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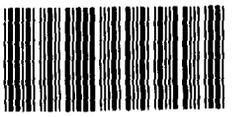

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Managing the Environmental Cleanup of DOE's Nuclear Weapons Complex

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Committee on Armed Services
House of Representatives

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Mr. Chairman and Members of the Panel:

We are pleased to participate in these hearings on the Department of Energy's (DOE) cleanup of the nation's nuclear weapons complex. We appeared before this panel last year and testified that while DOE was making some progress, the total estimated cleanup costs continued to increase, compounded by persistent management problems. (See attachment I for a list of relevant reports and testimonies.) In the last year, cost estimates have continued to grow, and DOE has yet to fully address certain technical and management problems that could further increase costs.

In June 1990, DOE issued its second 5-year plan, which outlined its schedule for cleaning up the weapons complex during fiscal years 1992-96. The updated plan showed substantially higher estimated costs for cleanup than were projected in 1989. For example, from the 1989 plan to the 1990 update, the total estimated costs for fiscal years 1991 to 1995 increased by 50 percent--from about $20 billion to $30 billion. The plan envisions a continuing escalation, with costs averaging around $6 billion annually by 1996. These costs represent only a down payment. We continue to estimate that the cost to address the environmental problems could total more than $100 billion over the next several decades.

Against the backdrop of the federal budget deficit, continued actions by DOE to measure progress in achieving the cleanup, and to manage the overall effort as it grows in complexity and cost, become extremely important. In my testimony today, I will first discuss DOE's progress in cleaning up the nuclear weapons complex and its difficulty in measuring that progress. Second, I will discuss some of the technical and management problems DOE is facing in the cleanup and its efforts to address them. Finally, I will

turn to a broader discussion of the long-standing problems caused by DOE's reliance on contractors to do its work.

DOE'S PROGRESS IN CLEANING UP THE COMPLEX

DOE must resolve a massive problem, the full dimensions of which are still not known. By its own admission, the Department does not yet have the people or technology necessary to do the job. In addition, DOE must gain the cooperation of the Environmental Protection Agency (EPA) and state governments, which have become skeptical over the past decades about DOE's commitment to environmental restoration. In the midst of this uncertainty, DOE continues to spend billions of dollars a year and has difficulty measuring the results of these expenditures.

Before commenting on DOE's progress, I want to offer some important caveats. It is critical to recognize that the cleanup is in its very earliest stages. It is essential that DOE properly identify the types of contaminants and the extent of contamination so it can design the most efficient and cost-effective solutions. Our experience in evaluating the Superfund program administered by EPA indicates that the less that is known about the extent of contamination, the more likely it is that the cost estimates will increase as the problem is addressed. Finally, it is important to acknowledge that some areas of the weapons complex may be irreversibly contaminated and thus may require long-term institutional control.

In the overview statement that accompanied DOE's fiscal 1992 budget submission to the Congress, the Secretary of Energy noted that many of DOE's efforts have focused on organizational changes to help solve the massive cleanup problem.[1] DOE has reorganized

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[1] U.S. Department of Energy Posture Statement and Fiscal Year 1992 Budget Overview (DOE/CR-0002, Feb. 1991).

its headquarters activities and its regional office chain of command to ensure better management focus on the cleanup effort. Those DOE regional organizations directly involved in the cleanup now report to the Director, Office of Environmental Restoration and Waste Management, an office that the Secretary intends to elevate to the level of Assistant Secretary. To support this new organization, DOE established what it calls "Tiger Teams" to perform top-to-bottom reviews of the environment, safety, and health (ES&H) programs at its facilities. In addition, DOE has restructured its award-fee program to try to ensure that its contractors appropriately emphasize ES&H issues.

Beyond reorganizing, DOE has made some progress in identifying and cleaning up sites. It has now identified about 3,700 contaminated sites nationwide. However, DOE has not routinely collected consistent nationwide data on the status of its cleanup actions. It is working on a national data base to provide better ways to measure its overall progress, and it expects to complete this project within the next year.

NUMEROUS TECHNICAL AND MANAGEMENT CHALLENGES IMPEDE CLEANUP PROGRESS

Our recent work on DOE's efforts at key sites highlights the technical problems it faces over the next several decades, and the management challenges it must address in such areas as budgeting and prioritization if it is to make progress in cleaning up the weapons complex.

Technical Problems Vary in Complexity

Cleaning up the almost 57 million gallons of high-level radioactive waste in the single- and double-shell tanks at DOE's Hanford facility is one of the biggest challenges in the weapons complex. While this effort is in its early characterization

stage, it is experiencing problems and delays. For example, in response to our report on the potential for explosions in the single-shell tanks because of ferrocyanide, DOE shut down the sampling program for all 149 single-shell tanks until a safe method can be found to sample the waste.

Once the wastes are characterized, they will be removed, pretreated, and vitrified or grouted for final storage. There are also problems in developing these processes. In July 1989, DOE told us that it planned to modify a 45-year old Hanford facility known as B-plant to serve as a pretreatment facility for wastes in the double-shell tanks. DOE stated that B-Plant could be upgraded and used safely and in compliance with environmental regulations; and it estimated that the upgrades would cost about $14 million. Less than 2 years later, DOE now says that it doubts that B-Plant can meet safety and environmental standards and that even if it can, upgrades will now cause a 4-year delay in treating the wastes in the double-shell tanks. As a result, DOE has unilaterally delayed a series of milestones in its agreement with EPA and the state of Washington that governs the cleanup at Hanford.

While the Hanford tanks represent a formidable technical challenge, DOE has not responded well to the management challenges posed by relatively simple cleanup actions. For example, DOE's "pondcrete" program at its Rocky Flats plant was an attempt to mix low-level radioactive waste with concrete to create solid blocks that could then be buried at DOE's Nevada Test Site. Because DOE did not initially develop a detailed plan for this project and did not provide effective oversight, numerous problems arose.

The contractor improperly mixed the cement and waste, causing thousands of blocks to crumble and crack while being stored in an unmonitored location. As a result, more than 8,000 of the more than 16,500 blocks produced will have to be remixed and repackaged. After 5 years of effort, only one of the five ponds is partially

cleaned up. In addition, the projected cost has escalated from a 1989 estimate of $27 million for fiscal years 1990 to 1995 to a more recent estimate of $50 million for the same period. The total cost for this cleanup could exceed $100 million.

Need for Improved Budget Estimates

Rapid cost growth like we found at Rocky Flats illustrates the need for DOE to accurately estimate and budget for the cleanup. Despite some progress, however, DOE does not yet have an adequate system for this budgeting. The Environmental Restoration and Waste Management Five-Year Plans, which form the basis for the current system, have been an important first step. The 5-year plans are developed using "activity data sheets" that DOE's regional offices prepare to describe each of the cleanup projects, including the type of action that is required and the projected time frames and costs to complete.

This system needs additional refinements. In commenting on DOE's ability to properly estimate and budget for cleanup costs at its Hanford site, the state of Washington and EPA found a number of problems.[2] Their report concluded that there was (1) inadequate DOE oversight of contractor cost estimates, (2) excessive and ineffective review of cost estimates within the contractor organizations, and (3) inadequate contractor analysis to substantiate cleanup cost estimates. Washington State and EPA stated that their findings warrant an independent, in-depth evaluation of the management, budget, and cost control practices of both DOE and its contractors at Hanford.

More broadly, DOE's Inspector General (IG) reported that the environmental compliance and cleanup agreements require DOE to

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[2]Cost Evaluation Project: U.S. Department of Energy - Hanford Site (Washington State Dept. of Ecology and U.S. EPA, 90-44, Oct. 1990).

ensure that sufficient funds are requested in its budget to comply with the agreements and applicable laws.[3] The November 1990 report concluded that funding shortfalls were likely to occur because of budget cuts and higher than expected cleanup costs. Without budgeting improvements, the IG noted DOE would find it more difficult to defend its decisions against the desires of EPA, states, and public interest groups for the fastest possible cleanup action at their sites. This could result in fines against DOE and law suits for failure to comply with the terms of the agreements.

Need for a Prioritization System

DOE may be missing important opportunities to set priorities so that it can stabilize its environmental problems and avoid further environmental damage. In its recent report on cleaning up the complex, the Office of Technology Assessment (OTA) noted that DOE should not delay immediate efforts to contain contamination that has the potential for wider dispersion and to establish programs to continually monitor contaminant movements.[4] More specifically, in our July 1989 report on DOE's management of the single-shell tanks at Hanford, we recommended that DOE (1) make stabilizing the tanks a priority, (2) collect additional data to monitor the movement of contaminants under the tanks, and (3) examine installing better ground cover over the tanks to reduce the amount of precipitation draining through tanks that could carry the contaminants toward groundwater. Unfortunately, safety problems at Hanford have caused the stabilization program to be delayed.

In our testimony here last year, we called for a system to set national priorities for funding for the more serious environmental

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[3]Budgeting for the Department's Environmental Needs (DOEIG, CR-CL-91-1, Nov. 9, 1990).

[4]Complex Cleanup: The Environmental Legacy of Nuclear Weapons Production (OTA-O-484 and OTA-O-485, Feb. 1991).

problems. This prioritization system is not yet in place; however, DOE has completed development of the system and expects to publish it in about 1 month in the Federal Register with a request for public comment.

Establishing a workable priority system is also important because DOE is continuing to commit to cleanup milestones in the agreements it is reaching with various parties. DOE currently has 60 agreements in place to govern local cleanup efforts (i.e., at a specific DOE facility). It is developing another 22 agreements and expects them to be approved during 1991. These agreements generally involve DOE, the affected state, and EPA.

Failure to meet these milestones can result in penalties to DOE. As of April 5, 1991, DOE had accumulated some $392,500 in fines from EPA for failure to meet agreed-to milestones at the Feed Materials Production Center at Fernald, Ohio. DOE is delinquent in providing two studies related to the cleanup--one was due in November 1990 and the other in December 1990--and is presently being fined $10,000 per week for each of the two infractions.

DOE'S CONTRACTOR OVERSIGHT

So far, I have discussed technical and management problems specific to the cleanup. I would now like to turn to another problem that could affect the cleanup effort--DOE's contractor oversight.

During the first 4 months of fiscal 1991, about 82 percent of DOE's cleanup budget obligations (or about $1.35 billion of $1.65 billion) went to contractors. DOE uses contractors to perform its statutory responsibilities, including managing its facilities, developing cleanup cost estimates, and performing the actual cleanup work. DOE and its predecessor agencies have relied on

contractors for the past 50 years, beginning with the race to develop the first atomic bomb.

Our work, as well as work performed by DOE's IG have revealed fundamental problems in DOE's control and oversight of all of its contractors. Given the complexity of the cleanup, the costs involved, and the fundamental role contractors are already fulfilling, DOE must effectively manage and oversee contractor performance to ensure the cleanup is done in a cost-effective manner.

Concerns About Contract Management Have Persisted for Over 40 Years

The seriousness and long-standing nature of contracting problems are illustrated by the fact that congressional hearings on the Atomic Energy Commission (AEC), DOE's predecessor, which took place between 1948 and 1950, identified some of the same fundamental problems discussed in recent reports.

Among other things, the hearings raised concern that AEC's policy of not interfering in contractor operations resulted in inadequate control over the expenditure of government funds. Almost 40 years later, our 1987 report on controls over contractor expenditures cited DOE's philosophy of least interference as an underlying cause of the agency's lack of control over the contractors' procurement activities.

The early congressional hearings also expressed concern that AEC was not using competitive bidding practices applicable to other agencies. Such concerns continue to exist for subcontracts awarded by the Management and Operating (M&O) contractors of DOE's facilities--an expenditure of more than $5 billion in fiscal year 1990. For example, in 1987 we reported that DOE had little assurance that its M&O contractors were adequately stressing

competition in subcontracting. Thus, DOE could not be sure that the contractors were procuring items fairly and at the lowest possible cost.

Both the AEC hearings and DOE IG audits have raised concerns relating to cost controls over M&O contractors. For example, the hearings raised the issue of whether contractors' "overhead" expenses produced covert profit under the guise of reimbursement. More recently, the IG's 1990 inspection of the San Francisco Operations Office noted that M&O contractors are not required to report detailed information on indirect costs and the costs are not generally considered in formulating and executing the government's budget, even though the costs can be significant.[5]

Other recent work has disclosed that DOE has allowed contractors to carry out responsibilities that DOE is required to perform. For example, in a 1989 legal opinion, we pointed out that DOE, contrary to its own regulations, had used a contractor to draft testimony and supporting materials for the agency's use in testifying before the Congress. More recently, in December 1990, we reported that DOE's Albuquerque Operations Office had allowed the Los Alamos and Sandia research centers to determine whether conflicts of interest exist in their subcontracts rather than having DOE make the decisions--a practice that runs counter to DOE's regulations.[6]

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[5]General Management Inspection of the San Francisco Operations Office (DOE/IG-0290, Sept. 25, 1991).

[6]DOE's regulations define organizational conflict of interest as a situation in which a potential contractor has interests that (1) may diminish the potential contractor's capacity to give impartial, technically sound, objective assistance and advice or (2) may result in the contractor's having an unfair competitive advantage over others competing for a contract.

DOE Agrees It Must Improve Contract Management

DOE acknowledges the need for better contract management. For the last 2 years, DOE's Federal Managers' Financial Integrity Act report has recognized contract management as a material weakness. In addition, DOE has begun taking some steps to improve its management of contractors, including contracting in the environmental restoration program.

For that program, DOE is developing a proposal to have its M&O contractors turn over their cleanup responsibilities to environmental restoration management contractors. These new contractors would report directly to the operations office and would be responsible for awarding and managing subcontracts for cleanup work. The environmental restoration contractors managing cleanup work in the field would, in turn, be managed by a support service contractor at headquarters. The headquarter's contractor would analyze and integrate the work of the other contractors and report directly to DOE's Office of Environmental Restoration and Waste Management, the headquarters office responsible for the overall management of the cleanup work.

DOE intends to test the new strategy at two sites--Hanford and Fernald--before implementing the approach DOE-wide. DOE believes this approach will decrease the possibility of organizational problems because the sites report directly to the Office of Environmental Restoration. Other sites, however, report to program offices, such as the Office of Defense Programs.

Solving Contract Management Problems Will Be Difficult

While DOE deserves credit for its recent efforts to improve contract management, solving the long-standing problems that exist in this area will not be easy. Some of the difficulties DOE faces are clearly illustrated in its efforts to improve environmental

restoration contracting. In our view, DOE's alternate contracting strategy for environmental restoration is a positive step because it (1) recognizes the inherent conflict of interest that exists when M&O contractors are compensated for cleaning up problems they created and (2) can be more cost-effective since M&O contractors have little incentive to reduce cleanup costs.

However, a number of other questions must also be addressed if the strategy is to succeed. For example,

-- Will DOE's strategy continue to place too much reliance on contractors to manage and carry out the cleanup effort?

-- Will the organizational arrangements established by the proposal ensure appropriate accountability for the work contractors perform?

-- Will DOE have sufficient staff resources to properly manage and oversee cleanup operations?

-- Will DOE be able to establish effective systems to ensure adequate cost control?

Recognizing the seriousness of the contract management problems facing DOE, including its impact on environmental restoration, we are increasing attention to this subject as part of a special audit effort intended to ensure that areas vulnerable to fraud, waste, abuse, and mismanagement are identified and that appropriate corrective actions are taken. Over the next several years, we will assess whether DOE's actions adequately address contract management problems and determine what additional actions are needed.

SUMMARY

In summary, Mr. Chairman, even though the cleanup is in its earliest phases, our work over the last several years demonstrates that DOE is already encountering formidable problems. Significant technical problems, like the presence of ferrocyanide in the single-shell tanks at Hanford, promise to make the cleanup a long and expensive task. Rising cleanup costs and schedule delays already experienced highlight the critical need for effective management. Improved management will help focus on meeting cleanup milestones and constraining cost growth, thus helping to increase the confidence of outside parties, such as EPA and the states, that the cleanup effort is effective and on schedule.

As DOE embraces a new culture that stresses its cleanup mission and prepares to entrust the cleanup to a new set of contractors, we believe that it is imperative that DOE also embrace new ways of managing its contractors. These changes include providing for more direct control of subcontracting, reducing costs through more effective oversight, and creating the right incentives for contractors to stay on schedule and on budget.

Over the next several years, we will be examining DOE's progress through our work on contracting and our General Management Review of all of DOE's operations. We look forward to assisting the Congress in overseeing this critical area.

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Mr. Chairman, this concludes my prepared remarks. We will be happy to respond to any questions you may have.

ATTACHMENT I

BIBLIOGRAPHY OF RELEVANT GAO REPORTS AND TESTIMONIES

1. Energy Management: DOE Controls Over Contractor Expenditures Need Strengthening (GAO/RCED-87-166, Aug. 28, 1987).

2. Nuclear Waste: DOE's Management of Single-Shell Tanks at Hanford, Washington (GAO/RCED-89-157, July 18, 1989).

3. DOE's Efforts to Correct Environmental Problems of the Nuclear Weapons Complex (GAO/T-RCED-90-47, Mar. 15, 1990).

4. Nuclear Health and Safety: Status of GAO's Environmental, Safety, and Health Recommendations to DOE (GAO/RCED-90-125, Apr. 20, 1990).

5. Nuclear Health and Safety: Long-Term Plans to Address Problems of the Weapons Complex Are Evolving (GAO/RCED-90-219, Sep. 28, 1990).

6. Nuclear Energy: Consequences of Explosion of Hanford's Single-Shell Tanks are Understated (GAO/RCED-91-34, Oct. 10, 1990).

7. Energy Management: DOE Needs to Better Implement Conflict-of-Interest Controls (GAO/RCED-91-15, Dec. 26, 1990).

8. Nuclear Safety and Health: Problems With Cleaning Up the Solar Ponds at Rocky Flats (GAO/RCED-91-31, Jan. 3, 1991).

Copies of these documents may be ordered by calling (202)275-6241, or by writing to:

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