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DEPARTMENT OF
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Status of Contract and
Project Management
Reforms

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Mr. Chairman and Members of the Committee:

We are pleased to be here today to discuss the status of contract and project management reforms in the Department of Energy (DOE). DOE spends more money on contracts than any other civilian federal agency because it relies primarily on contractors to operate its sites and carry out its diverse missions. These missions include maintaining the nuclear weapons stockpile, cleaning up radioactive and hazardous waste, and supporting basic energy and science research activities. For fiscal year 2001, DOE spent about 90 percent of its total annual budget, or about \$18.2 billion, on contracts. Of that amount, DOE spent about \$16.2 billion on contracts to manage or operate 28 major DOE sites.

For over a decade, GAO, DOE's Office of Inspector General, and others have identified problems with DOE's contracting practices and the performance of its contractors. Projects were late or never finished; project costs escalated by millions and sometimes billions of dollars; and environmental conditions at the sites did not significantly improve. At the same time, contractors were earning a substantial portion of the profit (fee) available under the contract. Because of these problems, since 1990 we have designated DOE contract management as a high-risk area vulnerable to fraud, waste, abuse, and mismanagement.

To address these and other problems, DOE began a series of reforms in the 1990s that were intended to, among other things, strengthen DOE's contracting and project management practices, hold contractors more accountable for their performance, and demonstrate progress in achieving the agency's missions. In this context, contracting practices include, among other things, selecting the type of contract (such as fixed-price), deciding whether to ask contractors to compete for the contract or offer it only to a single contractor, and determining the performance measures that will be used to assess and reward the contractor's performance. Similarly, project management practices include, among other things, planning, organizing, and tracking project

activities and costs; training to ensure expertise of federal project managers; and project reporting and oversight.

In addition, in February 2002, DOE's environmental management team launched an improvement initiative that places additional emphasis on contracting and project management reforms in the cleanup program, which represents almost a third of the department's overall budget. This initiative followed a review by DOE managers, who concluded that the waste cleanup program was not achieving the desired results and that further improvements were needed to make the program effective, including improvements in contracting and project management.

In this context, my testimony today focuses on (1) describing DOE's progress in implementing contracting and project management reforms, (2) assessing the extent to which these reforms have resulted in improved contractor performance, and (3) providing observations on DOE's latest improvement efforts. My testimony is based on our past work in this area as well as the findings of DOE's Inspector General and the National Research Council, who, at DOE's request, independently reviewed DOE's project management practices.

In summary:

- Since the mid-1990s, DOE has made some progress in implementing initiatives to improve both its contracting practices and its management of projects, but it continues to encounter difficulties in implementing these reforms. Contract reform began in 1994 and consisted primarily of initiatives in three key areas—developing alternative contracting approaches, increasing competition for contracts among potential bidders, and using performance-based incentives in the contracts. For example, DOE now requires performance-based contracts at all of its major sites. These contracts incorporate performance-based statements of work and identify performance measures and objectives that DOE will use to evaluate the contractors' performance. DOE has also increased the proportion of

contractors' fees tied to achieving the performance objectives. Nevertheless, difficulties remain in implementing the reforms. For example, numerous studies and reports found that DOE's performance-based contracts had ineffective performance measures. DOE continues to modify and test its performance measures by, for example, developing multiyear and multisite measures that are more closely aligned with the department's missions. Regarding project management reforms, DOE began its reform effort in 1999 in response to recommendations from the National Research Council that were intended to improve DOE's oversight and management of projects. Among other things, DOE implemented new policy and guidance for developing and controlling projects and established a project office to lead the initiative. However, in November 2001 the National Research Council reported that, although DOE had taken some positive steps to address its recommendations, the department still did not adequately plan projects before starting them and had no training program for federal project managers. DOE is continuing its efforts to implement its project management initiative.

- While DOE has made some progress in implementing its contracting and project management initiatives, available information raises doubts about the extent to which these reforms have resulted in improved contractor performance. DOE has developed little objective information to demonstrate whether the reforms have improved results. However, in September 2002, we reported that, based on a comparison of 25 major DOE projects in 1996 with 16 major projects in 2001,¹ it did not appear that DOE's contractors had significantly improved their performance over the period. In both sets of projects, over half had both schedule delays and cost increases. And the proportion of projects with significant cost increases and schedule delays was actually higher in 2001 than in 1996. For example, 38 percent of the projects we reviewed in 2001 had doubled their initial cost estimates, compared with 28 percent in 1996. Furthermore, problems with

¹ U.S. General Accounting Office, *Contract Reforms: DOE Has Made Progress, but Actions Needed to Ensure Initiatives Have Improved Results*, [GAO-02-798](#) (Washington, D.C.: Sept. 13, 2002).

individual projects and with site operating contracts continue to appear. These include a 3-year delay and \$2.1 billion cost increase to submit the license application for the Yucca Mountain waste repository project in Nevada and allegations of contractor fraud, waste, and abuse at the Los Alamos National Laboratory in New Mexico.

- In 2002, we saw DOE's management team take encouraging steps that could help to foster improvements in contract and project management. The Environmental Management program, which administers DOE's waste cleanup program, completed a frank and open assessment of problems with the program and initiated a number of additional reforms. These initiatives included improving contract and project management and streamlining business practices. DOE has also been working on agencywide initiatives, including developing an integrated budgeting and program results information system and placing increased emphasis on human capital initiatives to develop the department's future leaders. Although these management actions are encouraging, making these new policies a matter of practice will require strong leadership, clear lines of accountability and responsibility, and effective management systems to monitor results.

Before I discuss these issues in greater detail, I would like to explain why improving DOE's contracting and project management practices is so important.

Background

DOE's missions include developing, maintaining, and securing the nation's nuclear weapons capability; cleaning up the environmental legacy resulting from over 50 years of producing nuclear weapons; and conducting basic energy and science research and development. The department carries out these diverse missions at over 50 major installations in 35 states. DOE's contractors manage and operate these facilities and sites and undertake the construction of new facilities under the direction of department employees in program offices at DOE headquarters and in its field offices. With a DOE

workforce of about 16,000 employees and over 100,000 contractor staff, the department relies heavily on its contractors to accomplish its missions. Because DOE spends about 90 percent of its annual budget on contracts, DOE's ability to direct, oversee, and hold accountable its contractors is crucial for mission success and overall effectiveness.

In 1990, we designated DOE contract management as a high-risk area vulnerable to fraud, waste, abuse, and mismanagement because DOE relies on contractors to carry out its missions and because of its history of both inadequate management and oversight and failure to hold its contractors accountable for results. In our January 2001 report on DOE's major management challenges, we broadened the definition of contract management to include both contracting and project management.² This expanded definition reflects our view that contracting and project management activities and responsibilities are interrelated and that effective performance in both areas is essential if DOE is to achieve its mission goals. In January 2003, we reported that the high-risk designation for DOE contract management still applies.³

DOE Has Made Progress in Implementing Contracting and Project Management Reforms, but Difficulties Remain

Since the mid-1990s, DOE has made progress in its efforts to improve both its contracting practices and its management of projects, but the department continues to face problems in implementing these reforms. In 1994, DOE began evaluating its contracting practices and implementing a series of reforms intended to improve results by enhancing contractor performance. Because of continued problems with the management and oversight of DOE's projects, the conference report accompanying DOE's fiscal year 1998 Energy and Water Development Appropriations Act directed DOE to obtain an independent review of its project management capabilities. DOE contracted

² U.S. General Accounting Office, *Major Management Challenges and Program Risks: Department of Energy*, [GAO-01-246](#) (Washington, D.C.: Jan. 2001).

³ U.S. General Accounting Office, *Major Management Challenges and Program Risks: Department of Energy*, [GAO-03-100](#) (Washington, D.C.: Jan. 2003).

with the National Research Council (Council) for this study, and in 1999 began its project management initiative to implement the Council’s recommendations.⁴

Contract Reforms Focused on Developing Alternative Contracting Approaches, Increasing Competition, and Using Performance-Based Contracts

As we reported in September 2002, the department has made progress in implementing three key contract reform initiatives—developing alternative contracting approaches, increasing competition, and converting to performance-based contracts—although DOE continues to encounter challenges in implementing these initiatives.⁵

Using Alternative Contracting Approaches

One of the major focuses of DOE’s contract reform initiative was to develop alternatives to the traditional contracts used to manage and operate its major sites and facilities. Under these traditional “management and operating” contracts, one primary contractor performed almost all of the work at a site, the contractor had broadly defined statements of work, and DOE reimbursed the contractor for virtually all costs. As a result, work under these contracts focused more on annual work plans and budgets rather than on specific schedule and cost targets for accomplishing work. In implementing alternatives to these contracting arrangements, DOE intended to use the best contracting alternative given the required work and the objectives and risks associated with that work. To accomplish that goal, the department encouraged the use of different contracting approaches, such as fixed-price contracts that would shift the risk for performance to the contractor rather than the government, or “closure contracts,” which tie the contractor’s fee to cleaning up and closing a site rather than meeting annual targets.

However, DOE did not always systematically determine the best contract type for a given situation and thus experienced problems with implementation. For example, we

⁴ National Research Council, *Improving Project Management in the Department of Energy* (Washington, D.C.: June 1999).

⁵ U.S. General Accounting Office, *Contract Reform: DOE Has Made Progress, but Actions Needed to Ensure Initiatives Have Improved Results*, [GAO-02-798](#) (Washington, D.C.: Sept. 13, 2002).

reported in May 1998 that DOE's use of fixed-price contracting was appropriate when projects were well-defined and when uncertainties could be allocated between DOE and the contractor.⁶ When these conditions did not exist, cost overruns and schedule delays could occur. DOE has used fixed-price contracts for both small, relatively simple projects, such as laundry services, as well as for large, complex cleanup projects. We reported that this approach was generally not successful in controlling costs on large, complex cleanup projects, such as the project to retrieve high-level tank wastes and prepare the wastes for disposal at DOE's Hanford, Washington, site because of the high level of technical uncertainty and risk. To more systematically select the type of contract, DOE has been developing and implementing a formal strategy to evaluate contracting and financing alternatives and the associated business and technical risks before deciding on the best contracting approach.

Increasing Competition

Federal law generally requires federal agencies to use competition in selecting a contractor. However, until the mid-1990s DOE contracts for the management and operation of its sites generally fit within an exception that allowed for the use of noncompetitive procedures. As part of its contract reform initiative, DOE changed its contracting rules to set competition as the standard approach to awarding contracts. Under these revised regulations, the percentage of major site contracts awarded competitively (competed) increased to 56 percent as of 2001, up from 38 percent as of 1996. By 2001, 10 of the 11 contracts that had not been competed were for managing research and development centers which are statutorily exempt from mandatory competition.⁷ Despite this exemption, DOE evaluates these contracts towards the end of their current contract term to determine whether they should be extended or competed.

⁶ U.S. General Accounting Office, *Department of Energy: Alternative Financing and Contracting Strategies for Cleanup Projects*, [GAO/RCED-98-169](#) (Washington, D.C.: May 29, 1998).

⁷ The one exception was the major site contract for the management of DOE's West Valley Demonstration Project in New York state. According to DOE procurement officials, the contract has been extended because of the limited amount of cleanup work remaining at the site and the lack of interest by other contractors to compete for the work.

DOE has thus far decided on noncompetitive extensions for these contracts for research and development centers, including some for contractors that have experienced performance problems. For example, in 2001, DOE extended the managing and operating contracts with the University of California, the contractor operating Los Alamos and Lawrence Livermore National Laboratories. The University of California has operated these sites for 50 years or more and is the only contractor ever to have operated them. In recent years, we and other organizations have reported significant problems with laboratory operations and management at these two laboratories—particularly in the areas of safeguards, security, and project management.⁸ Although congressional committees and others have called for DOE to compete these contracts, DOE so far has opted to address these performance problems with specific contract provisions. However, it remains to be seen whether DOE will be successful in improving the University of California’s performance using this approach.

Using Performance-Based Contracts

Before DOE initiated its contract reforms, major site contracts generally had broad statements of work that focused more on annual budgets and work plans rather than specific results to be achieved. Fees under these contracts usually consisted of a base amount that was guaranteed (fixed) plus an award amount that was paid if the contractor met general performance expectations.⁹ In the mid-1990s, DOE began restructuring its major site contracts to use results-oriented statements of work and to incorporate performance incentive fees that were designed to reward the contractor if it met or exceeded specific performance expectations in priority areas. As of 2002, DOE reported that all of its major site contracts incorporated performance-based techniques to define requirements and measure results. To further emphasize the importance of the performance-based approach, DOE has increased the proportion of contractor fees tied

⁸ For example, see U.S. General Accounting Office, *Department of Energy: Key Factors Underlying Security Problems at DOE Facilities*, [GAO/T-RCED-99-159](#) (Washington, D.C.: Apr. 20, 1999); U.S. General Accounting Office, *Nuclear Security: Improvements Needed in DOE’s Safeguards and Security Oversight*, [GAO/RCED-00-62](#) (Washington, D.C.: Feb. 24, 2000); and A Special Investigative Panel, President’s Foreign Intelligence Advisory Board, *Science at its Best, Security at its Worst: A Report on Security Problems of the U.S. Department of Energy* (Washington, D.C.: June 1999).

⁹ The contract fee is the amount DOE pays to the contractor over the allowable costs under the contract.

to achieving the performance objectives to 70 percent in fiscal year 2001, from 34 percent in fiscal year 1996.

Despite this progress, development of good performance measures has continued to be a challenge for DOE. Numerous studies and reports found that DOE's performance-based contracts contained ineffective performance measures. For example, in 2001, DOE's Office of Inspector General reported on the performance measures in three major site contracts.¹⁰ According to this report, DOE was not focusing on high-priority outcomes, was loosening performance requirements over time without adequate justification, and was failing to match appropriately challenging contract requirements with fee amounts. The department disagreed with this report, stating that it was not appropriate to evaluate the overall success of performance-based contracts by looking at individual performance measures. However, DOE continues to modify and test its performance measures to focus on developing performance incentives that are more directly linked to the priority missions at a site. For example, DOE has developed multiyear incentives in the management and operating contract for the Hanford site, and multisite incentives that tie together activities at four production sites. Nevertheless, the department acknowledges that it must make further progress in this area.

Project Management Reforms Ranged from New Policy and Guidance to an Improved System to Track Project Performance

DOE's initiative to reform project management stems from 1999 National Research Council recommendations for improving DOE project management. The Council reported that DOE's construction and environmental remediation projects take much longer and cost about 50 percent more than comparable projects by other federal agencies or projects in the private sector. It also reported that DOE's project management practices fell far short of best practices in a number of areas, when compared with other government agencies and the private sector. The areas included

¹⁰ U.S. Department of Energy, *Use of Performance-Based Incentives at Selected Departmental Sites*, DOE/IG-0510 (Washington, D.C.: Jul. 9, 2001).

DOE's policies and procedures; documentation and reporting; project planning and controls; risk management; project reviews, acquisition, and contracting; organizational structure, responsibility, and accountability; and the selection, training, and skills of personnel.

Since 1999, when DOE established the Office of Engineering and Construction Management to lead the project management initiative, the department has been working to implement the Council's recommendations. In particular, in 2000, DOE issued a new policy, order, and guidance on managing and controlling projects. In 2001, DOE established new guidance that required the approval of projects of \$5 million and above at the assistant secretary level or higher, and a project tracking system and monthly status reports on all projects with total costs over \$5 million. Furthermore, in 2002, DOE established a performance goal that 85 percent of its major projects would have less than a 10-percent variance in either cost or schedule.

Despite these steps, many implementation challenges remain. In a November 2001 follow-up report, the Council noted that although DOE had taken positive steps in response to the recommendations in the 1999 report,¹¹ change had been inordinately slow, and there was no evidence that DOE's project management practices in the field had actually improved. Furthermore, DOE still had inadequate up-front project planning, no consistent system for evaluating the relative risks of projects, and no project management training program in place. The Council concluded that DOE was not in control of many of its projects and had virtually abdicated its ownership role in overseeing and managing its contracts and contractors.

¹¹ National Research Council, *Progress in Improving Project Management at the Department of Energy—2001 Assessment* (Washington, D.C.: Nov. 2001).

Available Information Raises Doubts About Extent to Which Contract and Project Management Reforms Have Improved Contractor Performance

DOE has little objective information demonstrating whether its reforms have resulted in improved contractor performance. Instead of measuring outcome-oriented performance results, DOE has primarily gauged progress by measuring the implementation of the initiatives and by reviewing individual contracts. While DOE can point to examples of success, objective performance information on overall results is scarce. Indeed, the evidence on DOE major projects that we developed suggests that contractor performance may not have improved.

Contractor Performance May Not Have Improved

In our September 2002 report, as a potential indicator of contractor performance, we evaluated changes in cost and schedule for 16 of DOE's major projects as of 2001 and compared them with similar information we developed on DOE's major projects in 1996. We found no indication of improved performance; in both groups of projects, over half of the ongoing projects were experiencing significant cost increases, schedule delays, or both. Furthermore, as shown in table 1, the proportion of projects experiencing cost increases of more than double the initial cost estimates or schedule delays of 5 years or more increased over the 6-year period. For example, the initial cost estimate in 1998 for the spent nuclear fuels dry storage project at the Idaho Falls site was \$123.8 million, with a completion date of 2001. In 2002, the cost estimate for this project was \$273 million, with a completion date of 2006. Appendix I contains additional information on DOE's ongoing major projects as of December 2001.

Table 1. Cost Overruns and Schedule Delays for Ongoing Projects in 1996 Compared with Ongoing Projects in 2001

	Number of projects	
	1996	2001
Number of projects reviewed	25 ^a	16 ^b
Projects with a cost estimate of more than double the initial cost estimate	7 (28%)	6 (38%)
Projects with schedule delays of 5 years or more	8 (32%)	6 (38%)

^aWe evaluated 34 projects in 1996 with estimated costs greater than \$100 million. However, nine of the projects were environmental restoration projects, and DOE's original and/or current cost estimates did not estimate costs through project completion. In 1998, DOE divided these environmental restoration projects into multiple projects at each site. Therefore, we excluded these projects from our current analysis.

^bThere are 10 additional projects with total project costs greater than \$200 million, but those projects had either recently started or have been suspended.

Source: GAO.

The projects we reviewed—with estimated costs ranging from \$270 million to \$8.4 billion—may not be representative of all DOE projects.¹² Although this comparison provides only a limited measure of contractor performance, it does raise questions about the overall impact of DOE's initiatives on improving contractor performance.

Anecdotal Evidence Provides No Overall Measure of Improved Performance

Most of DOE's evidence of progress has been anecdotal. On this basis, DOE can certainly point to some successes. For example:

- Officials at DOE's Albuquerque operations office pointed out that after competing the contract for the Pantex site, the new contractor met production levels that were not achieved by the previous contractor.

¹² As of January 2002, DOE records indicated at least 42 ongoing projects with estimated costs greater than \$100 million. We did not review all of DOE's capital projects with costs over \$100 million because of the level of effort that would have been required, since DOE does not maintain centralized information on those projects. Furthermore, five of the ongoing projects we reviewed in 2001 began before the advent of DOE's contract reform initiatives.

- In a 1999 internal review of its performance-based contracting practices,¹³ DOE reported that “anecdotal evidence supports that the proper use of well-structured, performance-based incentives is leading to improvements in performance at some DOE sites.” One of the examples cited was at Rocky Flats, where DOE reported that contractor performance had improved with a new contractor, selected in 1995, and with performance-based incentives in the contract.

However, we have identified numerous projects or sites where performance problems continued to occur. For example:

- The National Ignition Facility at Lawrence Livermore National Laboratory in California is designed to produce intense pressures and temperatures to simulate in a laboratory the thermonuclear conditions created in nuclear explosions. We reported in August 2000 that the estimated cost of the facility had increased from \$2.1 billion to \$3.3 billion and that the scheduled completion date had been extended by 6 years to 2008.¹⁴ We attributed these major cost and schedule changes to inadequate management by the contractor and DOE oversight failures.
- Paducah, Kentucky, is the site of DOE facilities used to enrich uranium for use in nuclear power plants. There is considerable waste material on site and significant on-site and off-site ground water contamination. In 2000, we reported that DOE’s cleanup plan contained several assumptions and uncertainties that could significantly increase the time and add billions of dollars to the cost of cleaning up the site.¹⁵ For example, not all areas needing cleanup were included in the plan and assumptions about available funding to address the problems were unrealistic.

¹³ U.S. Department of Energy, *Follow-up Assessment of the Effectiveness of Actions Taken to Improve Performance-Based Incentives in Performance-Based Management and Management and Integration Contracts* (Washington, D.C.: Mar. 31, 1999).

¹⁴ U.S. General Accounting Office, *National Ignition Facility: Management and Oversight Failures Caused Major Cost Overruns and Schedule Delays*, [GAO/RCED-00-271](#) (Washington, D.C.: Aug. 8, 2000).

¹⁵ U.S. General Accounting Office, *Nuclear Waste Cleanup: DOE’s Paducah Plan Faces Uncertainties and Excludes Costly Cleanup Activities*, [GAO/RCED-00-96](#) (Washington, D.C.: Apr. 28, 2000).

- The Yucca Mountain Site Characterization Project, Nevada, is developing a high-level waste repository. The original project baseline estimated a total project cost of \$6.3 billion and an October 2001 date for submitting a license application. DOE's latest estimate is that the license application will not be submitted until December 2004, with an estimated cost of almost \$8.4 billion. We reported in December 2001 that DOE had stopped using the baseline to manage the project and was using estimates that were never approved or incorporated into the official project baseline.¹⁶ Using baseline and change control procedures is essential to ensuring that the project is being managed effectively.
- Los Alamos National Laboratory, New Mexico, is one of DOE's primary locations for research on nuclear weapons. Allegations of contractor fraud, waste, and abuse and of poor internal controls by the University of California, which operates the laboratory for DOE, have surfaced in the last few months and have led to numerous investigations (currently ongoing) and questions about the adequacy of DOE's oversight of laboratory activities and personnel.

Problems are also beginning to emerge at the Hanford site in Washington State, where a contract is in place to address the high-level tank wastes. We learned recently that, although the baseline for this \$4 billion project was established in May 2002, as of January 2003, the project was already 10 months behind schedule, and the contractor was estimating cost increases and other adjustments to the contract that could total over \$1 billion. DOE withheld provisional fee payments to the contractor in January 2003, based on this "unacceptable performance."

Although interesting and sometimes revealing, anecdotal information provides no overall measure of whether the performance of DOE's contractors is improving or getting worse. DOE appears to have recognized the limitations of anecdotal information and is taking steps to implement a departmentwide project analysis and reporting system. Such a

¹⁶ U.S. General Accounting Office, *Nuclear Waste: Technical, Schedule, and Cost Uncertainties of the Yucca Mountain Repository Project*, [GAO-02-191](#) (Washington, D.C.: Dec. 21, 2001).

system, if successfully implemented, could provide the information needed to conduct overall assessments of contractor performance.

Achieving Improved Contractor Performance Will Require Commitment and Perseverance

DOE's most recent management initiatives indicate that the department is aware it still has a long way to go in improving contractor performance. While the limited progress to date is discouraging, the frank admission of problems in the cleanup program and subsequent improvement efforts are an encouraging sign. The 2002 "top-to-bottom" review of the Environmental Management program concluded that process rather than cleanup results had become the basis for cleanup approaches, contracts, and performance measures.¹⁷ Only about one-third of the budget was going toward actual cleanup; the remainder was spent on maintenance, support activities, and fixed costs. Furthermore, the review team concluded that DOE's financial liability would continue to grow well beyond the \$220 billion estimated at the time if significant changes to the program were not made. The team's report stated that without higher performance standards and breakthrough business processes, cost growth and schedule delays would continue to obstruct cleanup, and the risk to workers, the public, and the environment would not be reduced.

The report recommended a series of initiatives to address these problems. These initiatives include developing an accelerated, risk-based cleanup strategy; improving contract management and establishing more meaningful performance measures for contractors; improving project management; and streamlining business practices. In addition, the report recommended implementing an effective human capital strategy to increase the technical expertise of DOE staff and improve accountability for results.

¹⁷ U.S. Department of Energy, *A Review of the Environmental Management Program* (Washington, D.C.: Feb. 4, 2002).

In addition to the efforts of the Environmental Management program, DOE is working on improving its agencywide management information systems and human capital systems. For example, in 2001, DOE began developing a unified planning, programming, budgeting, and evaluation process to integrate budget and program results information. Also in 2001, DOE began developing a training and certification program for federal project management, and strategies to address skill gaps in its contracting and project management workforce.

DOE has a long way to go before it can claim that its contracting and project management problems are over. As we have reported before, making new policy a matter of practice requires strong leadership, especially in an organization like DOE, which has diverse missions, a confusing organizational structure, and a weak culture of accountability.¹⁸ But the scope and magnitude of the reforms being contemplated in the Environmental Management program indicate to us for the first time that the management team has seen and understood the full extent of the challenges DOE faces. And because DOE expects to spend hundreds of billions of dollars in future years on missions important to the well-being of the American people, such as cleaning up nuclear wastes and ensuring the safety and reliability of our nuclear weapons, there are compelling reasons to ensure that it has in place an effective set of contracting and project management practices and controls.

Thank you, Mr. Chairman and Members of the Committee. That concludes my testimony. I would be pleased to respond to any questions that you may have.

¹⁸ U.S. General Accounting Office, *Department of Energy: Fundamental Reassessment Needed to Address Major Mission, Structure, and Accountability Problems*, [GAO-02-51](#) (Washington, D.C.: Dec. 21, 2001).

Contacts and Acknowledgements

For further information on this testimony, please contact Ms. Robin Nazzaro at (202) 512-3841. Individuals making key contributions to this testimony included Carole Blackwell, Bob Crystal, Doreen Feldman, Stan Stenersen, Bill Swick, and Arvin Wu.

Appendix I

Cost and Schedule Performance on DOE's Major Projects, as of December 2001

As we reported in September 2002, table 2 shows the original and revised cost estimates and completion dates for ongoing DOE projects with estimated costs greater than \$200 million. We excluded from the table 10 additional DOE projects with estimated costs greater than \$200 million because the projects were suspended or only recently started as of December 2001.

Table 2: Original and Revised Cost Estimates and Schedule for DOE Projects with Estimated Costs Greater than \$200 Million as of December 2001

Dollars in millions	Cost		Schedule	
	Original cost estimate ^a	Revised cost estimate	Original completion date	Revised completion date
Advanced Mixed Waste Treatment Project (97-PVT-2) ^c	\$1,078.9	\$1,087.7 ^d	December 2002	December 2002
Civilian Radioactive Waste Management Program ^e	6,300.0 ^f	8,394.6	October 2001 ^f	December 2004
Dual-Axis Radiographic Hydrodynamic Test Facility (97-D-102) ^g	30.0 ^h	269.7	September 1990	December 2002
East Tennessee Technology Park Three-Building Decontamination and Decommissioning and Recycle Project (OR-493)	283.9	348.1	December 2003	March 2004
Facilities Capability Assurance Program (88-D-122) ⁱ	N/A ⁱ	445.6	N/A ⁱ	June 2000
Hanford Tank Waste Treatment and Immobilization Plant (01-D-416)	12,488.0 ^k	4,350.0	2007	2007
High-Level Waste Removal from Filled Waste Tanks (93-D-187) ^l	88.6 ^m	1,550.5	September 1999 ⁿ	September 2028
Initial Tank Retrieval Systems (94-D-407)	245.0 ⁿ	274.9	March 2000 ⁿ	December 2015
National Ignition Facility (96-D-111)	1,073.6	2,248.1	June 2002	September 2008
Silos	N/A	338.1	N/A	December 2006
Spallation Neutron Source (99-E-334)	1,332.8	1,411.7	September 2005	June 2006
Spent Nuclear Fuel Dry Storage (98-PVT-2) ^o	123.8	273.0	June 2001	December 2005
Hanford Spent Nuclear Fuels	714.8	1,600.0	2001	September 2006
Tank Farm Restoration and Safe Operations (97-D-402)	289.2	285.3	June 2005	June 2005
Tritium Extraction Facility (98-D-125) ^p	390.7	401.0	June 2005	March 2006
Weldon Springs Site Remedial Action Project	357.7 ^q	905.2	September 1995 ^q	September 2002

Source: GAO analysis of DOE and National Research Council data.

^aProjects that are not funded as construction line items do not have project numbers. All costs, unless otherwise specified, are “total project costs.” The cost data were obtained from DOE Congressional budget requests and other DOE-provided data. The term N/A means cost or schedule not available or not yet developed.

^bFor consistency we used, when available, preliminary budget estimates submitted to Congress as the basis for original cost estimates.

^cTotal project cost for construction projects typically includes only the design, construction, and startup costs that precede production operations. Total project cost for this project also includes estimated costs for over 10 years of production operations and other associated costs. The revised completion date refers to completion of the construction phase.

^dThe contractor has submitted a “Request for Equitable Adjustment” of over \$48 million due to a six-month schedule slip the project experienced as a result of a delay in the issuance of environmental permits. Because the Request for Equitable Adjustment is still under review, the \$48 million is not included in the revised cost estimate.

^eThe original baseline for this program included construction of the exploratory studies facility and, if suitable, a site recommendation and a license application. The current scope of the program was broadened in 1997 to include all elements of the Civilian Radioactive Waste Management Program, which now includes development of license application, design and construction of Yucca Mountain Repository, licensing interactions with the Nuclear Regulatory Commission, and development of a transportation system. The revised completion date is only for the license application.

^fWe reported in 1996 that the current cost and completion date for the Yucca Mountain Site Characterization Project were \$4,300 million and March 2002, respectively. In 1997, DOE expanded the project to include the entire Civilian Radioactive Waste Management Program.

^gThe original scope of this project at initial authorization in 1988 included two buildings and two single pulse flash x-ray machines. The project has since undergone several changes in scope, which now includes three buildings, a containment vessel to reduce emissions to the environment, a single pulse machine, and a multiphase machine.

^hThis amount is a total estimated cost from the fiscal year 1988 Budget Request, which does not include other project costs. Other project costs include supporting research and development and plant support costs during construction, activation, and startup. There was no requirement for a total project cost estimate in 1988.

ⁱThis project has a few subprojects completing closeout activities and two still underway. DOE anticipates additional funding needs and a schedule extension to complete the final two subprojects.

^jWe reported in 1996 that the current cost for the Facilities Capability Assurance Program was \$447 million and the completion date was not available. No cost estimate was available when the project was originally proposed.

^kThis original cost estimate from the fiscal year 2001 Budget Request was based upon the privatization concept and included plant operations through fiscal year 2018.

^lDOE expanded the original scope of this project in fiscal year 1994 to incorporate three ongoing projects, which increased the total project cost from \$88.6 million to \$828 million and the project completion date from 1999 to 2008 in the fiscal year 1996 budget. The cost and schedule were revised again in fiscal year 2000 to include, among other projects, the equipment and infrastructure required to remove the high level waste inventory from nine additional tanks.

^mWe reported in 1996 that the current cost and completion date for the High Level Waste Removal project were \$828.2 million and September 2008, respectively. DOE expanded the scope of this project in 1994.

ⁿWe reported in 1996 that the current cost and completion date for the Initial Tank Retrieval System project were \$358.2 million and March 2010, respectively.

^oThe original and revised estimated costs include design, construction, startup, and operating costs. The revised completion date refers to completion of the construction and startup phase.

^pIn June 2002 DOE's Office of Inspector General reported that the total project cost for the Tritium Extraction Facility could increase to as much as \$500 million and that the facility may not be completed until December 2006.

^qWe reported in 1996 that the current cost and completion date for the Weldon Springs Remedial Action Project were \$865.0 million and 2001, respectively.

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