

C O N G R E S S I O N A L T E S T I M O N Y



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**RAND Research on Superfund Transaction Costs:
A Summary of Findings To Date**

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PREFACE

This publication contains the written statement of Lloyd S. Dixon submitted on November 4, 1993 to the Subcommittee on Superfund, Recycling, and Solid Waste of the United States Senate Environment and Public Works Committee. Mr. Dixon's statement is based on several RAND reports on the transaction costs generated by the Superfund process, but it does not necessarily reflect the views of RAND or any sponsors of the research.

The author addresses the following questions: What is our best estimate of transaction-cost share at Superfund sites to date? What will the transaction-cost share likely be when cleanup is complete? How does transaction-cost share vary by size of firm? What reforms might be considered to reduce transaction costs?

Written Statement of Lloyd S. Dixon Submitted to the

Environment and Public Works Committee,
Subcommittee on Superfund, Recycling, and Solid Waste,
Frank Lautenberg, Chairman
United States Senate

November 4, 1993

Mister Chairman and Members of the Subcommittee, thank you for inviting me to participate in your hearings on the Superfund program. My name is Lloyd Dixon, and I am an economist at RAND. The views and conclusions presented here are my own and should not be interpreted as representing those of RAND or any sponsors of the research. I base my comments today on several RAND reports, including a report we are releasing today entitled "Private-Sector Cleanup Expenditures and Transaction Costs at 18 Superfund Sites," which I coauthored with Deborah Drezner and Jim Hammitt.¹

Many critics of Superfund argue that its broad liability provisions shroud the program in litigiousness and generate steep transaction costs. Transaction costs are costs that do not contribute to the investigation or cleanup of a site. Rather, they are related to the assignment of liability among the parties involved at the site and their insurers. Our research attempts to measure these transaction costs. We hope that this information will better inform the debate on the costs and benefits of using a liability approach to deal with hazardous waste cleanups and on what modifications in the Superfund program might reduce transaction costs.

I will report on two different measures of transaction costs. The first is the share of transaction costs in private-sector expenditures through 1991. The second is a projection of the share when cleanup is complete. While perhaps more relevant in evaluating Superfund's liability approach, the latter measure is much more difficult to estimate. To preview our findings, the midpoint of our estimate of the

¹Dixon, Lloyd S., Deborah S. Drezner, and James K. Hammitt, *Private-Sector Cleanup Expenditures and Transaction Costs at 18 Superfund Sites*, RAND, MR-204-EPA, 1993.

transaction-cost share for private-sector potentially responsible parties (PRPs) at National Priorities List (NPL) sites with Records of Decision (RODs) is 32 percent through 1991. Simulations run from 19 to 27 percent for the PRP share at completion, with the most likely estimate currently at the upper end of this range. For insurers, the comparable shares are 88 percent through 1991 and approximately 70 percent at completion. Total private-sector expenditures at Superfund sites are the sum of PRP and insurer expenditures. The midpoints of our estimates for the transaction-cost share for combined expenditures to date at sites with RODs are 35 to 40 percent and 25 to 35 percent at completion. In addition to discussing these estimates, I will also discuss how transaction-cost share varies by size of firm and what reforms might be considered to reduce transaction costs.

WHAT IS OUR BEST ESTIMATE OF TRANSACTION-COST SHARE TO DATE?

Our research has documented that Superfund has generated substantial transaction costs. At a sample of 18 NPL sites, we estimate that transaction costs were 32 percent of expenditures by private-sector PRPs at NPL sites with RODs as of 1990 between 1981 and 1991.

This estimate is based on the expenditures of 108 of the thousands of PRPs at the 18 study sites. As might be expected, there is considerable uncertainty--from 20 to 44 percent--around the 32 percent estimate for the study sites. There is also uncertainty as to whether the experience at the 18 study sites is characteristic of NPL sites with RODs as a whole. More work is needed to project the transaction-cost share for private-sector PRP expenditures through 1991 at all NPL sites from our sample, but we believe that 32 percent is a reasonable point estimate for all sites with RODs for several reasons. First, the characteristics of the 18 study sites are roughly similar to those of a larger group of sites with RODs where we had reason to believe that there are substantial PRP expenditures. Second, the transaction-costs shares for the larger firms at the study sites are similar to those of

five very large industrial firms at a much larger number of sites, as reported in our previous study on transaction costs.²

PRPs frequently turn to their insurers for reimbursement of costs related to hazardous waste cleanup, which induces transaction costs related to the resolution of these claims. Thus, we must add insurer expenditures to PRP expenditures to determine transaction-cost share for total private-sector expenditures. In our previous study, we reported that transaction costs were 88 percent of insurer expenditures between 1986 and 1989. About one-half of insurer transaction costs went to defend their policyholders. The other half went to contest whether their policies covered PRP claims for cleanup costs. Simulations we have run suggest that including insurer expenditures may well cause the 32 percent point estimate for PRP expenditures alone to rise to 35 or 40 percent for combined private-sector expenditures to date.

WHAT IS TRANSACTION-COST SHARE LIKELY TO BE WHEN CLEANUP IS COMPLETE?

We have found that, so far, transaction costs tend to be loaded toward the beginning of the cleanup process. Thus, the transaction-cost share to date may not be a good estimate of what it will be when cleanup is complete. Not many sites have finished the cleanup process, so there is a great deal of uncertainty in what the ultimate share will be. Simulations under various scenarios result in final transaction-cost shares between 19 and 27 percent for PRPs at completion, with our best estimate at the upper end of this range.

In our previous study we also found that transaction costs were loaded toward the beginning of the life cycle of an insurance claim and that the share for claims closed between 1986 and 1989 was 69 percent. Simulations we have run combining expected expenditures of PRPs and insurers at completion suggest that the combined share at completion will range between 25 and 35 percent, or a decline of between 5 and 10 percent over that observed through 1991. The decline may well be greater if transaction-cost share in the later stages of the cleanup

²Acton, J. P. and L. S. Dixon, *Superfund and Transaction Costs: The Experiences of Insurers and Very Large Industrial Firms*, RAND, R-4132-ICJ, April 1992.

process drops lower than that observed so far. A decline might not even materialize if firms wait until the end of the cleanup process to recover costs from other PRPs or their insurers.

Table 1 summarizes our best estimates of transaction-cost shares through 1991 and at completion at NPL sites with RODs.

Table 1
Private-Sector Transaction-Cost Shares
at NPL Sites with RODs as of 1990 (percent)

	Through 1991	At Completion
PRPs	32	19--27
Insurers	88	69
Total	35--40	25--35

HOW DOES TRANSACTION-COST SHARE VARY BY SIZE OF FIRM?

In our studies of private-sector transaction costs, we found enormous variation in transaction-cost share by size of firm. We found that transaction-cost shares for firms with annual revenues over \$100 million ranged from 15 to 19 percent through 1991 (see Table 2).³

Table 2
Transaction-Cost Share by Firm Size

1991 Annual Revenues	Transaction-Cost Share (percent)
> \$20 billion	19
\$1-20 billion	19
\$100-1,000 million	15
\$15-100 million	60
< \$15 million	60

In contrast, we found much higher transaction-cost shares for smaller PRPs. We found that on average, transaction costs accounted for approximately 60 percent of the outlays of firms with annual revenues less than \$100 million. The high transaction-cost share for smaller firms does not appear to be due to firm size itself, but rather due to

³The transaction-cost share for firms with annual revenues in excess of \$20 billion is based on expenditures between 1984 and 1989.

the fact that small firms tend to account for a small proportion of the waste at a site. There appear to be certain fixed costs to mounting a defense at a Superfund site, and since small firms account for a small share of the waste at a site, they do not incur sufficiently large cleanup costs to offset these fixed costs.

WHAT REFORMS MIGHT BE CONSIDERED TO REDUCE TRANSACTION COSTS?

Our work has demonstrated that Superfund has induced considerable transaction costs and raises doubts whether Superfund's liability approach as currently implemented is an efficient way to clean up the nation's hazardous waste sites. Whether these transaction costs can be justified depends on the benefits of the liability approach, such as voluntary cleanups and site discoveries, what alternative approaches are possible, and the transition costs of moving to an alternative approach. Within the context of a liability approach, there are a number of reforms that could be considered that may reduce transaction costs. The outcomes of all these reforms are uncertain and they all have drawbacks. Possible reforms include the following:

- **Enhanced *de minimis* buyouts.** Our research suggests that PRPs with small volumetric shares spend more on transaction costs than they do on cleanup. One way to reduce these transaction costs may be to remove these parties from the cleanup process as soon as possible. The drawback of enhanced *de minimis* settlements would be that either the PRPs remaining at the site or the government would then bear an increased risk of cost overruns or failed remedies.
- **Proportional liability.** PRPs we have interviewed frequently tell us that they are willing to pay for their share of the waste at a site, but will fight against paying someone else's. A PRP could be required only to pay for its share of the waste at the site and the government could pick up the orphan shares. Government funds, however, would be needed to cover these costs.
- **Arbitration mechanisms for allocating liability.** PRPs currently allocate liability among themselves, and PRPs incur

substantial transaction costs in the process. By substituting an arbitration or other non-litigative process, perhaps under government aegis, it may be possible to reduce these transaction costs. Experience has shown, however, that the success of such programs depends on how well they are designed and implemented.

- **De maximis buyouts.** Many PRPs with larger volumetric shares tell us they are willing to pay for their share of a cleanup, but because they are never released from liability they have reduced incentive to settle. Provisions that allow these PRPs to buy out of the site, even at a considerable premium, could encourage settlement and decrease transaction costs. The drawback of this reform is again that it would transfer risk for cost overruns or remedy failure to the remaining PRPs or the government.
- **Relaxed cleanup standards.** PRPs frequently fight against what they perceive to be overly stringent cleanup standards or unnecessarily expensive remedies. This produces substantial transaction costs. It is likely that less stringent cleanup standards and less expensive remedies would reduce these transaction costs. The savings in transaction costs, however, must be weighed against any increase in risk to human health and the environment.

