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SUPERFUND

Problems With the
Completeness and Consistency
of Site Cleanup Plans

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Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss the results of our work on the comparability of remedies used in the cleanup of Superfund hazardous waste sites by the Environmental Protection Agency (EPA) and by parties responsible for the waste. Potentially responsible parties (PRP) are usually either current or former site owners, waste generators, or waste transporters. The nation faces the challenge of cleaning up thousands of seriously contaminated hazardous waste sites. Recent cost estimates for cleaning up the nation's worst sites range from about \$100 billion to \$300 billion, while federal funding for them is currently limited to \$15.2 billion. The strategy of maximizing cleanup resources by giving EPA enforcement authority to compel PRPs to finance and manage Superfund cleanups has increased concerns about whether PRP cleanups are as stringent and permanent as cleanups EPA conducts and finances when PRPs are not available. EPA's and the Superfund program's credibility in protecting human health and the environment rests in part on cleanup consistency.

Mr. Chairman, my testimony is based on a review completed last month for the Chairman of the Subcommittee on Superfund, Ocean and Water Protection, Senate Committee on Environment and Public Works.¹ This review, which addressed the comparability of

¹Superfund: Problems With the Completeness and Consistency of Site Cleanup Plans (GAO/RCED-92-138, May 18, 1992).

Superfund cleanups managed by EPA and PRPs, was part of ongoing work in preparation for Superfund's upcoming reauthorization. In addition to the issue of cleanup comparability, our report addressed two other important aspects of Superfund cleanup remedy selection: the completeness and consistency of selected cleanup plans and the effectiveness of EPA's Superfund management information systems in monitoring and evaluating cleanups. My statement will touch on each of these three subjects.

In summary, our analysis of cleanup plans for fiscal years 1987 through 1990 showed that cleanups managed by PRPs tend to contain rather than treat waste more frequently than cleanups managed by EPA. For example, 43 percent of cleanup plans at PRP-managed sites selected solely waste containment, compared with 25 percent of EPA-managed sites. By using containment more often, PRP-managed cleanups permanently reduce waste toxicity, volume, or mobility less frequently than do EPA-managed cleanups.

Additionally, case studies of 34 cleanup plans that we conducted detected problems that raise serious questions about the completeness and consistency of cleanup decisions at both EPA- and PRP-managed sites. For example, we reviewed sites where cleanup decisions had been made despite the fact that cleanup goals were not established for hazardous contaminants or were not set for all polluted media, such as soil or groundwater. Other cleanup plans had insufficient justification for selecting a particular cleanup

remedy. Such plans do not meet EPA's program guidance and do not provide adequate assurance that the selected cleanup remedy will provide sufficient long-term protection of human health and the environment. We also found that EPA does not always properly document changes to the remedy made after the cleanup plan is approved, which may mean that the public has no opportunity to comment on the new remedy.

Finally, we found that EPA's efforts to manage the cleanup selection process are hampered by the lack of a centralized data base for Superfund remedies. Without such information, EPA cannot track and assess trends and summary information on approved cleanup plans, limiting its ability to manage the program and to ensure consistency in remedy selection.

EPA has recognized these problems and is acting both at headquarters and in the regions to improve the consistency and completeness of cleanup plans. However, since EPA estimates that some of these efforts may take 3 to 6 years to implement, interim actions to improve the remedy selection and documentation process may be necessary. Moreover, an automated and reliable remedy selection data base would enhance EPA's ability to manage the remedy selection process.

Before I get into a more detailed discussion of our findings, let me provide you with some background information on the

enforcement authority provided under EPA's Superfund program and on recent studies about the consistency of EPA- and PRP-managed cleanups.

BACKGROUND

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund) gave EPA authority and funding to clean up the nation's worst hazardous waste sites. CERCLA also gave EPA enforcement authority to compel PRPs, when available, to study and clean up the sites or reimburse EPA for cleanup costs. In 1986 the Congress passed the Superfund Amendments and Reauthorization Act of 1986 (SARA), which established more rigorous cleanup requirements; stated a preference where practicable for waste treatments that permanently reduce toxicity, mobility, or volume of hazardous waste; and provided additional funding.

Before cleaning up a site, EPA conducts--or negotiates a legal agreement with PRPs to conduct--site studies to identify wastes and evaluate possible cleanup remedies. Based on this site study, the appropriate EPA regional office issues a proposed cleanup plan that summarizes the cleanup remedies and site risks, solicits public comment on the plan, and finalizes the cleanup plan specifying the remedies. EPA has decentralized approval of the cleanup plan to

its regional administrators. EPA--or PRPs under an agreement with EPA--then directs or oversees the cleanup.

Recent studies have reached different conclusions about the consistency of Superfund cleanups by EPA and PRPs. Research reports by the Office of Technology Assessment and environmental advocacy groups voiced concerns about PRP studies and cleanups, alleging that PRPs tend to contain rather than treat waste because containment is less expensive. Furthermore, cleanups using containment may not provide the same level of long-term protection because they do not permanently reduce waste toxicity, mobility, or volume. In contrast, an EPA analysis completed in June 1990 concluded that site studies and cleanups by EPA and PRPs were consistent in selecting waste treatment or containment.

With these different study conclusions in mind, I would like to turn to the results of our analysis of cleanups managed by PRPs and EPA.

PRPS TEND TO USE WASTE TREATMENT LESS OFTEN THAN EPA

Although the legislative preference of the Superfund program is to treat hazardous waste whenever practicable, we found that waste is more likely to be treated, rather than contained, when EPA manages the cleanup site study than when PRPs manage the study at comparable sites. Consequently, EPA cleanups tend to reduce the

volume, toxicity, or mobility of the hazardous waste more than PRP cleanups do.

Our analysis of 317 cleanup plans from fiscal years 1987 to 1990 showed that cleanup plans based on PRP site studies consistently included more waste containment than did plans based on EPA site studies. For example, 63 of 148 (43 percent) cleanups based on PRP studies used only waste containment, in contrast to 43 of 169 (25 percent) cleanups based on EPA studies. Cleanups based on EPA studies used the highest amount of treatment, regardless of who performed the cleanup, indicating that remedy differences stemmed primarily from who managed the site study.

While containment is appropriate for certain types of wastes and site conditions, we also found that at sites with similar contaminants and characteristics, cleanups based on PRP studies tended to contain waste, rather than treat it, more frequently than cleanups based on EPA studies did. For example, 81 percent (25 of 31) of PRP landfill cleanups, as opposed to only 54 percent (14 of 26) of EPA landfill cleanups, used waste containment. At comparable sites where responsible parties contained and EPA treated waste, the PRP cleanups may not have provided the same level of long-term protection as EPA cleanups because containment does not permanently reduce waste toxicity, volume, or mobility.

Since issuing our report, we have performed a preliminary analysis of cleanup plans from fiscal year 1991. Our analysis indicates that fiscal year 1991 plans for PRP cleanups appear to be more comparable to EPA's than in previous years. It would be premature to conclude on the basis of a single year of data that EPA has resolved comparability concerns--particularly since the distribution of sites with contaminants and characteristics that are more or less amenable to treatment can significantly affect the data results. Thus, we believe that EPA needs to continue closely monitoring cleanup plan data to see if this trend persists over time.

CLEANUP PLANS ARE NOT CONSISTENT

The next issue I would like to discuss is the inconsistency and incompleteness of cleanup plans, which makes the long-term effectiveness of some cleanups uncertain. For example, our case studies of selected cleanup plans showed that EPA approved some plans without assurances that reasonable cleanup objectives and a remedy sufficiently protective of human health and the environment had been selected. Despite EPA regulations and guidance, of the 18 cleanup plans selecting treatment that we reviewed, 11 did not establish cleanup goals for major contaminants or did not set cleanup goals for all contaminated media, leaving cleanup objectives unclear.

For example, the cleanup plan for the Koppers-Texarkana site in Texarkana, Texas, did not specify cleanup goals for all contaminants. The site, which was used for wood preserving until 1961, is heavily contaminated with polycyclic aromatic hydrocarbons, pentachlorophenols, and arsenic. Several years after wood-preserving operations ceased, a new owner built 79 single-family homes on the site. In September 1988 EPA approved the cleanup plan for the site, which proposed to treat the soil. However, the plan set no goal for arsenic, which EPA considered a "primary contaminant of concern affecting the soil, groundwater, and sediments." According to EPA, the plan does not set a goal for arsenic because it is a minor risk compared to other contaminants at the site and because the treatment designed to remove these other contaminants would also reduce the levels of arsenic. By not explaining that EPA considered arsenic only a minor threat, the plan appears not to ensure that the cleanup will proceed to a defined level that protects current and future site users.

Cleanup goals set for common hazardous waste components also varied considerably among sites, promoting the appearance of cleanup inconsistency. For example, soil cleanup goals for polycyclic aromatic hydrocarbons, a carcinogen frequently found at hazardous waste sites, varied widely from 0.19 to 700 parts per million across 14 sites.

An example of these variations is the North and South Cavalcade Street sites in Houston, Texas, where cleanup goals varied by a factor of 700 as a result of differing assumptions about how the site will be used in future. Creosote and metallic salts were used to preserve wood at the 66-acre South Cavalcade Street site, while creosote and pentachlorophenols were used for the same purpose at the 21-acre North Cavalcade site across the street. Residential properties are located directly to the west of each site. At North Cavalcade Street, where EPA conducted the cleanup study, EPA approved a carcinogenic polycyclic aromatic hydrocarbon soil cleanup goal of 1 part per million. By contrast, EPA approved a far higher 700 parts per million goal for the same contaminant at South Cavalcade, where PRPs performed the study. The South Cavalcade plan also stipulated that this contaminant not be allowed to leach into the groundwater, a cleanup target that EPA regional officials said would actually result in a soil contaminant level of about 150 parts per million. These EPA officials believe the difference in cleanup goals is justified because the North Cavalcade Street site may be developed as residential property in the future, while the South Cavalcade Street site is likely to remain industrial.

In addition, cleanup plans did not always adequately explain why a particular remedy was chosen, did not specify a cleanup remedy, or were significantly changed without an opportunity for public comment. For example, at the Palmetto wood-preserving site

in Dixiana, South Carolina, the cleanup plan proposed using one form of soil flushing to clean up soil contaminated with arsenic and chromium, but after additional sampling showed that the chromium was present in a carcinogenic form, EPA changed to a different form of soil flushing, added soil solidification, and implemented the remedy without offering the public an opportunity to comment. EPA has not formally documented the changed remedy or offered an opportunity for public comment, although the cleanup has been implemented.

Recent EPA initiatives to review cleanup plans, standardize some remedies and soil cleanup levels, and evaluate risk assessment procedures, if effectively implemented, may help to resolve some of these remedy selection problems. For example, in June 1990 EPA prohibited PRPs from preparing risk assessments for future site studies, citing the need for greater consistency in risk assumptions and conclusions.² EPA has also appointed work groups to develop soil cleanup standards for some common contaminants. However, because EPA says that some of these efforts may take up to 6 years to implement, interim actions to improve the consistency and completeness of cleanup plans may be necessary.

²PRPs challenged EPA's decision to bar them from conducting risk assessments. In December 1991 EPA signed a negotiated settlement with industry groups requiring the agency to review both the decision and its experience in implementing the decision. The settlement also requires EPA to solicit public comment on the decision.

MANAGEMENT INFORMATION IS INADEQUATE

Weaknesses in EPA's cleanup remedy data bases prevent EPA from having adequate information to assess program performance and evaluate cleanup decisions. EPA has a number of information systems that contain Superfund cleanup data; however, these systems either do not lend themselves to computer access and analysis, because they are not in an electronic data base format, or are inaccurate and incomplete. This lack of an automated, centralized repository of information for cleanup remedies chosen and implemented at Superfund sites limits EPA's management of the remedy selection process and forces EPA to rely on small, specialized studies to address specific remedy selection issues.

A management information system containing sufficient and reliable technical cleanup information that is amenable to statistical analysis would enable EPA to manage the Superfund program better. With such an information system, EPA could better assess its selection of cleanup remedies at EPA and PRP sites, quickly identifying differences and trends needing management attention. In addition, such a data base could assist EPA in standardizing the remedy planning and selection process.

CONCLUSIONS

In conclusion, Mr. Chairman, EPA's growing reliance on PRPs to study and clean up hazardous waste sites requires that EPA ensure that these cleanups adequately comply with Superfund regulations and protect human health and the environment. Differences in the extent of treatment or containment being used at EPA- and PRP-managed sites with similar contaminants or histories raise concerns about the comparability of these cleanups. These concerns are further heightened by cleanup plans that do not consistently document the extent of cleanup, justify the remedy chosen, or in some cases identify the eventual cleanup remedy.

Without specific cleanup goals for all major contaminants or media and adequate explanation and justification of the cleanup plan, the long-term effectiveness of the cleanup and its ability to protect public health and the environment remain in question. Recent EPA initiatives have potential, if they are effectively implemented, for decreasing variations in cleanup goals and improving cleanup remedy justification and documentation. However, given the decentralized nature of the cleanup plan approval process, EPA needs effective headquarters oversight to ensure that regions are accountable for approving complete and consistent cleanup plans. To facilitate this oversight responsibility, EPA needs cleanup remedy data that are accurate, reliable, and conducive to management analysis.

RECOMMENDATIONS

As stated in our report, there are a number of actions that EPA can take to improve the overall consistency of cleanup plans and provide EPA management with better remedy selection information. Specifically, we recommend that the EPA Administrator (1) direct regional administrators to approve only cleanup plans that adequately specify the cleanup goals and remedy, and provide justification for cleanup goals not set, and (2) establish a cleanup remedy data base for EPA management to better manage and monitor cleanup selection.

Mr. Chairman, this concludes my prepared statement. I will be glad to respond to any questions that you or Members of the Subcommittee have.

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