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SUPERFUND

Cleanups Nearing Completion,  
Future Challenges, and  
Possible Cleanup Approaches

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Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss the Environmental Protection Agency's (EPA) accomplishments to date in cleaning up hazardous waste sites in the Superfund program's first decade, some of the challenges that EPA faces in cleaning up the hundreds of remaining sites, and possible approaches to site cleanup. With the Superfund law scheduled for reauthorization in 1994, questions have arisen about Superfund's progress since the program's inception in 1980. Under Superfund, EPA has placed nearly 1,300 sites with the most serious problems on the National Priorities List (NPL) and expects this list to grow annually by about 100 sites. As of the end of fiscal year 1992, EPA had completed cleanup work and removed from the NPL 40 sites that it believes have been cleaned to a level protective of human health and the environment; conducted 3,244 emergency removals at NPL and non-NPL sites; completed construction of cleanup remedies at 109 NPL sites; and begun conducting cleanup work at an additional 374 NPL sites. Following criticisms of apparently slow progress in cleaning up sites, EPA set new goals in 1991 for significantly increasing the number of sites where substantial cleanup work would be completed.

Our testimony today is based on our review of completed Superfund cleanups for this Subcommittee and the resulting report to be released at today's hearing.<sup>1</sup> Our report summarizes the type and extent of cleanup work at Superfund sites either deleted from the NPL or where construction of cleanup remedies is complete. Our report also discusses the challenges EPA will face in managing and monitoring sites where contamination has been left in place. For this hearing, we will also discuss some possible approaches for determining protectiveness and setting cleanup standards at Superfund sites.

In summary, as of September 30, 1992, significant amounts of hazardous wastes had been removed or controlled at the 149 sites EPA deleted from the NPL or reported as construction-complete--that is, where construction of the cleanup remedy was finished.<sup>2</sup> We found that EPA used remedial and emergency removal actions to address immediate contamination risks and control long-term threats to human health and the environment from surface and groundwater contamination. However, in reporting its cleanup accomplishments, EPA has not differentiated between sites that already protect human health and the environment and those that require ongoing activities to reach their cleanup objectives. Of the 149 sites, 29

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<sup>1</sup>Superfund: Cleanups Nearing Completion Indicate Future Challenges (GAO/RCED-93-188, Sept. 1, 1993).

<sup>2</sup>Subsequent to the completion of our audit work, EPA reported on August 19, 1993, that an additional 28 sites have been reported as construction-complete or deleted from the NPL.

may require years of groundwater treatment to achieve their cleanup objectives. Furthermore, EPA reported as construction-complete or deleted 23 sites at which no removal or remedial actions were necessary. As a result, EPA may have overstated its cleanup accomplishments.

Additionally, significant federal, state, and responsible party resources will still be needed to address contamination problems at remaining Superfund sites and to achieve and sustain cleanup standards at construction-complete and deleted sites. Sites that have not yet reached the construction-complete stage will likely be more costly to clean up because they are more complex and because waste treatment rather than containment remedies will be used more frequently, and treatment remedies are more expensive. At almost half of the construction-complete and deleted sites, EPA, states, and responsible parties are also incurring significant oversight, operation, and maintenance costs to ensure that cleanup remedies remain effective. The ability of states and responsible parties to maintain and operate these sites will determine whether these remedies continue to protect public health and the environment. A 1991 EPA study shows that the states will incur \$1 billion in operation and maintenance costs over the next 7 years, and officials in five states question whether they will be able to meet these obligations.<sup>3</sup> States and EPA will need to plan for these increasing costs.

Over the next decades, EPA will face enormous challenges, resource demands, and questions about the best approach to cleaning up the hundreds of remaining sites. One central issue is how EPA defines protection of human health and the environment at sites and how it sets site cleanup standards. This issue arises in part because EPA wants Superfund to be both a national program that is scientifically valid, consistent, and defensible and also a program that is responsive to the needs and realities of site-specific conditions. As requested, we will discuss briefly today some possible approaches for responding to this dilemma.

Before we begin a more detailed discussion of our findings, let us provide you with some background information on how Superfund sites move through EPA's cleanup process.

#### BACKGROUND

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund) allows EPA to evaluate hazardous waste sites and place the worst on the NPL. Superfund

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<sup>3</sup>Record of Decision Operation and Maintenance Cost Analysis, U.S. Environmental Protection Agency (Washington, D.C.: June 1991). These figures were based on estimates of future cleanup costs that are subject to variability.

also established a \$1.6 billion fund for cleaning up these priority sites and required that parties responsible for these sites help conduct or pay for cleanup. In 1986, the Superfund Amendments and Reauthorization Act (SARA) set new requirements and ambitious targets for initiating cleanups and added \$8.5 billion to the trust fund. In 1990, the Congress reauthorized CERCLA through 1994 and added \$5.1 billion to the trust fund, bringing its total authorizations to \$15.2 billion, without making any substantive changes to the program. States are responsible for cleaning up hazardous sites that are not on the NPL and helping finance some cleanup costs at sites on the NPL. However, CERCLA did not define cleanup levels or preferred remedies when it was enacted in 1980.

Once a site is included on the NPL, EPA conducts or oversees a study to identify wastes and evaluate possible remedies. Next, EPA selects a cleanup remedy appropriate for the site's waste and develops a plan outlining cleanup activities and goals for reducing contaminants. Remedies for different waste problems may include treating or destroying contaminated waste material, disposing of contaminated waste at an off-site landfill, treating contaminated groundwater, or containing waste at the site by covering it with an impermeable cap. In reauthorizing the Superfund program in 1986, the Congress encouraged EPA to select remedies that treat waste to reduce its toxicity, mobility, or volume whenever practicable.

Once the remedy has been selected, EPA or the responsible parties construct it. Under Superfund, EPA oversees cleanups and can delete sites from the NPL when all work is complete, cleanup standards are reached. If contamination remains after deletion, EPA must conduct at least one review 5 years after the cleanup began to ensure that the remedy still protects human health and the environment. States and responsible parties operate, maintain, and monitor the completed site. EPA may use its emergency removal program at any time during the cleanup process if it determines that immediate action is needed to protect human health and the environment.

In response to criticism that the cleanup process proceeds too slowly, in 1991 EPA began to emphasize completing cleanup at NPL sites. EPA created a new "construction-complete" category to more accurately report those sites where all cleanup construction is completed. Sites in this category cannot yet be deleted from the NPL because they may require long-term efforts, like groundwater treatment, to reduce contaminants to a level EPA has determined will protect human health and the environment. Or they may need to meet other requirements, such as state concurrence. EPA set a goal of 130 construction-complete and deleted sites by the end of fiscal year 1992. By September 30, 1992, EPA had deleted 40 sites from the NPL and completed construction at 109 sites, for a total of 149 sites, and the information we are reporting today is based on those 149 sites. As of August 19, 1993, EPA reported 126 construction-complete and 51 deleted sites.

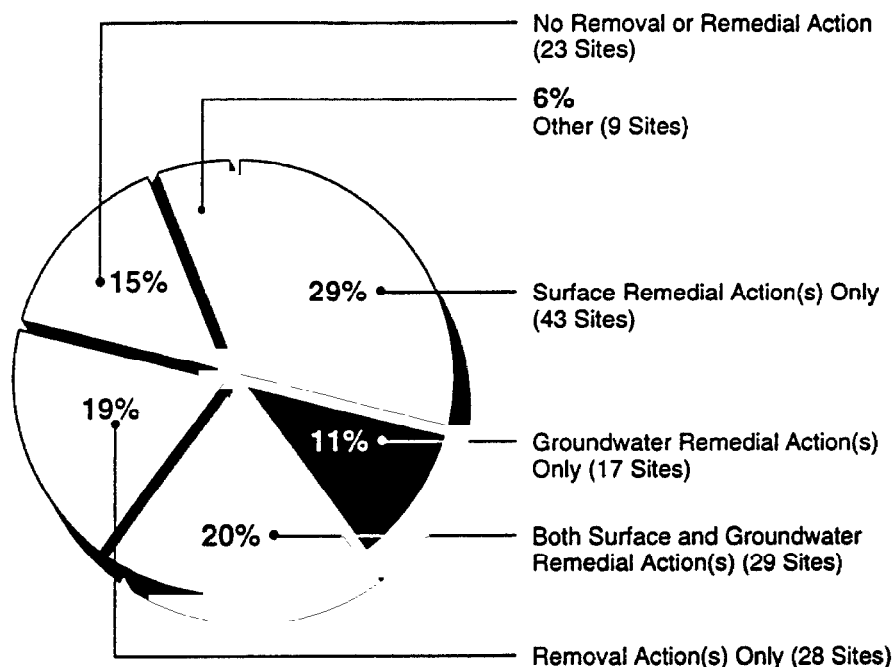
We would like now to describe EPA's progress in completing remedy construction at sites and deleting them from the NPL.

SIGNIFICANT AMOUNTS OF WASTE HAVE  
BEEN REMOVED OR CONTROLLED

At 117 of the 149 construction-complete and deleted sites EPA had reported as of September 30, 1992, EPA and responsible parties used either remedial actions or removal actions to reduce or control surface and groundwater contamination. To address surface contamination--including contaminated site structures, hazardous waste containers buried below or lying on the surface, and soil contaminated with hazardous chemicals--EPA used off-site disposal, on-site containment, and on-site treatment technologies. Treatments used included solidifying the waste to immobilize it and applying a vacuum system to remove contaminated waste from the soil. EPA generally decided to address groundwater contamination by extracting the contaminated water and then treating it, or through measures to control its movement, such as installing an underground barrier. In addition, EPA's removal program for immediate site action was instrumental in cleaning up wastes. In all, EPA took 125 separate removal actions at over half of the 149 sites, and the removals adequately addressed risks and cleaned 28 of these sites.

At 23 of the 149 sites, EPA took no removal or remedial action because further studies showed that these sites posed no threat to human health and the environment. For example, the Morris Arsenic Dump site in Morris, Minnesota, was reported as a dumping ground for arsenic-bearing pesticides in the 1940s and listed on the NPL in 1983 because some groundwater samples showed elevated arsenic levels. After later studies found no arsenic above normal levels in soil or groundwater samples, EPA deleted the site from the NPL in 1986.

**Figure 1: Types of Remedies Used at Construction-Complete and Deleted Sites**



Note: Based on 149 construction-complete or deleted sites. "Other" includes efforts to reduce waste exposure without physical construction. Examples include relocating residents or controlling land use.

Source: GAO's analysis of EPA's data.

Although EPA has significantly increased the number of construction-complete and deleted sites, it could do a better job of reporting the extent of cleanup work performed. In reporting cleanup completions, EPA has not differentiated between sites that already protect human health and the environment and those that require ongoing treatment to reach their cleanup objectives. We believe that by reporting all construction-complete and deleted sites as a single number, EPA is not making important distinctions about the cleanup accomplishments achieved. For example, 23 of the

149 sites needed no cleanup actions of any kind, but were still included on a recent completion list.

Since the types of cleanups and measures of protection vary from site to site, EPA's method for classifying and reporting site cleanup status should avoid the implication that all sites are equally protective of human health and the environment. The Congress and the public would be better informed of the true status of these sites if the classification system fully reflected the extent to which cleanup objectives have been achieved. To improve the information that EPA provides to the Congress and the public, our report recommends that the EPA Administrator modify the classification of construction-complete and deleted sites. The classification should identify sites according to whether they have achieved the objectives of protecting human health and the environment and have been deleted or are awaiting deletion, required no removal or remedial action, or will require long-term effort to achieve their cleanup objectives.

#### SIGNIFICANT RESOURCES WILL BE REQUIRED FOR CLEANUP ACTIVITIES

Hazardous waste sites still in the Superfund pipeline will likely be more difficult and costly to clean up than the 149 sites in our review because remaining sites have relatively more complex contamination problems and EPA has selected treatment more frequently to clean surface waste since 1986. To date, EPA has incurred costs of \$374 million to clean up contamination problems at construction-complete and deleted sites. EPA incurred a median cost of \$2.1 million at those sites among the 149 where it funded all the site work. EPA estimates that cleanup at EPA-funded sites currently listed on the NPL will cost an average of about \$26 million.

EPA, states, and responsible parties will be required to operate, maintain, and monitor sites where untreated waste remains. About 40 percent of construction-complete and deleted sites used containment or groundwater treatment technologies that require continuing vigilance. Groundwater treatments at these and other sites will take an indefinite period, during which ongoing operations and maintenance will be required to ensure continued protectiveness. Furthermore, a recent EPA policy statement recognized the technological barriers to cleaning up sites with groundwater contamination, particularly those with nonaqueous phase liquid contamination or certain geological features.<sup>4</sup> Because of these technological limitations, some of the groundwater treatment

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<sup>4</sup>Nonaqueous phase liquids are generally organic compounds that do not dissolve in water and are difficult to remove with current technologies. If they cannot be removed, their presence may continue to contaminate groundwater.



systems in place may never achieve the remediation goals for the site.

These ongoing cleanups have significant implications for the resources EPA will need for oversight as well. EPA plays a crucial role in ensuring the continued protectiveness of cleanup remedies through evaluation of site monitoring data, periodic inspections, and 5-year reviews. Approximately 35 percent of the 149 sites we reviewed include institutional controls, such as fences or restrictions on land or water use, to control waste left on sites. Such institutional controls imply an indefinite enforcement period to maintain the integrity of a cap or protect the public from contact with contaminated soils. Given the long-term nature of these remedies, EPA is expected to include financial assurance provisions in its legal agreements with responsible parties to help ensure that cleanup protectiveness will not be jeopardized if they become financially insolvent. At the Mowbray Engineering site in Alabama, the draft 5-year review showed that responsible parties had not collected the required groundwater samples, maintained the site fence, or inspected and maintained the cap over the solidified contaminated material, potentially compromising the remedy in place. Since up to 48 percent of the construction-complete or deleted sites will require 5-year reviews, EPA's 5-year review work load is considerable and growing. Through the year 2000, according to EPA officials, more than 700 5-year reviews will be scheduled, at a cost of about \$35 million. Furthermore, the protectiveness of remedies at sites with waste remaining on-site could be jeopardized by other events: 59 sites on the NPL are in flood areas that may potentially be affected by the recent floods in the Midwest.

Some states are concerned about their ability to monitor, operate, and maintain completed sites for which they are responsible. At the Wade site in Chester, Pennsylvania, the state did not have the resources and staff to take required yearly samples from the site wells in accordance with the monitoring plan. This problem may become more severe and widespread as states are called upon to operate and maintain an increasing number of Superfund sites. EPA has conducted several studies to assess the current and future capacities of the states to finance their hazardous waste programs.

The continued efficacy of the program depends on the extent to which EPA, the states, and the responsible parties have the necessary resources to sustain the continuing technical and long-term financial challenges associated with these hazardous waste site cleanups. Given these resource demands, a forecasted decrease in the Superfund operations budget, and the increased complexity of ongoing cleanups, better estimates of EPA's future costs to monitor and inspect sites and the states' future costs to operate and maintain them could aid both EPA and the states. These estimates could be used in determining resource needs and in planning and coordinating actions to meet those needs and commitments in the

long term. To plan for resource requirements at construction-complete and deleted sites, our report recommends that the EPA Administrator conduct additional studies to estimate EPA's long-term costs to monitor and inspect completed sites and the states' costs to operate and maintain them.

#### FOUR APPROACHES HAVE BEEN PROPOSED FOR DETERMINING PROTECTIVENESS AND SETTING CLEANUP STANDARDS

Over the next decades, EPA will face enormous challenges, resource demands, and questions about the best approach to cleaning up the hundreds of remaining sites. Today, we would like to discuss four possible approaches for determining protectiveness and setting cleanup standards. These approaches, which have been discussed since before Superfund's first reauthorization in 1986, propose to resolve cleanup issues by approaches that are either more standardized nationwide or more specific to individual sites. EPA's own approach reflects a dichotomy between national standardization and more site-specific approaches. Possible cleanup approaches include more standardized ones, such as setting uniform national standards for acceptable residual levels of contaminants at sites or selecting the best available technology. Such standardized approaches have been criticized for not recognizing the impact of site-specific conditions, such as soil type and hydrogeology, on protectiveness. More site-specific cleanup approaches, such as risk assessment, have been criticized for resulting in inconsistent cleanups and levels of protectiveness. In addition to briefly discussing four possible approaches to determining protectiveness and setting cleanup standards, we would like to mention several new approaches to cleanup that EPA is currently developing and how they relate to the other four approaches. Before discussing the four approaches, we would like to provide a sense of the broader context in which these and other cleanup approaches are being considered.

#### Superfund Cleanup Approaches

Although many involved in the Superfund process agree on the importance of protecting human health and the environment, no consensus exists as to how much site cleanup is appropriate. As was the case when we discussed this issue in 1985 in preparation for Superfund's first reauthorization,<sup>5</sup> opinions range from the belief that all sites should be completely cleaned to pristine conditions to the belief that cleanup decisions should be made on a site-by-site basis. Since EPA projects that an average Superfund cleanup will cost about \$26 million, cost has also emerged as a factor that may affect remedy selection regardless of whether the money comes from EPA program resources, responsible parties, or

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<sup>5</sup>Cleaning Up Hazardous Wastes: An Overview of Superfund Reauthorization Issues (GAO/RCED-85-69, Mar. 29, 1985).

states that must fund long-term operations and maintenance in some cases. EPA also still confronts a significant problem that has existed since the program's inception--how to determine protectiveness and set cleanup standards in the face of insufficient information on exposures to and health effects of many contaminants.

The absence of cleanup standards in Superfund's original authorizing legislation left the determination of protectiveness open to controversy and confusion that have not been entirely resolved by EPA's current approach to setting cleanup standards. While other federal environmental legislation during the 1970s had sought to establish national standards for particular media (air, water, etc.), hazardous waste sites present EPA with complex cleanup problems because of the variety of chemicals found in different media. EPA chose not to develop separate cleanup standards for sites on the NPL. Instead, EPA's approach to protectiveness uses a combination of standards from other federal and sometimes state environmental programs and risk assessment to set cleanup standards on a site-by-site basis. In 1985 EPA began using standards for contaminants from other environmental laws when these standards are considered "applicable" or "relevant and appropriate" requirements (ARAR). The ARARs on which EPA relies for cleanup standards cover only some of the hundreds of contaminants found at Superfund sites, and no federal ARARs exist for the cleanup of soil, where much contamination is found. In the absence of ARARs for all contaminants and possible routes of exposure, EPA uses risk assessments to determine the specific risks at a site and to set appropriate cleanup levels. The Risk Assessment Guidance for Superfund (RAGS) describes EPA's current process for setting cleanup levels on the basis of information on health effects and risk assessments. Use of risk assessment has contributed to variability in cleanup goals and remedies.

This variability in cleanup goals and remedies selected for Superfund sites has led to charges of inconsistent protection of human health and the environment. Our previous work on Superfund has shown that EPA did not always specify cleanup standards in its site cleanup plans. When Superfund cleanup plans did establish numerical cleanup standards, these varied considerably.<sup>6</sup> Several factors have contributed to the variation, including a lack of federal standards for soil cleanup, the use of different assumptions to direct cleanup of the same contaminant, and compliance with different state environmental laws and standards. Variation also results from assumptions about the potential future use of the site for residential or industrial purposes, which can be a key and controversial factor in determining site risk and cleanup levels.

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<sup>6</sup>Superfund: Problems With the Completeness and Consistency of Site Cleanup Plans (GAO/RCED-92-138, May 18, 1992).

In a decade of Superfund cleanups at construction-complete and deleted sites and those where cleanup is still in progress, EPA has dealt with the realities and difficulties presented by a variety of sites and should now be in a better position to develop workable approaches to cleanup. When the Superfund program was authorized in 1980, many hoped it would be a short-term effort that would restore sites to their original condition. EPA's experience has shown that this is not technologically feasible at many Superfund sites. Additionally, there are several other issues to consider. First, defining the original condition of the land before the release of contaminants is often difficult. Second, returning a site to its original condition may not make sense if it is surrounded by other seriously polluted industrial facilities. Finally, achieving such a goal could prove extremely costly.

### Uniform National Cleanup Standards

One approach to resolving the issue of "how clean is clean" is for EPA to set uniform national standards for acceptable residual levels of contaminants at Superfund sites. Such standards could provide differentiated cleanup levels for different levels of land use, such as residential or industrial. Using standards could reduce the time taken to study individual sites and increase consistency. Setting standards could also stimulate the development of a scientific base to quantify the risks posed by hazardous waste sites. The standards could also potentially be useful for many non-Superfund sites under the jurisdiction of other federal or state environmental programs. However, because of the lack of scientific data and criteria for setting standards for the hundreds of contaminants at Superfund sites, developing such standards would require enormous resources and may not be feasible because of site-specific differences in soil characteristics, hydrogeology, and other factors. Furthermore, different site conditions, land uses, and technological feasibilities make the application of a single minimum numerical standard difficult and could lead to varying levels of risk reduction, costs, and cleanup.

EPA is developing a cleanup approach that is somewhat similar to the idea of national cleanup standards, but which would be a tool for screening sites to determine whether they need cleanup instead of for setting final cleanup objectives for sites. EPA's approach is to develop soil screening levels for a variety of chemicals. It believes these levels will be an important tool for identifying contaminant levels below which there is no concern and above which further site-specific evaluation would be warranted. EPA believes that setting soil screening levels will accelerate investigation of soil contamination at sites, streamline risk assessment, and improve consistency in soil cleanups. EPA plans to issue guidance on soil screening levels for about 30 chemicals during fiscal year 1993 and to pilot-test the approach in EPA's 10 regions. The agency plans to establish soil screening levels for another 60 chemicals in the next fiscal year. According to EPA

officials, soil screening levels are not designed to evaluate ecological risks or risks associated with industrial land-use assumptions.

### Best Available Technology

Another standardized approach is to clean up each site by choosing the best available technology to address the site's contamination, as EPA has done for other environmental programs. This approach would result in more consistent remedy selection and recognize that the limits of technology control what site cleanup objectives are established. However, the multiple contaminants and means of exposure to them at most Superfund sites make this approach almost impossible to apply. Furthermore, procuring the best available technology could be costly, and EPA lacks suitable criteria for selecting technologies, especially since the long-term effectiveness of many cleanup remedies remains unproven. Technology-based standards would also favor established technologies and inhibit the development of innovative technologies that could, as we have testified,<sup>7</sup> help foster the development of more cost-effective ways to treat waste. Finally, some highly effective technologies, for example incineration, may not be acceptable to the public and to affected communities.

EPA is employing some aspects of the best-available-technology approach in its plans to develop and promote standardized or suggested remedies for certain common site types. The objective of these remedies, known as presumptive remedies, is to draw on the program's past experience in both investigation and remedy selection to streamline site investigations and the selection of cleanup actions at certain categories of sites. EPA expects this process to improve consistency in remedy selection and reduce the time it takes and cost to clean up similar types of sites. To develop the presumptive remedies, EPA evaluated technologies that have been consistently selected at past sites and reviewed available performance data on these technologies. EPA has drafted guidance identifying presumptive remedies for municipal landfills and volatile organic chemicals in soils and plans to issue this guidance at the end of this fiscal year. It also plans to expand the use of presumptive remedies to other site categories in the next fiscal year. EPA also plans to conduct demonstration projects on these various presumptive remedies during fiscal years 1993 and 1994. This approach draws on aspects of the best-available-

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<sup>7</sup>Our testimonies, Superfund: EPA Needs to Better Focus Cleanup Technology Development (GAO/T-RCED-92-92, Sept. 15, 1992, and GAO/T-RCED-93-34, Apr. 28, 1993), were given before the Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, and the Subcommittee on Investigations and Oversight, Committee on Science, Space, and Technology, respectively.

technology option described above but would allow the flexibility to try other remedies or innovative technologies if they were appropriate for a site.

#### Site-Specific Risk Assessments

One site-specific approach would be to rely on risk assessment as the primary process for estimating site risks and setting site-specific cleanup objectives. This approach, while close to EPA's current approach, would expand the current use of risk assessments to provide a systematic framework for estimating site-specific risks and ensuring that the resources expended maximize risk reduction. This approach would not resolve differences of opinion about the interpretation of scientific data needed for risk assessments, the models and assumptions that should be used, or the uncertainties involved in the process that have contributed to differing views as to whether EPA's risk assessments are too conservative or not conservative enough. Furthermore, expanded use of risk assessment could leave EPA open to the perception that its remedies are inconsistent and not equally protective across sites and EPA regions.

#### Treatment of Immediate Risks and Delay of Full Cleanup

Another approach involves treating the most immediate and significant threats at a site on a site-by-site basis and delaying additional treatment until key standards and technologies are developed. Under this approach, EPA could significantly reduce the most immediate hazards at many sites and direct resources toward research on standards and technologies. While this approach would mitigate immediate risks, it would allow other site problems to remain for extended periods of time in a program already under criticism for the slow pace of cleanup. Nevertheless, this approach would result in containment of waste and control of risks for the extended time needed to research and determine appropriate cleanup standards, and to develop and test appropriate technologies.

EPA's plan to use early cleanup actions to streamline and accelerate cleanups is similar to this approach. In response to recommendations made in EPA's June 1989 review of Superfund management,<sup>8</sup> EPA has developed the Superfund Accelerated Cleanup Model (SACM). EPA is currently developing guidance for SACM and pilot-testing aspects of this approach. SACM would feature early cleanup actions to remove quickly immediate threats to the health and safety of the local population. These cleanups would generally take less than 3 years, at most 5 years, to complete and include

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<sup>8</sup>A Management Review of the Superfund Program (U.S. EPA, June 1989).

activities such as drum removal, building fencing, providing alternate drinking water supply, and surface cleanup associated with remedial actions. SACM calls for eliminating the distinction between removal and remedial actions and consolidating site assessments now performed by various parties at various points in the cleanup process. If the site assessment establishes that a site still needs long-term remediation, the site would be placed on a long-term remediation list and cleaned up over many years. EPA believes that this approach would let the public know that long-term actions will require years to complete but that the contamination poses no immediate threat. Thus, time would be allowed for a more reasoned evaluation of benefits and costs of various cleanup options.

### CONCLUSIONS

In conclusion, Mr. Chairman, in the face of uncertainties about how best to determine protectiveness and about the ultimate efficacy of its cleanup remedies, EPA is continuing to clean up Superfund sites. In cleaning up sites since Superfund's inception a decade ago, EPA has gained important experience and been confronted by the realities of technology limitations, the time needed for cleanup, the high cost of many cleanups, and the absence of simple solutions for resolving the issues of protectiveness and setting cleanup standards. Each of the four approaches discussed today has been available since before Superfund's first reauthorization. Shortcomings of each approach, questions about which approach has the greatest potential for achieving a sufficient level of protectiveness, and the complexity of many sites do not provide EPA with clear-cut solutions for conducting and expediting more consistent Superfund cleanups. EPA has developed proposals for soil screening levels, presumptive remedies, and accelerated cleanups that incorporate some aspects of the four approaches discussed but also retain the flexibility needed to tailor cleanup standards and remedies to site-specific conditions. It is, however, still too early for us to judge the merits of EPA's proposals.

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Mr. Chairman, this concludes our prepared statement. We will be glad to respond to any questions that you or members of the Subcommittee have.

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