

GAO

Testimony

Before the Committee on Energy and Natural Resources
U.S. Senate

For Release on Delivery
Expected at
2:00 p.m. EST
Monday
March 6, 1995

NUCLEAR WEAPONS
COMPLEX

Establishing a National
Risk-Based Strategy for
Cleanup

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062245/153642

Mr. Chairman and Members of the Committee:

We are pleased to participate in this hearing on the cost of the Department of Energy's (DOE) cleanup of the nuclear weapons complex and S. 333, the Department of Energy Risk Management Act of 1995. As our work over the last several years has shown, DOE faces a monumental task in addressing the legacy of environmental problems created by a nearly half century of nuclear weapons production. Although DOE has made some progress, major obstacles remain, and the estimated cost of the cleanup continues to rise.

Over the last several years, we have reviewed many aspects of DOE's cleanup effort--ranging from specific activities, such as, the Department's program for maintaining and disposing of the high-level waste at its Hanford, Washington, site to its overall efforts to address the environment, safety, and health problems posed by its thousands of inactive facilities. Most recently, as part of our general management review of DOE, we evaluated DOE's progress in cleaning up the weapons complex and identified impediments to this task.¹ The results of our work form the basis for my testimony today.

In summary, we found the following:

¹Department of Energy: National Priorities Needed for Meeting Environmental Agreements (GAO/RCED-95-1, Mar. 3, 1995).

- Even though DOE received over \$23 billion between 1989 and 1993 for environmental activities, it has made limited progress in addressing the wide range of environmental problems at its sites. For example, as of the end of fiscal year 1994, only 13 percent of the program's 856 environmental restoration projects have been completely cleaned up. Most--67 percent--are still in the early stages of investigation and characterization. In managing its wastes, it has encountered major delays in its high-level waste vitrification programs and has achieved only minimal growth in its capacity for treating mixed wastes at its major sites.² Finally, DOE has begun deactivating only a handful of its thousands of inactive facilities.
- Unrealistic compliance agreements have impeded DOE's cleanup progress. After claiming for years that its Cold War mission exempted it from environmental regulation, DOE began in the late 1980s to sign agreements with the states and the Environmental Protection Agency (EPA) to govern the cleanup of its sites. However, DOE made commitments in these agreements that it could not meet, given both budgetary and technical limitations. Delays in meeting these commitments led regulators to assess penalties against the Department and to question DOE's credibility.

²Nuclear Waste: Much Effort Needed to Meet Federal Facility Compliance Act's Requirements (GAO/RCED-94-179, May 17, 1994).

BACKGROUND

Through its Environmental Management program, DOE is responsible for environmental restoration, waste management, and facility transition and management at 15 major contaminated facilities and more than 100 smaller facilities in 34 states and territories. These facilities encompass a wide range of environmental problems, including more than 7,000 locations where radioactive or hazardous materials were released into the environment, almost 200 tanks containing high-level radioactive waste from nuclear weapons production, some of which have leaked or could explode, and 7,000 production facilities that are now idled and in need of deactivation, decontamination, and decommissioning.

Cleaning up these sites is an enormous task, that is likely to span multiple generations. Over the last several years, the total estimated cost of the cleanup has risen from about \$100 billion in 1988 to \$300 billion in the Department's April 1994 strategic plan. Recently, in response to requirements in the Fiscal Year 1994 National Defense Authorization Act, DOE began to prepare the Baseline Environmental Management Report, which will estimate the total projected cost of the Environmental Management program. DOE expects to issue this report at the end of March 1995.

restoration efforts on the "characterization" phase of the cleanup process--collecting data and investigating sites. These activities, while necessary as part of the agreements between DOE and its regulators, are often lengthy and can delay "remediation," or the actual cleanup of sites, for years. As a result, over two-thirds of DOE's 856 cleanup projects are still in the characterization stage. In contrast, only about 16 percent of the projects are now in the remediation phase and physical cleanup has been completed for only about 13 percent of the projects.

In the waste management area, DOE has experienced repeated delays and cost increases in its efforts to treat and dispose of its high-level radioactive wastes. For example, we reported that the Defense Waste Processing Facility at DOE's Savannah River Site experienced a cost increase of over \$3 billion and a schedule slippage of about 5 years.³ Production at this facility is now scheduled to begin in fiscal year 1996. At DOE's Hanford Site, we found that major technical problems existed with all aspects of DOE's Tank Waste Remediation System and that, as a result, the estimated cost of this program had risen from \$14 billion to nearly \$50 billion.⁴ In response to our recommendations, DOE renegotiated the milestones for the Hanford effort, pushing completion of the program into the next century.

³Nuclear Waste: Defense Waste Processing Facility--Cost, Schedule, and Technical Issues (GAO/RCED-92-183, June 17, 1992).

⁴Nuclear Waste: Hanford Tank Waste Program Needs Cost, Schedule, and Management Changes (GAO/RCED-93-99, Mar. 8, 1993).

review, we identified two other issues that jeopardize DOE's progress. Specifically,

- many of DOE's agreements with regulators are unrealistic, and

- DOE's environmental management strategy is focused too much on setting priorities for individual sites and not enough on setting priorities for the weapons complex as a whole.

I would now like to discuss each of these issues in more detail.

UNREALISTIC AGREEMENTS HAVE IMPEDED PROGRESS

According to the former under secretary who presided over the signing of many early agreements with regulators, during the late 1980s, DOE was "prodded or dragged to the conclusion" that it would have to consider the environment "to stay in business." However, the agreements that DOE reached were often unrealistic--that is, they were not based on adequate assessments of conditions at sites or of the Department's technical capabilities. For example, officials at Rocky Flats signed an agreement to clean up the facility over a 10-year period even though, as one of them later told us, "any technical person would have known that we couldn't meet the milestones."

In negotiating agreements with aggressive schedules, DOE assumed that if milestones could not be achieved, changes would be made. However, DOE has since had difficulty renegotiating some agreements. Given the Department's history of resistance to environmental regulation, many regulators have been reluctant to renegotiate, seeing such requests as evidence of mismanagement rather than as legitimate responses to new information about conditions at sites or new understanding of environmental technologies.

Faced with regulators' reluctance to renegotiate, DOE has continued activities that once seemed appropriate but may now no longer be cost-effective. For example, DOE has continued to remediate groundwater at 22 sites through "pump and treat" actions whose estimated life cycle costs exceed \$500 million, even though DOE now believes most of these actions will do little or nothing to reduce risks to public health and safety. In February 1995, DOE's Assistant Secretary for Environmental Management estimated that DOE tends to spend 20 percent of its resources on what could be termed "low-risk" environmental restoration and waste management activities.

identifying milestones that may require revision because they are not technically feasible or do not address immediate threats to health or the environment.

On February 7, 1995, the Assistant Secretary for Environmental Management proposed to the National Governors Association that DOE and the states restructure its compliance agreements to reflect fiscal constraints. At the same time, the Assistant Secretary proposed that DOE develop a budget process that involves the states in setting priorities at the site level. Although DOE's compliance agreements may have been designed to allocate resources efficiently at individual sites, under severe budgetary constraints, the use of many separately negotiated agreements is not well suited to setting priorities among sites. DOE could use the results of its risk evaluation and milestone review efforts to set priorities among sites and begin to develop a national cleanup strategy that would target resources, in large part, on the basis of relative risk.

COMMENTS ON S.333

The legislation this Committee is considering today--the Department of Energy Risk Management Act of 1995, S.333--also supports prioritizing DOE's cleanup activities according to risk. Specifically, Section 7 directs the Secretary to prioritize the use of DOE's resources to conduct activities that address the risks to human health, safety, and the environment that the Secretary

regulators' distrust of the Department, and the delays that have resulted when DOE and its regulators have renegotiated the compliance agreements governing the cleanup. However, the legislation, as currently drafted, suggests that only DOE will be involved in the priority-setting process. While we recognize that the Congress and the Administration are ultimately responsible for establishing Federal budget priorities, the Committee, and the Congress, may wish to consider allowing DOE's regulators to participate in the prioritization process in order to avoid delays that have hampered cleanup progress to date.

Third, we would like to suggest to this Committee, and the Congress, that DOE should not be expected to produce a highly quantitative and mechanistic prioritization system. When we reviewed DOE's earlier attempt to develop a quantitative prioritization system, we found that the data necessary to support such a system did not exist.⁵ Thus, even though the system gave the appearance of precision, it in fact depended heavily on the judgment of the individuals using it. Furthermore, because the system relied on imprecise data, it could be used inconsistently across sites or manipulated by individual sites. That is, by overemphasizing the amount of risk reduction to be gained relative to cost, one site could gain an advantage in competing for funds. As I noted earlier, much of DOE's program is still in the early

⁵NUCLEAR WEAPONS COMPLEX: Improving DOE's Management of the Environmental Cleanup, (GAO/T-RCED-92-43, March 30, 1992).

In negotiating agreements with aggressive schedules, DOE assumed that if milestones could not be achieved, changes would be made. However, DOE has since had difficulty renegotiating some agreements. Given the Department's history of resistance to environmental regulation, many regulators have been reluctant to renegotiate, seeing such requests as evidence of mismanagement rather than as legitimate responses to new information about conditions at sites or new understanding of environmental technologies.

Faced with regulators' reluctance to renegotiate, DOE has continued activities that once seemed appropriate but may now no longer be cost-effective. For example, DOE has continued to remediate groundwater at 22 sites through "pump and treat" actions whose estimated life cycle costs exceed \$500 million, even though DOE now believes most of these actions will do little or nothing to reduce risks to public health and safety. In February 1995, DOE's Assistant Secretary for Environmental Management estimated that DOE tends to spend 20 percent of its resources on what could be termed "low-risk" environmental restoration and waste management activities.

A NATIONAL RISK-BASED STRATEGY

COULD PROMOTE FUTURE PROGRESS

Today, pressures on the federal budget are increasing, and funding for cleanup is becoming more difficult to obtain. At the same time, growing numbers of costly cleanup milestones are scheduled to fall due. As the gap widens between the costs of cleanup and the funds available for it, the need grows for DOE and its regulators to adopt a national risk-based cleanup strategy. Such a strategy would enable DOE and its regulators to set priorities across as well as within sites and create a framework for agreeing on remedies that are both effective and affordable. Such a strategy would likely require DOE and its regulators to renegotiate some agreements, deferring infeasible milestones until technological solutions could be found and postponing lower-priority milestones until more urgent risks could be addressed.

In response to a requirement in the Conference Report for the Fiscal Year 1994 Energy and Water Development Appropriation Act, DOE is currently preparing a report, due to the Congress in June 1995, evaluating the risks being addressed by its compliance agreements at individual sites. The conference committee's objective is for the Department to provide information and evaluation to support the eventual development of a mechanism for establishing priorities among competing cleanup requirements in light of limited federal discretionary budgets. DOE has also been

identifying milestones that may require revision because they are not technically feasible or do not address immediate threats to health or the environment.

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determines are most serious and can be addressed in a cost effective manner--the goal being to achieve the greatest overall net reduction in risks. Further, the proposed act directs the Secretary to incorporate the priorities DOE develops into its budget, strategic planning, and research activities.

As our testimony indicates, we support the development of a national risk-based cleanup strategy. However, in reviewing Section 7 of the proposed legislation dealing with prioritization, we identified several issues that the Committee, and the Congress, may wish to consider.

First, Section 7 refers only to DOE's environmental restoration activities. As I noted earlier, DOE's cleanup mission involves activities beyond environmental restoration, including waste management; facility deactivation, decontamination, and decommissioning; and technology development. In our view, since all of these activities are part of the Department's cleanup effort, they should all be considered as elements of a national cleanup strategy, including their contribution to risk reduction.

Second, as I indicated earlier, we believe that a national risk-based cleanup strategy needs to involve both DOE and its regulators in setting priorities across as well as within sites and in creating a framework for agreeing on remedies that are both effective and affordable. Such a process is necessary to overcome

regulators' distrust of the Department, and the delays that have resulted when DOE and its regulators have renegotiated the compliance agreements governing the cleanup. However, the legislation, as currently drafted, suggests that only DOE will be involved in the priority-setting process. While we recognize that the Congress and the Administration are ultimately responsible for establishing Federal budget priorities, the Committee, and the Congress, may wish to consider allowing DOE's regulators to participate in the prioritization process in order to avoid delays that have hampered cleanup progress to date.

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stages of investigation and characterization, and available data are still limited. Therefore, until DOE knows more about the risks it faces, it could encounter serious pitfalls if it attempts to employ a highly quantitative prioritization system.

Finally, while the bill is addressed to the cleanup of the weapons complex, we would observe that a national strategy for cleanup ultimately should extend beyond DOE to address all federal facilities. As part of our High Risk program reviews, we recently reported that the federal government lacks an effective way to rank federal facilities for cleanup across agency lines on the basis of relative risk.⁶

SUMMARY

Cleaning up the nuclear weapons complex is an enormous task involving the remediation of inactive sites, the disposal of huge amounts of hazardous and mixed wastes, and the deactivation and eventual cleanup of thousands of facilities. In many of the compliance agreements it signed to govern the cleanup of its sites, DOE made commitments that it simply cannot meet, given both budgetary and technical limitations. Future progress will depend on how effectively DOE and its regulators can negotiate realistic agreements and milestones under increasingly restrictive budgets.

⁶High-Risk Series: Superfund Program Management (GAO/HR-95-12, Feb. 1995).

A key component to this effort will be a national risk-based cleanup strategy. Such a strategy would enable DOE and its regulators to set priorities across as well as within sites and create a framework for agreeing on remedies that are both effective and affordable.

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Mr. Chairman, this concludes my prepared statement. I will be glad to respond to any questions you may have.

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