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# Improving the Department of Defense's Hazardous Waste Cleanup Program

The complete cleanup of hazardous wastes—solvents, petroleum products, metals, munitions wastes—from Department of Defense (DoD) bases is mandated by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980 and the Superfund Amendments and Reauthorization Act (SARA) of 1986. However, it has become increasingly apparent that, given the available resources, complete cleanup may be many years away, and that interim cleanup goals may have to be established in the meantime. With interim goals, cleanup efforts could be focused on tasks that would contribute the most to reducing risk to human health, readying lands for reuse, or speeding the cleanup process. Lower-priority tasks could be postponed.

Can such goals be harmonized with one another and with CERCLA and SARA as written? RAND researchers explored this question by evaluating cleanup projects at nine closing bases in California, using a case studies approach. They chose California because of the state's demonstrated commitment to accelerating the cleanup process. The researchers found that, although cleanup projects occur in a complex context that tends to inhibit innovation, there are enough flexibilities in the law to allow interim goals. At one of the bases studied in-depth, project managers seized the available opportunities to speed the cleanup process. At another, progress was delayed—as it is at most DoD bases—by complying with the letter of the law.

## CLEANUP CONTEXT

There are both obstacles to and opportunities for instituting interim cleanup goals. On the one hand, competing boundaries identifying cleanup sites make it difficult to divide a base according to cleanup priorities. Under CERCLA, bases are divided into groups of contaminated sites, known as "operable units." More often than not, operable units are drawn to enhance the convenience and economy of a total base cleanup rather than to isolate the

most risky hazardous waste sites. Under the Community Environmental Response Facilitation Act (CERFA), passed in 1992, bases are divided into parcels according to plans for reuse. These internal base boundaries are not necessarily compatible. Establishing interim goals is also inhibited by the many preliminary studies that CERCLA and SARA require to inform a total base cleanup plan.

On the other hand, a careful examination of CERCLA and SARA reveals allowances for phased cleanup schedules. In an urgent situation, the DoD can authorize the removal of contaminants before the completion of the preliminary studies. The DoD has also instituted base realignment and closure (BRAC) cleanup teams that can adjust cleanup schedules and internal base boundaries to accommodate interim goals. The BRAC cleanup teams are composed of DoD project managers and local regulators representing the Environmental Protection Agency and the California Environmental Protection Agency, which enforce CERCLA and SARA.

## MATHER AIR FORCE BASE

Like most DoD cleanup projects, the cleanup at Mather Air Force Base, just outside Sacramento, has been costly and slow. Since 1989, \$40 million has been spent, mostly on preliminary studies, yet only three small waste removal projects have been undertaken. The problem is the base-wide approach to cleanup implied in the drawing of CERCLA operable units. Fifty-nine of Mather's 69 hazardous waste sites are enclosed in one operable unit that effectively encompasses the entire base, making it difficult to divide the cleanup project into smaller, more manageable units. The only parcel of land designated by CERFA for civilian reuse—the airport—traverses two operable units, making it difficult to focus cleanup efforts on the airport.

If the project management at Mather had used the BRAC cleanup team to adjust the internal base boundaries, it could have focused the cleanup effort on the air-

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port parcel and delayed cleanup of the remaining sites, perhaps indefinitely. To ensure the lasting safety of the airport, the cleanup project would also have had to identify any neighboring sites with contaminants that might spread to the airport. This sort of limited cleanup strategy focused on preparing lands for reuse would also incorporate risk reduction since the airport parcel would have to be clean enough for humans to use now and in the future. Furthermore, it would be significantly less expensive than total cleanup. The estimated cost for cleaning the airport parcel is only about half the cost of cleaning the entire base.

## MARCH AIR FORCE BASE

March Air Force Base, which lies about 75 miles east of Los Angeles near the city of Riverside, has also been divided into three operable units. Again, one of the operable units is so large that cleaning it is tantamount to cleaning the entire base. However, the project management at March seized the opportunity to readjust boundaries and schedules, and so began a contaminant removal program—with DoD authorization—before completing the preliminary studies. Five years later, most of the cleanup at March has been completed, even though the preliminary studies have yet to be finished.

The success of March's speed-driven approach is due largely to the skill and experience of the project managers, who knew how to take advantage of the flexibilities in CERCLA and SARA. They also knew how to make DoD's contracting service centers compete with one another over costs and schedules. This practice runs contrary to DoD's general preference for large regional contractors conducting entire cleanups at several bases in a region. The March contracting model suggests that administrative economies of scale associated with regional contractors may be less important than creating a competitive environment where the DoD project manager acts as the general contractor.

Although fast and efficient, the March model may still require testing if it is to have wide application. A community less friendly toward DoD than Riverside may find a speedy cleanup effort suspicious. At March Air Force Base, local, state, and federal regulators and the community accepted the removal of contaminants as the core

cleanup strategy. If they had not, the site could still be viewed as unremediated.

## SUMMARY AND RECOMMENDATIONS

The experience of the DoD cleanup program at California's closing bases shows that the goals of risk reduction, land reuse, and speed can be realized and harmonized with CERCLA and SARA by recognizing the flexibilities in the law. These flexibilities allow project managers and local regulators to

- renegotiate regulatory agreements
- redraw internal base boundaries
- focus cleanup efforts on the most important reuse parcels and most risky sites
- accelerate cleanup by removing contaminants before completing preliminary studies
- encourage competitive contracting.

The DoD and the Environmental Protection Agency can facilitate cleanup by supporting the project managers and local regulators—more specifically, by providing them with

- summaries of the flexibilities in CERCLA and SARA
- clearer policy guidelines on how to begin contaminant removal before completion of preliminary studies
- greater support at the site level expressed through greater investments in human resources.

The innovative strategies that DoD and project managers have used to facilitate the cleanup process point to needed improvements in the law. If Congress is to revise CERCLA and SARA, those revisions should

- address the risks of contaminants spreading from sites remaining in federal hands into areas designated for reuse
- eliminate obstacles to redrawing internal base boundaries
- reduce delays resulting from the preliminary studies.

Cleanup at California's closing bases clearly illustrates that cleanup too long delayed—in the interest of fulfilling a total cleanup program—is cleanup never realized.

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*RAND research briefs summarize research that has been more fully documented elsewhere. This research brief describes work done for the National Defense Research Institute; it is documented in California Base Closure: Lessons for DoD's Cleanup Program, by David Rubenson and John R. Anderson, MR-621-OSD, 1995, 90 pp., \$9.00, ISBN: 0-8330-2327-6, available from RAND Distribution Services (Telephone: 310-451-7002; FAX: 310-451-6915; or Internet: order@rand.org). Abstracts of all RAND documents may be viewed on the World Wide Web (<http://www.rand.org>). Publications are distributed to the trade by National Book Network. RAND is a nonprofit institution that helps improve public policy through research and analysis; its publications do not necessarily reflect the opinions or policies of its research sponsors.*

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