense, a nonprofit environmental advocacy organization.
- The former and current principal attorneys from the Natural Resources Defense Council.

To assess the impacts of EPA's initiatives to accelerate corrective action cleanups, we first determined the cleanup status of each of the facilities EPA considers to be among the most in need of cleanup—high-priority facilities. We collected and analyzed information from EPA's national program management and inventory system of hazardous waste handlers, the Resource Conservation and Recovery Information System (RCRIS). RCRIS captures identification and location data on facilities that treat, store, and dispose of hazardous materials, as well as information on cleanup activities. We compared the current cleanup status of these facilities with their status as of our 1997 report. However, since our report, EPA went through a major effort to improve the quality of the data in RCRIS and to comply with requirements to measure performance under the Results Act. As a result of this data cleanup activity, the universe of high-priority sites changed modestly between 1997 and 2000. Consequently, we limited our comparison of cleanup progress to those facilities that were in both sets of data. However, we also determined the cleanup progress of all facilities in EPA's universe of high-priority facilities for 2000 and determined that the results—the percentage of facilities in each phase of the cleanup process—did not change because of the additional sites.

We did not independently verify the overall accuracy of the data in the RCRIS database. However, for our 1997 report, we had determined that the RCRIS data elements we were using for our analysis had small error rates and concluded that the data were suitable for the aggregate analyses we presented in our report. Because of EPA's recent efforts to update RCRIS, we expect that the data we used for our fiscal year 2000 analysis are more accurate.

To determine facilities' cleanup progress, we categorized the facilities using event codes in RCRIS. Table 1 shows the cleanup categories and the event codes included in each category.

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**Appendix I  
Objectives, Scope, and Methodology**

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**Table 1: Cleanup Categories and Event Codes Used**

<b>Category</b>	<b>Event codes</b>
Cleaned up	CA999
Implementing final remedies	CA550, CA500, CA450, or CA400 but not CA999
Contamination under control	CA725 or CA750, but not any of the codes above
Implementing stabilization	CA650 or CA600 but not any of the codes above
Investigating contamination	CA200 or CA100 but not any of the codes above
Cleanup not started	Any remaining facilities without dates in any of the codes above

We conducted our review from March through July 2000 in accordance with generally accepted government auditing standards.

# Comments From the Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE

JUL 31 2007

Peter F. Guerrero, Director  
Environmental Protection Issues  
United States General Accounting Office  
Washington, D.C. 20548

Dear Mr. Guerrero:

The purpose of this letter is to convey the enclosed comments on the draft General Accounting Office (GAO) report titled, Hazardous Waste: EPA Has Removed Some Barriers to Cleanups (GAO/RCED-00-224). These comments reflect a coordinated review by both the Office of Solid Waste and Emergency Response (OSWER) and the Office of Enforcement and Compliance Assurance (OECA).

In general, we appreciate GAO's efforts in developing this report and in recognizing the significant efforts we've made over the past several years to remove barriers to cleanups. We also acknowledge the issues you raised, and that the program still has a lot of work to do. Our comments address areas where our views differ from yours, or provide suggested changes we believe will improve the accuracy and clarity of the report. Our most significant comments are summarized below.

First, we recognize that the pace of "final" remedies is a major focus of your study, but we believe you have put too little emphasis on EPA's deliberate strategy (previously endorsed by GAO) of addressing the worst sites first and bringing them under control as rapidly as possible. Thus, you tend to judge our reforms solely on the basis of whether they will improve the pace of final cleanups, although in many cases that wasn't their purpose.

We clearly agree that final remedies remain the ultimate goal for corrective action. However, in the past 10 years we've focused our resources on "stabilizing" a large number of high-priority facilities rather than striving toward final remedies at fewer facilities. This strategy is consistent with the recommendations from the 1990 RCRA Implementation Study and has been the major emphasis of key program guidance since then. In its 1993 report (GAO/RCED-93-15), GAO recognized our efforts to stabilize facilities; GAO's focus in that report was that

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**Appendix II  
Comments From the Environmental  
Protection Agency**

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we develop a means to capture data to assess when a facility has been stabilized. We believe our focus on achieving and tracking our two environmental indicators is consistent with this prior GAO recommendation.

As you know, we are using our two environmental indicators as measures for the Government Performance and Results Act (GPRA). Congress recognized the importance of our indicators in their recommendation that the Superfund program adopt similar performance measures. Achieving those indicators at our GPRA baseline high-priority facilities is also the primary objective of the RCRA Cleanup Reforms we've been implementing. We believe using these two indicators as meaningful, measurable and achievable objectives is the single most important factor in pushing us to a results-based program. Industry representatives have frequently recognized the positive aspects of the reforms, for example, stating that they have "set the right direction" for the corrective action program.

Second, we believe that our reforms - particularly in our general emphasis on result-based approaches - have in fact had an important effect on the pace of final cleanups. We believe the data in GAO's report show this. For example, Figure 2 in your report shows that, in 1997, approximately 18% of high-priority facilities either had been cleaned up or had final remedies underway. In 2000, the figure was over 27%. In other words, the pace of final cleanups has increased by approximately 50%. We also note that we have made important progress in seeing that work gets underway at all the high-priority sites. According to Figure 2, sites with no activity going on have diminished from approximately 30% to 10%. We agree that EPA and states need to push forward aggressively, but we think GAO's own figures are evidence of significant progress with respect to final remedies. This is important because, while the reforms are clearly focused on achieving the interim GPRA goals, we believe our combined efforts are creating a culture that is also improving the pace of final cleanups.

Third, we are pleased that GAO recognizes that EPA has completed the major steps identified in your 1997 report to reduce barriers to cleanups, including a major piece of guidance and several rulemakings. We recognize, as GAO points out, that the HWIR-media rule has not met the hopes of all stakeholders, and that many states have expressed skepticism about its usefulness. We do note, however, that already 16 states have adopted the rule under their own regulations, and many more expect to adopt it shortly. Also, key industry groups have repeatedly encouraged states to adopt this and other rules. Finally, we believe our new soil treatment standards, the new land disposal restriction variances specific to remediation, and the post-closure rule (particularly where it integrates closure and corrective action) are important elements of our regulatory reforms. No account of our attempts to reduce regulatory barriers over the last three years is complete without addressing these rulemakings.

Finally, we are pleased that GAO acknowledges and supports our efforts to receive increased funding for FY2001. In response to the report's specific recommendation that we identify new goals and funding needs associated with final remedies, we believe the public is still best served by our current strategy to focus resources on bringing our high-priority facilities under control. However, we again acknowledge that final remedies are critical and remain the

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**Appendix II  
Comments From the Environmental  
Protection Agency**

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ultimate corrective action goal, and we recognize the need to develop final measures and goals. For the near term, the best strategy is to focus on our current GPRA goals. As part of the budget process, we will also be reviewing our resource needs to further increase the overall pace of cleanups.

Once again, thank you very much for the opportunity to provide comments on the draft report. We look forward to discussing these issues with you at your convenience. Please feel free to contact Robert Hall, of the Office of Solid Waste (OSW) at 703/308-8432, or Carrie Hawkins, OSWER audit liaison at 202/260-0137 if you have any questions regarding this letter.

Sincerely,



Timothy Fields, Jr.  
Assistant Administrator  
Office of Solid Waste and Emergency Response

Enclosure

cc: Elizabeth A. Cotsworth, OSW  
Matthew Hale, OSW  
Susan Bromm, OSRE  
Steven Heare, OSW  
Carrie Hawkins, OSWER

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