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and Water Development, Committee on
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DEPARTMENT OF ENERGY

Consistent Application of Requirements Needed to Improve Project Management





Highlights of [GAO-07-518](#), a report to the Subcommittee on Energy and Water Development, Committee on Appropriations, House of Representatives

Why GAO Did This Study

Since 1990, Department of Energy (DOE) contract management (which includes project management) has been designated as a high-risk area for fraud, waste, abuse, and mismanagement. For years, GAO has reported on DOE's inadequate management and oversight of its contracts and projects. GAO has made dozens of recommendations on steps that DOE could take to improve project management. Furthermore, in 1999 The National Academies' National Research Council developed a series of recommendations to address weaknesses in DOE's project management. This GAO report discusses (1) DOE's main efforts since 1999 to address project management weaknesses, (2) the extent to which DOE's project performance has improved, and (3) the extent to which DOE's project management guidelines have been consistently followed.

What GAO Recommends

GAO recommends that DOE enhance accountability by ensuring that project management requirements are consistently followed by all of the department's component organizations and that any exceptions to following the requirements are allowed only after senior management's review and approval. In commenting on a draft of the report, DOE agreed with the recommendation.

www.gao.gov/cgi-bin/getrpt?GAO-07-518.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Gene Aloise, 202-512-3841, aloisee@gao.gov.

DEPARTMENT OF ENERGY

Consistent Application of Requirements Needed to Improve Project Management

What GAO Found

Since 1999, DOE has improved its approach to project management by addressing weaknesses in three key areas, as recommended by the National Research Council—strengthening project management policies and guidance, developing consistent and objective performance information on ongoing projects, and improving the quality of federal oversight of contractors and projects. DOE revised its policies and guidance to, among other things, require senior management approval at critical decision points. To develop consistent, objective performance information for ongoing projects, DOE required its contractors to implement an “earned value” management system, commonly used in private industry. DOE also developed a project tracking and reporting system to routinely make the earned value performance information available to managers. To help ensure the consistency and reliability of performance data, DOE is reviewing and certifying the contractors' earned value management systems. To improve the quality of federal oversight, DOE developed a training and certification program for federal project directors and required independent reviews of projects at critical decision points.

Nevertheless, performance on DOE's projects has not substantially improved. DOE set a performance goal of having 90 percent of its ongoing projects being managed within a 10 percent variance of cost and schedule baseline targets. Since October 2002, when DOE began reporting monthly project performance data, DOE has achieved its 90 percent performance goal only about one third of the time. The percentage of projects meeting the performance goal has been relatively steady, seldom falling below 80 percent or exceeding 90 percent. DOE officials said that, although performance goals are not consistently being met, improvements in project planning, independent project reviews at critical decision points, and stronger federal oversight should result in improved project performance in the future.

DOE has not ensured that its project management requirements are consistently followed. For example, on a project started in June 2004 to demonstrate an alternative waste treatment technology at DOE's Hanford site, DOE officials decided to accelerate the project's schedule. As a result, the project was initiated without using key project management tools, such as an independent review of the cost and schedule baseline. After the project experienced significant schedule and technical problems and the estimated cost more than tripled to about \$230 million, DOE began requiring that the project be managed consistent with its project management requirements. Furthermore, on four additional projects, estimated to cost over \$100 million each, cost and schedule information was not being reported into DOE's project tracking system, resulting in less senior management oversight.

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Abbreviations

DOE	Department of Energy
NNSA	National Nuclear Security Administration

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United States Government Accountability Office
Washington, DC 20548

May 11, 2007

The Honorable Peter J. Visclosky
Chairman
The Honorable David L. Hobson
Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
House of Representatives

The Department of Energy (DOE), the largest civilian contracting agency in the federal government, spends over 90 percent of its annual budget on contracts to operate its laboratories, production facilities, and environmental restoration sites. In fiscal year 2006, DOE spent about \$23 billion on contracts to maintain the nation's nuclear weapons stockpile, clean up radioactive and hazardous wastes, and conduct scientific research activities. DOE's contractors generally carry out these missions by managing the department's projects, and DOE program managers and federal project directors oversee the contractors' efforts. As of September 2006, DOE was managing 206 ongoing projects, costing \$5 million or more, for a total estimated cost of \$205.6 billion. These projects can be funded separately in the department's annual budget as a construction line item or funded from annual operating funds, such as environmental cleanup projects. The cost and complexity of these projects can vary greatly, such as a \$12-million project to demolish a surplus building at the Lawrence Livermore National Laboratory in California or a multi-billion dollar project at the Hanford site in Washington state to design and construct one-of-a-kind facilities to treat high-level radioactive and hazardous wastes.

For years, GAO has reported on DOE's inadequate management and oversight of its contracts and projects and on its failure to hold contractors accountable for results. The poor performance of DOE's contractors has led to schedule delays and cost increases for many of the department's major projects. Such problems led us to designate DOE's contract management—defined broadly to include both contract administration and project management—as a high-risk area for fraud, waste, abuse, and mismanagement in 1990. Since that time, we have issued numerous reports and made dozens of recommendations to DOE identifying specific steps that would improve project management across all parts of the department's organization. For example, in June 2004, we

found that DOE's failure to implement project management guidelines at the initiation of a major cleanup project at its Hanford site led to about a one-third increase in the project cost and added about 16 months to the estimated construction schedule.¹ We recommended, among other things, that DOE follow project management guidelines more closely. In addition, in March 2005, we recommended that the department take steps to strengthen contract management throughout its organization to more effectively control cost increases and schedule delays that were occurring on many of the department's major projects.² Several years later, we found that organizational conflicts between the National Nuclear Security Administration (NNSA) and DOE were inhibiting the effective management of the nuclear weapons complex and recommended, among other things, that NNSA take actions to strengthen management of its projects.³ In April 2006, we testified before this subcommittee on the technical and management problems with the Hanford Waste Treatment Plant, a project to construct facilities to treat and prepare for disposal of 55 million gallons of high-level radioactive waste.⁴ The estimated costs of this project had increased from about \$4.3 billion to over \$12 billion, with an 8-year delay in completing the facilities. Many of the problems with the project resulted from poor contractor performance and poor DOE oversight of the contractor's activities. Ultimately, in January of this year, we concluded that despite DOE's efforts to address contract and project management weaknesses, performance problems continued to occur on DOE's major projects, and DOE contract management remained at high-risk for fraud, waste, abuse, and mismanagement.⁵

In addition to GAO, others have reported problems with DOE's management and oversight of its projects. Specifically, the conference

¹GAO, *Nuclear Waste: Absence of Key Management Reforms on Hanford's Cleanup Project Adds to Challenges of Achieving Cost and Schedule Goals*, [GAO-04-611](#) (Washington, D.C.: June 9, 2004).

²GAO, *Department of Energy: Further Actions Are Needed to Strengthen Contract Management for Major Projects*, [GAO-05-123](#) (Washington, D.C.: Mar. 18, 2005).

³GAO, *National Nuclear Security Administration: Additional Actions Needed to Improve Management of the Nation's Nuclear Programs*, [GAO-07-36](#) (Washington, D.C.: Jan. 19, 2007).

⁴GAO, *Hanford Waste Treatment Plant: Contractor and DOE Management Problems Have Led to Higher Costs, Construction Delays, and Safety Concerns*, [GAO-06-602T](#) (Washington, D.C.: Apr. 6, 2006).

⁵GAO, *High-Risk Series: An Update*, [GAO-07-310](#) (Washington, D.C.: January 2007).

report accompanying DOE's fiscal year 1998 Energy and Water Development Appropriations Act directed the department to obtain an independent review of its project management capabilities. The National Academies' National Research Council issued its first report from this review in 1999.⁶ The National Research Council reported that DOE's construction and environmental cleanup projects took much longer and cost about 50 percent more than comparable projects by other federal agencies or projects in the private sector. The council concluded that DOE's project management practices fell short of industry best practices in three key areas—the adequacy of its project management policies and guidance, consistent and objective performance information on the cost and schedule of projects, and the quality and adequacy of federal oversight. The National Research Council developed a series of recommendations to improve DOE's framework for managing projects and noted that improved performance on projects would require an organizational and cultural change within the department. Both the National Research Council and DOE acknowledged that implementing these recommendations and changing the organization and culture within the department would be a major initiative and that it could take years to complete the implementation activities and to improve the cost and schedule performance of DOE's projects.

Therefore, you asked us to evaluate DOE's efforts to improve management of its projects since the 1999 National Research Council report and to identify other steps DOE could take to strengthen its project management practices. In response, we undertook two separate reviews. One report issued in March 2007 discusses cost and schedule performance on 12 of DOE's major construction projects, and the factors contributing to any cost increases or schedule delays.⁷ This is the second report that discusses (1) DOE's main efforts since 1999 to address weaknesses in the management of its projects, (2) the extent to which DOE's project performance has improved, and (3) the extent to which DOE has implemented its improvement efforts and consistently followed its project management guidelines.

⁶National Research Council, *Improving Project Management in the Department of Energy* (Washington, D.C.: June 1999).

⁷GAO, *Department of Energy: Major Construction Projects Need a Consistent Approach for Assessing Technology Readiness to Help Avoid Cost Increases and Delays*, [GAO-07-336](#) (Washington, D.C.: Mar. 27, 2007).

To determine DOE's main efforts since 1999 to address weaknesses in its project management, we reviewed and analyzed DOE's policies and guidance on managing projects, and DOE efforts to improve its management processes. We also interviewed senior DOE headquarters officials to identify improvement efforts that the department had taken or had in process. We focused our review of actions taken by DOE's program offices on the department's three largest elements by percentage of the annual budget—NNSA and the Offices of Environmental Management and Science. To determine the extent to which performance on DOE's projects has improved since 1999, we reviewed and analyzed DOE's monthly status reports on projects and related supporting documentation. Since we have expressed concern about the reliability of the data in DOE's project tracking and reporting system, we did not develop our conclusions or findings based on information generated from that system. However, we did determine that the data were sufficiently reliable to present trends in DOE's ability to meet its performance goals. To determine the extent to which DOE's improvement efforts have been fully implemented and its project management guidelines consistently followed since 1999, we reviewed and analyzed prior GAO reports and reports from DOE's Office of Inspector General and The National Academies' National Research Council. These reports discussed weaknesses in DOE's project management, contractor performance, and federal oversight of individual projects, as well as DOE's efforts to improve management of contracts and associated performance measures. A more detailed description of our scope and methodology is presented in appendix I. On October 12, 2006, we briefed your staff on our results to date, and this report documents information presented in that briefing. We conducted our work from June 2006 to April 2007 in accordance with generally accepted government auditing standards.

Results in Brief

DOE has improved its approach to project management by addressing weaknesses in three key areas, as recommended by the National Research Council in 1999— strengthening project management policies and guidance, developing consistent and objective performance information on ongoing projects, and improving the quality of federal oversight of contractors and projects.

- To strengthen project management policies and guidance, DOE began revising its policies and guidance in 2000 to incorporate industry practices and requirements and increase the focus on early planning. Specifically, to improve contract planning, DOE issued new guidance on factors to consider in selecting the appropriate contract type for a project, given the

work to be performed and the associated risks. DOE also revised its policies and guidance to require the use of an integrated project team for planning, to help ensure that the program office considers legal, contracting, and safety issues in the early phases of a project. In addition, the revised guidance required senior management approval at critical decision points during a project, such as when starting construction for a new facility.

- To develop consistent, objective performance information on the progress of its ongoing projects, DOE required its contractors to implement an “earned value” management system. Earned value management, commonly used in private industry, relates the actual cost and schedule for accomplishing work on a project to the planned cost and schedule, and provides an objective measure of performance. DOE also developed a project tracking and reporting system to routinely gather and make available to its managers the earned value performance information, and began summarizing and reporting performance data from this system in fiscal year 2003. To help ensure the consistency and reliability of the data in its project tracking system, in 2005 DOE began reviewing and certifying the earned value management systems used by its contractors. The purpose of this review was to determine whether the systems used by contractors to develop and report project cost and schedule information complied with the industry standards for an earned value management system, and could be relied upon to produce consistent and objective performance information.
- To improve oversight of projects, DOE took two main actions—it developed a training and certification program for its federal project directors, and it required independent reviews of projects at key decision points. Specifically, in 2003, DOE established a project management career development program, which defined the training and experience necessary for federal project directors. As of May 2006, all DOE employees responsible for oversight of its projects had met the training and experience requirements to become certified federal project directors. In addition, to increase confidence in its ongoing projects, DOE required independent reviews from outside the responsible program office, at the initiation of a project to validate the mission need and before the project baseline is approved to validate the cost and schedule estimates.

Despite these considerable efforts, overall performance on DOE’s projects has not substantially improved to this point. DOE set a performance goal of having 90 percent of its ongoing projects being managed within a 10 percent variance of cost and schedule baseline targets. However, since October 2002, when DOE began reporting monthly project performance

data, the department has achieved its performance goals for line item construction projects (generally funded separately in the government's annual budget) only about one third of the time. Also, starting in February 2004, DOE began reporting performance information separately for cleanup activities funded by the Office of Environmental Management annual operating funds rather than as individual line item construction projects. Prior to that time, these "operating" projects were included with the line item construction projects. Since February 2004, these "operating" projects met cost and schedule performance goals only about 21 percent of the time. DOE officials said that, although performance goals are not consistently being met, improvements in project planning, independent project reviews at critical decision points, and stronger federal oversight should result in improved project performance in the future.

DOE has not fully implemented its project management improvement efforts or ensured that project management requirements are consistently followed. One of DOE's improvement efforts has been to review and certify contractors' earned value management systems used to develop and report information on the cost and schedule performance of DOE's projects. DOE has completed the review and certification of eight contractor earned value management systems used on 40 of 96 ongoing DOE projects. DOE has established annual targets for the number of contractor systems to be reviewed, but it could be several years before DOE has certified substantially all of the contractors' earned value management systems. Of greater concern is that DOE has not ensured that its project management requirements are consistently followed. For example, DOE officials initially did not require the contractor to follow all project management requirements on a project to demonstrate an alternative waste treatment technology at DOE's Hanford site. Therefore, the project was initiated without using key project management tools, such as an independent review of the cost and schedule baseline. After the project experienced significant schedule and technical problems and the estimated cost more than tripled to about \$230 million, DOE began requiring that the project be managed consistent with its project management requirements. In addition, we reported in January 2007 that cost and schedule status information on four NNSA projects, estimated to cost over \$100 million each, was not being reported into DOE's project tracking system, and therefore, the projects were not receiving senior management oversight.

To help strengthen management of DOE's projects and to better ensure that projects are completed on time and within budget, we are recommending that DOE take steps to ensure that project management

requirements are consistently followed and that any exceptions to following the requirements are carefully reviewed and approved by senior management.

In its comments on a draft version of the report, DOE agreed with our recommendation and outlined steps that the department is taking or will take to strengthen project management.

Background

DOE relies on its contractors to operate its sites and carry out its diverse missions, including developing, maintaining, and securing the nation's nuclear weapons capability; cleaning up the nuclear and hazardous wastes resulting from more than 50 years of weapons production; and conducting basic energy and scientific research, such as mapping the human genome. This mission work is carried out under the direction of NNSA and DOE's program offices, including the Offices of Environmental Management and Science. At the end of fiscal year 2006, DOE had fewer than 11,000 employees to provide oversight for work performed under contract by over 95,000 contractor employees.⁸

DOE's contractors generally carry out the department's missions by managing its projects. DOE defines a project as "a unique effort that supports a program mission having defined points for starting and ending, undertaken to create a product, facility, or system and containing interdependent activities planned to meet a common objective or mission." A project is individually planned, approved, and managed in support of a program objective. Projects can include such diverse efforts as construction of multi-billion dollar facilities to treat radioactive and hazardous wastes, decontamination and demolition of excess facilities, or technology development activities.

DOE's Office of Engineering and Construction Management establishes policies and guidance for planning and managing projects. DOE's Office of Procurement and Assistance Management and NNSA's Office of Acquisition and Supply Management establish policies and guidance for awarding and administering the contracts under which the department's projects are carried out. Officials from DOE's programs, such as NNSA

⁸At the end of fiscal year 2006, DOE had a total of about 15,000 full-time equivalent employees. Since over 4,000 of those employees worked for one of the department's four power marketing administrations, they are not included in the number available to provide oversight of contractors' efforts.

and the Offices of Environmental Management and Science, provide oversight to ensure that the contractors are managing projects to support DOE's missions. In addition to the oversight of projects provided by the Office of Engineering and Construction Management, DOE's three largest program elements—NNSA and the Offices of Environmental Management and Science—established project management support offices within their organizations. These project management support offices coordinate efforts within the program, provide additional oversight of projects, and conduct more detailed reviews of individual projects.

DOE Has Improved Its Approach to Managing and Overseeing Projects

Since 1999, DOE has worked to improve its approach to managing projects in three key areas of concern identified by the National Research Council—strengthening project management policies and guidance, developing consistent and objective performance information on ongoing projects, and improving the quality of federal oversight.

Project Management Policies and Guidance Now Incorporate Industry Practices

The first key area that DOE focused on was strengthening its project management policies and guidance to incorporate industry practices as recommended by the National Research Council. In its 1999 report, the council found that DOE lacked comprehensive project management policies and guidance and that there was little emphasis on early planning for projects.

To incorporate industry practices into its project planning and management, DOE implemented a new project management order and guidelines that established a systematic process commonly used in private industry for managing and overseeing projects, from identification of need through project completion. DOE issued its project management order in October 2000⁹ and in March 2003, issued a project management manual, containing supplemental information and guidance on applying the order to individual projects. In July 2006, DOE revised the order to, among other things, reflect lessons learned since October 2000, including how to improve the quality of the documentation supporting project decisions.¹⁰ Furthermore, the July 2006 order clarified how the project management guidelines should be applied both to environmental management cleanup projects and to information technology projects.

⁹DOE Order 413.3, issued October 13, 2000.

¹⁰DOE Order 413.3A, issued July 28, 2006.

The project management order provided a much more specific framework for planning, managing, and overseeing a project. For example, prior to 2000, DOE's previous order on the acquisition of capital assets had a stated objective of managing physical assets in a safe and cost effective manner to meet the DOE mission.¹¹ In contrast to that more general objective, the stated objective in the October 2000 project management order was to provide project management direction with the goal of delivering projects on schedule, within budget, and fully capable of meeting standards for mission performance, and safeguards and security, as well as environmental, safety, and health standards.

In addition, the October 2000 order required a far more structured process for carrying out a project. Specifically, the order established major milestones—or critical decision points—that span the life of a project. For example, critical decision points for a construction project include (1) approving mission need, (2) approving the selection of the alternative and cost range, (3) approving the performance baseline (cost, schedule, and scope), (4) approving the start of construction, and (5) approving the start of operations or project completion. The order specifies the requirements that must be met, with the documentation necessary to move past the decision point. In addition, DOE senior management must review the supporting documentation and approve the project at each critical decision point.¹²

Overall, the revised policies and guidance provide more structure, discipline, and control over the management of DOE's projects, and more information on projects is available for review and approval. For example, for the decision point when an alternative is selected and the cost range for the project is identified, the program office needs to document why it selected the preferred approach from the various alternatives considered, develop an acquisition strategy, and develop a range of estimated costs to complete the project. Senior DOE management must review and approve the planned approach before the project can proceed. Under the previous order, there was more limited review in the early phases of a project, and

¹¹The order provided little additional information on how to do this.

¹²DOE's project management order also establishes the level of approval authority required for projects depending on the total project cost. For example, in the July 2006 revision, generally the approval authority is the Secretarial Acquisition Executive for major projects with a total project cost over \$750 million, an undersecretary for projects with a total project cost between \$100 million and \$750 million, and a program secretarial officer for projects less than \$100 million.

it was not until later in the project that the program office documented the mission need and a range of estimated costs. In addition, the previous order did not specifically require senior management review in the early phases of a project.

Another way in which the order strengthens project planning and management is by requiring and emphasizing the use of integrated project teams. These teams, led by the federal project director, bring together expertise from the program office, along with the knowledge, skills, and abilities from other program and staff offices within the department, such as the Office of General Counsel, to support the federal project director in successfully executing a project. The integrated project team generally includes members who can provide legal and contracting expertise, in addition to helping the project director comply with safety, security, and environmental requirements. The previous order did not specifically require the use of an integrated project team for planning and carrying out a project.

In 2004, DOE's Office of Procurement and Assistance Management initiated a separate but related effort to strengthen DOE's contracting practices by issuing new guidance intended to strengthen contract planning and management.¹³ The guidance included information on

- how to select an appropriate contract type for a project and the factors to consider for each type of contract, taking into account the scope and complexity of the work to be performed, and the business, technical, and regulatory risks;
- how to provide incentives for contractors to complete projects on time and within budget;
- how to develop a contract management plan once the contract is awarded, including describing how the contracting officer and program managers will monitor contractor performance to ensure that the requirements of the contract will be met and that the contractor will be held accountable for results; and

¹³U.S. Department of Energy, Office of Procurement and Assistance Management, *Acquisition Guide: A DOE Guide to the Award and Administration of Contracts* (Washington, D.C.: Revised August 2006).

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- how to develop effective, results-oriented performance measures and incorporate incentives into contracts that will encourage meeting cost and schedule goals on projects.

In the past, we have recommended other actions DOE could take to strengthen contract management for its major projects. Specifically, in March 2005, we recommended that DOE develop new guidance on structuring and managing contracts.¹⁴ In June 2005, DOE issued this new guidance, which covers such topics as how to incorporate project management requirements into contracts and the importance of having reliable project performance data to manage contracts.

DOE Has Developed a Project Tracking Information System and Is Improving the Quality of Project Performance Data

The second key area where DOE focused was developing more consistent, objective performance information on its ongoing projects, as the National Research Council recommended. Before 1999, DOE policies and guidance did not require systematic reporting of cost and schedule status on projects into a centralized project tracking system. In its 1999 report, the National Research Council found that DOE had no consistent system for objectively tracking progress on its projects, identifying the potential for cost and schedule overruns, or providing status information to DOE senior management. As a result, the types of information contractors developed and reported and the frequency of those reports varied across DOE's program offices and field locations.

In response to these concerns about the reliability of project performance information, DOE required its contractors to implement a uniform way of tracking and reporting a project's status. This way of measuring project cost and schedule performance—called an earned value management system—is commonly used in private industry. At any point in time during a project, an earned value system relates the actual cost and actual schedule for accomplishing work to the planned cost and schedule. Generally, for DOE projects with a total project cost of \$20 million or more, the contractor must have an earned value management system in place.¹⁵ To make the earned value performance data reported by the contractors available to DOE senior management, in 2001 DOE established a project tracking and reporting system. Each month DOE federal project

¹⁴GAO-05-123.

¹⁵DOE requires that the contractor have the earned value management system in place by the decision point that establishes the approved performance baseline for the project.

directors report the status of their projects into the system, including the contractors' earned value management system performance data.¹⁶

In March 2005, we questioned the accuracy and completeness of the performance data in DOE's project tracking and reporting system and recommended that the department assess the reliability of the contractors' earned value management systems used to report project cost and schedule information.¹⁷ In 2005 DOE began reviewing the earned value management systems used by its contractors. The purpose of these reviews is to determine if the contractor has an earned value management system that complies with the standards specified by the department. DOE uses a team approach to conduct the reviews, with the team including representatives from DOE's Office of Engineering and Construction Management and the program offices. During the course of the review, the team may determine that the contractor's system does not fully comply with DOE guidelines for earned value management systems. In such cases, the team generates a corrective action request, and the contractor must develop a corrective action plan to address any deficiencies. Once the corrective actions have been taken and verified, DOE certifies the contractor's system, which may provide data on several ongoing projects. As of September 2006, DOE had certified earned value management systems for eight of its contractors, which manage a combined total of 40 of DOE's 96 ongoing projects.

DOE Is Strengthening Oversight by Providing Training to Enhance the Skills of Federal Project Directors and Conducting More Frequent Reviews of Ongoing Projects

The third key area DOE focused on was strengthening federal oversight of projects through improving the skills of federal project directors and increasing the frequency of reviews of ongoing projects. In its 1999 report, the National Research Council cited DOE's failure to develop the project management skills of its personnel as a fundamental cause of poor performance on projects. The council also found that DOE did not consistently review its ongoing projects to identify and address problems before there was a significant impact on project performance.

¹⁶Although DOE established the project tracking and reporting system in 2001, it took until October 2002 for the contractors and federal project directors to provide information on all ongoing projects so that DOE could begin to summarize and report performance data from the system.

¹⁷[GAO-05-123](#).

To enhance the skills of federal project directors, in 2003 DOE established a project management career development program. This program defined the necessary combination of training and experience to obtain certification as a DOE federal project director. It also established four levels of certification and required increasing amounts of training and experience for each succeeding level.¹⁸ The training curriculum includes earned value management systems, acquisition strategy and planning, and cost and schedule estimating. In addition to the training courses and work experience requirements, federal project directors seeking the top two levels of certification must also successfully complete an interview with DOE's certification review board.¹⁹ This board includes representatives from the Office of Engineering and Construction Management, and DOE's three largest component organizations (NNSA and the Offices of Environmental Management and Science). Once federal project directors have obtained certification from the review board, they must also meet continuing education requirements to maintain their certification. As of May 2006, DOE met its goal of having all 96 of its active federal project directors at least at the first level of certification.

DOE has also taken steps to strengthen project oversight by requiring independent reviews at critical decision points. The independent reviews typically occur at the first three critical decision points on a project and are performed either by a team of DOE officials from outside the sponsoring program office, by DOE's Office of Engineering and Construction Management, or by outside organizations. Specifically, these reviews include:

- At the first critical decision point, approving mission need, DOE requires an independent review of major projects (those with an estimated total project cost over \$750 million) to validate the mission need and the cost range. For projects below the major project dollar threshold, the approval authority reviews the mission need statement and cost range as part of the supporting documentation at this critical decision point.
- At the second critical decision point, approving the selection of the alternative and the estimated cost range, DOE requires an independent

¹⁸For example, a federal project director with level-1 certification can be responsible for a project with a total project cost up to \$20 million, while a project with a total project cost over \$400 million requires a level-4 certification.

¹⁹The board's main purpose is to review the qualifications of federal project directors applying for certification.

review of (1) the acquisition strategy, including the rationale for selecting the preferred alternative; (2) design and construction plans for high-risk, high-hazard nuclear facilities to ensure that safety and security requirements are effectively integrated into the facility; and (3) design specifications to ensure that the facility will meet operational requirements.

- At the third critical decision point, approving the performance baseline, DOE requires an independent review of the estimated costs and schedule associated with the project, to provide reasonable assurance that the project can be successfully carried out.

In addition to the independent reviews at critical decision points, DOE also required quarterly progress reviews on all ongoing projects having a total estimated cost of \$5 million or more. These quarterly reviews are conducted by senior program officials, representatives from the Office of Engineering and Construction Management, and other departmental organizations as appropriate. The purpose of these progress reviews is to identify potential problems and concerns and develop corrective action plans that will help ensure successful project completion.

As a further step to improve the quality of federal oversight, in an August 2005 memorandum to all DOE senior managers, the Secretary of Energy stressed the importance of following project management policies and guidance. The Secretary stated that all program managers, federal project directors, and contracting officers should be held accountable for meeting cost, schedule, and performance targets on their projects.

DOE Has Not Demonstrated Improved Project Performance

Despite DOE efforts to improve project management and strengthen oversight of its contractors, overall project performance has not improved. Starting in fiscal year 2003, DOE set a performance goal of having 85 percent of its ongoing projects within a 10 percent variance of approved cost and schedule baseline targets, and starting in fiscal year 2004, DOE increased the goal to 90 percent of projects.²⁰ Although we have expressed concern about the reliability of the data in DOE's project tracking system, the summary performance data reported by the department are useable to show trends.²¹

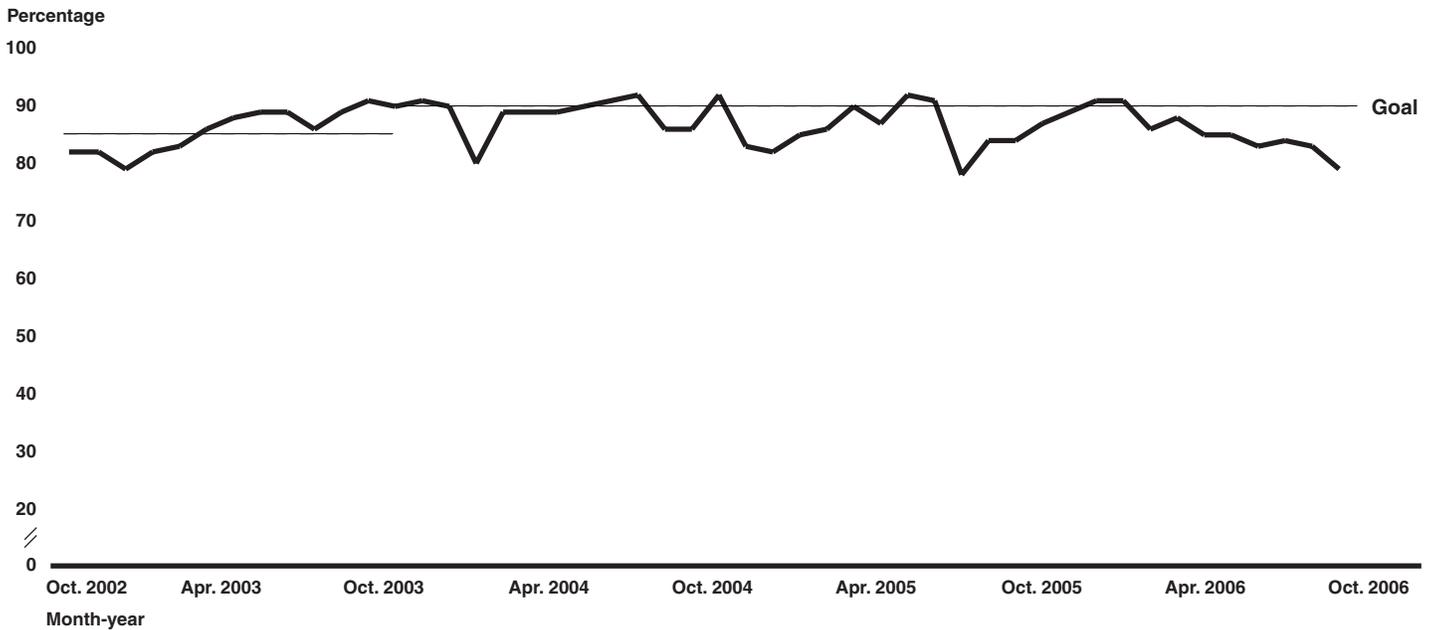
DOE began summarizing and reporting monthly project performance data in October 2002.²² Since October 2002, DOE has achieved its performance goals for line item construction projects (generally funded separately in the government's annual budget) only about one third of the time. As figure 1 below shows, the percentage of line item construction projects meeting DOE's performance goal has been relatively steady, seldom falling below 80 percent or exceeding 90 percent.

²⁰Starting in November 2005, DOE included these project performance goals in its action plan to improve results in contract and project management, an area designated by GAO since 1990 as being at high-risk for fraud, waste, abuse, and mismanagement. This plan was developed in response to a request by the Office of Management and Budget for federal agencies with areas on the GAO high-risk list to demonstrate how the agencies would address program weaknesses and improve results. Starting in fiscal year 2007, in response to comments from GAO and the Office of Management and Budget on its action plan, DOE developed three separate performance goals for its ongoing projects, depending on the total project cost. The goal is 85 percent for projects with a total project cost less than \$750 million, and the goal is 50 percent for projects with a total project cost more than \$750 million.

²¹Although in a past report ([GAO-05-123](#)) we expressed concerns with the accuracy and completeness of the data in DOE's project tracking system, we have determined that the data are sufficiently reliable to present trends in meeting DOE's performance goals. See appendix I.

²²DOE collects and summarizes performance information only on those projects that have passed the critical decision point for an approved cost and schedule performance baseline. For example, as of September 2006, DOE had 206 ongoing projects, but over half of those were in the early planning phases of the project.

Figure 1: Percentage of Ongoing Line Item Construction Projects within 10 Percent of Cost and Schedule Baseline, October 2002 through September 2006



Source: DOE.

Note: In October 2003, DOE changed the goal (percentage of ongoing projects within 10 percent of cost and schedule baseline) from 85 percent to 90 percent.

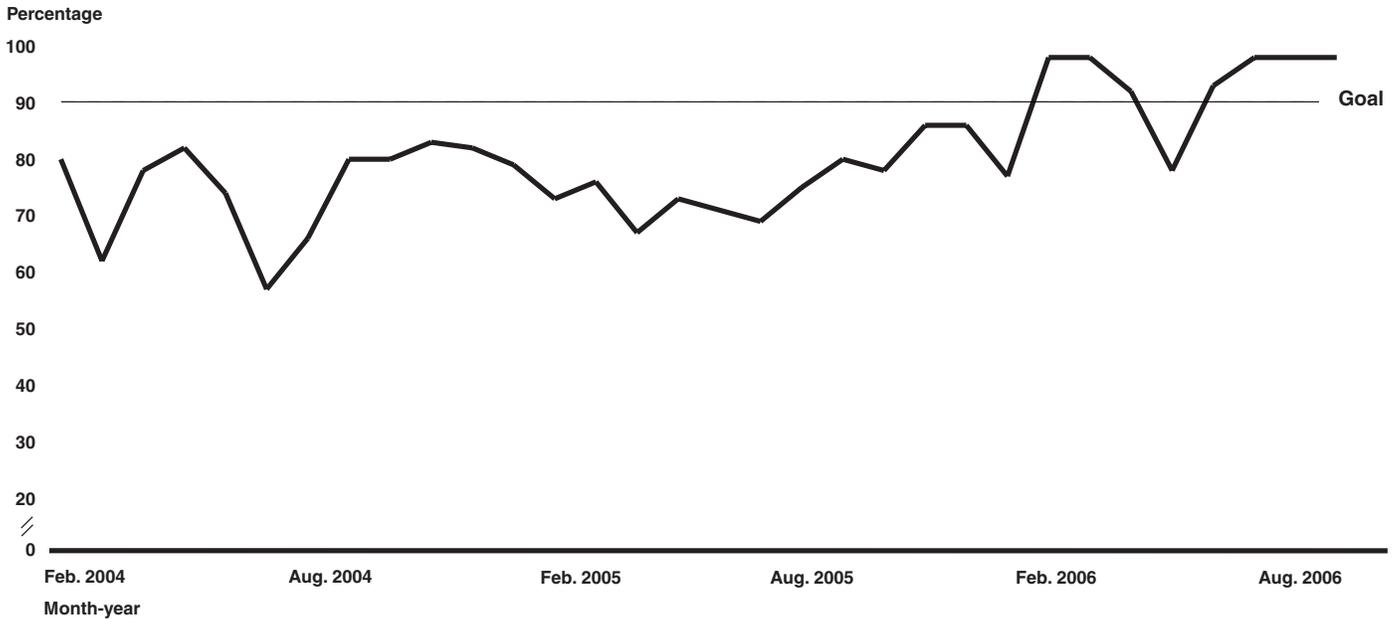
In part, because of concerns about the accuracy and timeliness of the project data shown above, when assessing the overall status of an ongoing project, DOE’s Office of Engineering and Construction Management uses the earned value management information (cost and schedule performance indicators) in concert with other information. Specifically, for each ongoing project, DOE also considers information such as the results of project reviews carried out by the program offices, information on emerging issues and concerns raised at quarterly progress reviews, discussions with program managers and federal project directors, the status of certification of the contractor’s earned value management system, and any safety concerns raised by the Defense Nuclear Facilities Safety Board or other outside organizations.

Taking these other sources of information into account can affect DOE’s determination of whether a project is likely to meet cost and schedule performance targets. For example, the Office of Science is constructing a facility at the Stanford Linear Accelerator Center in California that will be

used to produce a light source that is 10-billion times greater than any existing man-made light source and will use the high-brightness light in experiments in chemical, material, and biological sciences. This project, with a total cost of \$379 million, had earned value management cost and schedule indicators in September 2006 that were within the acceptable range for meeting cost and schedule performance targets. However, the earned value indicators reflect only the current status of the project and may not accurately depict future events or predict future performance. On this project, when DOE's Office of Engineering and Construction Management took into account other sources of information, such as discussions with the federal project director, DOE determined that some of the construction bids had come in significantly higher than estimated. Therefore, until DOE could determine the extent of the cost increases and the potential impact on the total cost of the project, the monthly status report listed this project as one at risk for breaching its cost and schedule performance baseline.

In February 2004, DOE began reporting performance information separately for cleanup projects funded by the Office of Environmental Management using annual operating funds, rather than using line item construction funding. Prior to February 2004, performance information on these "operating projects" had been included with the line item construction projects. Since February 2004, considering only these "operating" projects, as shown in figure 2, DOE met the cost and schedule performance targets only about 21 percent of the time.

Figure 2: Percentage of Ongoing Office of Environmental Management Operating Projects within 10 Percent of Cost and Schedule Baseline, February 2004 through September 2006



Source: DOE.

However, the performance data shown in figure 2 does not represent all of the Environmental Management operating projects. In November 2005, DOE began reporting on the performance of operating projects only if the cost and schedule baselines of the projects had been independently validated. Therefore, in November 2005, although DOE's Office of Environmental Management had a total of 77 operating projects, only 16 had validated baselines and were included in the performance reporting. DOE determined that the remaining 61 operating projects—those with baselines that had not been independently validated— had cost and schedule targets that could be overly optimistic, and therefore including those projects would distort the performance trends.

Anecdotal evidence also indicates that cost increases and schedule delays continue to occur on individual DOE projects. In March 2007, we reported that our review of 12 of the department's major projects showed that 9 of the 12 exceeded their original cost or schedule estimates, principally because of ineffective DOE project oversight and poor contractor

management.²³ Specifically, 8 of the 12 projects experienced cost increases ranging from \$79 million to \$7.9 billion, and 9 of the 12 projects were behind schedule by 9 months to more than 11 years.

Nevertheless, senior DOE officials in both the Office of Management and program offices said they believe the department has made real progress in putting improved project management tools in place and emphasizing the importance of effective federal oversight of projects. They added that the improvements made in project planning, independent reviews at critical decision points, and a greater emphasis on federal oversight should result in improved project performance in the future.

DOE Has Not Fully Implemented Its Project Management Improvement Efforts or Ensured That Project Management Requirements Are Consistently Followed

DOE could further strengthen management of its projects by completing implementation of its project management improvement efforts and ensuring that all of the department's component organizations consistently follow the project management requirements.

DOE Has Not Fully Implemented Project Management Improvement Efforts

DOE has not fully implemented two of its improvement efforts—reviewing and certifying contractors' earned value management systems and issuing revised guidance to supplement the July 2006 project management order. However, the department is making progress in these two areas and has a plan for completing these efforts.

One improvement effort not fully implemented has been to review and certify contractors' earned value management systems, which are used to develop and report on the cost and schedule performance of DOE's projects. DOE uses this information, along with other information obtained from federal project directors and program managers, to determine whether ongoing projects are on target to meet cost and schedule performance goals. Furthermore, DOE also factors in this

²³ [GAO-07-336](#).

information when calculating the amount of any incentive fees paid to the contractors under performance-based contracts. Therefore, the accuracy and reliability of the data produced by the earned value management systems is crucial to DOE's oversight of both individual projects and its contractors.

DOE began its efforts to review and certify the contractors' earned value management systems in fiscal year 2005. As of September 2006, DOE had reviewed and certified contractor earned value management systems for 8 of 29 contractors. These 8 contractors manage 40 of DOE's 96 projects that require an earned value management system. In March 2005, we had recommended that DOE develop a schedule for assessing the reliability of its contractors' earned value management systems.²⁴ In response to that recommendation and as part of DOE's action plan to address the high-risk area of contract and project management, DOE established annual targets for the number of contractor systems to be reviewed. For example, the target for fiscal year 2006 was to review and certify 10 contractor systems.

Another improvement effort not fully implemented is the development of new project management guidance to provide supplemental information to the July 2006 revised project management order. These implementation guides are being developed by teams led by a program office and assisted by the Office of Engineering and Construction Management, other DOE program offices as appropriate, and representatives from a DOE contractor working group. The implementation guides will cover such topics as safeguards and security, risk management, and how to apply the project management guidelines to Office of Environmental Management's operating projects or information technology projects. One of the implementation guides—further explaining how a tailoring strategy should be developed for a project—has an estimated issue date of May 2007. According to the charter for the team developing this guide, tailoring the processes in the project management order may be appropriate for smaller, less complex, lower risk projects, but tailoring does not imply omitting any essential steps in the project planning and execution processes. Completing development of these implementation guides will clarify requirements and may help DOE's program offices be more consistent in planning and executing projects. According to the current schedule, the last of the implementation guides is expected to be issued in September 2008. However, since the guidance will be subject to DOE's

²⁴[GAO-05-123](#).

internal review procedures and concurrence by DOE's program offices, it may take longer.

DOE Has Not Consistently Followed Project Management Requirements

DOE also has not ensured that its component organizations have consistently followed project management requirements. Even though the project management requirements have been in place since October 2000, there are still instances where projects are initiated or carried out without fully complying with the processes and controls contained in DOE's policies and guidance. Examples include:

- In our April 2006 report on the Hanford Waste Treatment Plant, we reported that the estimated costs of this project to construct facilities to treat and prepare for disposal 55 million gallons of high-level radioactive waste had increased significantly.²⁵ Since the contract was awarded in 2000, estimated costs have increased from about \$4.3 billion to over \$12 billion and the completion date has been extended from 2011 to 2019, 8 years later than the milestone included in DOE's agreement with its regulators. We found that one of the contributing factors to the cost increases and schedule delays was DOE's lack of oversight and its failure to ensure adherence to normal project reporting requirements. Specifically, the contractor had been adjusting the project performance baseline to match actual results, which masked the full extent of the problems with the project.
- In December 2005, DOE's Office of Inspector General reported on the status of a project to construct a facility at the Savannah River site in South Carolina to dispose of surplus plutonium by converting it into fuel for commercial nuclear power plants.²⁶ The report stated that although construction of the facility had not started, significant cost growth had already occurred, in part because of weaknesses in project management. Specifically, the Office of Inspector General found that DOE had not given adequate attention to establishing a performance baseline or ensuring that reporting mechanisms to monitor progress and track costs were effective. Furthermore, DOE officials had not provided adequate oversight of the project to ensure that contractor performance problems were identified in a timely manner.

²⁵GAO-06-602T.

²⁶U.S. Department of Energy, Office of Inspector General, *Status of the Mixed Oxide Fuel Fabrication Facility*, DOE/IG-0713 (Washington, D.C.: Dec. 21, 2005).

-
- In January 2007, we reported that about 16 percent of NNSA's projects were in jeopardy of breaching their cost baseline, schedule baseline, or both, and recommended actions that NNSA could take to strengthen its management of projects.²⁷ In addition, we found that cost and schedule status information on four of NNSA's projects, estimated to cost over \$100 million each, was not being reported into DOE's project tracking and reporting system. As a result, these projects were not receiving senior management oversight.
 - DOE's project to demonstrate an alternative technology to treat low-activity radioactive waste at DOE's Hanford site involved building a pilot plant to demonstrate the technology and treat waste from one of the underground waste storage tanks. The original estimated cost of the project was about \$62 million and was to be carried out over a 2-year period. DOE officials initially did not require the contractor to follow all project management requirements, and therefore, the project was initiated without using key project management tools, such as an acquisition strategy or independent reviews of the cost and schedule baseline. According to DOE officials, even though the estimated cost of the project met the criteria for following the project management requirements (total project cost was in excess of \$20 million), they decided to accelerate the project's schedule and therefore decided that the project did not need to follow the project management requirements. Within the first 2 years, the project experienced significant schedule and technical problems and the estimated cost more than tripled to about \$230 million. DOE then assigned a federal project director and began requiring that the project be managed consistent with its project management requirements.²⁸

Conclusions

DOE relies primarily on contractors to carry out its environmental cleanup, scientific research, nuclear weapons management, and other missions vital to safety, security, and the nation's energy supply. Because these contractors also frequently construct and operate complex, one-of-a-kind facilities to carry out these missions, it is crucial that the department manage and oversee these projects to successful completion. Over the years, we have issued numerous reports on the challenges that the department faces in overseeing such projects and have made a series of recommendations on steps DOE could take to strengthen management

²⁷ [GAO-07-36](#).

²⁸ A forthcoming GAO report will provide greater detail on the management of this project.

and oversight of its projects. Although DOE has made progress in addressing its project management weaknesses, such as by incorporating industry best practices into its policies and guidance, to date overall performance in achieving cost and schedule goals has not substantially improved. Furthermore, DOE has yet to fully implement all of its project management improvement efforts, such as reviewing and certifying contractors' earned value management systems that provide critical cost and schedule performance information, and continued attention is needed to better ensure that the improved project management policies and guidance are consistently followed. As DOE goes forward with efforts to strengthen management of its projects, including implementing our previous recommendations, consistent application of the project management requirements, accurate and reliable project performance data, and strong oversight are key to obtaining and demonstrating improved performance. Without addressing these areas, cost overruns on projects could continue to drain the department's resources, and excessive schedule delays could affect the department's ability to effectively carry out its missions.

Recommendation for Executive Action

To help strengthen management of DOE's projects and to enhance accountability for completing projects on time and within budget in all of DOE's component organizations, we recommend that the Secretary of Energy ensure that project management requirements are consistently and rigorously followed by all of the department's component organizations, and that any exceptions to following the requirements are allowed only after senior management has ensured that the exceptions are appropriate and has approved them.

Agency Comments and Our Evaluation

We provided a draft of this report to DOE for review and comment. In written comments, the Director of the Office of Management agreed with our findings and accepted our recommendation. DOE acknowledged that the department can further strengthen project management and stated that it recognizes that the results of implementing project management improvements will have a gradual impact on project performance.

DOE recommended that we modify the draft report to clarify the distinction between project management guidelines and requirements. We agree and have revised the report accordingly. DOE's comments on our draft report are included in appendix II.

We are sending copies of this report to the Secretary of Energy, the Director of the Office of Management and Budget, and appropriate congressional committees. We will also make copies available to others on request. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions on this report, please contact me at (202) 512-3841 or aloisee@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.

A handwritten signature in black ink that reads "Gene Aloise". The signature is written in a cursive style with a large, looped initial "G".

Gene Aloise
Director, Natural Resources and Environment

Appendix I: Scope and Methodology

To determine DOE's main efforts since 1999 to address weaknesses in its project management, we reviewed and analyzed prior and current DOE policies and guidance on managing projects and administering contracts. We also reviewed and analyzed DOE efforts to improve its management processes, including those in response to the President's Management Agenda and those that were part of a plan DOE developed in response to an Office of Management and Budget request that agencies with activities on GAO's high-risk list develop an action plan for improvement. In addition, we interviewed senior DOE headquarters officials to identify improvement efforts that the department had taken or had in process. We focused our review of actions taken by DOE's program offices on the department's three largest elements by percentage of the annual budget—NNSA and the Offices of Environmental Management and Science. These three offices represent about 80 percent of the department's annual budget.

To determine the extent to which performance on DOE's projects has improved, we reviewed and analyzed DOE's monthly status reports on projects and related supporting documentation. Since we have expressed concerns about the reliability of the data in DOE's project tracking and reporting system in a prior report, we did not develop our conclusions or findings based on information generated from that system.¹ However, we did determine that the data were sufficiently reliable to present trends in meeting DOE's performance goals over time, and have described our concerns with the accuracy and completeness of the performance data in this report. As DOE reviews and certifies the remaining earned value management systems used by its contractors, the accuracy and completeness of the data may improve. However, there are still other limitations to the data in DOE's project tracking and reporting system, such as that data on projects are reported at an aggregate project level, rather than at a more detailed level showing key milestones and critical activities. We also reviewed and analyzed prior GAO reports and recommendations on DOE project management to identify anecdotal information concerning performance of individual DOE projects.

To determine the extent to which DOE's improvement efforts have been fully implemented or consistently followed, we reviewed and analyzed previous GAO reports and reports from DOE's Office of Inspector General and the four reports on improving project management in the Department

¹[GAO-05-123](#).

of Energy from the National Research Council. These reports discussed weaknesses in DOE project management, contractor performance and federal oversight of individual projects, and DOE's efforts to improve management of contracts and associated performance measures. In addition, we reviewed the status of previous GAO recommendations to determine if they had been implemented. We also reviewed and analyzed reports from DOE's Office of Engineering and Construction Management on the status of certifying contractors' earned value management systems and the schedule for developing supplemental guidance to the July 2006 revised project management order.

On October 12, 2006, we briefed your staff on our results to date, and this report documents information presented in that briefing.

We conducted our work from June 2006 to April 2007 in accordance with generally accepted government auditing standards.

Appendix II: Comments from the Department of Energy



Department of Energy
Washington, DC 20585

APR 27 2007

Mr. Gene Aloise
Director, Natural Resources and Environment
U.S. Government Accountability Office
441 G Street NW
Washington, DC 20548

Dear Mr. Aloise:

The Department of Energy (DOE or Department) has reviewed the draft Government Accountability Office (GAO) report entitled "Consistent Application of Guidelines Needed to Improve Project Management" (GAO-07-518).

The report acknowledges that the Department has improved its approach to project management by addressing weaknesses in three key areas, as recommended by the National Research Council – strengthening project management policies and guidance, developing consistent and objective performance information on ongoing projects, and improving the quality of federal oversight of contractors and projects. The Department agrees that work is still needed to ensure that the requirements defined in DOE Order 413.3A are consistently implemented. The Department recognizes results of implementing project management improvements will have a gradual, but lasting impact on the Department's project performance.

The foundations for change are in place – increased project and contract management oversight and accountability; improved project and program management policy and guidance; consistent and objective performance information; projectizing Environmental Management cleanup projects; implementation and certification of earned value management systems; and training and certification of Federal Project Directors.

The Department acknowledges that it can further strengthen project and program management and has several initiatives currently underway that include:

- (1) Development of 18 project management guides (e.g. Risk Management, Cost Estimating, Earned Value Management, etc.), which will provide "how to", best practices, and industry standards for our federal project directors;
- (2) Revision of the Environment Management Cleanup project management policy and protocol;



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(3) Implementation of recommendations from the 2007 National Research Council review of the Office of Engineering and Construction Management's External Independent Review process;;

(4) Replacement of the Project Assessment and Reporting Systems (PARS); and

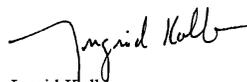
(5) Establishment of a professional development curriculum for program officials who oversee major projects.

The Department appreciates GAO's positive confirmation of project management improvements in the Department. The Department does have one concern with the report – specifically the distinction between DOE project management "requirements" and DOE project management "guidelines". In almost all instances the term "guidelines" should be changed to "requirements." It is recommended that the section heading on page 22 be re-titled "DOE Has Not Consistently Followed Project Management Requirements." In addition, the GAO report title should be changed to read "Consistent Application of Requirements Needed to Improve Project Management."

The Department accepts GAO's recommendation and will prepare a statement for component organizations that requires adherence to the Department's project management policies and that any exception to the DOE Order 413.3A requires appropriate senior management approval.

The Department requests that this response letter be included in GAO's final report.

Sincerely,



Ingrid Kolb
Director
Office of Management

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Gene Aloise (202-512-3841) or aloisee@gao.gov

Staff Acknowledgments

In addition to the individual named above, Bill Swick, Assistant Director; Carole Blackwell, Ryan Coles, Heather Dowey, Doreen Feldman, Amanda Miller, and Alison O'Neill made key contributions to this report.

Related GAO Products

Department of Energy: Major Construction Projects Need a Consistent Approach for Assessing Technology Readiness to Help Avoid Cost Increases and Delays. [GAO-07-336](#). Washington, D.C.: March 27, 2007.

National Nuclear Security Administration: Additional Actions Needed to Improve Management of the Nation's Nuclear Program. [GAO-07-36](#). Washington, D.C.: January 19, 2007.

Nuclear Cleanup of Rocky Flats: DOE Can Use Lessons Learned to Improve Oversight of Other Sites' Cleanup Activities. [GAO-06-352](#). Washington, D.C.: July 10, 2006.

DOE Contracting: Better Performance Measures and Management Needed to Address Delays in Awarding Contracts. [GAO-06-722](#). Washington, D.C.: June 30, 2006.

Hanford Waste Treatment Plant: Contractor and DOE Management Problems Have Led to Higher Costs, Construction Delays, and Safety Concerns. [GAO-06-602T](#). Washington, D.C.: April 6, 2006.

Yucca Mountain: Quality Assurance at DOE's Planned Nuclear Waste Repository Needs Increased Management Attention. [GAO-06-313](#). Washington, D.C.: March 17, 2006.

Department of Energy: Improved Guidance, Oversight, and Planning Are Needed to Better Identify Cost-Saving Alternatives for Managing Low-Level Radioactive Waste. [GAO-06-94](#). Washington, D.C.: October 31, 2005.

Department of Energy: Further Actions Are Needed to Strengthen Contract Management for Major Projects. [GAO-05-123](#). Washington, D.C.: March 18, 2005.

Nuclear Waste: Absence of Key Management Reforms on Hanford's Cleanup Project Adds to Challenges of Achieving Cost and Schedule Goals. [GAO-04-611](#). Washington, D.C.: June 9, 2004.

Nuclear Waste Cleanup: DOE Has Made Some Progress in Cleaning Up the Paducah Site, but Challenges Remain. [GAO-04-457](#). Washington, D.C.: April 1, 2004.

Department of Energy: Mission Support Challenges Remain at Los Alamos and Lawrence Livermore National Laboratories. [GAO-04-370](#). Washington, D.C.: February 27, 2004.

Nuclear Weapons: Opportunities Exist to Improve the Budgeting, Cost Accounting, and Management Associated with the Stockpile Life Extension Program. [GAO-03-583](#). Washington, D.C.: July 28, 2003.

Contract Reform: DOE's Policies and Practices in Competing Research Laboratory Contracts. [GAO-03-932T](#). Washington, D.C.: July 10, 2003.

Nuclear Waste: Challenges to Achieving Potential Savings in DOE's High-Level Waste Cleanup Program. [GAO-03-593](#). Washington, D.C.: June 17, 2003.

Department of Energy: Status of Contract and Project Management Reforms. [GAO-03-570T](#). Washington, D.C.: March 20, 2003.

Contract Reform: DOE Has Made Progress, but Actions Needed to Ensure Initiatives Have Improved Results. [GAO-02-798](#). Washington, D.C.: September 13, 2002.

Nuclear Waste: Technical, Schedule, and Cost Uncertainties of the Yucca Mountain Repository Project. [GAO-02-191](#). Washington, D.C.: December 21, 2001.

Department of Energy: Fundamental Reassessment Needed to Address Major Mission, Structure, and Accountability Problems. [GAO-02-51](#). Washington, D.C.: December 21, 2001.

Department of Energy: Follow-Up Review of the National Ignition Facility. [GAO-01-677R](#). Washington, D.C.: June 1, 2001.

Nuclear Cleanup: Progress Made at Rocky Flats, but Closure by 2006 Is Unlikely, and Costs May Increase. [GAO-01-284](#). Washington, D.C.: February 28, 2001.

National Ignition Facility: Management and Oversight Failures Caused Major Cost Overruns and Schedule Delays. [GAO/RCED-00-271](#). Washington, D.C.: August 8, 2000.

Department of Energy: Uncertainties and Management Problems Have Hindered Cleanup at Two Nuclear Waste Sites. [GAO/T-RCED-00-248](#). Washington, D.C.: July 12, 2000.

Nuclear Waste: Observations on DOE's Privatization Initiative for Complex Cleanup Projects. [GAO/T-RCED-00-215](#). Washington, D.C.: June 22, 2000.

Nuclear Waste: DOE's Advanced Mixed Waste Treatment Project: Uncertainties May Affect Performance, Schedule, and Price. [GAO/RCED-00-106](#). Washington, D.C.: April 28, 2000.

Related GAO Products

Nuclear Waste Cleanup: DOE's Paducah Plan Faces Uncertainties and Excludes Costly Cleanup Activities. [GAO/RCED-00-96](#). Washington, D.C.: April 28, 2000.

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