

GAO

Report to the Subcommittee on Energy  
and Water Development, Committee on  
Appropriations, House of  
Representatives

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September 2005

# DEPARTMENT OF ENERGY

## Additional Opportunities Exist for Reducing Laboratory Contractors' Support Costs



G A O

Accountability \* Integrity \* Reliability

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Highlights of [GAO-05-897](#), a report to the Subcommittee on Energy and Water Development, Committee on Appropriations, House of Representatives

## Why GAO Did This Study

In fiscal year 2004, about two-thirds of the Department of Energy's (DOE) \$26.9 billion in spending went to 28 major facilities—laboratories, production and test facilities, and nuclear waste cleanup and storage facilities. DOE spent about \$2.9 billion in fiscal year 2004 to support the mission of its five largest laboratories (see table). GAO was asked to examine (1) recent trends in indirect and functional support cost rates for these five laboratories, noting key differences in how contractors classify costs, and (2) the efforts of DOE and its contractors to reduce indirect and other support costs and identify additional opportunities for savings.

## What GAO Recommends

GAO is recommending that DOE take several actions to improve the comparability of functional support cost data among laboratories and reduce support costs by assessing the overall effectiveness of initiatives and ensuring that DOE laboratories adopt important cost-saving initiatives.

In commenting on the draft report, DOE generally concurred with GAO's recommendations.

[www.gao.gov/cgi-bin/getrpt?GAO-05-897](http://www.gao.gov/cgi-bin/getrpt?GAO-05-897).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Jim Wells at (202) 512-3841 or [wellsj@gao.gov](mailto:wellsj@gao.gov).

# DEPARTMENT OF ENERGY

## Additional Opportunities Exist for Reducing Laboratory Contractors' Support Costs

### What GAO Found

For fiscal years 2000 through 2004, laboratory-reported rates for indirect costs—those not charged directly to a specific program—increased at two laboratories and decreased at three. However, indirect cost rates cannot be compared across laboratories because contractors classify different portions of support costs as indirect. To facilitate analysis, DOE requires the laboratories to report what it called “functional support costs,” or costs that support missions, regardless of whether they are classified as direct or indirect costs. Using this measure, three laboratories' rates—that is, functional support costs divided by total costs—increased and two laboratories' rates decreased over the 5-year period. While functional support cost rates improved comparability, several DOE and contractor officials said that the definitions for some categories of support costs, such as “facilities management,” are unclear, leading to confusion and inconsistent reporting.

DOE and its contractors have initiated several steps to reduce indirect and other support costs but can take additional actions to improve their implementation. First, DOE's laboratory contracts have increasingly included incentives to encourage cost reductions. In fiscal year 2004, for example, the National Nuclear Security Administration began an “award-term” pilot program that allows a contractor to earn extra contract years based on performance and cost-saving achievements. However, DOE is expanding use of this incentive without evaluating it. Second, DOE requires its contractors to benchmark employee benefits and to reduce benefits if they exceed the benchmark, but DOE did not promptly enforce these requirements at one laboratory and exempted two others. Third, DOE has begun to address a \$1.9 billion backlog of deferred maintenance to reduce long-term costs. However, without a more rigorous approach, the backlog will persist well into future decades. Lastly, while some laboratories have used process improvement programs to streamline business processes and reduce costs, others do not have such programs, nor are they required to have them.

**Functional Support Costs for Five DOE Laboratories Reviewed, Fiscal Year 2004**

Dollars in millions		
National laboratory	Contractor	Functional support costs
Idaho	Battelle Energy Alliance	\$377.5
Lawrence Livermore	University of California	573.2
Los Alamos	University of California	889.1
Oak Ridge	UT-Battelle, LLC	292.9
Sandia	Lockheed Martin Corporation	718.0

Source: DOE.

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### Abbreviations

CFO	chief financial officer
DOE	Department of Energy
NNSA	National Nuclear Security Administration

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United States Government Accountability Office  
Washington, D.C. 20548

September 9, 2005

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

In fiscal year 2004, about two-thirds of the Department of Energy's (DOE) \$26.9 billion in spending went to 28 major facilities, including laboratories, nuclear weapons test and production facilities, and nuclear waste cleanup and storage facilities. DOE primarily uses contractors—industrial firms and nonprofit organizations, including educational institutions—to manage and operate these facilities. DOE oversees these contractors' activities through its headquarters program offices—primarily the National Nuclear Security Administration (NNSA), the Office of Environmental Management, and the Office of Science—and site offices located at each facility.

DOE reimburses its contractors for the costs incurred in carrying out the department's missions. These include costs that can be directly identified with a specific DOE program (known as *direct costs*) and costs of activities that indirectly support a program (known as *indirect costs*), such as administrative activities, utilities, and building maintenance. To ensure that DOE programs are appropriately charged for incurred costs, contractors' accounting systems assign the direct costs associated with each program and collect similar types of indirect costs into pools and allocate them proportionately among the programs.

Historically, DOE obtained information on contractors' overall indirect cost rates—the ratio of indirect costs to total operating costs—as a basis for assessing contractors' efficiency in performing their missions. However, the indirect cost rates of different facilities cannot readily be compared (1) because cost accounting standards and federal regulations provide contractors with flexibility regarding the extent to which they identify incurred costs directly with a specific program and how they collect similar costs into indirect cost pools and allocate them among programs and (2) because of differences in the facilities' missions, corporate structures, and

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accounting systems.<sup>1</sup> As a result, contractors' methods for accumulating and allocating indirect costs vary—that is, a cost classified as an indirect cost at one laboratory may be classified as a direct cost at another. For example, electricity and other utility costs are usually classified as indirect because they are not associated with a single program; however, electricity costs could be charged directly if, for example, a laboratory installs a meter to track the electricity consumption in a building used solely by one program.

In the mid-1990s, DOE's chief financial officer (CFO) created 22 standard categories of "functional support costs" to obtain more consistent information about the support costs at DOE's major contractor-operated facilities. These categories include, for example, executive direction, information services, procurement, maintenance, and facilities management. Each of the 22 categories is defined to cover all related costs, irrespective of whether contractors classify them as direct or indirect. Beginning in fiscal year 1997, the CFO and the Financial Management Systems Improvement Council, composed of DOE and contractor financial officials, have required the department's primary contractors to annually report these costs. To oversee the quality of these data, contractors' financial personnel generally peer review the data for each facility once every few years. In fiscal year 2004, functional support costs accounted for \$7.2 billion, or nearly 40 percent, of the contractors' \$18.1 billion total costs. The functional support costs for the five largest DOE laboratories were \$2.9 billion.

You asked us to examine (1) recent trends in reported indirect and functional support cost rates at the largest DOE contractor-operated laboratories, noting any key differences in how the contractors determine which costs are indirect and how these rates compare with those of similar laboratories in other federal agencies, and (2) the efforts of DOE and its laboratory contractors to reduce indirect and other support costs, identifying additional opportunities for potential savings. In response, we reviewed DOE's five laboratories with the greatest total operating costs—NNSA's Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and Sandia National Laboratories; the Office of Science's Oak Ridge National Laboratory; and the Office of Nuclear Energy's Idaho

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<sup>1</sup>See the Cost Accounting Standards (48 C.F.R. Part 9904) for detailed cost accounting requirements.

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National Laboratory.<sup>2</sup> The total costs of these five laboratories, \$7.5 billion, accounted for more than a quarter of DOE's total fiscal year 2004 budget. For purposes of comparison with other federal laboratories, we identified two similar large, contractor-operated laboratories—the Jet Propulsion Laboratory, located in Pasadena, California, and operated by the California Institute of Technology for the National Aeronautics and Space Administration; and Lincoln Laboratory, located in Lexington, Massachusetts, and operated by the Massachusetts Institute of Technology for the Department of the Air Force. We determined that the selection of these seven laboratories was appropriate for our design and objectives and would generate valid and reliable evidence to support our work.

To examine recent trends in the indirect cost rates of the five DOE laboratories, we obtained indirect cost rates from each laboratory for fiscal years 2000 through 2004 and identified cost-rate trends, reviewed differences in what types of costs the laboratories included in their indirect cost pools and how they allocated these costs, and reviewed the laboratories' indirect cost rates and those of the Jet Propulsion Laboratory and Lincoln Laboratory. We did not include indirect cost rates in this report because some of these data are proprietary. We also examined the fiscal years 2000 through 2004 data that DOE's CFO published in its *Fiscal Year 2004 Support Cost by Functional Activity Report* to compare these costs for the five DOE laboratories. To examine the efforts of DOE and its laboratory contractors to reduce indirect and other support costs, we reviewed contractual provisions, key cost-saving initiatives, and audits. Specifically, we reviewed the management and operating contracts for each of the five laboratories, including clauses focused on reducing functional support costs; analyzed several key initiatives that DOE and its contractors have undertaken to reduce costs and the initiatives' applicability to other DOE facilities; and examined reports of DOE's Office of Inspector General and the contractors' internal audit teams. We performed our work between January 2005 and August 2005, in accordance with generally accepted government auditing standards.

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<sup>2</sup>Prior to February 2005, Idaho National Laboratory was known as Idaho National Engineering and Environmental Laboratory. DOE's Office of Nuclear Energy is responsible for the laboratory, while DOE's Office of Environmental Management is responsible for the environmental cleanup of the site.

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## Results in Brief

For fiscal years 2000 through 2004, reported indirect cost rates increased at two laboratories operated by DOE contractors and decreased at three of them. Los Alamos had the largest reported increase, 10.4 percent, which it attributes to its July 2004 suspension of almost all of the laboratory's operations in response to safety and security concerns. Idaho had the largest decrease, 32.1 percent, primarily because of changes in its accounting for indirect costs. Although a contractor's overall indirect cost rates are generally comparable over time, some rates, such as Idaho's fiscal year 2004 rate, are not comparable. Specifically, in fiscal year 2004, the contractor at Idaho reclassified a large portion of its indirect costs as direct to prepare for a new environmental cleanup contract that is separate from its laboratory operations contract. In addition, indirect costs cannot be compared across laboratories because one contractor may classify a greater portion of a particular support cost as an indirect cost than another contractor. For example, from fiscal years 2000 through 2003, Idaho classified all of its administrative support as indirect costs, while other laboratories, such as Oak Ridge, classified administrative support as both direct and indirect costs. In addition, Lawrence Livermore and Oak Ridge treat maintenance for roads and grounds as indirect expenses, while Idaho treats them as direct expenses.

Regarding functional support costs, three laboratories' rates increased and two laboratories' rates decreased over the 5-year period we examined. Again, Los Alamos had the largest increase, and Idaho had the largest decrease. While functional support cost rates facilitate greater comparability across laboratories, several DOE and contractor officials told us that the definitions for some categories are unclear, leading to confusion among categories. Notably, the "facilities management" and "maintenance" categories are ambiguous and, hence, are not fully comparable across laboratories. Because of the differences in how DOE contractors categorize direct and indirect costs, and because only DOE contractors report functional support costs, the rates at DOE's laboratories cannot be compared with those of the Jet Propulsion Laboratory or Lincoln Laboratory. For example, Jet Propulsion Laboratory officials told us that they categorize all their costs as direct in accordance with their contract with the National Aeronautics and Space Administration.

DOE and its contractors have taken several actions to reduce indirect and other support costs, but improved implementation could also produce savings—particularly in the following areas of contract incentives,

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contractors' employee benefits, deferred maintenance, and process improvements:

- DOE's management and operating contracts have increasingly included incentives to encourage cost reductions. For example, beginning in fiscal year 2003, DOE contracts have placed greater emphasis on performance objectives and fees based on the efficiency of laboratories' business operations. In addition, in fiscal year 2004, NNSA began a pilot "award-term" program that allows the contractor at Sandia to earn up to 5 additional years on its 5-year contract if it receives an overall rating of "outstanding" each year and achieves cost savings sufficient to fund completion of projects that were approved but did not receive full funding. In the first year of the pilot program, Sandia's contractor earned a 1-year extension on its contract. DOE has proposed to expand this pilot program to the Los Alamos contract—and to allow contract extensions of up to 13 years beyond the proposed 7-year contract term—even though the award-term program is less than 2 years old and DOE has not yet evaluated its effectiveness. For example, DOE has not evaluated whether the cost savings achieved impaired the quality of work.
- DOE requires its contractors to benchmark the value of pension and other benefit programs with those of industry and to reduce the value of benefits if they exceed the overall benchmarked average by 5 percent or more. However, DOE has exempted the University of California, which manages Lawrence Livermore and Los Alamos, from benchmarking the value of its benefits because those laboratories use the university's benefit program. Of the three remaining laboratories, Idaho and Oak Ridge have benefits whose values fall within the allowable range, while Sandia's benefits have substantially exceeded the overall benchmarked average since 2002, with current pension benefits being 68 percent higher. DOE did not request that Sandia's contractor propose corrective actions until May 2005, 3 years after discovering the benefits were too high. While enforcing the limits on benefit values is a step in the right direction, DOE has not set any limits on benefit costs. Because the value of the benefits does not necessarily correlate with their costs, controlling the benefits' value alone may not be the most effective means to manage costs. Although DOE proposed in November 2003 to require contractors to evaluate both the value and cost of their benefits, it has not yet finalized this requirement, over 2 years later.



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- After decades of neglect, DOE has begun to address a backlog of deferred maintenance at its facilities to reduce support costs in the long term. As required by DOE, the five laboratories have 10-year plans to reduce their maintenance backlog, which was valued at \$1.9 billion in fiscal year 2004. However, without a more rigorous approach, the backlog will persist well beyond 10 years. To speed the backlog reduction for NNSA facilities—including Lawrence Livermore, Los Alamos, and Sandia—the Congress has funded the first 3 years of a 10-year effort to “buy down” the backlog. However, only Lawrence Livermore and Sandia have demonstrated success with long-term approaches to further reduce their maintenance backlogs and minimize reaccumulation. For example, Lawrence Livermore charges DOE and other agency programs that use the laboratory about \$8 per square foot for maintenance in an effort to reduce the backlog.
  - Idaho, Lawrence Livermore, and Sandia have used process improvement programs to assess their operations and reduce costs. For example, Idaho used process improvement methods to reduce the average cost of each of 16 safety assessment reports, for a total 2-year savings of \$907,000. While it is generally recognized that using a process improvement program is a good business practice, neither Los Alamos nor Oak Ridge has one.

We are making several recommendations to the Secretary of Energy to improve the comparability of functional support cost data among laboratories and to reduce these costs by assessing the overall effectiveness of initiatives and ensuring that other DOE laboratories adopt important cost-saving initiatives. In commenting on a draft of this report, DOE generally concurred with all of the recommendations.

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## Background

The Federal Acquisition Regulation and Cost Accounting Standards provide overall requirements for allocating incurred costs either directly to a program or indirectly to pools of similar types of costs that are allocated proportionately among the programs. For example, to avoid double counting and ensure that DOE programs and other federal agencies pay an appropriate share of indirect costs, the standards require that a contractor use consistent methods for estimating costs for each project or activity. That is, if the laboratory charges one project \$8 per square foot for maintenance, it must charge other projects in the same manner. Contractors submit for DOE approval accounting policy statements describing how they will classify costs as direct or indirect.

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DOE improved its ability to compare laboratories' costs in fiscal year 1997, when it began requiring contractors to report all functional support costs, regardless of how they were classified. Functional support cost data facilitate comparisons of laboratories' costs because they are intended to include all costs that support laboratory missions, regardless of whether a particular laboratory has classified the support costs as direct or indirect. However, functional support costs have limitations in that they cannot account for differences in the mission, size, age, or location of DOE facilities. Facility comparisons need to factor in the differences, for example, in (1) maintenance costs for a 50-year-old manufacturing facility as compared with those of a modern research facility or (2) safety and health costs at a facility that uses nuclear materials as compared with a facility with no nuclear materials.

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### **Some Laboratories' Cost Rates Have Increased While Others Have Decreased, but Not All Rates Are Comparable**

From fiscal years 2000 through 2004, indirect cost rates increased at two of the five DOE laboratories we examined and decreased at the other three laboratories. A laboratory's indirect cost rates are generally comparable over time, but the indirect cost rates of different laboratories are not comparable because contractors often categorize costs differently. Regarding functional support costs, three of the five laboratories' rates increased, while rates of two laboratories decreased during the same 5-year period. While functional support cost data help DOE to compare rates across laboratories, several DOE and contractor officials told us that the definitions for some categories are unclear, leading to confusion among categories. Finally, because of the differences in how DOE contractors categorize direct and indirect costs, and because other federal, non-DOE contractors do not collect and report functional support costs, the rates at DOE's laboratories cannot be compared with those of the Jet Propulsion Laboratory or Lincoln Laboratory.

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## Two DOE Laboratories' Indirect Cost Rates Have Increased and Three Have Decreased, but These Rates Are Not Comparable across Laboratories

From fiscal years 2000 through 2004, indirect cost rates increased at two laboratories operated by DOE contractors and decreased at three.<sup>3</sup> Los Alamos had the largest increase—10.4 percent. Nearly all of this increase occurred during the 4<sup>th</sup> quarter of fiscal year 2004 and, according to Los Alamos officials, was attributable to the “stand down” of activities that the laboratory director ordered in July 2004 in response to a series of safety and security incidents. In particular, the Los Alamos officials told us that the stand down resulted in lower program costs without similarly lower indirect costs. For example, \$8 million in staff costs for the stand down’s first 2 days was treated as indirect costs as laboratory managers developed plans for assessing and resolving the safety and security issues. Once risk assessment and mitigation activities began, stand-down costs were charged directly to benefiting programs. Los Alamos officials stated that general and administrative costs, especially costs in the “executive direction” category, were higher than expected, while direct program costs were lower. The indirect cost rate for Lawrence Livermore increased as well by 2.9 percent from fiscal years 2000 through 2004 because of additional costs, such as those related to facilities safety, maintenance, environmental protection, and hazard control.

In contrast, Idaho National Laboratory’s indirect cost rate decreased by 32.1 percent during the 5-year period, mainly because the contractor reclassified a large portion of its costs associated with environmental cleanup operations from indirect to direct in fiscal year 2004. According to contractor officials, these costs were reclassified in response to DOE’s decision to split the management and operating contract, which expired during fiscal year 2005, into two parts by awarding separate contracts for laboratory operations and the environmental restoration of the site. Laboratories can make changes in how they account for indirect costs, and, when they do, they are required to document these changes in their disclosure statement for DOE approval. The indirect cost rates for Oak Ridge and Sandia decreased by 7.3 percent and 2.2 percent, respectively, between fiscal years 2000 and 2004. According to Oak Ridge contractor officials, the decrease resulted from several factors, including management’s decision to limit the growth of indirect costs while the laboratory’s total spending grew—when total costs increase at a higher rate

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<sup>3</sup>Because the Congress began providing funding specifically for security in fiscal year 2001, we asked the laboratories to exclude security from their prior indirect rates to provide consistent trend data.

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than indirect costs, the indirect cost rate will decrease because the rate equals the indirect costs divided by total costs.

Indirect cost rates cannot be meaningfully compared across laboratories because one contractor may track costs more closely, allowing the contractor to classify a higher proportion of the cost of a support activity, such as administration, as a direct cost than another contractor does. For example, from fiscal years 2000 through 2003, Oak Ridge and Sandia classified administrative support costs as both indirect and direct costs, while Idaho classified all administrative support costs as indirect. Similarly, Idaho classified road and ground maintenance as direct costs, while Lawrence Livermore and Oak Ridge treated them as indirect costs. Two contractor officials provided other examples of costs that laboratories are likely to classify differently: subcontract administration, any type of fringe benefit, program management, organizational management and administration, facility management and maintenance, and information technology functions. A Lawrence Livermore official noted, for example, that one contractor may treat desktop software used by many programs as a direct cost, while another contractor may bundle these software purchases into a common site license that is paid from an indirect account. The indirect cost rate may be higher in the latter case, but the goods may be obtained at a lower cost. Thus, higher indirect costs do not necessarily equate with less efficiency.

Further, the five DOE contractors use different methods to classify support activities—that is, they differed in how indirect costs are collected and distributed. For example, one contractor used 4 major indirect cost pools while another contractor used 12 indirect cost pools for distribution among programs. Similarly, the number of major service centers at the five DOE laboratories ranged from 6 to 14. Service centers are accounts where costs of specific services are accumulated and charged on the basis of services rendered, either to a program or to other indirect cost pools. Common service centers are telecommunications and computing centers.

**Functional Support Cost Rates Provide More Comparability than Indirect Costs, Although the Definitions for Some Categories Are Unclear**

Table 1 shows that for fiscal years 2000 through 2004, three laboratories' functional support cost rates increased and two laboratories' decreased. These rates are the functional support costs as a percentage of total costs without capital construction. Again, Los Alamos had the largest increase, 8.1 percent, and Idaho had the largest decrease, 11.8 percent.<sup>4</sup>

**Table 1: Functional Support Cost Rates for Five Laboratories, Fiscal Years 2000-04**

Laboratory	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	Percentage change for FYs 2000-04
Idaho	52.5%	52.1%	51.4%	51.7%	46.3%	(11.8)%
Lawrence						
Livermore	32.4	34.5	35.1	36.1	34.0	4.9
Los Alamos	39.7	41.0	40.1	39.5	42.9	8.1
Oak Ridge	36.6	34.6	34.3	36.2	35.8	(2.2)
Sandia	33.5	33.5	32.5	34.7	33.7	0.6

Source: DOE's CFO, *Fiscal Year 2004 Support Cost by Functional Activity Report* (Washington, D.C.).

Note: This table excludes the "safeguards and security" category from the functional support costs because DOE and the laboratories have treated them as direct costs after they began receiving line-item funding. We also excluded "capital construction" from total costs. While these rates are more comparable than indirect cost rates, they are not entirely comparable, as discussed in this report.

Functional support costs were primarily developed to facilitate the analysis of each facility's costs. While not intended for comparison purposes, they provide more comparability across laboratories than indirect costs because they are developed on the basis of standard, defined cost categories. However, detailed analysis is required to determine whether rate differences are the result of inefficiencies or other factors, such as differences in each facility's mission, activities, location, or size. For example, costs for safety and health, maintenance, and utilities at Los Alamos are higher than costs at other sites because, according to DOE officials, the laboratory has 2,224 facilities on 27,800 acres of mesas and canyons. Also, Los Alamos uses plutonium and other hazardous materials, which require added safety procedures, and accelerator facilities, which consume large amounts of electricity.

<sup>4</sup>Functional support costs accounted for about 40 percent of the 28 contractors' fiscal year 2004 operating costs of \$17.4 billion.

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While functional support cost rates facilitate improved analysis of laboratory costs, several DOE and contractor officials told us that the definitions for some categories are somewhat unclear, leading to confusion in how to categorize certain costs. Notably, the “facilities management” and “maintenance” categories are somewhat ambiguous and, hence, are not fully comparable across laboratories. Peer reviewers checking for accuracy of classification of costs have found that several laboratories have misclassified costs between the two categories. In July 2003, peer reviewers found that Sandia had classified \$1.1 million of facilities management costs as maintenance and \$8.8 million in maintenance costs as facilities management. In June 2004, peer reviewers found that Los Alamos had classified \$550,000 in maintenance costs as facilities management. In addition, in fiscal year 2003, a Lawrence Livermore internal review found that the laboratory had categorized plant facility engineering costs as maintenance, while other laboratories had categorized these costs as facilities management. In 2004, after discussing the categories with DOE and contractor officials involved in reviewing functional support cost data, Lawrence Livermore moved \$15 million from the fiscal years 2002 and 2003 maintenance category to the facilities management category. Most of the peer reviews for the DOE laboratories and other facilities found difficulties with which cost elements were placed in or omitted from “facilities management” and “maintenance,” according to our analysis. In addition, peer reviews at Los Alamos and Oak Ridge found over \$2 million of legal or information services costs that was misclassified in the “executive direction” category, another example of a category whose definition may be unclear. Idaho officials reported that discrepancies in executive direction cost data between Idaho and other sites resulted from uncertainty about how many levels of management or what type of site development and strategic planning costs are to be included in the executive direction category.

Differences in interpretation result from insufficiently detailed guidance for developing functional support costs. The guidance primarily consists of 10 pages of 22 support category definitions. DOE’s Web site does not have more detailed instructions that contractors can turn to when they are uncertain whether a cost should be classified under one category or another. Contractor officials developing cost data often turn to different DOE or contractor officials with responsibility for these data for help, increasing the likelihood of getting different advice, despite the fact that consistency is key to data quality. Several DOE and contractor officials with responsibility for these data agreed that more specific guidance would cost little to develop and would increase consistency in reporting. For

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example, some officials said they could post a list of common laboratory errors on the Financial Management Systems Improvement Council's Web site, based on peer review findings of the past few years.

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### DOE Laboratories' Cost Rates Cannot Be Compared with Those of Other Federal Laboratories

Because comparisons of indirect cost rates are not very meaningful and non-DOE contractors do not report functional support costs, the cost rates for DOE's laboratories cannot be compared with those of the Jet Propulsion Laboratory or Lincoln Laboratory. The Jet Propulsion Laboratory, operated by the California Institute of Technology, is the lead center for robotic exploration of space. Virtually all of the work it performs is under a single National Aeronautics and Space Administration agreement, which states that all of the laboratory's costs are direct, according to laboratory officials.<sup>5</sup> Lincoln Laboratory, located on Hanscom Air Force Base, conducts applied research to develop advanced technology in remote sensing, space surveillance, missile defense, battlefield surveillance and identification, communications, air traffic control, and biological and chemical defense for the Department of Defense and other federal agencies. The laboratory's indirect cost rate cannot be compared with those of DOE laboratories without a detailed understanding of differences in (1) contract provisions and other requirements; (2) how contractors classify costs as direct or indirect; and (3) research missions and activities, such as the added costs at the DOE laboratories associated with safety requirements for handling radioactive and other hazardous materials. Lincoln Laboratory's indirect cost rate increased by 13.9 percent between fiscal years 2000 and 2004 because of a new enterprisewide accounting and management reporting system and infrastructure improvements for laboratory test facilities, according to laboratory officials.

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<sup>5</sup>The Jet Propulsion Laboratory tracks "distributive costs," which are similar to, but not comparable with, the DOE laboratories' indirect costs. These distributive costs increased by 9.5 percent between fiscal years 2000 and 2004.

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## DOE and Its Contractors Have Taken Actions to Reduce Indirect and Other Support Costs, but Opportunities Exist for Further Reductions

DOE and its contractors have numerous efforts under way to reduce indirect and other support costs; however, we identified several efforts that could be strengthened to further reduce costs. First, DOE is including incentives in its contracts to encourage indirect cost reductions. DOE officials stated that one of these incentives, a pilot to award additional contract years for performance, had produced cost savings. DOE is expanding this incentive to additional laboratories, although it has not evaluated its effectiveness. Second, DOE generally requires contractors to offer employee benefits that are similar in value to those of comparable organizations, but the department has done little to enforce this requirement. Third, DOE has begun requiring contractors to address a backlog of maintenance projects while they also manage current maintenance needs. Although this effort will involve costs in the near term, it could reduce support costs in the long term. However, only Lawrence Livermore and Sandia have programs that have been shown to be sustainable over several years and appear to be promising models. Finally, while DOE and some contractors have reduced costs through process improvement programs, consolidated procurement actions, and audits by DOE's Inspector General and DOE contractor audit groups, opportunities exist for further cost savings through these activities.

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## DOE Is Increasingly Using Contractual Incentives to Encourage Cost Savings but Is Expanding a Key Program without Evaluating Its Effectiveness

Recently, NNSA has taken several actions to improve business operations and achieve support cost savings through contractual incentives. For example, Sandia's management and operating contract that NNSA extended to the Sandia Corporation, a subsidiary of Lockheed Martin Corporation, in October 2003 gives higher priority to improved performance and greater efficiency in business operations. Specifically, 40 percent of the contract's annual award fee in fiscal years 2004 and 2005 is based on Sandia's performance in areas such as information technology, procurement, human resources, and maintenance. Similarly, NNSA's management and operating contracts for Lawrence Livermore and Los Alamos have given greater emphasis to improved performance and greater efficiency in business operations. For example, the Los Alamos contract's performance measures that focused on business operations increased from



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about 28 percent in fiscal year 2002 to 40 percent in fiscal year 2005. NNSA also has added provisions to some of its contracts to allow the laboratories to reinvest cost savings in other activities considered to be indirect costs.<sup>6</sup>

In addition, the Sandia contract initiated a pilot award-term program under which an additional year may be awarded to the life of the contract for each year the contractor achieves an overall outstanding performance rating. A key performance target is finding sufficient cost savings to be applied to unfunded projects.<sup>7</sup> In fiscal year 2004, the first year of the pilot program, Lockheed Martin earned a 1-year extension on its contract and documented \$38 million in cost savings, which it spent on agreed-upon projects, such as the following:

- \$14 million for reprogramming security and safeguards to meet the new design basis threat,
- \$9.8 million for investing in computer clusters for defense projects,
- \$3 million for purchasing equipment to refurbish the pulsed power accelerator,
- \$2 million for enhancing the classified network,
- \$2 million for cleaning up beryllium contamination, and
- \$0.3 million for negotiating an agreement with Russia on polymer research.

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<sup>6</sup>A January 2005 NNSA policy letter expanded the use of reinvested savings to other approved areas. The final request for proposals for the contract at Los Alamos allows a percentage of savings in indirect costs to be applied to one of these approved areas—contractor-directed research and development at universities and small technology companies in northern New Mexico. Until recently, DOE and NNSA used a contract provision that rewarded contractors for cost savings by allowing them to keep up to 25 percent of documented cost savings that DOE or NNSA officials had reviewed and approved. However, NNSA officials stated that this provision was not effective because the claimed cost savings could not be verified.

<sup>7</sup>Under the contract, Lockheed Martin shall apply cost efficiencies achieved during a given fiscal year only to unfunded priority direct mission work that NNSA and Lockheed Martin had agreed upon at the beginning of the fiscal year, provided that this work is within the same appropriation and budget and reporting category, unless NNSA approves a formal reprogramming action.

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Although Sandia and NNSA officials stated that they believe the award-term program emphasizes improved performance and cost savings better than provisions in prior contracts, NNSA has not evaluated the nearly 2-year-old pilot. Such an evaluation could compare the benefits of redirecting funds for better mission uses with the costs of forgoing recompetition of the contract and examine whether the cost savings resulted in any negative effects on reduced work quality. The evaluation also could determine whether award-term incentives need to be revised in other contracts to improve their effectiveness and sustainability, particularly since the mission and level of performance among contractors vary. By expanding the incentive without evaluating it, DOE does not know if it is receiving benefits commensurate with awarding extra years to the contract term. Despite the lack of evaluation, DOE's Office of Science extended the award-term incentive to Lawrence Berkeley National Laboratory, and NNSA plans to extend it to Los Alamos and the Nevada Test Site later this year when it awards new contracts. As a result, Lawrence Berkeley's contractor, the University of California, can potentially earn up to 15 additional years on its recently awarded 5-year contract; the request for proposals for the Nevada Test Site states that the contractor can potentially earn up to 5 additional years on its 5-year contract; and the request for proposals for Los Alamos states that the contractor can potentially earn up to 13 additional years. (See app. I for more information on this topic.)

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### DOE Has Not Always Enforced Its Requirement That Contractors' Employee Benefits Be Comparable with Those of Similar Organizations

To ensure that the value of each contractor's employee benefits are comparable with its competitors and that costs are reasonable, DOE Order 350.1 requires its management and operating contractors to periodically benchmark the value of their employee benefit packages—including retirement pensions, health care, death, and disability—with those of organizations with whom the contractors compete in hiring employees.<sup>8</sup> The DOE order requires that if the value of a contractor's benefits exceeds the average benchmarked value by more than 5 percent, the contractor will provide DOE with a plan to adjust the benefits so that they fall within 5 percent of the benchmarked value. DOE must ensure that the contractor's proposed adjustments are acceptable and reasonable. More specifically, the DOE order requires that the contractors use a professionally

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<sup>8</sup>The value of the benefit packages varies by laboratory, and the potential liability for DOE may be substantial. For example, DOE estimates that, for the five laboratories, its long-term liabilities for postretirement medical and pension benefits are at least \$2.9 billion.

recognized measure to compare the value of their benefits with those of other organizations. The contractors can use a nationally recognized consulting firm with expertise in benefit value studies to perform such a study every 3 years or perform an annual employee benefit comparison survey through the U.S. Chamber of Commerce. A benefit value study determines the average of each benefit for 15 organizations with similar workforces. The average value of the benefits becomes the benchmark against which the contractor's benefits are assessed.

The benefit value studies conducted for Lawrence Livermore, Los Alamos, and Sandia in 2004 show that the value of employee benefits for these laboratories exceeded the benchmark by more than 5 percent in several of the four primary categories of benefits. More importantly, the studies showed that the overall benefits for those three laboratories exceeded the allowable 5 percent variance for the overall benefits (see table 2). Lawrence Livermore and Los Alamos both had benefit values that far exceeded the benchmark and, in many categories, both laboratories exceeded all comparators. For example, pension benefits for both laboratories exceeded those of all 15 comparators and were nearly twice those of the benchmarked value. Lawrence Livermore, Los Alamos, and Sandia were highest or second highest in most benefit categories. Sandia's defined benefit pension was second highest of all 15 comparators and exceeded the benchmarked value by 68 percent. In contrast, the value of benefits for Idaho and Oak Ridge did not exceed the 5 percent allowable range.

**Table 2: Results of the DOE-Funded Employee Benefit Value Studies for Each of the Five Laboratories**

Laboratory	Benefits exceeded benchmark by more than 5 percent				
	Retirement	Health care	Death	Disability	All benefits
Idaho					
Lawrence Livermore	X	X	X		X
Los Alamos	X	X	X		X
Oak Ridge					
Sandia	X	X	X	X	X

Source: DOE.

Note: The health care and retirement values represent the benefits with the highest average values, while the death and disability values represent the benefits with the lowest values. All health care

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values reflect both pre- and post-retirement health care values. We did not independently verify the data used for the comparison studies.

DOE did not require prompt action to adjust benefits at the three laboratories that exceeded the benchmarked value. Initially, DOE and, later, NNSA exempted Lawrence Livermore and Los Alamos from the DOE benchmark because the contract with the University of California, which manages the laboratories, allowed the university to extend its own benefits package to laboratory employees. When the DOE order was issued in 1996, the existing contract with the university took precedence, according to a university document. DOE did not request a benefit value study until 2004, after it was determined that the Los Alamos and Lawrence Livermore contracts were scheduled to be competed and DOE became concerned about long-term liabilities for employees' postretirement costs. DOE has no short-term liability for the pension benefits because the pension plan is fully funded and is projected to remain fully funded for at least the near term, according to university officials. However, DOE's liability for long-term pension benefits for these laboratories remains undetermined. In an effort to reduce this liability, NNSA is requiring a stand-alone pension plan for the winning bidder of the Los Alamos contract, which DOE plans to award at the end of this year.

Similarly, after a benefit value study in 2001 showed that the value of Sandia's benefits exceeded the benchmarked value, NNSA did not require Sandia to adjust its benefits. In this case, an actuarial study showed that NNSA had minimal risk that it would have to contribute to Sandia's pension plan for at least 5 years. However, the amount of long-term liability is again undetermined because the study could not reliably determine the risk of NNSA having to contribute beyond 5 years. When a new benefit value study was completed 3 years later, in May 2004, NNSA required Sandia to submit a corrective action plan to adjust the benefits. NNSA received Sandia's plan for making adjustments in June 2005, but officials are requiring modifications before approving the plan.

Finally, while benchmarking the value of benefits is a step in the right direction, DOE does not require contractors to benchmark the costs of their benefits. NNSA officials stated that cost studies are needed because the value of benefits may not be directly proportional to their costs. For example, while value and cost are generally highly correlated, it is possible that a contractor may negotiate high-value benefits that have a low cost, or low-value benefits that have a high cost. DOE has not yet finalized the revisions to DOE Order 350.1, which includes a draft provision to require benchmarking of costs, in addition to benefits. In commenting on this

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report, DOE officials stated that, since late 2004, DOE solicitations and awards for management and operating contracts required contractors to conduct benefit value and cost studies. In addition, our April 2004 report (1) noted that DOE should review postretirement costs because they have a continuous and compounding effect as they are paid out for each year of retirement and (2) recommended that DOE strengthen its oversight of postretirement benefits by focusing more attention on long-term costs.<sup>9</sup>

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## DOE Has Begun to Focus on Deferred Maintenance, but Efforts at Some of the Laboratories Are Not Sustainable

For more than 2 decades, DOE orders and policies have required that contractors' maintenance programs ensure the safe, reliable, and efficient operation of buildings and equipment. They have also required that these programs be adequately funded to ensure that the design requirements of the buildings and equipment are met or exceeded for their operating lives, and that industry standards for maintenance are applied.<sup>10</sup> Industry standards, for example, require that maintenance budgets be developed using historical and other information on the resources required to maintain the structure or equipment in good repair. Industry standards and the National Academy of Sciences have recommended that day-to-day maintenance requires continuous annual funding of about 2 percent to 4 percent of the replacement plant value.<sup>11</sup>

Despite requirements, for many decades, DOE and its contractors have neglected the routine maintenance of buildings and equipment—including inspection of fire alarms, upgrades to electrical systems, and testing of equipment critical to the nuclear weapons program. DOE and contractor officials stated that the mission always took priority for resource allocations. This practice has resulted in a maintenance backlog that will cost an estimated \$1.9 billion for the five laboratories, excluding deferred

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<sup>9</sup>GAO, *Department of Energy: Certain Postretirement Benefits for Contractor Employees Are Unfunded and Program Oversight Could Be Improved*, [GAO-04-539](#) (Washington, D.C.: Apr. 15, 2004).

<sup>10</sup>For example, DOE Order 4330.4B, effective in 1994, specified that sufficient resources should be budgeted to ensure the reliability, safety, and operability of structures, systems, and components, and that maintenance programs should meet equivalent industry guidelines.

<sup>11</sup>Building Research Board, *Committing to the Cost of Ownership: Maintenance and Repair of Public Buildings* (Washington, D.C.: June 1990). NNSA determines replacement plant value by a formula that estimates the value of replacing structures and equipment at each site.

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maintenance for unused buildings. Maintenance that continues to be deferred, particularly on older structures and equipment, will contribute to an increasing growth in deferred maintenance costs, including replacement costs for certain equipment parts. For example, Lawrence Livermore reports that its deferred maintenance costs continue to escalate each year because of the higher probability of failure in the operability of aging structures and equipment. In fiscal year 2004, Los Alamos reported that it had the oldest structures of the three weapons laboratories, with an average structure age of 33 years. Los Alamos also reported that it had the highest level of deferred maintenance of the five laboratories, accounting for about one-third, or \$547 million, of the backlog for the five laboratories.

The backlog could also jeopardize the safe, reliable, and efficient operation of the buildings and equipment. At Los Alamos, for example, the backlog put at risk the safety of some workers. Officials inspecting the fire protection system in early fiscal year 2004 reported that the fire sprinklers were not properly winterized to protect them from freezing, as required by fire codes and standards. The inspectors reported that at least three fire sprinkler pipes had frozen since November 2003, creating a safety concern in the event of a fire. At Idaho, the backlog has placed reliable operation of the Advanced Test Reactor at risk. Specifically, the deferral of maintenance and recapitalization for several key systems—including the waste control system and the digital monitoring system—has resulted in the reliance on an outdated computer system for which technical support is no longer available and replacement parts can only be found in used parts markets. Loss of any these key systems could require Idaho to temporarily shut down the Advanced Test Reactor, hindering test plans and DOE's nuclear energy mission. Idaho plans to continue replacing failing parts in the computer system until it can fund a full system replacement.

DOE has begun to focus on deferred maintenance in an effort to reduce the backlog and long-term costs. DOE's Defense Programs, the predecessor to NNSA, first began to address the maintenance backlog in fiscal year 2000. Defense Programs required the nuclear weapons facilities to develop 10-year plans to evaluate short- and long-term maintenance needs and develop long-term efforts to better manage the maintenance backlog. At about the same time, the Congress began providing funding for certain maintenance programs, such as NNSA's Readiness in Technical Base and Facilities Program. Some DOE laboratories also are using different types of indirect costs, such as space charges, to help address maintenance. Additionally, in fiscal year 2002, the Congress began funding the Facilities and Infrastructure Recapitalization Program to reduce long-term deferred

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maintenance for NNSA facilities. The program can also be used to demolish certain structures. Demolishing or consolidating structures can help reduce maintenance and other operating costs. Between fiscal years 2002 and 2005, the Congress provided about \$1 billion for this program and, in fiscal year 2005, NNSA requested an additional \$1.7 billion for fiscal years 2006 through 2009. When established, the program had two key goals. First, contractors are to stabilize deferred maintenance by the end of fiscal year 2005 so that there is no further growth in backlog. NNSA informed the Congress that contractors have met this goal of stabilizing deferred maintenance. The second goal is for contractors to reduce the maintenance backlog so that the backlog for mission-critical and nonmission-critical structures is less than 5 percent and less than 10 percent, respectively, of replacement plant value by fiscal year 2009. However, an NNSA official stated that most of NNSA's contractors will not be able to meet this goal because the \$1.7 billion budget request for fiscal years 2006 through 2009 was reduced by \$574 million.

Furthermore, in fiscal year 2003, DOE adopted NNSA's lead by addressing maintenance in 10-year plans to better manage maintenance overall, including deferred maintenance. As with NNSA's long-term planning requirements, DOE Order 430.1B requires that all DOE facilities develop 10-year plans to assess, among other things, their short-term and long-term maintenance needs. Although the order does not have specific time lines associated with reducing deferred maintenance, DOE's headquarters program offices are responsible for approving the 10-year plans and for tracking the performance of the facilities against the plans. DOE's Office of Engineering and Construction Management has general oversight over DOE Order 430.1B, including the review of the 10-year plans and the tracking of program office performance.

Despite all of these efforts, DOE contractors report that deferred maintenance will continue to be a significant problem in the short term and long term. Of the five laboratories, Lawrence Livermore has demonstrated the most sophisticated and sustainable approach that fully funds maintenance needs and reduces deferred maintenance over the long term. Lawrence Livermore's plan, first implemented in 1998, relies on a combination of funding, including two directly funded NNSA programs—the Readiness in Technical Base and Facilities Program and the Facilities and Infrastructure Recapitalization Program—and an indirect cost pool established for its Maintenance Management Program. The Maintenance Management Program collects funds (\$8 per square foot) from all users of its buildings—including NNSA and other DOE and non-DOE programs.

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About 20 percent of the collected funds are spent on deferred maintenance at the laboratory, in accordance with the program. The program identifies the most critical needs for maintenance on the basis of a matrix balancing “mission-essential” and “probability of failure” criteria. In addition, the charge itself encourages more efficient use of space and the return of unneeded space for use for other purposes or demolition. Also, other Lawrence Livermore cost pools, such as the Institutional General Plant Project, help fund capital improvements that can help address maintenance by upgrading structures and equipment. By managing the various elements of its maintenance effort, Lawrence Livermore stopped the growth of its maintenance backlog by fiscal year 2002. Despite the anticipated reductions in the Facilities and Infrastructure Recapitalization Program, Lawrence Livermore projects that it can reduce its deferred maintenance to within NNSA’s industry standards by 2011.

Sandia has an approach similar to Lawrence Livermore’s, relying on a combination of funds for addressing its maintenance and deferred maintenance costs. Using an established methodology, a committee sets maintenance priorities and determines how to spend funds collected from an internal cost recovery pool. Sandia charges building users \$12 per square foot and expects to initiate increases to space charges over the next 4 years to compensate for expected cuts in maintenance funding. As a result, despite the anticipated reductions in the Facilities and Infrastructure Recapitalization Program, Sandia projected in March 2005 that it would reduce its deferred maintenance to within NNSA’s industry standards by 2011.

Los Alamos officials acknowledge that they cannot achieve NNSA’s goals for reductions in deferred maintenance given the expected cuts in the Facilities and Infrastructure Recapitalization Program in the foreseeable future. Contractor and NNSA officials acknowledge that Los Alamos’ maintenance program is not sustainable, particularly given its current level of funding for maintenance. Any reductions in backlog as a result of the Facilities and Infrastructure Recapitalization Program would reaccumulate when that funding ended. Similarly, even though Oak Ridge provides additional support for maintenance by charging for space used, officials report that without additional infrastructure renewal or recapitalization funds to address aging facilities, the charge is insufficient to fully fund its maintenance needs. Without this additional funding, Oak Ridge reports that its maintenance backlog will continue to grow. Finally, Idaho has passed many of its deferred maintenance liabilities on to another contractor responsible for cleaning up part of the laboratory site; nevertheless, Idaho



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reports that without additional funding, its maintenance backlog will continue to grow.

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### DOE and Some Contractors Have Reduced Support Costs through Process Improvement Programs, Audits, and Procurement Consolidation

Idaho, Lawrence Livermore, and Sandia have reduced support costs through programs to improve business and other processes, while Los Alamos and Oak Ridge do not have such programs. In addition, DOE and some of the laboratories we reviewed have some efforts under way to consolidate procurement actions. Finally, DOE's Inspector General and contractors' internal audit groups have contributed to some cost savings by auditing support functions.

### Three Laboratories Have Reduced Costs through Process Improvement Programs, While Two Laboratories Do Not Have Such Programs

Process improvement is the practice of taking an analytical look at different steps that go into developing a product or delivering a service and assessing how those processes could be conducted better. In a process improvement initiative, participants may define the process and metrics, measure performance, analyze root causes of problems, improve areas of low performance, and develop controls for the process. Typically, the process improvement initiative involves iterative cycles of identification and improvement, fueled by employee participation in identifying problem areas and recommending steps to improve them. It is generally recognized that process improvement is a good business practice. Process improvement programs can increase product or service quality, while decreasing costs. Public and private organizations have reported significant returns on investment through process improvement programs.

Several DOE laboratories and production facilities, including Idaho, Sandia, and Lawrence Livermore, have used process improvement methods, such as Six Sigma and Lean Six Sigma, to reduce costs.<sup>12</sup> Six Sigma and Lean Six Sigma are rigorous and disciplined methodologies that use data and statistical analyses to measure and improve the performance of a company's operations by identifying and eliminating defects in manufacturing and service-related processes. Idaho used Six Sigma to reduce the average cost of 16 Safety Assessment Reports for a total savings of \$907,000 from fiscal years 2002 through 2003. Sandia used Lean Six Sigma to streamline its accounts payable purchase order process, potentially leading to savings of more than \$1 million over a 5-year period.

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<sup>12</sup>Other commonly used process improvement methods include Total Quality Management and ISO 9000.

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Finally, Lawrence Livermore used Six Sigma and other methods to improve processes in the areas of safety, security, resource management, and property management. For example, the laboratory reduced security staff overtime by increasing the workday to 12 hours and reported a \$2.3 million annual savings. The laboratory also standardized the hours of the perimeter security gates and closure of redundant gates in an effort to save \$300,000 annually. Lawrence Livermore plans to train 400 managers by the fall of 2006 in a new process improvement method based on a combination of Lean Six Sigma and a method used at the United Kingdom's Atomic Weapons Establishment, which provides warheads for nuclear deterrence.

Neither Oak Ridge nor Los Alamos have process improvement programs, although some DOE and laboratory officials agreed that such programs can help reduce costs. When laboratories do not have some type of process improvement program, DOE has little assurance that managers are identifying and addressing inefficient or ineffective processes.

#### Many of the DOE Inspector General's Reports Have Reviewed Support Activities

Many of the DOE Inspector General's reports have examined support activities at DOE laboratories and other facilities, including security, procurement, property management, information resources, financial management, and financial controls. The Inspector General has found opportunities for reducing indirect and other support costs. For example, in 2003, the Inspector General's audit of central office expenses for the Thomas Jefferson National Accelerator Facility questioned \$4.6 million in costs claimed by and paid to the contractor for central office expenses from November 1999 to September 2002. These questioned expenses included costs that were not allowable, such as alcoholic beverages, and costs that were not adequately supported or documented. The audit resulted in \$3.5 million in savings to DOE. In 2003, an audit of Los Alamos reported support and other costs of \$14.6 million that were potentially unallowable, including meals, excessive travel costs, and an internal audit function that did not meet DOE requirements. DOE officials are in the process of determining allowability of the questioned amount. In addition to the Inspector General audits, contractors' internal auditors annually perform an audit of the allowability of costs as claimed by contractors.<sup>13</sup> This audit addresses both indirect and direct costs, identifying whether or not costs are allowable under the terms of the contract. For example, one such audit, conducted at Sandia in fiscal year 2003, projected \$112,000 in

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<sup>13</sup>The Inspector General, the cognizant auditor for DOE's management and operating contractors, supplements its audit program with each contractor's internal audit activities.

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unallowable costs—DOE is in the process of determining the precise amount.

### DOE Has Consolidated Some Procurement Actions

DOE and its management and operating contractors have reduced support and other costs by consolidating their procurements of computer equipment, office supplies, and other bulk items into single contracts that result in volume discounts and the need for fewer purchasing resources. In particular, DOE established an Integrated Contractor Procurement Team that pursues buying opportunities and has negotiated over 40 purchasing agreements with vendors to reduce procurement staff time and obtain favorable prices, according to a DOE official. The team, composed of contractor purchasing agents, surveys sites to determine what contractors are paying for a product and whether they can negotiate a better price. A contractor that wants to purchase goods (e.g., paper) can review a list of agreements and supplier contact information on the Integrated Contractor Procurement Team's Web site and use its Basic Order Agreement. This saves contractors and suppliers time because they do not need to renegotiate all the terms of the contract. Contractors do not track savings resulting from the use of Integrated Contractor Procurement Team, but they have collected some examples of savings that total about \$12 million to \$15 million, annually.

Other efforts to save time and money through consolidation of procurement actions include the following:

- NNSA has required Lawrence Livermore, Los Alamos, and Sandia to begin analyzing their spending using similar software so that opportunities for consolidated purchases among the three laboratories can be identified.
- Lawrence Livermore has hired a specialist who is focused full-time on analyzing the laboratories' spending patterns and identifying opportunities for consolidation. As a result of opportunities being identified, the procurement office expects to reduce the number of subcontracts by 10 percent, saving procurement staff time. The laboratory also has developed 13 Electronic Ordering System agreements through which suppliers provide electronic catalogs with over 2 million commercial items (e.g., computers, electrical and plumbing supplies, and chemicals) that laboratory employees can purchase online. The purchases are automatically routed through an approval system.

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- Oak Ridge consolidated its new radio system, which is used by security and maintenance staff, with other DOE facilities in the area, reportedly saving \$900,000 on purchase prices plus \$475,000 in annual costs.

Laboratory officials told us that opportunities exist for further cost savings through reduced staff time and better prices by consolidating procurements with each contractor's parent organization, other DOE facilities, or other federal agencies' facilities in the same region. Idaho officials cited the potential for reducing costs for using consolidated procurements with nearby military bases and other facilities. An NNSA procurement official noted that laboratories could save through increased use of Integrated Contractor Procurement Team agreements, noting that some procurement officials may not be aware of available opportunities.

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## Conclusions

In an era of federal budget constraints, it is crucial to efficiently manage support costs at DOE laboratories, thereby maximizing funds available for laboratory missions. DOE and its contractors have taken steps to reduce support costs, but additional opportunities exist. To help decision makers analyze support costs across the laboratories, several years ago DOE began to require laboratories to report functional support costs. However, peer reviews have revealed some problems with these data and challenges remain in comparing costs, in part because of ambiguity in the definitions for some categories of support costs. To encourage contractors to reduce support costs, DOE also piloted a program to award contract years for performance improvement and cost savings. However, by expanding the pilot incentive program without evaluating it, DOE does not know if it is receiving benefits commensurate with awarding extra years to the contract term. In another effort to save money, DOE developed requirements to ensure that contractors' employee benefits are comparable with those of similar organizations with whom they compete for critically skilled staff. However, DOE has not always required its contractors to reduce employee benefits that substantially exceed the value of their competitors' benefits and has not required contractors to benchmark the costs of their benefits, potentially adding billions of dollars in long-term costs. Furthermore, while DOE has begun to address the \$1.9 billion backlog of deferred maintenance to reduce long-term costs and improve the safe, efficient, and reliable operation of equipment and buildings, only Lawrence Livermore and Sandia have demonstrated sustainable approaches that successfully reduced their backlogs. Lastly, process improvement programs are generally considered a good business practice, and three laboratories have reduced costs through their own programs. DOE, however, does not

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require laboratories to have such programs, and some laboratories have not instituted one. Overall, while DOE has made progress, without additional attention to these initiatives, the department may miss the opportunity to produce significant savings.

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## Recommendations for Executive Action

To improve the quality and comparability of DOE facilities' support cost data, we recommend that the Secretary of Energy direct the CFO to work with the Financial Management Systems Improvement Council to clarify definitions of functional support cost categories.

To determine whether the department receives benefits commensurate with awarding 1 or more extra years to the contract term, we recommend that the Secretary of Energy direct NNSA to evaluate the effectiveness of its pilot award-term program at Sandia National Laboratories, particularly the nature and extent of work quality improvements, prior to extending the program to other laboratories.

To provide competitive but economical employee benefits, we recommend that the Secretary of Energy complete the revision of DOE Order 350.1 and ensure that the order (1) extends the requirement to benchmark the value of employee benefits to all contractors; (2) requires prompt corrective action if the value of benefits exceeds the allowable range; and (3) extends the benchmarking requirements to include the costs, as well as the values, of the benefits.

To reduce long-term maintenance costs at contractor-operated facilities, we recommend that the Secretary of Energy develop a long-term sustainable approach that meets day-to-day maintenance requirements, reduces the maintenance backlog, and minimizes its reaccumulation.

To facilitate the further reduction of support costs, we recommend that the Secretary of Energy require that each DOE management and operating contractor implement a process improvement program that routinely assesses the efficiency and effectiveness of business practices and other operations.

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## Agency Comments

We provided DOE with a draft of this report for its review and comment. In written comments, DOE generally concurred with our recommendations.

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(See app. II.) DOE also provided a number of technical comments, which we incorporated in this report as appropriate.

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## Scope and Methodology

To examine indirect cost-rate trends at each of the five largest DOE laboratories, we analyzed each laboratory's indirect cost-rate data for fiscal years 2000 through 2004. Specifically, we interviewed laboratory financial officials and analyzed documents to determine how each laboratory calculated its overall indirect costs rate by (1) classifying costs as direct or indirect and (2) collecting indirect costs into pools and distributing them among other cost pools or directly to program sponsors. Furthermore, because DOE and its management and operating contractors use functional support cost data to help assess certain activities, we analyzed these rates for the five laboratories for fiscal years 2000 through 2004, along with the results of peer reviews performed at each laboratory.

We surveyed laboratory financial officials on the reliability of the indirect and functional support cost data, covering issues such as data entry access, quality control procedures, and the accuracy and completeness of these data. Follow-up questions were added whenever necessary. In addition, we reviewed all data provided by the laboratories, investigated instances where we had questions regarding issues such as categories or amounts, and made corrections as needed. On the basis of this work, we determined that the financial data provided were sufficiently reliable for the purposes of our report. We presented percentage changes in the overall indirect cost rates for fiscal years 2000 through 2004 that the five laboratories reported. However, because of limitations discussed in this report, analyses of increases or decreases in these rates mean little without a careful analysis of how a contractor classifies costs, and one contractor's rates cannot be compared with those of others. Moreover, we analyzed changes in classification of costs or changes in mission over time to determine if these data were comparable over several years at a single laboratory. We noted in our report when we found changes in classification that affected the comparability of data at a single location over time.

To assess the efforts of DOE and its laboratory contractors to reduce support costs and identify additional opportunities for savings, we visited each of the five laboratories to interview senior managers and obtain supporting documentation, interviewed DOE officials, and examined prior GAO and DOE Inspector General reports. In the course of this work, we identified opportunities for further potential cost savings. We then interviewed cognizant laboratory and DOE officials about actions taken to

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address each opportunity and reviewed supporting documentation. Specifically, to review DOE's contract provisions, we interviewed DOE contracting officers and obtained information about recent contractual provisions that emphasized potential cost savings or improved efficiency. To address DOE's liabilities related to employee benefits, we analyzed benefit value studies for each of the laboratories and compared the results of our analysis with the department's requirements. We also interviewed DOE, NNSA, and contractor officials to clarify the results of the studies and to provide us with documentation on proposed resolutions, as appropriate. It was not our intent to verify, nor would we have been able to independently verify, the accuracy of actuarial calculations, assumptions, or data used in the comparison studies due to the proprietary nature of benefits that consulting firm databases used to conduct the studies.

To address the maintenance backlog, we analyzed data from DOE's Office of Engineering and Construction Management, which collects information on deferred maintenance. We also analyzed each laboratory's 10-year plan and related documents and compared the results of our analysis with NNSA's and the department's requirements. We spoke with cognizant officials at DOE headquarters and its site offices and with laboratory managers to verify the results of our analysis and to determine the actions being taken to address the backlog. To examine the laboratories' use of process improvement programs, we reviewed examples that the three laboratories provided of improved effectiveness and of reduced costs for their business operations and interviewed senior managers at the other two laboratories regarding what they had done to improve business operations.

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As agreed with your offices, unless you publicly announce the contents of this report, we plan no further distribution of it until 30 days from the date of this letter. At that time, we will send copies to the Secretary of Energy; the Director, Office of Management and Budget; and other interested parties. 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>.

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If you or your staffs have any questions about the report, please contact me at (202) 512-3841. 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 key contributions to this report are listed in appendix III.

A handwritten signature in black ink that reads "Jim Wells". The signature is written in a cursive style with a large, sweeping initial "J".

Jim Wells  
Director, Natural Resources  
and Environment



# Award-Term Provisions at Four DOE Sites

The Department of Energy (DOE) introduced award-term incentives as a pilot program to Sandia in fiscal year 2004, and then expanded the use of the incentives to the Lawrence Berkeley contract and to the final request for proposals for Los Alamos and the Nevada Test Site, as shown in table 3. The language in the final request for proposals for Los Alamos, if placed in the contract, would award additional years to the contract term if the contractor (1) achieves a certain level of performance to be determined by the DOE contracting officer and (2) meets other conditions, such as finding cost savings and using these savings to adequately perform approved work. As shown in table 3, Los Alamos can earn 13 additional years on its 7-year contract.

**Table 3: Award-Term Provisions for Four DOE Facilities**

Provisions	Final request for proposals		Existing contracts	
	Los Alamos	Nevada Test Site	Lawrence Berkeley	Sandia
Duration of contract (years)	7	5	5	5
Total number of years that can be added to contract	13	5	15	5
Possible total number of years of contract with award term	20	10	20	10
Level of performance needed to be assessed at to earn award term	Annual determination by NNSA	Based on incentive fee earned	First 3 years: satisfactory  Subsequent years: Outstanding	Outstanding each year
Requires cost savings to earn award term	Yes	No	No	Yes

Source: DOE.

Key differences between the Los Alamos final request for proposals and the Sandia contract are as follows:

- The level of performance required to receive additional contract years can be determined by the contracting officer for Los Alamos, but Sandia’s contract requires outstanding performance. NNSA officials stated that the recent history of performance at Los Alamos may take several years to reverse, and the contractor may not be able to achieve

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overall “outstanding” ratings in the initial years of the contract. The officials also noted that the flexibility may allow the contracting officer to focus on certain areas for improvement, such as business operations.

- The contract term for Los Alamos could be 20 years, rather than the 10 years allotted to Sandia. The 20-year term for Los Alamos requires a deviation from DOE Acquisition Regulation 970.1706-1, which limits DOE contracts to 10 years.

# Comments from the Department of Energy



**Department of Energy**

Washington, DC 20585

August 12, 2005

Mr. Jim Wells  
Director, Natural Resources and Environment  
Government Accountability Office  
Washington, DC 20548

Mr. Wells:

Thank you for the opportunity to comment on draft report GAO-05-897, *Department of Energy: Additional Opportunities Exist for Reducing Laboratory Contractors' Support Costs*. The Department of Energy's official comments are enclosed for your consideration. While we generally concur with the recommendations presented in the report, we believe incorporation of the referenced comments is critical to ensure the accuracy and clarity of the results. If you have any questions, please contact John Newell, Director, Office of Program Liaison and Financial Analysis, at 202-586-8921.

Sincerely,

A handwritten signature in black ink, appearing to read "Susan J. Grant".

Susan J. Grant  
Chief Financial Officer

Enclosure



Printed with soy ink on recycled paper

# GAO Contact and Staff Acknowledgments

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## GAO Contact

Jim Wells (202) 512-3841

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## Staff Acknowledgments

In addition to the contact named above, Richard Cheston, Beverly Peterson, Robert Sanchez, James Espinoza, and Cynthia Norris made key contributions to this report. Also contributing to this report were Chuck Bausell, Virginia Chanley, Nancy Crothers, Alison O'Neill, and Omari Norman.

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