United States Government Accountability Office

Report to Congressional Requesters

February 2019

DEPARTMENT OF ENERGY

Performance Evaluations Could Better Assess Management and Operating Contractor Costs

GAO-19-5

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GAO Highlights

Highlights of GAO-19-5, a report to congressional requesters

Why GAO Did This Study

In fiscal years 2006 through 2016, the federal government spent almost $193 billion on DOE's M&O contracts—a form of contract that traces its origins to the Manhattan Project. Six DOE offices use M&O contracts to manage and operate federally owned sites that perform work to fulfill DOE's diverse missions, such as conducting scientific research and maintaining nuclear weapons.

GAO was asked to review DOE's performance management of its M&O contracts. This report examines, among other things, (1) how DOE offices evaluated M&O contractor performance in fiscal years 2006 through 2016; (2) the extent to which DOE's fiscal year 2016 M&O contractor PERs provide information on contractors' technical, administrative, and cost performance; and (3) the results of DOE's M&O contractor performance evaluations for fiscal years 2006 through 2016.

GAO reviewed performance evaluation documents for 21 of the 22 DOE M&O contracts; analyzed DOE policies, procedures, and guidelines, and federal regulations; analyzed technical, administrative, and cost aspects of M&O contracts' 2016 PERs; and interviewed DOE officials.

What GAO Recommends

GAO is making seven recommendations to DOE, including to each of the six DOE offices to update their policies requiring that PERs include quality information to enable an overall assessment of M&O contractor cost performance. In commenting on a draft of this report, DOE generally agreed with these recommendations.

View GAO-19-5. For more information, contact Allison Bawden at (202) 512-3841 or bawdena@gao.gov.

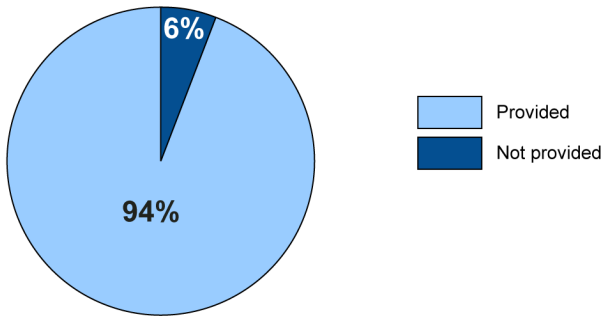
What GAO Found

In fiscal years 2006 through 2016, six offices within the Department of Energy (DOE) generally used one of three different approaches to evaluate management and operating (M&O) contractor performance. Although these approaches varied in the performance criteria and methodologies used for determining contractor ratings and incentives, all the offices annually set expectations for contractors and assessed performance.

In analyzing DOE's fiscal year 2016 Performance Evaluation Reports (PER), GAO found that these reports provided less information on M&O contractors' cost performance than on contractors' technical and administrative performance. The cost information provided in the PERs often was not detailed, did not indicate the significance of the performance being described, and applied only to specific activities. Further, the information is of limited use for acquisition decision-making, such as deciding whether to extend the length of a contract, because it does not permit an overall assessment of cost performance. A key reason PERs did not include more cost performance information is that the DOE offices' policies do not require specific assessments of cost performance or discuss how to ensure cost information is useful for future acquisition decision-making. By updating policies to require inclusion of quality cost performance information in PERs, DOE offices could better assess M&O contractors' costs, improve acquisition decision-making, and ensure performance evaluations fully address required elements.

Based on GAO's review of DOE M&O contractor performance evaluations from fiscal years 2006 through 2016, DOE generally provided high performance ratings and more than 90 percent of available performance incentives (see figure). Ratings for some areas of contractor performance, as well as ratings for contractor performance at specific DOE sites, varied from this trend. For example, three times during this period contractors received 50 percent or less of available award and incentive fees due to a major accident and safety and security issues.

Median Annual Percentage of Available Award Fee Provided to Management and Operating Contractors, Fiscal Years 2006 through 2016



Source: GAO analysis of Department of Energy documentation. | GAO-19-5

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Abbreviations

CPARS	Contractor Performance Assessment Reporting System
CRENEL	Commission to Review the Effectiveness of the National Energy Laboratories
DEAR	Department of Energy Acquisition Regulation
DOE	Department of Energy
EERE	Office of Energy Efficiency and Renewable Energy
EM	Office of Environmental Management
FAR	Federal Acquisition Regulation
FE	Office of Fossil Energy
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
LLNL	Livermore National Laboratory
M&O	management and operating
NE	Office of Nuclear Energy
NNSA	National Nuclear Security Administration
NREL	National Renewable Energy Laboratory
PEMP	Performance Evaluation and Measurement Plan
PER	Performance Evaluation Report
SC	Office of Science
SPRO	Strategic Petroleum Reserve Office
SRS	Savannah River Site
WIPP	Waste Isolation Pilot Plant

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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Congressional Requesters

In fiscal years 2006 through 2016, the federal government spent almost $193 billion on Department of Energy (DOE) management and operating (M&O) contracts[1]—a form of contract that traces its origins to the Manhattan Project during World War II.[2] DOE relies extensively on M&O contracts to manage and operate many of its government-owned, contractor-operated sites. DOE's diverse missions are carried out at these sites, including developing, maintaining, and securing the nation's nuclear weapons capability and conducting basic energy and science research and development. According to DOE's *Fiscal Year 2017 Agency Financial Report*, DOE spends approximately 90 percent of its annual budget on contracts. As we and the DOE Inspector General have previously found, DOE and its contractors face several management challenges involving large future costs, including nuclear weapon modernization, environmental liabilities, and aging and degraded infrastructure.[3] Because of DOE's reliance on M&O contracts, contract management is critical to the agency's ability to successfully and cost-effectively meet these challenges.

DOE manages and oversees its M&O contractors through a variety of means, including a performance evaluation process that evaluates contractor performance, reports on those evaluations, and rewards or penalizes contractors. Contractor performance evaluation reports cover a wide range of activities due to the significant size and scope of M&O contracts. These reports help form the basis of a contractor's

[1]This spending figure is in nominal dollars, unadjusted for inflation. Adjusted to fiscal year 2017 dollars, the amount would be $211 billion.

[2]M&O contracts are agreements under which the government contracts for the operation, maintenance, or support, on its behalf, of a government-owned or government-controlled research, development, special production, or testing establishment wholly or principally devoted to one or more of the major programs of the contracting federal agency. 48 C.F.R. § 17.601.

[3]GAO, *Department of Energy: Continued Actions Needed to Address Management Challenges*, GAO-18-438T (Washington, D.C.: Mar. 14, 2018); GAO, *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others*, GAO-17-317 (Washington, D.C.: February 2017); and Department of Energy, Office of Inspector General, *Management Challenges at the Department of Energy-Fiscal Year 2018*, DOE-IG-18-09 (Washington, D.C.: November 27, 2017).

performance record, which DOE and other agencies consider in awarding future contracts. Further, when an M&O contract has reached the end of its contract term, the Federal Acquisition Regulation (FAR)[4] and DOE policy require DOE to consider the contractor's technical, administrative, and cost performance before deciding whether to extend the contract or open it up for competitive bids.

DOE's history of inadequate management and oversight of its contractors has led us, since 1990, to designate aspects of the department's contract management as a high-risk area vulnerable to fraud, waste, abuse, and mismanagement.[5] In January 2009, to recognize progress made at DOE's Office of Science, we narrowed the focus of the department's high-risk designation to two DOE offices: the National Nuclear Security Administration (NNSA) and the Office of Environmental Management (EM).[6] In February 2013, we further narrowed the focus of DOE's high-risk designation to major projects and contracts (i.e., those with values of at least $750 million) within these two DOE offices, to acknowledge progress made in managing smaller-value efforts.[7]

Our recent reports and those from the DOE Inspector General, as well as from commissions, task forces, and other outside groups, have highlighted ongoing challenges with DOE's contracting and contract management. For example, the Congressional Advisory Panel on Governance of the Nuclear Security Enterprise (also known as the Augustine-Mies Panel)[8] and the Commission to Review the Effectiveness

[4]The FAR is the primary regulation for use by all federal executive branch agencies in their acquisition of supplies and services with appropriated funds.

[5]GAO, *Government Financial Vulnerability: 14 Areas Needing Special Review*, GAO/OCG-90-1 (Washington, D.C.: Jan. 23, 1990).

[6]GAO, *High-Risk Series: An Update*, GAO-09-271 (Washington, D.C.: January 2009).

[7]GAO, *High-Risk Series: An Update*, GAO-13-283 (Washington, D.C.: February 2013).

[8]Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, *A New Foundation for the Nuclear Enterprise* (Washington, D.C.: November 2014). Section 3166 of the Fiscal Year 2013 National Defense Authorization Act established the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise and tasked the advisory panel with offering recommendations "with respect to the most appropriate governance structure, mission, and management of the nuclear security enterprise."

of the National Energy Laboratories (CRENEL)[9] recommended various measures for reforming DOE's M&O contractor management and oversight, including DOE's use of performance incentives. DOE also recognizes that it has faced long-standing challenges in managing its contracts, as outlined in a recent memo from the Deputy Secretary calling for comprehensive reforms to improve acquisition management.[10]

You asked us to review DOE's performance management of its M&O contracts. This report examines (1) how DOE offices evaluated M&O contractor performance in fiscal years 2006 through 2016 and the extent to which these offices have documented their evaluation approaches; (2) the extent to which DOE's fiscal year 2016 M&O contractor performance evaluation reports provide information on contractors' technical, administrative, and cost performance; and (3) the results of DOE's M&O contractor performance evaluations for fiscal years 2006 through 2016.

For all three objectives, we reviewed performance evaluation documentation—such as performance evaluation plans, performance evaluation reports, and fee determination—for 21 of the 22 DOE M&O contracts in place as of fiscal year 2016, the most recently completed contract year at the time we initiated our review. We also reviewed documentation for the remaining contract—the Bettis and Knolls Atomic Power Laboratories' M&O contract—but excluded it from our analysis because the contract did not have award fee and annual performance evaluation reports comparable to the other DOE M&O contracts. We did not examine performance evaluations or incentives provided outside the main M&O contract performance evaluation reports for contracts that had separate contract line items for certain projects with separate performance evaluations. We also interviewed DOE officials to gain a

[9]Commission to Review the Effectiveness of the National Energy Laboratories, *Securing America's Future: Realizing the Potential of the Department of Energy's National Laboratories* (Washington, D.C.: October, 28, 2015). Section 319 of the Consolidated Appropriations Act, 2014, Public Law No. 113-76 established CRENEL to review whether the DOE national laboratories are properly aligned with the department's strategic priorities, have clear and balanced missions, have unique capabilities to meet current energy and national security challenges, are appropriately sized to meet the department's energy and national security missions, and are appropriately supporting other federal agencies. CRENEL was also to look for opportunities to more effectively and efficiently use the capabilities of the national laboratories and analyze the effectiveness of the use of laboratory-directed research and development to meet the department's science, energy, and national security goals.

[10]Dan Brouillette, Deputy Secretary of Energy, *Memorandum for Heads of Departmental Elements: Improving Acquisition Management* (Washington, D.C.: September 12, 2018).

further understanding of the department's performance evaluation processes and results.

To examine how DOE offices have evaluated M&O contractor performance and the extent to which these offices have policies and procedures to guide these processes, we reviewed DOE's policies and procedures for performance evaluations, as well as policies and procedures from each of the six DOE offices with M&O contracts. We also reviewed annual performance evaluation plans and performance evaluation reports from fiscal years 2006 through 2016.[11] We selected this period to provide 10 years of data on M&O contractors, and fiscal year 2016 was the latest year for which data were available when we began our engagement.

To evaluate the extent to which performance evaluation reports provided information on each of the performance areas outlined in the FAR—technical, administrative, and cost—we performed content analysis of 22 DOE fiscal year 2016 performance evaluation reports for M&O contractors.[12] We examined the quality of the cost performance information contained in the DOE fiscal year 2016 performance evaluation reports by comparing the information contained in those reports to the definition DOE provided for "quality" in its Information Quality Guidelines.[13] These guidelines apply to information DOE makes available publicly, which includes many performance evaluation reports.

[11]During the course of this work, we identified issues regarding the extent to which NNSA's key M&O contract documents were readily accessible, which we reported on in August 2018. GAO, *Management Report: Actions Needed to Improve National Nuclear Security Administration Contract Document Management*, GAO-18-246R (Washington, D.C.: Aug. 1, 2018). We found that NNSA was unable to promptly locate key M&O contract documents and recommended that NNSA update its guidance regarding M&O contract document management and monitor how NNSA field offices manage contract documents. NNSA agreed with our two recommendations and has implemented one and taken steps to address the other.

[12]There are 22 performance evaluation reports for the 21 M&O contracts we reviewed because EM and NNSA separately evaluated their respective activities carried out by the Savannah River Site contractor. The FAR does not define the terms technical, administrative, and cost performance. We operationalized these terms to include mission-related activities for technical performance; mission support-related activities for administrative performance; and spending-related activities for cost performance. For further details on our methodology, see appendix I.

[13]Department of Energy, *Final Report Implementing Office of Management and Budget Information Dissemination Quality Guidelines* (Washington, D.C.: October 7, 2002).

To examine the results of DOE's M&O contractor performance evaluations for fiscal years 2006 through 2016, we analyzed performance ratings and incentives awarded in performance evaluation reports, fee determination letters, and other performance evaluation documents. To compare performance ratings and incentives provided to contractors at M&O sites, we analyzed and provided information by "contract rating sites" rather than individual contractors or physical sites, because the individual contractors and how certain sites align with the contracts changed over time. Accordingly, we analyzed 24 distinct contract rating sites covered by 21 M&O contracts in place as of fiscal year 2016. There are three more contract rating sites than the number of contracts in 2016; two were because two individual contracts were consolidated into one contract during the period we covered—we analyzed the two individual contracts from prior to 2014 separately from the current consolidated contract—and the third was because two DOE offices separately evaluated the performance of a single contractor that performed activities for each of those offices.[14]

To analyze and summarize performance ratings and incentives awarded, we used rating, award fee, and incentive fee information from 239 performance evaluations at the 24 contract rating sites. We did not include fee ratings from years in which award or incentive fees were not available. We also did not include information from the EM portion of the Savannah River Site contract for fiscal years 2006 through 2009, since award fees covered multiple years that did not align with individual fiscal years. Appendix I provides additional information on our scope and methodology.

We conducted this performance audit from October 2016 to February 2019 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

[14]Specifically, NNSA's Y-12 and Pantex contracts were consolidated into the NNSA Production Office contract, and EM and NNSA separately evaluated their respective activities carried out by the Savannah River Site contractor.

Background

This section describes DOE's M&O contracts, incentives in those contracts, general requirements for DOE's M&O contractor performance evaluation processes, and contracting and performance challenges involving DOE's M&O contracts that have been identified by previous reporting.

DOE Uses M&O Contracts

Management and Operating (M&O) Contracts in the Federal Acquisition Regulation (FAR)

The FAR defines M&O contracts as agreements under which the government contracts for the operation, maintenance, or support, on its behalf, of a government-owned or government-controlled research, development, special production, or testing establishment, wholly or principally devoted to one or more major programs of the contracting agency.

According to the FAR, an M&O contract is characterized both by its purpose and by the special relationship it creates between the government and contractor. The FAR lists the following characteristics of M&O contracts:

- Government-owned or government-controlled facilities must be used.
- The government must maintain a special, close relationship with the contractor and the contractor's personnel.
- The conduct of the work is wholly or at least substantially separate from the contractor's other business, if any.
- The work is closely related to the agency's mission and is of a long-term or continuing nature, and there is a need to ensure its continuity and for protection covering the orderly transition of personnel and work in the event of a change in contractors.

Source: Federal Acquisition Regulation. | GAO-19-5

Since the Manhattan Project produced the first atomic bomb during World War II, DOE and its predecessor agencies have depended on the expertise of private firms, universities, and others with the scientific, manufacturing, and engineering expertise needed to carry out research and development work and manage and operate the government-owned, contractor-operated facilities where the bulk of the department's mission activities are carried out. DOE relies on contracts in general, and M&O contracts in particular, to do this work. According to *DOE's Fiscal Year 2017 Agency Financial Report*, the department spends approximately 90 percent of its annual budget on contracts, and in fiscal year 2016 DOE managed contracts valued at more than $24 billion. Of that amount, DOE spent approximately 80 percent on its M&O contracts.

Six offices within DOE use M&O contracts, and DOE is the only federal agency that uses M&O contracts, according to DOE officials.

- The Office of Energy Efficiency and Renewable Energy (EERE) invests in research and development in clean energy technologies such as renewable energy, energy efficiency, and sustainable transportation.
- EM is responsible for decontaminating and decommissioning facilities and sites that are contaminated from decades of nuclear weapons production and nuclear energy research.
- The Office of Fossil Energy (FE) manages the nation's Strategic Petroleum Reserve, which is an emergency stockpile of oil stored in underground salt caverns in Texas and Louisiana.
- NNSA, a separately organized agency within DOE, is responsible for maintaining and enhancing the safety, reliability, and performance of the nation's nuclear weapons stockpile, promoting international nuclear safety and nonproliferation, and supporting U.S. leadership in science and technology, among other things.[15]

[15]Pub. L. No. 106-65, § 3211(b) (1999).

- The Office of Nuclear Energy's (NE) primary mission is to advance nuclear power as a resource capable of making major contributions in meeting the nation's clean energy supply and energy security needs.
- The Office of Science (SC) supports scientific research for energy and the physical sciences both by supporting (1) such research, and (2) the development, construction, and operation of scientific user facilities.

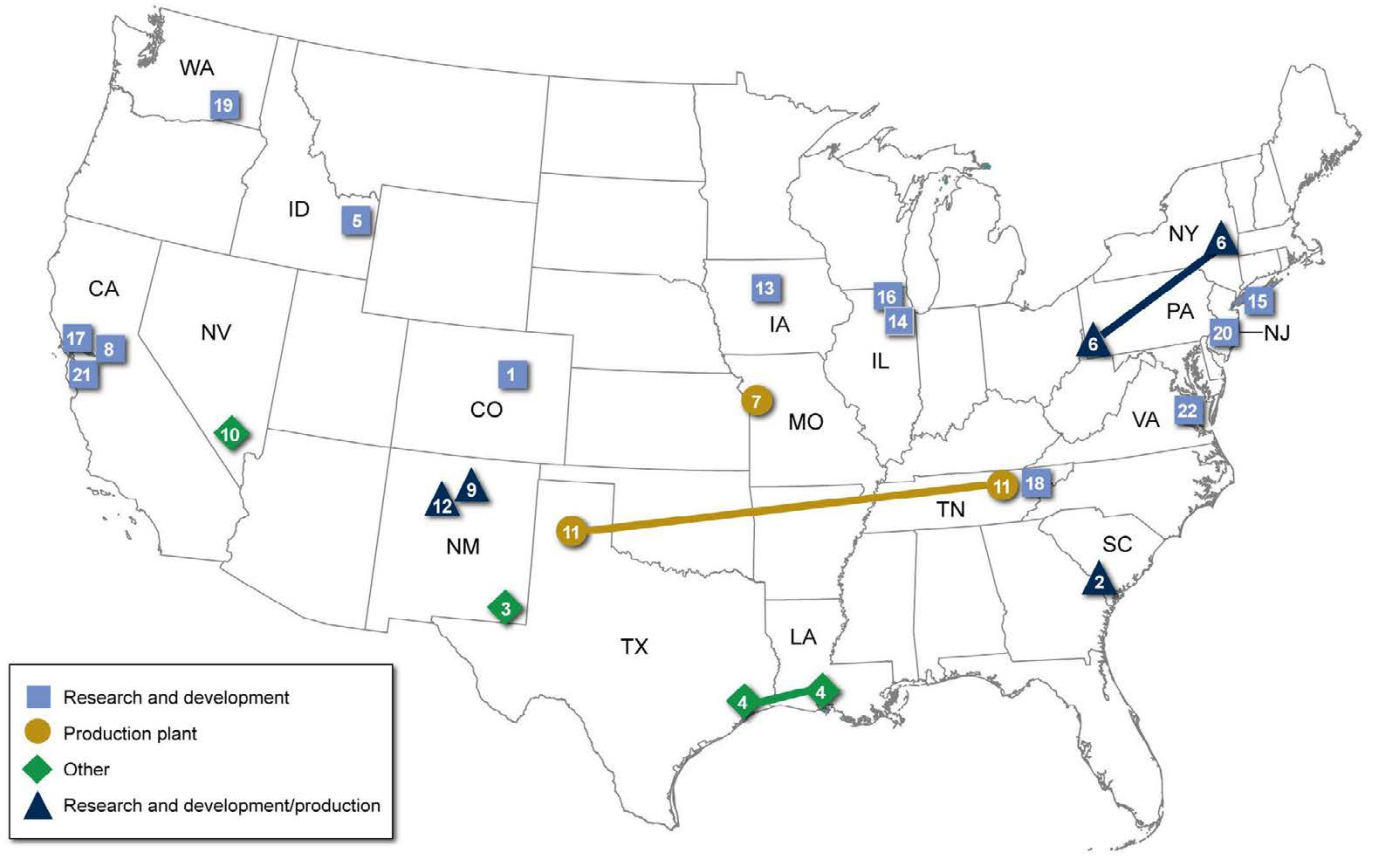
These DOE offices use M&O contracts to carry out their research and development, nuclear weapons production, and other missions. For example, for research and development, DOE is the nation's single largest funding source for basic physical sciences research, supporting research in energy sciences, advanced scientific computing, physics, and other fields. For weapons production, NNSA uses production sites to maintain, evaluate, repair, and dismantle both the nuclear and non-nuclear components for nuclear weapons; manufacture weapons components; and process tritium, a key isotope used to enhance the power of nuclear weapons. DOE also uses M&O contracts for sites dedicated to other types of missions, including nuclear waste disposal and an emergency stockpile of oil. Figure 1 and appendix II provide additional information on DOE's M&O contracts.

Interactive Graphic

Figure 1: Department of Energy Management and Operating Contract Sites by Program Office, as of February 2017

Instructions: Online, hover over the each number below to see more information.

To print a version containing text, see appendix II, page 66.



Program office/contract name

Energy Efficiency and Renewable Energy
1. National Renewable Energy Laboratory

Environmental Management
2. Savannah River Site and Savannah River National Laboratory[a]
3. Waste Isolation Pilot Plant

Fossil Energy
4. Strategic Petroleum Reserve Office[b]

Nuclear Energy
5. Idaho National Laboratory

National Nuclear Security Administration (NNSA)
6. Bettis and Knolls Atomic Power Laboratories[b]
7. Kansas City National Security Campus
8. Lawrence Livermore National Laboratory
9. Los Alamos National Laboratory
10. Nevada National Security Site
11. NNSA Production Office Sites[b]
12. Sandia National Laboratories[c]

Science
13. Ames Laboratory
14. Argonne National Laboratory
15. Brookhaven National Laboratory
16. Fermi National Accelerator Laboratory
17. Lawrence Berkeley National Laboratory
18. Oak Ridge National Laboratory
19. Pacific Northwest National Laboratory
20. Princeton Plasma Physics Laboratory
21. SLAC National Accelerator Laboratory
22. Thomas Jefferson National Accelerator Facility

Sources: Department of Energy; Map Resources (map). | GAO-19-5

Note: Total spending amounts presented in the interactive graphic are in nominal dollars. See appendix II for amounts adjusted to fiscal year 2017 dollars.

[a]While the Savannah River Site M&O contract is an Office of Environmental Management contract, NNSA evaluates performance for its activities at the site separately.

[b]Three contracts include operations at multiple sites: the Strategic Petroleum Reserve Office includes sites in Louisiana and Texas; one NNSA contract includes the Bettis Atomic Power Laboratory (West Mifflin, Pennsylvania) and the Knolls Atomic Power Laboratory (Niskayuna and West Milton, New York); and the NNSA Production Office Sites include the Y-12 National Security Complex (Oak Ridge, Tennessee) and Pantex Plant (Amarillo, Texas).

[c]Sandia National Laboratories has other locations, including in Livermore, California.

In August 2016, we identified three key attributes associated with DOE's M&O contracts.[16] First, M&O contracts have a limited competitive environment—we found that about half of DOE's fiscal year 2015 M&O contract spending was on contracts awarded noncompetitively or that received a single offer at the time they were competed. In addition, M&O contracts include longer terms than other federal contracts, so they are competed less frequently. Second, DOE M&O contracts have broad scopes of work that cover nearly all aspects of work at a site. In particular, though mission activities of M&O contractors can be highly technical, mission support activities generally accounted for about 25 to 50 percent of contractors' total costs in fiscal year 2015, and encompassed such things as managing infrastructure, facilities, and grounds; security; and the internal audit function. Third, M&O contracts and DOE management practices contribute to a closer relationship between contractors and the government. For example, M&O contractors are generally more integrated with DOE in how they are paid and in their accounting systems than other types of contractors. With regard to payment, rather than traditional bill payment methods including invoices, payment approval and authorization, and disbursement of funds, M&O contractors can draw funds directly from federal accounts through "letter of credit financing."

With regard to accounting systems, as we reported in August 2016, DOE requires M&O contractors to follow DOE's Accounting Handbook and integrate their costs and liabilities in DOE's accounts each month. DOE officials said that this provides visibility into contractor accounts and allows DOE to monitor the appropriateness of the contractors' withdrawal of funds in near real time. According to DOE officials, this integration carries over into how the value of contracts are determined—rather than

[16]GAO, *Department of Energy: Actions Needed to Strengthen Acquisition Planning for Management and Operating Contracts*, GAO-16-529 (Washington, D.C.: Aug. 9, 2016).

establishing the cost of the contract at the time of contract award, the value of the M&O contract is determined by the amount annually obligated on the contract by DOE, consistent with DOE's annual congressional appropriations.

Incentives in M&O Contracts

Cost-reimbursement type contracts allow the agency to contract for work when circumstances do not allow the agency to sufficiently define its requirements or estimate its costs to allow for a fixed-price contract. Under a fixed-price contract, a contractor accepts responsibility for completing a specified amount of work for a fixed price. In contrast, under cost-reimbursement contracts, the government reimburses a contractor for allowable costs incurred, to the extent prescribed by the contract. The government may also pay a fee that is either fixed at the outset of the contract or adjustable based on performance criteria set out in the contract.

In September 2009, we reported that cost-reimbursement contracts are considered high risk for the government because of the potential for cost escalation and because the government pays a contractor's costs of performance regardless of whether the work is completed.[17] As such, cost-reimbursement contracts are suitable only when (1) circumstances do not allow the agency to define its requirements sufficiently to allow for a fixed-price type contract; or (2) uncertainties involved in contract performance do not permit costs to be estimated with sufficient accuracy to use any type of fixed-price contract.[18] One major reason for the inability to accurately estimate costs is the lack of knowledge of the work needed to meet the requirements of the contract, such as with research contracts, which necessarily involve substantial uncertainties. The DOE Acquisition Regulation (DEAR) states that cost-plus-award-fee (cost reimbursement) contracts are generally the appropriate contract type for M&O contracts

[17]For comparison, under a firm-fixed-price contract, the contractor assumes most of the cost risk; by accepting responsibility for completing a specified amount of work for a fixed price, the contractor earns a profit if the total costs it incurs in performing the contract are less than or equal to the contract price but may lose money if its total costs exceed the contract price. See: GAO, *Contract Management: Extent of Federal Spending under Cost-Reimbursement Contracts Unclear and Key Controls Not Always Used,* GAO-09-921 (Washington, D.C.: Sept. 30, 2009).

[18]48 C.F.R. § 16.301-2(a).

and that the agency can choose among a number of different contract types for its M&O contracts.[19]

Under the FAR, cost-reimbursement contracts may include specific incentives, such as arrangements intended to improve contractor efforts and discourage inefficiency and waste.[20] Table 1 provides definitions of incentives commonly included in DOE's M&O contracts.

Table 1: Incentives Commonly Included in Department of Energy Management and Operating Contracts

Incentive	Definition
Award fee	Award fees typically emphasize multiple aspects of contractor performance in areas that are subjectively assessed, such as technical ingenuity or cost-effective management.
Incentive fee	Incentive fees are generally used to motivate achieving specified cost objectives, though they may be used to motivate performance toward specific delivery (e.g., schedule) targets or technical goals.
Conditional payment of fee	Conditional payment of fee is to incentivize contractors to meet minimum requirements—such as those related to safety, health, or the environment—in the performance or work. If these requirements are not met, fee earned for a specific evaluation period can be reduced.
Award term	Award term incentives enable a contractor to earn additional periods of performance under a current contract by achieving prescribed performance criteria under that contract.

Source: GAO analysis of the Federal Acquisition Regulation. | GAO-19-5

Generally, according to DOE officials, award fees and incentive fees are intended to motivate M&O contractor performance on an annual basis, as outlined in annual performance evaluation plans. All DOE M&O contracts GAO analyzed also include "conditional payment of fee" clauses that permit the agency to reduce an otherwise earned fee if it determines that the contractor's performance did not meet minimum requirements, such as those related to safety, health, or the environment. Under the award term incentive, contractors can earn one additional year of performance under the contract for each year they exceed certain thresholds in their annual performance evaluations. (See apps. III through VIII for additional information on the incentives included in each M&O contract, by DOE office.)

[19]While regulatory requirements for the acquisition process are set forth in the FAR, the DEAR supplements it by providing additional internal agency regulations, including designations and delegations of authority, assignments of responsibilities, workflow procedures, and internal reporting requirements. See 48 C.F.R. § 1.301(a)(2).

[20]Throughout this report we use the term "incentives" broadly to refer to contract elements intended to motivate contractor performance.

In addition, other elements of contract administration or oversight, while not formally incentives, can influence contractor performance. For example, option periods—which are established in the contract—enable the government to unilaterally extend the performance period and performance of services. According to DOE officials, other potentially important influences on contractor behavior include public reputation and the ability to compete for follow-on DOE or other government contracts.

Performance Evaluation and Award Fee Requirements

The FAR, DEAR, DOE's Acquisition Guide, and DOE policies provide requirements and guidance for DOE's annual performance evaluations of contractor performance. Under the FAR, all contracts providing for award fees must be supported by an award fee plan that establishes procedures for evaluating award fees and an Award Fee Board to conduct award fee evaluations. A Fee Determining Official makes the final determination regarding the amount of award fee the contractor earns during the evaluation period. Additionally, the FAR generally calls for entities that administer contracts providing award fees to use a set of ratings from Excellent to Unsatisfactory, which include performance descriptions and associated available award fee percentages (see Table 2 below).[21] Award fee ratings are associated with a range of percentages of the total available award fee that DOE offices may award to a contractor based on the contractor's assessed performance.

[21]The FAR provides broad discretion for offices to develop their performance evaluation processes and provides that contracting officers may supplement the rating description. Some DOE offices have supplemented the FAR's rating descriptions, and each program office's relevant documentation describes its respective methodologies for determining ratings.

Table 2: Federal Acquisition Regulation Descriptions of Ratings and Associated Award Fees

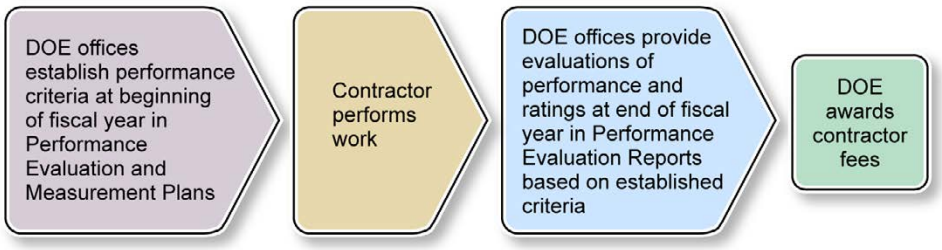
Award-fee rating	Percentage of available award fee	Description
Excellent	100-91	Contractor has exceeded almost all of the significant award-fee criteria and has met overall cost, schedule, and technical performance requirements of the contract in the aggregate as defined and measured against the criteria in the plan for the evaluation period.
Very good	90-76	Contractor has exceeded many of the significant award-fee criteria and has met overall cost, schedule, and technical performance requirements of the contract in the aggregate as defined and measured against the criteria in the plan for the evaluation period.
Good	75-51	Contractor has exceeded some of the significant award-fee criteria and has met overall cost, schedule, and technical performance requirements of the contract in the aggregate as defined and measured against the plan for the evaluation period.
Satisfactory	≤ 50	Contractor has met overall cost, schedule, and technical performance requirements of the contract in the aggregate as defined and measured against the criteria in the plan for the evaluation period.
Unsatisfactory	0	Contractor has failed to meet overall cost, schedule, and technical performance requirements of the contract in the aggregate as defined and measured against the plan for the period.

Source: Federal Acquisition Regulation | GAO-19-5

DOE offices develop two primary documents to guide and report assessments of contractors' performance for each fiscal year: a Performance Evaluation and Measurement Plan (PEMP) and a Performance Evaluation Report (PER).[22] The PEMP is to be developed at the beginning of each fiscal year—which is the beginning of the evaluation period—and is to establish expectations for contractor performance and describe how the responsible DOE office will evaluate and measure performance against those expectations. The PEMP provides the blueprint for what performance is expected of contractors, how contractors' performance will be evaluated, and how the evaluations will be used to determine award fees, award terms, and any other incentives. The PER is to be developed at the end of each evaluation period—which typically is the end of the fiscal year—and is the responsible DOE office's evaluation of contractor performance, in which DOE documents the performance rating and, in some cases, the fees and other incentives that will be awarded to the contractor. Figure 2 shows the general steps of DOE's performance evaluation of contractors.

[22]FE issues Performance Fee Board Reports, which serve the same fundamental purpose of the PERs issued by the other offices.

Figure 2: General Steps in Department of Energy (DOE) Performance Evaluations of Contractors



Source: GAO analysis of DOE documents. | GAO-19-5

Further, under the FAR and DOE policy, the department is to consider technical, administrative, and cost performance during acquisition planning.[23] The FAR provides that, for M&O contracts, replacement of an incumbent contractor is largely based on an expectation of meaningful improvement in performance or cost; thus, an agency or department should consider three categories of performance—technical, administrative, and cost—when deciding whether to extend or compete a contract at the end of the contract's term.[24] According to DOE officials, the annual performance evaluation process and the related PER are important sources of information for making these decisions. Thus, the PER should include relevant information on an M&O contractor's technical, administrative, and cost performance. For DOE, the M&O contract PER is also important because DOE uses information from the PER to update a contractor's past performance information in the Contractor Performance Assessment Reporting System (CPARS), which DOE and other agencies use to understand a contractor's performance history and to inform their evaluations of future contract proposals.

Contracting and Performance Challenges Involving DOE's M&O Contracts

A number of commissions, task forces, and other outside groups have identified challenges involving DOE's M&O contracts. For example, two independent commissions—the Augustine-Mies Panel and CRENEL—have reported on related contract management challenges. The 2014 Augustine-Mies report focused on NNSA and made numerous

[23]Acquisition planning includes events related to award, extension, and renewal of contracts.

[24]48 C.F.R. § 17.605(c).

recommendations for comprehensive reforms, including addressing dysfunctional government-M&O contractor relationships, improving oversight of M&O contractors, and reforming award fee and performance incentive structures. CRENEL, taking a broader view of all 17 national laboratories across DOE, in 2015 found a similar erosion of trust between DOE and some of its M&O contractors while noting that some laboratories, in particular those under SC, had better, more effective relationships. The CRENEL report recommended reforms to the management and oversight of M&O contractors and performance incentive structures.[25] In addition to challenges, CRENEL also noted that SC's annual performance evaluation and planning processes were robust and suggested that they be adapted by other DOE offices.

NNSA's and EM's contract management remains on our High-Risk List for government operations vulnerable to fraud, waste, abuse, and mismanagement.[26] In addition, since 2005 we have identified a variety of project and program outcomes associated with deficiencies in DOE's management and oversight of its M&O contractors. We have also identified improvements needed in core processes and functions DOE relies on to oversee its M&O contractors and assess their performance.[27] These reports include the following examples:

- Since 2005, during various reviews, we found that cost accounting practices used by NNSA's M&O contractors have varied, making it difficult for NNSA to compare costs across its sites or accurately identify the total costs across its nuclear security enterprise and to

[25]Of the 17 national laboratories, 16 are managed and operated by contractors under M&O contracts. One—the National Energy Technology Laboratory—is government-owned and -operated.

[26]GAO-17-317

[27]We also have ongoing work related to (1) DOE and NNSA's subcontractor management; (2) NNSA's support service contracts; (3) NNSA's management of key programmatic capabilities, such as high explosives, executed by multiple M&O contractors; and (4) departmental financial management with a focus on improper payments and reducing fraud risk.

obtain reliable cost data.[28] In January 2017, we reported on the importance of reliable enterprise-wide cost information to effective management and oversight and found that the plan NNSA submitted to Congress in 2016 to improve and integrate its financial management, as required by Congress in 2013, did not provide a useful road map for guiding NNSA's efforts.[29] We recommended that NNSA develop a plan for producing cost information that fully incorporates leading planning practices. NNSA agreed, and we are monitoring implementation of the recommendation.[30]

- In October 2014, we reported on actions taken to address challenges with the Uranium Processing Facility under construction at the NNSA Production Office Sites (specifically at the Y-12 National Security Complex), which is managed by the M&O contractor at that site.[31] A challenge with this facility was that in July 2012 the M&O contractor concluded that required equipment would not fit into the facility as designed and that addressing this issue would cost an additional $540 million. NNSA's analysis of the factors that contributed to this issue identified several causes, including project oversight deficiencies—specifically, failure to ensure that requests and directives from NNSA to the contractor were implemented.
- In May 2015, we reported on NNSA's use of contractor assurance systems to conduct oversight and evaluate the performance of M&O contractors.[32] Contractor assurance systems are designed and used

[28]For example, see GAO, *Department of Energy: Additional Opportunities Exist for Reducing Laboratory Contractors' Support Costs*, GAO-05-897 (Washington, D.C.: Sept. 9, 2005); GAO, *Modernizing the Nuclear Security Enterprise: The National Nuclear Security Administration's Proposed Acquisition Strategy Needs Further Clarification and Assessment*, GAO-11-848 (Washington, D.C.: Sept. 20, 2011); GAO, *Department of Energy: Observations on DOE's Management Challenges and Steps Taken to Address Them*, GAO-13-767T (Washington, D.C.: July 24, 2013).

[29]GAO, *National Nuclear Security Administration: A Plan Incorporating Leading Practices Is Needed to Guide Cost Reporting Improvement Effort*, GAO-17-141 (Washington, D.C.: Jan. 19, 2017).

[30]Senate Report 115-125, accompanying S. 1519, the Senate version of the National Defense Authorization Act for 2018, includes a provision for us to examine NNSA's financial integration efforts, and we have initiated this work.

[31]GAO, *Nuclear Weapons: Some Actions Have Been Taken to Address Challenges with the Uranium Processing Facility Design,* GAO-15-126 (Washington, D.C.: Oct. 10, 2014).

[32]GAO, *National Nuclear Security Administration: Actions Needed to Clarify Use of Contractor Assurance Systems for Oversight and Performance Evaluation*, GAO-15-216 (Washington, D.C.: May 22, 2015).

by M&O contractors to oversee their own performance and to self-identify and correct potential problems. We found that NNSA had not fully established policies or guidance for using information from these systems to conduct oversight of M&O contractors and that NNSA therefore did not have standards for ensuring that contractors are overseen consistently. We recommended that NNSA establish policies and guidance for using information from contractor assurance systems for the oversight of M&O contractors; NNSA concurred with the recommendations and has taken some steps to establish policies and guidance, though it has not yet fully addressed our recommendations.

- In March 2017, we reported that DOE needed quality data to manage its risk of fraud and recommended that DOE require contractors to maintain sufficiently detailed transaction-level cost data that are reconcilable with amounts charged to the government.[33] DOE did not concur with the recommendation and has not taken steps to implement it. Because DOE does not require its contractors to maintain sufficiently detailed transaction-level cost data that are reconcilable with amounts charged to DOE, it is not well positioned to employ data analytics as a fraud detection tool. As a result, DOE is missing an opportunity to develop, refine, and improve its data analytics and better meet requirements of the Fraud Reduction and Data Analytics Act.

DOE Offices Use Different Approaches to Evaluate Contractor Performance, and all but NNSA Have Documented Their Approaches

In fiscal years 2006 through 2016, the six DOE offices generally used one of three different approaches to evaluate M&O contractor performance. All but one of these offices have documented their approaches in policies and procedures; NNSA has a broad policy but does not have procedures for implementing it, in particular for collecting and using performance information. In the absence of documented procedures, NNSA may not consistently collect and use performance information in evaluating contractor performance.

[33]GAO, *Department of Energy: Use of Leading Practices Could Help Manage the Risk of Fraud and Other Improper Payments*, GAO-17-235 (Washington, D.C.: Mar. 30, 2017).

DOE Offices Use Three Approaches That Differ in Their Criteria and Methodologies for Ratings and Incentives

According to DOE officials, DOE does not have a department-wide performance evaluation process and offices developed their approaches to performance evaluation based on their varying missions and performance evaluation priorities.

We identified the following three general approaches:

- **The Science and Energy Lab approach** (used by SC, EERE, and NE) uses broad, office-wide performance criteria and a detailed process and web-based tool to collect performance information and determine ratings and incentives.
- **The NNSA approach** also uses broad, office-wide performance criteria, but ratings and incentives are determined through a series of management meetings.[34]
- **The Site Specific approach** (used by FE and EM) uses more detailed performance criteria specific to each contract and makes rating and incentive determinations in ways that vary based on the individual criteria.

These approaches generally differ in their (1) performance criteria, (2) methodologies used to determine contractor ratings, and (3) methodologies used to determine incentives. Appendixes III through VIII provide additional information on each office's performance evaluation approach.

Performance Criteria

Based on our review of DOE documents, the three approaches all use a combination of what PEMPs describe as subjective and objective performance criteria. The Science and Energy Lab and NNSA approaches use primarily subjective criteria, and the Site Specific approach uses primarily objective criteria. Subjective criteria are generally qualitative statements that describe desired contractor performance, according to DOE officials. For example, a subjective criterion that SC used during fiscal year 2016 was for contractors to "provide effective and efficient strategic planning and stewardship of scientific capabilities and program vision." In contrast, DOE officials explained that objective criteria generally describe performance that may be measured on a "pass/fail" or

[34]Prior to fiscal year 2013, NNSA used an approach more similar to the Site Specific approach. While our review covers fiscal years 2006 through 2016, we describe here the approach NNSA used in fiscal years 2013 through 2016, as it is more reflective of NNSA's current approach.

quantitative basis. For example, FE used objective criteria such as developing a strategic plan by a specific date or ensuring that all phases of construction were mechanically complete regarding the conversion of a tank.

Performance criteria under the Science and Energy Lab and NNSA approaches share a similar structure of three tiers of criteria: goals, objectives, and notable outcomes (called key outcomes under NNSA's approach). The criteria are also mostly subjective and broad enough to be consistent across all the contracts of the responsible DOE office. Based on our review of DOE documents and information, SC and EERE have used the Science and Energy Lab approach since fiscal year 2006 and NE since fiscal year 2007.[35] NNSA used the NNSA approach in fiscal years 2013 through 2016.[36]

Under the Science and Energy Lab and NNSA approaches, goals are general overarching statements of the desired outcomes for each major performance area under the contract and constitute the highest performance criteria used to evaluate contractor performance. Based on documentation describing these approaches, goals are to be composed of at least two objectives, which are statements of desired results for an organization or activity and that discuss specific actions the contractor will undertake to accomplish a goal. Each office uses its respective goals and objectives consistently for each of its M&O contracts (EERE and NE each have only one site) and generally cover the same functional areas across the offices, though some NNSA goals focus specifically on NNSA's

[35]EERE amended its performance evaluation process to resemble SC's beginning in fiscal year 2006, and according to NE officials, NE amended its performance evaluation process to resemble SC's beginning in fiscal year 2007.

[36]In fiscal year 2017, NNSA modified its approach for its new Sandia National Laboratories contract and Los Alamos National Laboratory extension contract. Rather than six goals covering the full range of activities at the sites, the new approach focuses on seven "Leadership" factors. We did not review this performance evaluation approach because its use occurred outside our scope of fiscal years 2006 to 2016. However, a 2018 study by the MITRE Corporation found this seven-factor approach had no measureable performance standards and would lead to a highly subjective performance evaluation. The Mitre Corporation, *Assessment Report on Management and Operations Contracts for the National Security Laboratories Prepared for National Nuclear Security Administration* (Bedford, Massachusetts: March 16, 2018).

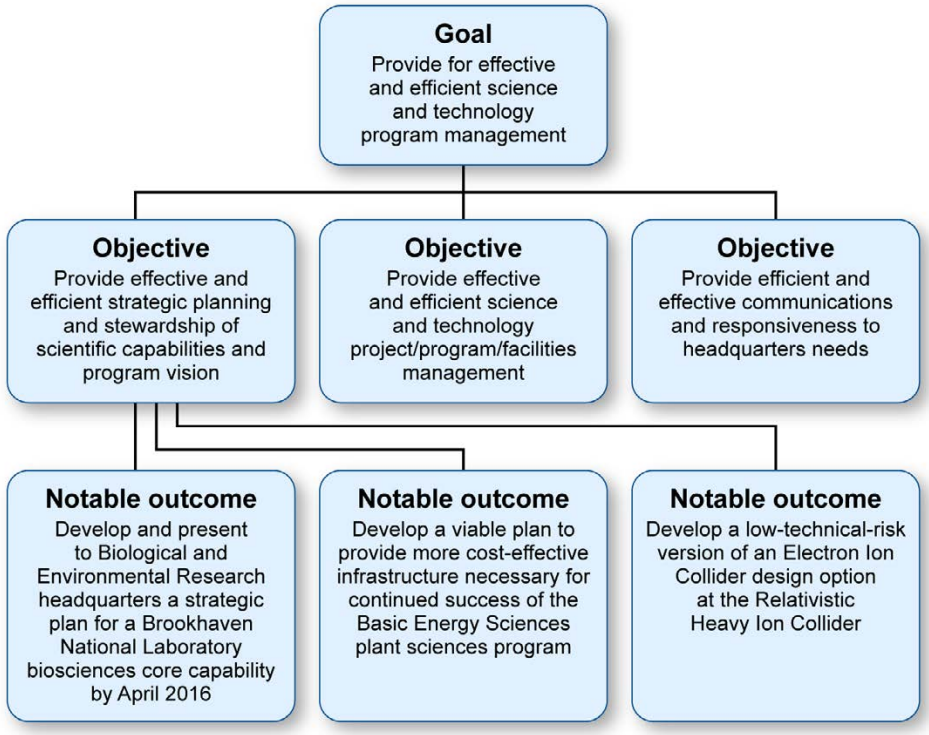
nuclear weapons and national security missions.[37] For complete lists of goals and objectives used by the offices using the Science and Energy Lab and NNSA approaches, see appendixes III, VI, VII, and VIII.

The third tier performance criteria used to evaluate contractor performance is the notable outcome, which, according to agency documents, is intended to focus the contractor on specific items that officials identified as the most important initiatives or highest risk issues the contractor must address.[38] According to DOE documents, notable outcomes differ from goals and objectives in that they (1) are usually objective, (2) are specific to each contractor, and (3) change from year to year. However, not all goals and objectives have associated notable outcomes. Figure 3 provides an example of the relationship between a goal and its related objectives and notable outcomes for SC's Brookhaven National Laboratory contractor for fiscal year 2016.

[37]The goals under the Science and Energy Lab approach generally cover the same functional areas for each office, although NE has one less goal than SC and EERE. The difference is that SC and EERE each have a goal that focuses on effective and efficient program management, while NE does not.

[38]Under the Science and Energy Lab approach, not all objectives have notable outcomes, but if a notable outcome is present, it must be clearly linked to an objective. NNSA's key outcomes differ in that they may be linked to an objective or a goal.

Figure 3: Example of Three Tiers of Performance Criteria under the Science and Energy Lab Approach for the Office of Science's Brookhaven National Laboratory Contractor for Fiscal Year 2016



Source: GAO analysis of Department of Energy performance evaluation documents. | GAO-19-5

Our review of agency documents found that the Site Specific approach consists primarily of objective performance criteria that are specific to each contract, as well as a few broader, objective criteria. This is in contrast to the other two DOE approaches to performance evaluation, which primarily rely on broad, subjective criteria and a few objective criteria. Based on our discussions with agency officials, both EM and FE have generally used this Site Specific approach since fiscal year 2006. For both offices, objective performance criteria are defined based on quantifiable metrics (e.g., a contractor's demonstrated waste processing rate) and milestones (e.g., whether a contractor completed a task on or before a scheduled date). For example, one of FE's fiscal year 2016 objective performance criteria for the Strategic Petroleum Reserve M&O contract is whether facilities and systems functioned at a level adequate

to meet program requirements based on average scores from its Maintenance Performance Appraisal Rating tool.[39] Further, our review of agency documents showed that the Site Specific approach uses subjective performance criteria for aspects of performance that may be difficult to capture objectively—such as determining how effectively measures a contractor has taken have prevented harm to workers, the general public, and the environment. (See apps. IV and V for examples of the objective and subjective criteria EM and FE use.)

Prior to fiscal year 2013, NNSA also used the Site Specific approach, and it had specific, objective performance criteria that varied by contract. Based on our review of agency documents, NNSA's performance criteria were generally divided into four performance areas: (1) mission, (2) operations, (3) business, and (4) multi-site. According to NNSA officials, as a result of "lessons learned" efforts, NNSA updated this approach to its current one to provide more succinct, structured, and consistent reporting by ensuring that all NNSA M&O contractors have identical goals and objectives.

Methodologies Used to Determine Contractor Ratings

Based on our review of DOE documents, rating methodologies vary across the three approaches—the Science and Energy Lab approach uses a detailed, formulaic methodology; the NNSA approach determines ratings at a series of management meetings; and in the Site Specific approach, ratings depend primarily on whether the contractor accomplishes specific tasks.

Based on our review of agency documents, under the Science and Energy Lab approach, stakeholders—including officials from headquarters, field offices, and internal and external customers[40]—generally evaluate contractor performance against the criteria for each objective and notable outcome ("lab customers" evaluate objectives under

[39]According to agency officials, the Maintenance Performance Appraisal Rating tool is used to measure the effectiveness and condition of the Maintenance Program. Specifically, the measurements are based on a 100-point total scale whereby seven maintenance performance measures—Equipment Readiness, Corrective Maintenance Productivity, Backlog, Preventive Maintenance Completion, Maintenance Support, Corrective Maintenance Effectiveness, and Maintenance Quality Indicator—each can acquire various points. The measurements are reported in a monthly publication to DOE that establishes performance trending for key maintenance performance measures.

[40]We use the term field office to refer broadly to federal offices located at M&O sites, which DOE and others sometimes call site offices.

science and technology goals only).[41] Their evaluations, in the form of narratives and numerical scores, are entered into a web-based information collection tool that aggregates the scores using a series of calculations and weights to generate ratings that are then approved by the Fee Determining Official for the responsible DOE office.[42] For example, for SC, once individual stakeholders enter objectives' scores into the Laboratory Rating Tool, those scores are then weighted and added together through a predetermined formula to provide an overall rating of contractor performance for each goal. Under this approach, the Laboratory Rating Tool aggregates the objective scores into numerical goal ratings and corresponding letter grades from 4.3 (A+) to 0 (F) for the contractor. Notable outcomes are rated on a "pass/fail" basis, meaning that the contractor either met or did not meet them. Receiving a passing rating for the notable outcome is required for the contractor to earn a B+ or better for the notable outcome's associated objective. Thus, although notable outcomes are not given their own numerical score or letter grade, they can have a significant effect on a contractor's objective ratings and, ultimately, goal ratings. (See apps. III, VII, and VIII for examples of the weighting and calculations involved in aggregating ratings for EERE, NE, and SC M&O contractors.)

Based on our review of agency information, the methodology for the NNSA approach to determine contractor ratings entails officials holding a series of meetings to review various internally developed periodic reports and other inputs (e.g., contractor self-assessments and inspection reports). The participants in these meetings include field office managers, program managers, and NNSA executive leadership who collaboratively review contractor performance and determine ratings. According to NNSA officials, at these meetings NNSA collaboratively reviews all M&O contracts across the NNSA complex, thereby allowing officials to weigh and compare performance. The Fee Determining Official determines the

[41]"Lab customers" refer to entities that provide funding for the activities undertaken by the laboratories—these entities may consist of internal customers, such as DOE and NNSA programs, or external customers, such as the Department of Homeland Security, National Institutes of Health, or Nuclear Regulatory Commission.

[42]SC's web-based information collection tool is called the Laboratory Rating Tool. EERE uses this tool but has modified it for EERE's specific purposes, and NE uses a similar online tool called the PEMP system. The Fee Determining Official is the designated agency official responsible for developing the appropriate criteria for a contract, reviewing the recommendations of the Award-Fee Board in determining the amount of award fee to be earned by the contractor for each evaluation period, and making award-fee determinations.

final performance ratings for each M&O contractor using rating categories from the FAR: Excellent, Very Good, Good, Satisfactory, and Unsatisfactory. NNSA does not use numerical calculations to score and weigh individual objectives or goals. Instead, NNSA officials use professional judgment to determine overall goal ratings.

Based on our review of agency information, under the Site Specific approach, field office officials rate contractor performance against objective performance criteria quantitatively or pass/fail and rate subjective performance criteria using FAR award fee categories. That is, they evaluate performance against objective performance criteria as completed or not completed—for example, whether the contractor packaged 10 waste drums during the fiscal year. For the subjective performance criteria, officials assign ratings using the FAR rating categories in a similar manner to the NNSA approach.

Methodologies Used to Determine Incentives

Based on our review of DOE documents, the three performance evaluation approaches also use different methodologies for determining award and incentive fees, and two offices use similar methods to determine whether the contractor receives award term. Based on our review of agency documents, under the Science and Energy Lab approach, once ratings are determined, several additional detailed calculations determine how much of the available award fee is provided to the contractor. Precisely how ratings are weighted to determine fee differs by DOE office, but generally performance in technical areas is more important in determining the amount of fee the contractor earns. For example, SC determines award fees based on the contractor's final science and technology area rating and adjusts that fee if the final management and operations area rating is 3.0 (grade B) or below. (See app. VIII for additional information on SC's fee determination, app. III for EERE, and app. VII for NE.)

Based on our review of agency information, under the NNSA approach, officials assign goals specific portions of the available award fee for each contract at the beginning of the fiscal year. At the end of the fiscal year, officials determine ratings and fees at the same time in the collaborative meeting with NNSA leadership. For example, for the Los Alamos National Laboratory contractor in fiscal year 2016, the nuclear weapons goal was 30 percent of fee, and the operations and infrastructure goal was 35 percent. As discussed earlier, the Fee Determining Official makes the final determination on the ratings and also determines how much fee to provide the contractor within the range defined by the FAR rating (Excellent, Very Good, Good, Satisfactory, Unsatisfactory). In fiscal year

2016, NNSA awarded the Los Alamos National Laboratory M&O contractor an "Excellent" rating for the nuclear weapons goal, which is associated with the contractor earning from 91 to 100 percent of the available fee for that goal. To determine the overall award fee for the contract, NNSA adds up the award fees for all of its goals. (See app. VI for an example of a NNSA fee determination letter.)

Our review of DOE documents showed that the Site Specific approach has a different process for determining incentive and award fees, depending on whether the fee is tied to objective or subjective performance criteria. According to agency officials and documents, the Site Specific approach generally provides more money toward incentive fees tied to objective criteria than to award fees tied to subjective criteria—about 60 to 75 percent of available fee money goes to incentive fees. Incentive fees tied to objective performance criteria are awarded based on completion of the specific tasks or quantitative targets defined by the performance criteria.[43] For example, one of the objective performance criteria for EM's Waste Isolation Pilot Plant (WIPP) M&O contractor in fiscal year 2016 was to develop a maintenance and engineering program, called the Material Condition and Aging Management Program, and complete certain program activities.[44] EM set a maximum incentive fee of $500,000 in the PEMP to be awarded upon completion of the activities.

In regard to award fees that are tied to subjective performance criteria under the Site Specific approach, offices using this approach take a similar method to the NNSA approach, in that they determine ratings and fees simultaneously. Specific portions of an available award fee are assigned to subjective performance criteria at the beginning of the fiscal year and documented in the PEMP, and officials then determine the

[43]In cases in which conditions outside the contractor's control affect its ability to accomplish targets, sometimes partial fee can be assigned, according to agency documents.

[44]According to EM officials, the Material Condition and Aging Management Program (MCAMP) is a maintenance and engineering program that evaluates all infrastructure, safety systems, and equipment for the long term. It performs material condition assessments of the infrastructure, safety systems, and equipment to determine the current conditions and the supportability by vendors for maintenance activities and parts, and it develops monitoring programs to ensure the material condition does not degrade. The outcome of the MCAMP is a defined priority list of necessary capital asset projects and investments and major maintenance and repair activities needed to ensure an enduring mission.

percentage of fee to award and corresponding ratings from the FAR award fee categories for each subjective performance criterion. The final decision on the percentage of the available fee awarded for subjective performance criteria is made by the Fee Determining Official, who is generally an on-site official. The overall fee awarded is the sum of the individual objective incentive fees and subjective award fees. (See apps. IV and V for examples of how fee is assigned to specific criteria under the Site Specific Approach.)

With regard to award term, for the SC and NNSA contracts that had award term as an incentive, the contracts defined the conditions for receiving it, and those conditions generally included meeting certain rating thresholds, based on our review of documents from those offices.[45] For SC, the contractor (1) was to earn at least a 3.5 (A-) science & technology area rating and a 3.1(B+) management & operations area rating, and (2) have no individual goal ratings below 3.1(B+) for science & technology area goals and 2.5 (B-) for management & operations area goals.[46] The contracting officer is to prepare and submit a standardized document along with an annual contractor performance evaluation presentation for review through program officials, and the Director of the Office of Science is to make the final award term determination. For NNSA contracts, the contractor generally must (1) earn a rating of "Very Good" or better in four of the six goals and receive no rating of "Satisfactory" or lower in any goal, and (2) meet any additional requirements as specified in the contract.[47]

[45]In fiscal years 2006 through 2016, SC and NNSA were the only offices that included award term in their M&O contracts. Some NNSA contracts had award term incentives before 2013 when NNSA used the Site Specific approach.

[46]During the first year of the award term incentive, the science and technology area rating threshold is 3.1 (B+) rather than 3.5, according to SC documentation.

[47]NNSA officials informed us that, consistent with recommendations in reports completed by various congressional commissions, NNSA has reviewed its contract incentives and moved away from including award term in M&O contracts awarded in the past couple of years—though the Lawrence Livermore National Laboratory contract continued to have award term as an incentive.

All DOE Offices but NNSA Have Clearly Documented Approaches, Which May Lead NNSA to Inconsistently Collect and Use Performance Information in Contractor Evaluations

All of DOE's offices have documented policies outlining their performance evaluation approaches, and all but NNSA have documented how information is to be collected and used to make rating determinations. SC, EERE, NE, FE, and EM have included in their documented policies and performance evaluation plans detailed procedures for collecting information on contractors' performance that outline, among other things, how officials are to gather input from internal and external stakeholders and how the officials are to use that information in making rating determinations. For example, under SC's *Laboratory Performance Appraisal Process and PEMP Preparation Guidance* (SC's Appraisal Guidance), stakeholders are to provide evaluations using SC's web-based information collection tool, the Laboratory Rating Tool, to provide scores and narratives on contractor performance. As a result, SC's contractor performance evaluation approach clearly traces where performance information comes from and how the information is used in determining contractors' final ratings.

Similarly, EM and FE document how officials are to collect information and use it in PEMPs or other performance evaluation plans. For example, EM's PEMP for the WIPP M&O contract provides step-by-step procedures for how field office officials are to assess contractor performance against each performance criterion. These procedures guide the flow of information from contractor to field office officials, who are to check and validate the information and provide rating and fee recommendations to the on-site Fee Determining Official. Similarly, field office officials at EM's Savannah River Site and FE's Strategic Petroleum Reserve also have detailed procedures for assessing and distributing information regarding performance. Such detailed written procedures can provide better assurance to agencies that officials are consistently gathering and using performance evaluation information and that one can trace the ultimate performance rating in the PER to the underlying performance information.

In contrast to the detailed documented policies of other DOE offices, during the period of our review NNSA's documented policy did not always match its performance evaluation approach, and the policy did not contain procedures for how officials should collect and use information so that one can trace the performance rating to the underlying performance information. As noted above, NNSA changed from using the Site Specific performance evaluation approach that focused on objective performance criteria to the agency's current approach in fiscal year 2013. However,

NNSA did not update its policy to reflect this change until December 2016.[48] Thus, in fiscal years 2013 through 2016, NNSA was using a policy intended to evaluate site-specific objective performance criteria and incentive fees rather than the broad, office-wide subjective performance criteria that NNSA was using during those 4 fiscal years.

NNSA brought its policy into alignment with its performance evaluation approach in December 2016 by issuing its Corporate Performance Evaluation Process for Management and Operating Contractors policy (NAP-4C).[49] NAP-4C provides a general framework under which NNSA officials provide input into the contractor performance evaluation process; the policy also provides a general schedule for implementing the performance evaluation approach, as well as general references to information collection.

However, NAP-4C does not include detailed procedures for how performance information should be collected and used, and according to NNSA officials, individual NNSA offices and officials determine how they collect and distribute information. This means information may be collected inconsistently across the agency, depending on individual offices' preferences. For example, NAP-4C states that officials should "leverag[e] information from contractor assurance systems . . . to monitor performance" but does not discuss how and when officials should use this information to ensure performance information is traceable to rating determinations.[50]

In May 2015, we reported on the importance of tracing performance information from contractor assurance systems to performance evaluations.[51] We reported that a senior NNSA official told us NNSA could not track the extent to which information from contractor assurance

[48]Although NNSA did not implement the NAP-4C policy until fiscal year 2017, the Fee Determining Official issued some implementation guidance for fiscal year 2016, according to agency documents.

[49]National Nuclear Security Administration, *NNSA Policy Letter, NAP-4C: Corporate Performance Evaluation Process for Management and Operating Contractors* (Washington D.C.: December 2016).

[50]Contractor assurance systems are systems that contractors design and use to assure their own performance and that NNSA seeks to use to increase the effectiveness and efficiency of its oversight of contractors.

[51]GAO-15-216.

systems was used in evaluating contractor performance because it could be difficult to identify the sources of information used in performance evaluations. We recommended that NNSA revise policy, guidance, and procedures on performance evaluation to fully address how and under what circumstances those responsible for evaluating M&O contractors' performance should use information from contractor assurance systems for this purpose. NNSA concurred with our recommendation and issued revised policy for contractor oversight but has not yet developed guidance or procedures for how to use information from contractor assurance systems in its performance evaluation process. We continue to follow up on this recommendation.

In addition to NAP-4C, NNSA's Fee Determining Official issued implementation guidance for the fiscal year 2016 performance evaluation cycle. This implementation guidance directs relevant NNSA officials to follow a series of templates for interim reports to the contractor and provides the format of the final PER and specific dates for those reports.

The guidance does not include procedures as to how officials throughout NNSA are to collect or use information to create the content for those templates. For example, the guidance's Interim Feedback Report schedule states that the "program/functional offices provide input to field offices." There is no discussion of how the program/functional office is to provide such input, what types of input are important, or how the input is to be used. Similarly, NNSA's PEMPs also do not discuss how officials should collect or use performance information.

In the absence of documented, detailed procedures, NNSA may not consistently collect and use performance information from program managers and field office officials for contracts in a given fiscal year and may therefore inconsistently apply NNSA's evaluation process. For example, we identified two instances in which the NNSA Fee Determining Official made handwritten changes to proposed award fee amounts during fiscal year 2012 without documenting in the PER the basis for the changes, such as by identifying the performance information that would support the handwritten changes to create traceability between the award fee amounts and its supporting performance documentation. These changes awarded (1) Los Alamos National Laboratory's contractor a year of award term, even though the contractor had not met the established

rating threshold for award term,[52] and (2) Lawrence Livermore National Laboratory's contractor a higher award fee that also qualified the contractor for award term it otherwise would not have received. With these changes, these contractors received award terms and fees in a manner inconsistent with how award terms and fees were assessed for other M&O contractors. According to NNSA officials, this type of action would not happen currently because the agency's approach is rooted in a policy (NAP-4C) and implementation guide that is supported by a more collaborative decision-making process. However, even under the new policy, because NNSA does not have clearly documented procedures specifying how officials are to collect or use performance information, NNSA leadership cannot have assurance that there is clear traceability between the contractor evaluation and its underlying support.

Federal standards for internal control state that management should design control activities to achieve objectives and respond to risks, such as by clearly documenting internal control in management directives, administrative policies, or operating manuals.[53] NNSA has a documented policy, but this policy does not clearly specify how to collect and use contractor performance information to evaluate contractor performance. NNSA officials stated that in their opinion their policy was still effective and robust without detailed procedures for its implementation. However, without developing and documenting clear procedures for implementing NAP-4C that specify the process for collecting contractor performance information and how officials are to ensure this information can be traced to rating determinations, NNSA leadership does not have reasonable assurance that the agency is consistently evaluating contractor performance and that it is using relevant performance information as intended.

[52]In commenting on a draft of this report, NNSA officials noted that in addition to Fee Determining Official approval, NNSA's Senior Procurement Executive provided a waiver that documented that the Fee Determining Official decided to change the award term decision in "recognition of Los Alamos National Security's acceptance of full responsibility and accountability for problems" and "for moving aggressively to correct the issues."

[53]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: September 2014)

Evaluation Reports Could Better Assess M&O Contractors' Cost Performance

DOE's Fiscal Year 2016 M&O Contractor Performance Evaluation Reports Provided Less Information on Contractors' Cost Performance than on Other Types of Performance

We found that DOE offices' fiscal year 2016 PERs provided less information on M&O contractors' cost performance—evaluations of the contractor's spending, budgeting, strategic sourcing, and costs, including the contractor's cost-effectiveness—and provided more information regarding technical and administrative areas of performance. Specifically, the PERs were 67 pages long on average and contained about 1 page of cost performance-related information overall.[54] In contrast, information on contractors' technical and administrative performance included in-depth descriptions of contractors' scientific discoveries and production progress that spanned numerous pages. Figure 4 provides typical examples of the type of technical, administrative, and cost performance descriptions that we found in our review of fiscal year 2016 M&O contract PERs.[55]

[54]The length of DOE's fiscal year 2016 PERs ranged from 11 to 194 pages. We analyzed 22 PERs for the 21 M&O contracts we reviewed—there were more PERs than contracts because EM and NNSA separately evaluated their respective activities carried out by the Savannah River Site contractor. In addition, this data represents length of information on cost performance, not number of performance descriptions, so comparison with other data points may not be valid.

[55]We reviewed performance descriptions—descriptions of performance under each of the performance criteria—in DOE's fiscal year 2016 M&O contractor PERs. We categorized information related to the contractor's performance into three categories—administrative, technical, and cost performance—and tabulated the responses (see app. I for additional information on our methodology). Some performance descriptions include information on more than one area of performance, so percentages sum to more than 100.

Figure 4: Excerpts of Performance Descriptions from the National Nuclear Security Administration's Los Alamos National Laboratory Management and Operating Contract Fiscal Year 2016 Performance Evaluation Report

Technical performance description

In FY 2016, The Laboratory has exceeded the planned deliverables for activities associated with the Material Recycle and Recovery (MRR). The Laboratory exceeded expectations for activities associated with the recycle, recovery or disposition for accelerated vault cleanout, confinement vessel disposition, Chemistry and Metallurgy Research Facility (CMR) deinventory, WETF tritium recycling, and compliance with the DOE Order 410.2. The effort to accelerate the PF-4 vault cleanout was above expectations. 374 containers (150% of the objective) were dispositioned from the vault and first floor to include MAR reduction for containers in safes and floor locations. MAR on the main floor of PF-4 outside of gloveboxes was reduced by 21.5% or 141 kg from the start of FY 2016. The CVD project also exceeded the plan with introduction of the 5th vessel into CMR. The WETF shipments were successfully completed supporting the WETF de-inventory plan. Ten new Premium vault locations from current 12x12 vault locations or floor locations were created to support the Pu Sustainment mission.

Cost performance description

For the RLWTF-LLW [Radioactive Liquid Waste Treatment Facility Low Level Waste] project, the Laboratory has failed to implement actions promised to the NNSA to stabilize cost escalation as well as control Quality Control issues that have caused delays and unnecessary costs.

Administrative performance description

The Laboratory met expectations for this performance rating period. Legal Counsel (LC) provided exceptional legal support and advice on matters related to the 2014 Waste Isolation Pilot Plant (WIPP) incident, including participation in finalizing and executing a settlement agreement/stipulated final order resolving Administrative Order 14-20, and providing effective legal support to timely meet the requirements of the agreement. LC continued to engage in effective communication with NNSA, promptly responding to NNSA needs and requests. LC took the initiative to request NNSA approval to hire a consultant firm to conduct a bias survey of surrounding counties, which could, if bias is demonstrated, be used to support change of venue motions. The Laboratory took the initiative to set up a database accessible to the NA-LA Counsel's Office, allowing the review of bills and litigations costs on an ongoing basis.

Source: National Nuclear Security Administration's Los Alamos National Laboratory Fiscal Year 2016 Performance Evaluation Report. GAO-19-5

In addition, in our review of the number of performance descriptions in DOE's 2016 PERs, we found

- about 24 percent (179 of 737) of the performance descriptions in the PERs provided information on cost performance;[56]
- about 71 percent (524 of 737) provided information on administrative performance (evaluations of contractor's performance on mission support activities, such as information technology, human resources, legal activities, environmental safety and health, property management, risk management, and leadership activities); and
- about 53 percent (390 of 737) provided information on technical performance (evaluation of contractor's performance on mission-related activities such as research and development, production, storage, clean-up, and construction).

Cost Performance Information Included in DOE's Performance Evaluation Reports is of Limited Use for Acquisition Decision-Making

In addition to providing less information on M&O contractors' cost performance than on other areas of performance, the cost information contained in DOE offices' PERs is of limited use for acquisition decision-making. DOE's Information Quality Guidelines define quality, in part, as information that is useful to DOE and the public.[57] We examined whether the PERs included such useful information that would permit an overall assessment of contractor cost performance. FAR and DOE policy call for such an overall assessment, which therefore is useful to DOE for acquisition decision-making and to the public generally.

Our analysis showed that the information on contractors' cost performance in the PERs did not permit such an assessment of contractor cost performance for two primary reasons. First, the information consisted of statements that lacked detail, such as "within

[56]There was some variation in the percentage of performance descriptions that provided information on cost performance among the PERs for the M&O contracts. For example, about 60 percent of the performance descriptions in NNSA's Kansas City National Security Campus PER (15 of 25) and 43 percent in NNSA's Savannah River Site PER (16 of 37) included information related to cost performance. In contrast, some PERs provided less information related to cost performance. For example, 11 percent of the performance descriptions in SC's Lawrence Berkeley National Laboratory (5 of 46) and Princeton Plasma Physics Laboratory (4 of 37) PERs provided information related to cost performance.

[57]Department of Energy, *Final Report Implementing Office of Management and Budget Information Dissemination Quality Guidelines* (Washington, D.C.: October 7, 2002).

budget,"[58] and did not address the significance of the performance described. For example, cost performance-related statements such as "over/under budget" and "cost savings/cost overrun" did not commonly provide information on the amount saved or lost, making it difficult to identify the significance of what was reported. Information on cost effectiveness was also rare—cost-effectiveness information was included in about 11 percent of the instances in which cost performance was discussed (48 of 441 instances).[59] Second, cost performance information commonly applied to specific activities under the contract, such as construction activities, rather than to achievement of overall operating efficiencies. When cost performance information is limited to specific activities, it is not possible to assess a contractor's overall cost performance based on information in the PER.

We identified one reason and DOE officials identified three additional reasons why more cost performance information was not provided in DOE's fiscal year 2016 PERs. We believe all of these contribute to why the cost performance information that was included was often not useful for acquisition decision-making:

- **DOE offices' policies and PEMPs did not specifically require PERs to include cost performance information and did not discuss how to ensure that cost information is useful for acquisition decision-making.** Based on our review, DOE offices' policies did not specifically require that PERs include cost performance information, nor did they discuss information quality. In addition, DOE offices' PEMPs—which serve as a general blueprint for the type of performance information that offices should include in the corresponding PER—generally did not include specific cost performance criteria or explicitly call for evaluations of contractors'

[58]Other frequently used types of statements include: over budget, under budget, cost overrun, and cost savings. See appendix I for additional information on the methodology we used. Some activities described in the PERs are capital asset projects that fall under DOE Order 413.3B *Program and Project Management for the Acquisition of Capital Assets* and possibly a separate contract line item. As such, according to DOE officials, DOE offices may review costs outside the PERs, such through establishing cost baselines and reviewing performance against those baselines. In such instances, statements such as "within budget" may be more meaningful than would otherwise appear. We did not evaluate performance evaluation efforts conducted outside the PER process.

[59]This data represents the total number of instances in which cost effectiveness was discussed out of the total number of instances in which cost performance was discussed. Within 179 performance descriptions, we identified 441 times cost performance was discussed; of these, 48 were related to cost effectiveness.

cost performance. In contrast, DOE offices' fiscal year 2016 PEMPs commonly included explicit technical and administrative performance criteria such as: "provide S&T [Science and Technology] results with meaningful impact on the field" (technical) and "provide an efficient and effective worker health and safety program" (administrative). There were three exceptions in which PEMPs included specific cost performance criteria: EM's WIPP M&O contract, NE's Idaho National Laboratory, and FE's Strategic Petroleum Reserve M&O contract.[60]

Although SC does not have explicit cost performance goals or objectives, according to SC officials, cost performance is listed as a factor to consider in SC's PEMPs' descriptions of how to evaluate certain performance criteria. However, SC officials told us that PER performance descriptions may not include cost information for these criteria unless there were notable cost overruns or the contractor was doing an exceptionally good job in these areas. SC officials stated this is, in part, to keep PERs shorter and streamlined. However, when PERs are silent on cost performance, there is no formal documented record of M&O contractor cost performance.

- **M&O contract missions made it difficult for DOE to assess contractor cost performance, resulting in less cost performance information in PERs.** According to DOE officials, it is difficult to assess the costs of the scientific and research missions covered by many M&O contracts. For example, according to DOE officials, it is difficult to develop cost estimates for research activities because it is not always certain when scientific breakthroughs will occur or how long they will take. DOE uses cost-reimbursement contracts for its M&O contracts, in part because it is not possible to know with certainty and in advance how much research and development efforts will cost or what level of effort will be required.

  While we agree that assessing cost performance for scientific and research activities may be difficult, M&O contractors also carry out a

[60]Specifically, the cost goal for the fiscal year 2016 PEMP for the WIPP M&O contract focused on the contractor's effectiveness in cost planning, timeliness and accuracy of cost reporting, whether actual costs for work completed were reasonable and within estimates, scheduling and tracking, monthly project status reporting, and support of Earned Value Management system implementation. EM officials told us that this goal did not get much attention during the site's recovery from two 2014 accidents but that the office plans to evaluate contractor cost performance more rigorously in the future. The Strategic Petroleum Reserve M&O contract's PEMP included a financial management performance criterion that included an evaluation of effective management and control of costs.

variety of other activities for which costs may be more readily assessed. For example, a sizeable portion of the costs under M&O contracts are for administrative or mission support and other business operations activities, such as personnel, business processes, human resources, procurement, and security. In our previous work, we found that such administrative and support activities accounted for about 25 to 50 percent of M&O contractor costs in fiscal year 2015.[61]Similarly, SC's fiscal year 2016 annual laboratory plans identify areas, such as infrastructure and information systems, as the major cost drivers for that year. We have found that other agencies assess cost performance for contractors performing such administrative activities.[62] DOE officials we interviewed agreed that measuring cost performance in these areas would be more feasible than measuring it for its scientific and research missions.

- **The M&O contract type made it difficult to some degree for DOE to assess contractor cost performance.** According to DOE officials, certain aspects of how DOE implements cost-reimbursement M&O contracts create challenges to evaluating cost performance. Some officials described these challenges as the result of "the budget-based nature" of M&O contracts. Specifically, according to DOE officials, M&O contract budgets (the amount contractors are allowed to spend) are not set up front in the original contract. Rather, according to DOE officials, M&O contract budgets are commonly determined by the amount DOE obligates to the contract on an annual basis, based mostly on annual congressional appropriations to the relevant DOE programs. Further, these officials noted, because much of DOE's appropriated funds are available until expended rather than expiring at the end of the fiscal year for which they were appropriated, M&O contractors may be able to carry over those funds to spend in future

[61]GAO-16-529.

[62]GAO, *Defense Infrastructure: Guidance Needed to Develop Metrics and Implement Cybersecurity Requirements for Utilities Privatization Contracts*, GAO-18-558 (Washington, D.C.: Sept. 4, 2018) and GAO, *Transportation Infrastructure: Cost and Oversight Issues on Major Highway and Bridge Projects,* GAO-02-702T (Washington, D.C.: May 1, 2002).

fiscal years.[63] According to DOE officials, DOE reviews M&O contractor estimates when developing its budget request, including determining how much work is required by its contractors to execute the program scope outlined in the budget request. Agency officials also noted that, with regard to cost reimbursement contracts, the federal government is legally required to reimburse contractors for all allowable costs up to the approved budget amount.

We have previously reported that cost-reimbursement contracts carry a high risk for the federal government, resulting in the potential for cost escalation, as some expenditures may be allowable under the contract but may not be cost effective.[64] We recognize that M&O contracts are unique in many ways. Nevertheless, the manner in which DOE allocates funds to the contract, and the requirement to reimburse contractors for allowable costs do not, by themselves, affect DOE's ability to assess contractor cost performance.

- **Some cost performance evaluation conducted outside of the annual performance evaluation process is not included in PERs**. DOE officials told us they perform some activities related to contractor cost performance outside the performance evaluation process for M&O contracts, though information on these activities is not always included in PERs. For example, according to DOE officials, some M&O contractors participate in group purchasing efforts, where contractors coordinate purchases to drive up competition and drive down costs. Also, DOE offices generally monitor M&O contractor indirect costs to ensure they do not escalate without reason.[65] In particular, SC's M&O contractors include a "Cost of Doing Business" section in their annual laboratory plans, in which SC contractors report on indirect costs.[66] According to SC officials, SC also uses its reviews of the Cost of Doing Business sections as opportunities to discuss

[63]DOE is required to report annually to the Congress on the extent of unspent balances it has as of the end of the previous fiscal year. 42 USCS § 13526(a). DOE reports these in comparison to thresholds it has established for identifying reasonable amounts to carry over. These thresholds were developed in response to our findings of excess carryover balances. See GAO, *DOE Management: DOE Needs to Improve Its Analysis of Carryover Balances.* GAO/RCED-96-57 (Washington, D.C.: Apr. 12, 1996).

[64]GAO-09-921.

[65]Indirect costs, also known as mission support costs, are costs that cannot be identified with a specific program or project but that indirectly support multiple programs or projects, such as management or facilities maintenance.

[66]SC M&O contractors prepare the annual lab plans, with approval from SC.

options to reduce operational costs. SC officials stated that an internal process in which SC's laboratories compete and are awarded work, in part, also serves to control costs.[67] According to DOE officials, efforts such as group purchasing and indirect cost monitoring and reporting are not commonly included in PERs because the agency considers its existing performance criteria to be sufficiently broad to assess contractor performance.

Though these efforts may be important to address contractor costs and information from the efforts could inform assessments of cost performance, they do not, on their own, represent DOE office's evaluation of contractor's cost performance. In addition, PERs are important records of DOE offices' evaluations of contractor performance because, according to agency officials, DOE uses the PERs to inform acquisition decisions and help form the basis for a contractor's performance record.

We and the DOE Inspector General have identified how important it is for DOE to obtain quality cost information and use it to evaluate cost performance. For example, for more than a decade, we have reported that some DOE offices have experienced challenges obtaining quality information that could enable the offices to make better-informed decisions about programs', and therefore DOE's, budgetary needs.[68] Furthermore, we reported in July 2012 that NNSA based much of its congressional budget request on contractor-generated budget proposals, which the agency often did not thoroughly evaluate.[69] More recently, according to a 2017 DOE Inspector General report, challenges in evaluating cost performance have contributed to NNSA's and its M&O contractors' difficulty in demonstrating the anticipated cost savings for the

[67]See https://science.energy.gov/funding-opportunities/. In addition, according to SC officials, laboratories with unique capabilities are still required to prepare a proposal for the work that would still go through the merit review process to compete for resources.

[68]For example, GAO-17-317; GAO-17-141; and GAO, *High-Risk Series: An Update*, GAO-07-310 (Washington, D.C.: January 2007).

[69]GAO, *Modernizing the Nuclear Security Enterprise: NNSA's Reviews of Budget Estimates and Decisions on Resource Trade-offs Need Strengthening*, GAO-12-806 (Washington, D.C.: July 31, 2012). We recommended that DOE update its departmental order for budget reviews and NNSA improve its formal process for reviewing budget estimates and reinstitute an independent analytical capability, among other things. NNSA agreed with some (though not all) of our seven recommendations and took actions to address one recommendation. As a result, NNSA's process for reviewing contractor budget submission could continue to be hampered by the numerous weaknesses we previously identified.

NNSA Production Office Sites contract.[70] DOE created this contract by consolidating the contracts for the Y-12 National Security Complex and the Pantex Plant into a single contract for the explicit purpose of saving costs.

While collecting quality information on, measuring, and reporting on cost performance for M&O contracts may be challenging, this information is important for two reasons. First, the FAR, DOE policy, and CPARS highlight the importance of information on contractor's cost performance for acquisition decision-making. As we previously noted, the FAR and DOE policy provide that decisions to extend or compete an M&O contract be based on an expectation of meaningful improvement in performance or cost, including consideration of a contractor's technical, administrative, and cost performance. In addition, according to DOE officials, they largely copy information from PERs into the federal government database on contractors' past performance, CPARS, which agencies use to inform their awarding of contracts. CPARS has several performance criteria that agencies are required to complete, one of which is "cost control." This is challenging to address, according to DOE officials, because PERs do not typically include an explicit evaluation of cost performance even though, also according to DOE officials, PERs are the primary source of information entered into CPARs.

Second, as we reported in 2009, there are inherent risks to the government from cost-reimbursement contracts such as DOE's M&O contracts, particularly with cost escalation because the government is required to pay the contractor's allowable costs regardless of whether the contractor completes the work.[71] Because of these risks, we found that these types of contracts involve significantly more government oversight than do fixed-price contracts. This is, in part, because the agency needs to monitor contractor costs to provide a reasonable assurance that efficient methods and effective cost controls are used.

[70]Department of Energy, Office of Inspector General, *National Nuclear Security Administration's Oversight of the Consolidated Nuclear Security, LLC, Cost Savings Program at the Y-12 National Security Complex and the Pantex Plant*, DOE-OIG-18-11 (Washington, D.C.: December 13, 2017). The National Defense Authorization Act for Fiscal Year 2014, Pub. L. No. 113-66, div. C, title XXXI, subtitle B, § 3128, 127 Stat. 1065-66 (2013) directed NNSA to develop a plan for improving and integrating the financial management of the nuclear security enterprise. We have ongoing work to assess this effort.

[71]GAO-09-921.

As we previously noted, FAR, DOE guidance and policy, and CPARS highlight the importance of quality information on contractor's cost performance.[72] In addition, federal standards for internal control state that management should design control activities to achieve objectives and respond to risks, such as by clearly documenting internal control in management directives, administrative policies, or operating manuals.

DOE offices have policies on contractor performance evaluation, but these do not specifically require that PERs include quality cost performance information that can be used to make an overall assessment of cost performance. By updating policies to require inclusion of quality cost performance information in PERs to enable an overall assessment of a contractor's cost performance, DOE offices could strengthen their oversight of M&O contractor costs. For example, DOE offices could better inform acquisition decisions such as whether to extend or compete a contract, complete CPARS with greater ease, inform incentives for contractor performance, and uncover opportunities for federal cost savings. This is particularly important given that these cost-reimbursement type contracts carry risks of cost escalation.

[72]For example, 48 C.F.R. 17.605(c) requires DOE to consider information concerning "the incumbent contractor's overall performance, including, specifically, technical, administrative, and cost performance" in deciding whether to renew or compete an M&O contract.

DOE Generally Awarded M&O Contractors High Ratings and Most Available Performance Incentives, Except in Cases of Significant Safety or Security Incidents

In reviewing DOE's M&O contractor performance evaluations for fiscal years 2006 through 2016, we found the results of the evaluations to generally include high performance ratings and most available performance incentives, including a median of 94 percent of available award and incentive fees.[73] During this time frame, administrative performance sometimes had lower ratings—though these were balanced out in overall ratings by strong performance elsewhere—and some safety issues and accidents resulted in additional fee reductions outside the performance evaluation process. In fiscal years 2006 through 2016, three contractors received 50 percent or less of available award fee due to two significant incidents—a safety and security issue and a major accident.

[73]The average percent of annual available award and incentive fees awarded was 90 percent and percentages of award and incentive fees provided annually ranged from 0 to 100 percent.

M&O Contractors Generally Received High Ratings in Fiscal Years 2006 through 2016 and more than 90 Percent of Available Performance Incentives

For the 239 annual M&O contractor evaluations from the 24 DOE contract rating sites we reviewed, in fiscal years 2006 through 2016, DOE offices provided award and incentive fees equivalent to the FAR rating categories of Excellent or Very Good 94 percent of the time.[74] Contractors at more than half of the 24 contract rating sites (17 of 24)[75] received award and incentive fee percentages consistent with only Excellent or Very Good ratings for all fiscal years from 2006 through 2016. As discussed above, while the precise approaches for determining ratings and fees vary by DOE office, ratings and fees are directly linked in all three approaches: Fee is either determined through a formula based on ratings, or DOE offices determine ratings and fees at the same time. Differences between rating methodologies across offices and changes in performance evaluation approaches over time mean directly comparing ratings requires some caution; however, even acknowledging those differences, there is a clear trend of a high percentage of award and incentive fees awarded and high equivalent performance ratings across sites and years.

From fiscal years 2006 through 2016, DOE also provided its M&O contractors with a median of 94 percent of their available award and incentive fees. See Table 3 for the results by FAR award fee rating category for each contract rating site for this period, and Table 4 for an analysis of average and median percentages of fees awarded by site. The amount of fee available, fee as a share of total contract spending, and the use of other incentives have varied across sites, yet performance results have been generally similar. Appendixes III through VIII provide additional details by DOE office.

[74]The FAR establishes five award fee rating categories for evaluating contractor performance and awarding fees, ranging from Excellent to Unsatisfactory (see table 2). Since not all DOE offices use the same rating types and scales, we examined the overall award and incentive fee percentages and associated FAR award fee categories for contracts and years that had award or incentive fees. For some contracts there were years in which award or incentive fees were not available incentives, and we did not include evaluations for those years in the 239 evaluations we reviewed. Also, we did not include the EM portion of the Savannah River Site contract for fiscal years 2006 through 2008, as it had multi-year award fee targets that did not align with individual fiscal years. For more information on our scope and methodology, see appendix I.

[75]We refer to 24 “contract rating sites” rather than the 21 contracts in our review because Y-12 and Pantex had separate contracts prior to their consolidation in fiscal year 2014, and NNSA activities at the Savannah River Site are rated separately from EM’s Savannah River Site activities, even though they are on the same contract. For more information on our scope and methodology, see Appendix I.

Table 3: Fee Ratings for Department of Energy (DOE) Management and Operating Contractors, Fiscal Years 2006 through 2016

Contract rating site by DOE office	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Office of Energy Efficiency and Renewable Energy											
NREL	◕	●	●	●	●	●	●	●	●	●	●
Office of Environmental Management											
SRS –EM	N/A[a]	N/A[a]	N/A[a]	◕	◕	◕	●	●	●	◕	◕
WIPP	◕	◕	◕	●	●	●	●	●	◔[b]	◕	◕
Office of Fossil Energy											
SPRO	●	●	●	●	●	●[b]	●[b]	●[b]	◕	●	●[b]
Office of Nuclear Energy											
INL	●[b]	●[b]	●	●[b]	●	●[b]	●[b]	●[b]	●[b]	●	●
National Nuclear Security Administration											
KCNSC[c]	◕	●	●	●	●	●	●	●	●	●	●
LLNL	●	●	◑[b]	◕	◕	◕	◕	◕[b]	◕	◕	◕
LANL	Fixed[d]	◑	◕	◕	◕	◕	◑	◕	◔[b]	◑[b]	◕
NNSS[e]	◕	◕	●	●	◕	●	●	◕	◕	◕	●
PTX/NPO[f]	●	●	●	●	●	●	●	◕	◕	◑	◕
Y12/NPO[f]	◑	◕	◕	●	●	●	◑	◑	◕		
SNL	◕	●	◕	◕	◕	◕	●	◕	◕	◕	●
SRS – NNSA	●	●	Fixed[d]	●	●	●	◑	◑	◕	◑	◕
Office of Science											
Ames	●	●	●	●	●	●	●	●	●	●	●
ANL	●	●	●	●	●	●	●	●[b]	●	●	●
BNL	◕	●	●	●	●	●	◕[b]	●	●	●	●
Fermi	●	●	●	●	●	●	●	●	●	●	●
LBNL	●	●	●	●	●	●	●	●	●[b]	●	●
ORNL	●	●	●	●	●	●	●	●	●	●	●
PNNL	◕	●	●	●	●	●	●	●	●	●	●
PPPL	●	◕	●	●	●	●	●	●	●	◕	◑
SLAC	N/A[g]	N/A[g]	N/A[g]	N/A[g]	N/A[g]	N/A[g]	N/A[g]	◕	●	●	●
TJNAF	●	●	●	●	●	●	●	●	●	●	●

LEGEND: Excellent: ● Very Good: ◕ Good: ◑ Satisfactory: ◔ Unsatisfactory: ○

Contract Rating Site Names

NREL: National Renewable Energy Laboratory
SRS-EM: Savannah River Site - Environmental Management
WIPP: Waste Isolation Pilot Plant
SPRO: Strategic Petroleum Reserve Office
INL: Idaho National Laboratory

KCNSC: Kansas City National Security Campus
LLNL: Lawrence Livermore National Laboratory
LANL: Los Alamos National Laboratory
NNSS: Nevada National Security Site
NPO: NNSA Production Office Sites
PTX: Pantex Plant
Y-12:Y-12 National Security Complex
SNL: Sandia National Laboratories
SRS-NNSA: Savannah River Site - National Nuclear Security Administration
Ames: Ames Laboratory
ANL: Argonne National Laboratory
BNL: Brookhaven National Laboratory
Fermi: Fermi National Accelerator Laboratory
LBNL: Lawrence Berkeley National Laboratory
ORNL: Oak Ridge National Laboratory
PNNL: Pacific Northwest National Laboratory
PPPL: Princeton Plasma Physics Laboratory
SLAC: SLAC National Accelerator Laboratory
TJNAF: Thomas Jefferson National Accelerator Facility

Source: GAO analysis of DOE data. | GAO-19-5

Note: Because DOE offices use different types of ratings and methodologies, this table presents the FAR rating categories corresponding to the overall annual percentages of available award and incentive fees provided at each contract rating site.

[a]The EM portion of the Savannah River Site contract for fiscal years 2006 through 2008 had multi-year award fee targets that did not align with individual fiscal years.

[b]An additional fee reduction made outside the performance evaluation lowered the amount of fee actually received. See Table 6 below.

[c]Formerly known as the Kansas City Plant.

[d]Contract did not have an award fee this fiscal year, as this was a contract transition year and only fixed fee was provided.

[e]The Nevada National Security Site was known previously as the Nevada Test Site.

[f]Two separate contracts—for the Y-12 National Security Complex in Tennessee and the Pantex Plant in Texas—were combined into the NNSA Production Office Sites contract for fiscal years 2015 and 2016.

[g]SLAC National Accelerator Laboratory did not have award or incentive fees for fiscal years 2006 through 2012.

Table 4: Average and Median Percentages of Fees Awarded Annually by Department of Energy (DOE) Offices to Management and Operating Contractors, Fiscal Years 2006 through 2016

	Award fee awarded as percentage of available award fee		Total award and fixed fee awarded as percentage of total fee available	
Contract rating site by DOE office	**Average**	**Median**	**Average**	**Median**
Office of Energy Efficiency and Renewable Energy				
National Renewable Energy Laboratory	92	94	92	94
Office of Environmental Management				
Savannah River Site–Environmental Management[a]	91	90	91	90
Waste Isolation Pilot Plant	85	90	85	90
Office of Fossil Energy				
Strategic Petroleum Reserve Office	96	96	96	96
Office of Nuclear Energy				
Idaho National Laboratory	95	94	95	94
National Nuclear Security Administration				
Kansas City National Security Campus[b]	93	95	95	96
Lawrence Livermore National Laboratory	83	86	90	92
Los Alamos National Laboratory[c]	75	81	86	88
Nevada National Security Site	89	90	92	92
NNSA Production Office Sites[d]	67	67	80	80
Pantex Plant[e]	93	92	93	92
Y-12 National Security Complex[e]	79	82	80	83
Sandia National Laboratories	86	86	96	95
Savannah River Site–National Nuclear Security Administration[f]	85	88	86	92
Office of Science				
Ames Laboratory	93	94	98	98
Argonne National Laboratory	94	94	94	94
Brookhaven National Laboratory	92	94	92	94
Fermi National Accelerator Laboratory	94	94	94	94
Lawrence Berkeley National Laboratory	94	94	94	94
Oak Ridge National Laboratory	95	94	95	94
Pacific Northwest National Laboratory	94	94	94	94
Princeton Plasma Physics Laboratory	83	94	83	94
SLAC National Accelerator Laboratory	93	94	93	94
Thomas Jefferson National Accelerator Facility	94	94	94	94

Source: GAO analysis of DOE Data | GAO-19-5

Note: For the purposes of this table, “award fee” includes both award and incentive fees intended to motivate contractor performance on an annual basis and provided based on performance as outlined

in annual performance evaluation plans. Fixed fees are set at the inception of the contract and do not vary for performance.

[a]Includes only fiscal years 2009 through 2016 because the contract for fiscal years 2006 through 2008 did not break out annual award fees.

[b]Formerly known as the Kansas City Plant.

[c]Does not include award fee for fiscal year 2006, which was only fixed fee.

[d]Includes only fiscal years 2015 and 2016. The NNSA Production Office Sites contract combined the previously separate M&O contracts for the Pantex and Y-12 sites.

[e]Includes only fiscal years 2006 through 2014. Became part of the NNSA Production Office Sites contract for fiscal years 2015 and 2016.

[f]Does not include award fee for fiscal year 2008, which was only fixed fee. While the Savannah River Site contract is an Office of Environmental Management contract, NNSA evaluates the contractor's performance for NNSA-related activities at the site separately.

Of further note from our analysis of the extent to which contractors earned fees in fiscal years 2006 through 2016:

- Contractors for the 24 M&O contract rating sites that included award fees earned approximately $4.3 billion in total fees over this time. About three-quarters ($3.4 billion) of the $4.3 billion in fees were award fees and incentive fees, and the remaining amount was fixed fees.
- NNSA's M&O contracts represent 68 percent of the fees paid and 55 percent of the total M&O contract spending over this period.
- As discussed above, DOE offices provided a median of 90 to 95 percent of available annual award fee to 18 of 24 M&O contract rating sites. However, six rating sites, all conducting work for NNSA, had median award fee percentages below 90 percent. Several NNSA sites had fixed fees in addition to award fees. When including those fixed fees, the percentage of total fee awarded rises, with median fee percentages rising above 90 percent for three of the sites.
- Contract rating sites rarely received less than 75 percent of available award fee.

In addition to awarding contractors high percentages of available fees, DOE offices generally awarded M&O contractors most of the available award term incentives. Several DOE and contractor officials we interviewed noted that award term is perhaps the most valuable incentive from a contractor perspective because an extra year of work on the contract represents much more revenue for them than fees. SC and NNSA—the two offices with contracts that had award term—awarded 92 percent of award term years available, or 76 out of 83 possible award

term years. Specifically, SC included award term in seven contracts and awarded M&O contractors with 95 percent of potential award term years, and NNSA included award term in four contracts and awarded contractors with 83 percent of potential award term years (see Table 5 below). Three of the unearned award term years are attributable to the contractor at Los Alamos National Laboratory, which also had a fourth award term year that NNSA revoked retroactively. According to NNSA officials, upon not earning an award term for the fourth time, Los Alamos's contractor—in accordance with the terms of the contract—had all of its award terms revoked, and NNSA decided to recompete the contract.[76]

[76]Despite revoking the award term and deciding to recompete the contract after fiscal year 2015, NNSA officials stated that the agency needed to extend the end of the contract for a year from fiscal year 2017 to fiscal year 2018 in order to have sufficient time to complete the acquisition for the new contract, which NNSA awarded to a new contractor in June 2018.

Table 5: Number of Award Term Years Awarded by Department of Energy Offices to Management and Operating Contractors, Fiscal Years 2006 through 2016

Contract rating sites with available award term	Number of years eligible for award term	Number of years award term received	Percentage of available award terms received
National Nuclear Security Administration			
Los Alamos National Laboratory	8	5[a]	63
Lawrence Livermore National Laboratory	8	7	88
Nevada National Security Site	5	5	100
Sandia National Laboratories	3	3	100
Total National Nuclear Security Administration	**24**	**20**	**83**
Office of Science			
Ames National Laboratory	10	10	100
Argonne National Laboratory	10	10	100
Brookhaven National Laboratory	2	2	100
Fermi National Accelerator Laboratory	10	9	90
Lawrence Berkeley National Laboratory	11	11	100
Princeton Plasma Physics Laboratory	5	5	100
Thomas Jefferson National Accelerator Laboratory	11	9	82
Total Office of Science	**59**	**56**	**95**
Total Department of Energy	**83**	**76**	**92**

Source: GAO analysis of Department of Energy data. | GAO-19-5

[a]Los Alamos National Laboratory subsequently had these award terms revoked in 2015 after not earning its award term for the fourth time, per the terms of the contract.

Administrative Performance Sometimes Had Lower Ratings, with Some Issues Resulting in Fee Reductions Outside of the Performance Evaluation Process

Within the pattern of high overall performance ratings, ratings for administrative performance have generally been lower than ratings for technical performance, and some administrative performance issues—particularly safety issues and accidents—resulted in fee reductions outside the performance evaluation process, as noted in table 6 below.[77] For example, since fiscal year 2013, when NNSA adopted common performance goals across its contract rating sites, about 83 percent of possible goal ratings (134 of 162) had been rated Very Good or better. Of the 28 goal ratings below Very Good, 22 (79 percent) were in administrative goals. In many cases, incidents that led to lower ratings involved site operations issues, such as in safety and security. Similarly, the contractors at the 10 SC contract rating sites and one NE contract rating site also showed generally higher technical performance ratings with 9 of 11 contract rating sites having higher average technical area scores than administrative area scores (the two other contract rating sites had average technical area scores that were about equal to the average administrative scores).[78]

From our review of DOE documents and discussions with officials, one factor that may be an important influence in the difference between technical and administrative scores at SC and NE rating sites is that the Science and Energy Lab performance evaluation approach does not incentivize administrative performance above a B+. As discussed above, contractors generally receive additional award fee for higher ratings, but under the Science and Energy Lab approach, in the administrative area, all scores of B+ and above lead to the same amount of award fee. Therefore, a contractor whose only difference was an administrative score of B+ versus A+ would receive the same amount of award fee. According to DOE officials, this structure is meant to encourage contractors to reinvest cost savings into technical performance rather than improving administrative systems that already meet expectations.

[77]Similar to above, we define administrative performance as mission support activities such as human resources, environmental safety and health, property management, and leadership activities, and technical performance as mission activities such as research and development, production, and storage. The only exception to the pattern of higher technical than administrative ratings is EERE/National Renewable Energy Laboratory, where administrative scores have more often been slightly higher than technical area scores. However, performance in both areas has been highly rated. See appendix III.

[78]Here we use the term “technical area scores” to refer to SC’s and NE’s science and technology area scores and “administrative area scores” to refer to their management and operations area scores. See appendixes VII and VIII for a breakdown of these scores by contract rating site.

Relatively low performance in certain areas can be balanced out in overall ratings by strong performance ratings elsewhere. Of nine occasions since fiscal year 2013 that an NNSA contractor received at least one Satisfactory goal rating (below 50 percent), the overall rating for the contractor remained Good or Very Good, and contractors were provided the majority of their fees in all but one case (the contractor for Los Alamos National Laboratory in fiscal year 2014, which we discuss further below). For example, following the break-in of trespassers and related security lapses at Y-12 in 2012, NNSA provided the M&O contractor with Satisfactory ratings in operations in fiscal years 2012 and 2013. However, Very Good and Excellent ratings in other areas meant NNSA provided an overall rating of Good to the contractor in those years, and the contractor received more than 50 percent of available award fees. For SC, in the five occasions since fiscal year 2006 in which a contractor received at least one goal rating of C (2.0) or below, overall area scores remained As and Bs and fees above 75 percent, except for one instance. On that occasion, Princeton Plasma Physics Laboratory in 2016 received multiple goal ratings of C, which led to a technical score of C+ and a fee of 68 percent. This 2016 rating for Princeton Plasma Physics Laboratory is also the only case from fiscal years 2006 through 2016 of a Satisfactory-level goal rating in a technical area goal, as the others were all in the administrative areas of site operations or leadership.

The extent to which a single area of performance affects overall ratings is influenced by the broad scope of activities under an M&O contract, the broad types of performance required under the contract, and the weights used to determine overall ratings and incentives. According to DOE officials, one way the Science and Energy Lab approach addresses these factors is to include all the ratings provided by each stakeholder and for each objective in the PER. In this way, while a C from one stakeholder or objective may be weighted out overall, the grade and the feedback associated with it are still provided to the M&O contractor and clearly visible to readers of the reports.

Another way that DOE offices have addressed individual performance deficiencies that may get balanced out in overall ratings is through additional fee reductions. Most offices have reduced fees outside the performance evaluation process to address specific performance

deficiencies—generally administrative concerns, such as safety issues.[79] In particular, all offices except EERE have reduced fees that would have been provided from performance evaluation results, relying on contract clauses that allow for fee reductions. Such clauses allow DOE offices to unilaterally reduce fees for the evaluation period if, for example, the contractor fails to meet performance requirements of the contract relating to environment, safety, and health.[80] For example, NE used such clauses in 7 of the 11 years we reviewed to reduce the fee provided to the Idaho National Laboratory M&O contractor. FE has also frequently used fee reductions to address issues outside its predominantly objective performance criteria.[81] SC, NNSA, and EM have also occasionally used additional fee reductions outside the performance evaluation process. For all offices, fee reductions generally resulted from administrative performance issues—safety issues and accidents—rather than technical performance. These fee reductions ranged from $10,000 to $35 million, and while the fee received by the contractor was lowered, the original ratings were not revised. In most cases, these reductions were for 10 percent or less of award and incentive fees provided and less than $1 million dollars; however, they represented large portions of contractors' fees in a few cases. See Table 6 below for a list of fee reductions.

[79]Depending on the nature of an incident, in lieu of or in addition to fee reductions, contractors could face civil or criminal penalties. For example, in 2015 Sandia National Laboratories' contractor settled with the Department of Justice to resolve allegations of illegal funding of lobbying. The contractor received a Satisfactory rating in the leadership goal and had to pay $4,790,042 as part of the settlement, but there was not an additional fee reduction. Overall, the contractor still received 85 percent of award fee and, with fixed fee included, it received 98 percent of the total available fee for fiscal year 2015. The WIPP incident also resulted in separate New Mexico state fines.

[80]48 C.F.R. § 970.5215-3, Alternate I (August 2009).

[81]In addition to the five reductions shown in table 6, there were two instances in which FE increased the fee provided to the Strategic Petroleum Reserve contractor—in fiscal year 2008 by $250,750 for an "outstanding support and response to hurricanes Gustav and Ike" and in fiscal year 2015 by $250,000 for "outstanding support and performance for the Crude Oil Fill."

Table 6: Fee Reductions for Department of Energy (DOE) Management and Operating Contractors Outside the Annual Performance Evaluation Process, Fiscal Years 2006 through 2016

Contract rating site by DOE office	Year	Reason for Reduction	Amount of Fee Reduction (dollars)	Fee Reduction as Percentage of Award Fee Earned
Office of Environmental Management				
Waste Isolation Pilot Plant	2014	Two unrelated accidents: a truck fire and a waste drum explosion	864,484	61
Office of Fossil Energy				
Strategic Petroleum Reserve Office	2011	Fatality of grounds maintenance sub-contract worker	3,204,400	40
Strategic Petroleum Reserve Office	2012	Failure to implement safety corrective actions	787,276	10
Strategic Petroleum Reserve Office	2013	Death of canine due to heat stress	50,000	0.8
		Scissor Lift Accident	10,000	
Strategic Petroleum Reserve Office	2016	Deduction for miscalculation of pipe casing joints and over-torqueing resulting in loss of 73 joints	50,000	0.7
Office of Nuclear Energy				
Idaho National Laboratory	2006	Safety	100,000	1
Idaho National Laboratory	2007	Performance issues, fume hood fire, and wildland fire	1,000,000	6
Idaho National Laboratory	2009	Planning and facilities management issues; security issues	350,000	2
Idaho National Laboratory	2011	Deficiencies in work planning and work control	250,000	1
Idaho National Laboratory	2012	Issues with Advanced Test Reactor Loop 2A	750,000	4
Idaho National Laboratory	2013	Neutron Radiography Reactor emergency shutdown and power management fall	250,000	1
Idaho National Laboratory	2014	Several operational events at the Materials and Fuels Complex	350,000	2
National Nuclear Security Administration				
Lawrence Livermore National Laboratory	2008	Fee penalty for key personnel who failed to fulfill a required 2-year commitment	1,467,494	9
Lawrence Livermore National Laboratory	2013	Acid splash accident at Site 300	365,000	2
Los Alamos National Laboratory	2014	Improperly packed waste canister that exploded at the Waste Isolation Pilot Plant	35,311,480[a]	100
Los Alamos National Laboratory	2015	Arc flash incident and incident with highly enriched uranium	7,743,171	27

Contract rating site by DOE office	Year	Reason for Reduction	Amount of Fee Reduction (dollars)	Fee Reduction as Percentage of Award Fee Earned
Office of Science				
Brookhaven National Laboratory	2012	Two serious falls resulting in injury, as well as other near misses	959,595	15
Argonne National Laboratory	2013	Events surrounding the uncertainty and loss of control over radiological inventory at Building 205	298,920	6
Lawrence Berkeley National Laboratory	2014	Series of electrical safety incidents	56,910	1

Source: GAO analysis of DOE information. | GAO-19-5

Note: Fee reduction amounts are presented in nominal dollars.

[a]The amount of award fee rescinded was $18,164,435—100 percent of what was earned as documented in the performance evaluation report. This reduction also included taking away most of the Los Alamos National Laboratory contractor's fixed fee for fiscal year 2014.

From Fiscal Years 2006 through 2016, Three Contractors Received 50 Percent or Less of Available Award and Incentive Fees Due to Significant Safety and Security Incidents

Three times in fiscal years 2006 through 2016, M&O contractors received 50 percent or less of available award and incentive fees due to a safety and security issue at the Lawrence Livermore National Laboratory (LLNL) in fiscal year 2008 and a major accident involving the WIPP in Carlsbad, New Mexico, and the Los Alamos National Laboratory (LANL) in fiscal year 2014.[82]

LLNL, 2008. LLNL's M&O contractor received 50 percent of the available award and incentive fees—$15,795,584 out of $31,879,519—due to weaknesses in environmental management, security, and management/performance improvement that resulted in Satisfactory ratings in those respective areas and an overall Satisfactory rating in operations.[83] In particular, an April 2008 inspection and force-on-force exercise conducted by DOE's Office of Health, Safety, and Security found significant weaknesses in protective force and classified matter protection and control programs that led to an Unsatisfactory rating in security. The performance evaluation also reported issues with contractor assurance

[82]In one additional case—SC's Princeton Plasma Physics Laboratory in fiscal year 2007—the contractor received no award fee despite overall performance that could be considered "Very Good." At the time, the contract had an award fee structure that had a small award fee that was all or nothing.

[83]LLNL's contractor earned $17,263,078, according to the PER, minus an additional $1,467,494 fee penalty for key personnel who failed to fulfill a required 2-year commitment.

system progress, staffing, and "unacceptable" losses of key personnel.[84] LLNL's contractor received overall ratings of Outstanding in mission and Good in institutional management. In addition, the contractor received $21,862,651 in fixed fees, for a total fee award of $37,658,235.

WIPP, 2014. WIPP's contractor received 6.9 percent—$561,266 out of $8,192,895—of the fees available under its contract in fiscal year 2014 due to two unrelated accidents, a truck fire and a waste drum explosion, that resulted in the suspension of waste disposal at the site—the nation's only facility for disposal of transuranic waste.[85] The 6.9 percent of fees awarded represented an additional reduction of fees from the amounts the contractor earned for meeting a portion of its objective criteria targets and receiving Satisfactory ratings in all four subjective criteria.[86] WIPP did not resume waste disposal operations until 2017.

LANL, 2014. LANL's contractor received none of the available award fee, and no DOE fixed fee, in fiscal year 2014 due to its improper oversight and packaging of the waste drum that exploded at WIPP. Of $63,406,380 in available fee, LANL's contractor received about $6.3 million in fixed fee associated with work completed under contract with other federal agencies that, according to NNSA officials, could not be revoked. Similar to WIPP's contractor, this represented an additional reduction of fees from the amounts that would have resulted from an overall Satisfactory rating (including an Unsatisfactory for operations and infrastructure; Satisfactory for science, technology and engineering; Satisfactory for leadership; and Very Good for the two mission goals). In addition to losing

[84]See GAO, *Nuclear Security: Better Oversight Needed to Ensure That Security Improvements at Lawrence Livermore National Laboratory Are Fully Implemented and Sustained*, GAO-09-321 (Washington, D.C.: Mar. 16, 2009).

[85]The word "transuranic" is used for elements that have atomic numbers greater than that of uranium. Transuranic waste is defined in the WIPP Land Withdrawal Act of 1992 as waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for (A) high-level radioactive waste; (B) waste that the Secretary of Energy has determined, with the concurrence of the Administrator of the Environmental Protection Agency, does not need the degree of isolation required by the disposal regulations; or (C) waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with part 61 of title 10, Code of Federal Regulations. Pub L. No. 102-579, § 2 (1992).

[86]WIPP's contractor had earned an award fee of $1,024,122 and $401,638 in Performance Based Incentives, which EM reduced outside the performance evaluation twice. The first reduction included an opportunity to earn back a portion of the reduced fee. After the second reduction, the final fee provided was $561,266.

fee and award term, the waste portion of the LANL contract was withdrawn from the M&O contract and contracted out separately by EM.

In all three cases, in the year following the 50 percent or less in award and incentive fees, performance ratings returned to at least Good levels and contractors received at least three-quarters of available award and incentive fees. With regard to the WIPP accident involved in two of the three cases, efforts to recover from the waste drum incident and return to full operations have cost hundreds of millions to date and are estimated to cost more than $600 million in total, all of which will be costs to the taxpayer.[87] The combined unearned and reduced fee for both contractors amounted to $64,788,464, or about 10 percent of total estimated costs to the government. In addition to fee reductions, NNSA officials stated that the WIPP accident played a significant role in NNSA's decision to not exercise the last 7 years of possible award term on the LANL contract and thus recompete the contract in 2018. According to NNSA, those 7 years translate into approximately $17 billion in work and up to $500 million in fee the LANL contractor could have earned. Also, with regard to additional actions EM took after the accidents at WIPP, according to DOE officials, EM modified the contract terms from having a single 5-year option period to five 1-year option periods.

Conclusions

While there are differences in how DOE's offices approach performance evaluation of M&O contractors, all of the offices use the annual performance evaluations of the contractors and the associated rating and fee determinations to evaluate the extent to which contractors are operating sites as intended and accomplishing mission work, and to justify incentives such as fee and additional contract term. These annual performance evaluations also provide valuable information for contract management and acquisition decisions, such as whether to renew or compete expiring M&O contracts. DOE also recognizes the importance of improving performance evaluation and oversight of contractors.

All of DOE's offices except NNSA have clearly documented procedures on how to collect and use information to make rating determinations.

[87]Note that this figure represents only the costs that are easily attributable to accident recovery efforts. There are also additional operational costs identified in GAO-16-608, as well as the costs incurred at sites that could not ship waste. GAO, *Nuclear Waste: Waste Isolation Pilot Plant Recovery Demonstrates Cost and Schedule Requirements Needed for DOE Cleanup Operations*, GAO-16-608 (Washington, D.C.: Aug. 4, 2016).

NNSA provides a general framework for its performance evaluations in its NAP-4C policy but leaves how to collect, distribute, and document information to the discretion of individual offices and officials. In the past, NNSA officials have made changes to incentives awarded without underlying performance documentation to support the change. Without developing and documenting clear procedures for implementing NAP-4C that specify the process for collecting contractor performance information and how officials are to ensure this information can be traced to rating determinations, NNSA leadership does not have reasonable assurance that it is consistently evaluating contractor performance and that it is using relevant performance information as intended.

The cost performance information included in DOE offices' fiscal year 2016 PERs is of limited use for acquisition decision-making in that this information does not permit making an overall assessment of M&O contractors' cost performance. DOE offices have not required specific assessment of cost performance in their performance evaluation policies, nor discussed how to ensure that cost information is useful for acquisition decision-making. However, the PERs are important sources of information for contract management—particularly for acquisition decisions and oversight of spending on cost-reimbursement contracts. DOE officials identified challenges in evaluating M&O contractors' cost performance and ways this evaluation may occur outside of the annual performance evaluation process. These challenges contribute to why there is less cost performance-related information in PERs than for other types of performance. While collecting, measuring, and reporting quality cost performance information may be challenging, such information is important for fully assessing contractor performance and managing the inherent risks of cost-reimbursement contracts. By updating their policies to require quality cost performance information in PERs to enable an overall assessment of M&O contractor cost performance, the six DOE offices with M&O contracts could strengthen their oversight of costs for contracts worth about $20 billion a year and use this information to improve acquisition decision-making.

Recommendations for Executive Action

We are making seven recommendations to DOE offices:

The Administrator for the National Nuclear Security Administration should develop and document clear procedures for implementing NAP-4C, specifying the process for collecting contractor performance information and describing how officials are to ensure this information can be traced to rating determinations. (Recommendation 1)

The Assistant Secretary for the Office of Energy Efficiency and Renewable Energy should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance. (Recommendation 2)

The Assistant Secretary for the Office of Environmental Management should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance. (Recommendation 3)

The Assistant Secretary for the Office of Fossil Energy should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance. (Recommendation 4)

The Administrator for the National Nuclear Security Administration should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance. (Recommendation 5)

The Assistant Secretary for the Office of Nuclear Energy should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance. (Recommendation 6)

The Director of the Office of Science should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance. (Recommendation 7)

Agency Comments and Our Evaluation

We provided a draft of this report to DOE for comment. DOE provided us with written comments, as well as technical comments, which we incorporated as appropriate. In its written comments, reproduced in appendix IX, DOE agreed with four of our seven recommendations and partially agreed with the others.

DOE partially agreed with our recommendations that three DOE offices—EERE, NE, and SC—update their policies to require that PERs include quality information on cost performance to enable an overall assessment of M&O contractor cost performance. In its written comments, DOE said that the three offices have concerns that (1) our report gives the impression that DOE does not review cost performance of their respective national laboratories in an adequate manner, and (2) by focusing on the annual PERs, our report does not capture the cost performance reviews conducted in day-to-day contract oversight, the annual laboratory planning process, and contract extend/compete decisions. In its comments, DOE stated that since EERE, NE, and SC conduct cost performance reviews in normal operations and at the year-end annual evaluation process, adequate information is available to assess whether the contractor cost performance is acceptable to the department.

In the report, we note that DOE conducts some cost performance evaluation activities outside of the annual performance evaluation process, although we did not assess these efforts. While there may be adequate information available, DOE does not commonly document this information or assessments from such activities in the PERs. We continue to believe that the PERs are important sources of information for contract management—particularly for acquisition decisions and oversight of spending on cost-reimbursement contracts—and that action is needed to improve these formal records of contractor performance. By not including quality information on overall cost performance and assessments in PERs, DOE offices are missing a valuable opportunity to better document contractors' cost performance, improve acquisition decision-making, and strengthen oversight of billions of dollars in contracting. We continue to believe that it is important for EERE, NE, and SC to implement the recommendations and that by doing so, these offices would have better assurance that M&O performance evaluations fully address required elements.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Energy, and other interested parties. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

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

Allison Bawden
Director, Natural Resources and Environment

List of Requesters

The Honorable Gary C. Peters
Ranking Member
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Frank Pallone, Jr.
Chairman
The Honorable Greg Walden
Republican Leader
Committee on Energy and Commerce
House of Representatives

The Honorable Bobby L. Rush
Chairman
The Honorable Fred Upton
Republican Leader
Subcommittee on Energy
Committee on Energy and Commerce
House of Representatives

The Honorable Diana DeGette
Chair
The Honorable Brett Guthrie
Republican Leader
Subcommittee on Oversight and Investigations
Committee on Energy and Commerce
House of Representatives

Appendix I: Objectives, Scope, and Methodology

This report reviews the Department of Energy's (DOE) performance management of its management and operating (M&O) contracts. Specifically, it examines (1) how DOE offices evaluated M&O contractor performance in fiscal years 2006 through 2016 and the extent to which these offices have documented their evaluation approaches; (2) the extent to which DOE's fiscal year 2016 M&O contractor performance evaluation reports provide information on contractors' technical, administrative, and cost performance; and (3) the results of DOE's M&O contractor performance evaluations from fiscal years 2006 through 2016.

For all three objectives, we reviewed performance evaluation documentation—performance evaluation plans, performance evaluation reports (PERs), fee determinations, award term determinations, and option term determinations—for 21 of the 22 DOE M&O contracts in place as of fiscal year 2016, the most recently completed contract year at the time we initiated our review. We also reviewed documentation for Bettis and Knolls Atomic Power Laboratories' M&O contract but excluded it from our analysis because the contract does not have annual reviews and ratings comparable to the other DOE M&O contracts. The Bettis and Knolls contract does not have an award fee and thus NNSA's Office of Naval Reactors—the office responsible for overseeing the M&O contract—does not produce annual PERs similar to those of the other offices.[1] In addition, we did not include in our scope the DOE contract for the cleanup of the West Valley Demonstration Project in upstate New York because it was not an M&O contract in fiscal year 2016; according to DOE officials, it switched from being an M&O to a non-M&O contract in fiscal year 2007.

In addition, we also interviewed DOE officials to gain a further understanding of the department's performance evaluation processes and results, including officials at DOE headquarters and at several field offices that are responsible for providing day-to-day oversight of the activities of M&O contractors.[2] To provide additional perspective, we interviewed officials at the Department of Defense, the National Aeronautics and

[1]The Bettis and Knolls M&O contract performance evaluation process includes development of annual Technical Work Program (TWP) packages and reviews, as well as validation of budgets. The TWP is used to manage and authorize work and includes deliverables. The deliverables include work authorizations, with associated funding amounts, activities, and time periods.

[2]We use the term field office to refer broadly to federal offices located at M&O sites, which are also sometimes called site offices.

Space Administration, and the Department of Homeland Security, which we selected because they also manage government-owned, contractor-operated laboratories and sponsor work at DOE laboratories, sometimes contributing views incorporated into DOE performance evaluations.

To examine how DOE offices have evaluated M&O contractor performance, we reviewed DOE's and DOE offices' policies and procedures for performance evaluations, as well as annual performance evaluation and measurement plans and PERs from fiscal years 2006 through 2016. We also compared each office's policies and procedures for conducting performance evaluations against federal standards for internal control, as well as the Federal Acquisition Regulation (FAR), DOE's Acquisition Guide, and the Department of Energy Acquisition Regulations.[3] In addition, to examine the extent to which these offices have documented their evaluation approaches, we discussed the evaluation approaches and processes with DOE officials and compared those approaches with documented policies and procedures.

To evaluate the extent to which PERs provided information on each of the performance areas outlined in the FAR—technical, administrative, and cost—we performed a content analysis of 22 DOE fiscal year 2016 PERs for M&O contractors.[4] We developed operationalized definitions of each of the three areas with input from DOE's offices. Broadly, the operationalized definition of technical performance included mission-related activities, the operationalized definition of administrative performance included mission support activities, and the operationalized definition of cost performance included spending-related activities. Mission-related activities included, for example, research and development, production, storage, clean-up, and construction. Mission support activities included, for example, information technology, human resources, legal activities, environmental safety and health, property management, risk assessment, and leadership activities. Cost-related activities included, for example, spending, budgeting, strategic sourcing, and costs, including the contractor's cost-effectiveness. In identifying information related to cost performance, we considered all evaluative statements related to cost, including broad terms such as saving, cost,

[3]The DOE Acquisition guide is intended to serve as a primer on various acquisition issues and provides non-regulatory, non-binding guidance to DOE personnel.

[4]We examined 22 PERs for 21 contracts because EM and NNSA separately evaluated their respective activities carried out by the Savannah River Site contractor.

spending, and budget. Then we categorized performance descriptions under these three performance areas and counted the number of performance descriptions that included information in the M&O contracts' PERs related to each of the areas. A performance description could be categorized as related to one, two, or all three areas.[5] Two analysts independently reviewed each PER and then met to agree on the categorizations. When differences arose, we included a third analyst to arrive at a consensus.

For the vast majority of M&O contracts, we analyzed the performance descriptions at the level of objectives—where most performance descriptions were found—and included notable outcomes described under those objectives. In a few instances, we used other comparable units of analysis, such as goals, for some National Nuclear Security Administration (NNSA) M&O contracts (in which performance information was provided by goals, not objectives) and criteria for Office of Environmental Management (EM) and Office of Fossil Energy (FE) (in which performance information was provided under numerous subjective and objective criteria). Based on our analysis, we reported the total number of performance descriptions for each area, as well as the percentage of performance descriptions that contained information related to each area. Because performance criteria descriptions could contain information related to more than one area, the percentages total more than 100 percent.

To determine the extent of cost performance-related information in DOE's fiscal year 2016 PERs for its M&O contracts, we performed a content analysis. From our analysis, we reported the total number of pages the cost performance-related information represented, compared with the average number of total report pages. To determine the number of pages, we counted the number of pages of each PER.

In addition, to evaluate the quality of cost performance-related information, we reviewed DOE Information Quality Guidelines, which apply to information DOE offices make available to the public. We then performed a content analysis of DOE fiscal year 2016 PERs based on the definition of quality in the guidelines, which includes that information generated for DOE and the public be useful. We further analyzed and

[5]Performance descriptions were descriptions of performance under the performance criteria in DOE's M&O contractor PERs.

categorized the types of cost performance-related information. Types of cost information included, for example, within budget, over budget, cost savings, cost overrun, and cost effectiveness. We defined cost effectiveness as good value for money spent.

To examine the results of DOE's M&O contractor performance evaluations from fiscal years 2006 through 2016, we analyzed performance ratings and incentives awarded in PERs, fee determination letters, and other performance evaluation documents. Throughout the report, we analyzed and provided information by "contract rating sites" rather than individual contractors or physical sites, because the individual contractors and how certain sites align with the contracts have changed over time. We analyzed 24 distinct contract rating sites covered by 21 M&O contracts in place as of fiscal year 2016. There are three more contract rating sites than the number of contracts in 2016: two additional contract rating sites because two individual contracts were consolidated into one contract during the period we covered—we analyzed the two individual contracts from prior to 2014 separately from the current consolidated contract—and one additional contract rating site because two DOE offices separately evaluated the performance of a single contractor that performed activities for each of those offices.[6]

To summarize the results of DOE's annual contract performance evaluations, we analyzed overall annual percentages of available award and incentive fees provided at each contract rating site and presented the corresponding FAR rating categories. We reviewed performance evaluation ratings from 239 performance evaluations at the 24 contract ratings sites. We also did not include ratings from the EM portion of the Savannah River Site contract for fiscal years 2006 through 2008 because, according to EM officials and award fee documents, it had multi-year award fee targets that did not align with individual fiscal years.

We conducted this performance audit from October 2016 through February 2019 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We

[6]Specifically, NNSA's Y-12 and Pantex contracts were consolidated into the National Production Office contract in fiscal year 2014, and EM and NNSA separately evaluated their respective activities carried out by the Savannah River Site contractor.

believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Additional Information on the Department of Energy's Management and Operating Contracts

Table 7 provides additional information on the Department of Energy's 22 management and operating contracts, contractors, contract award and end year, and total spending through these contracts. Table 8 presents the spending data adjusted for inflation.

Table 7: Department of Energy Management and Operating Contracts, as of February 2017

Contract name	Mission type	Description	Contractor	Award year[a]	Contract end year[a]	Potential end year with all options/ award terms[a]	Total Spending Fiscal Years 2006 Through 2016[b] (dollars)
National Renewable Energy Laboratory	Research and Development	Conducts research in renewable energy and energy efficiency.	Alliance for Sustainable Energy	2008	2018	2018	**3,969,918,372**
Savannah River Site and Savannah River National Laboratory	Research and Development; Production	Conducts research in environmental stewardship, national and homeland security, and clean energy. Conducts tritium processing, research, and development.	Savannah River Nuclear Solutions, LLC	2008	2018	2018	**13,028,874,962**
Waste Isolation Pilot Plant	Waste disposal	Manages an underground cavern for the permanent disposal of nuclear waste.	Nuclear Waste Partnership, LLC	2012	2017	2022	**2,031,510,476**
Strategic Petroleum Reserve Office	Energy security	Manages emergency oil stockpile stored in underground salt caverns.	Fluor Federal Petroleum Operations	2014	2019	2024	**1,441,094,633**
Idaho National Laboratory	Research and development	Conducts research in sustainable energy and national and homeland security.	Battelle Energy Alliance, LLC	2004	2019	2019	**9,701,457,299**
Bettis and Knolls Atomic Power Laboratories	Research and Development; Production	Conducts research, design, construction, testing, operation, maintenance, and ultimate disposition of naval nuclear propulsion plants.	Bechtel Marine Propulsion	2008	2018	2018	**9,492,086,622**

Contract name	Mission type	Description	Contractor	Award year[a]	Contract end year[a]	Potential end year with all options/ award terms[a]	Total Spending Fiscal Years 2006 Through 2016[b] (dollars)
Kansas City National Security Campus (formerly Kansas City Plant)	Production	Produces nonnuclear components for nuclear weapons.	Honeywell Federal Manufacturing & Technologies, LLC	2015	2020	2025	**6,552,461,892**
Lawrence Livermore National Laboratory	Research and Development	Conducts research in national defense, nuclear weapons stockpile stewardship, weapons of mass destruction, and nuclear nonproliferation.	Lawrence Livermore National Security, LLC	2007	2019	2026	**16,898,953,972**
Los Alamos National Laboratory	Research and Development; Production	Conducts research in national defense, nuclear weapons stockpile stewardship, weapons of mass destruction, and nuclear nonproliferation. Produces certain fuels and detonators.	Los Alamos National Security, LLC[c]	2006	2018	2018	**24,222,996,144**
Nevada National Security Site	Testing	Conducts high-hazard operations, testing, and training in support of the National Nuclear Security Administration (NNSA), the Department of Defense, and other agencies.	National Security Technologies, LLC[d]	2006	2017	2017	**5,371,426,778**
NNSA Production Office Sites (Y-12 National Security Complex and Pantex Plant)	Production	Produces nuclear and nonnuclear components for weapons and evaluates, repairs, and dismantles nuclear weapons.	Consolidated Nuclear Security, LLC[e]	2014	2019	2024	**16,305,703,801**[f]

Contract name	Mission type	Description	Contractor	Award year[a]	Contract end year[a]	Potential end year with all options/ award terms[a]	Total Spending Fiscal Years 2006 Through 2016[b] (dollars)
Sandia National Laboratories	Research and Development; Production	Conducts research in national defense, weapons of mass destruction, transportation, energy, telecommunications and financial networks, and environmental stewardship. Engineers and produces nonnuclear components for weapons.	Sandia Corporation[g]	1993	2017	2017	**27,219,071,717**
Ames Laboratory	Research and development	Conducts research in rare earths and other critical materials, applied energy, fossil energy, and nonproliferation programs.	Iowa State University	2006	2021	2026	**419,219,641**
Argonne National Laboratory	Research and development	Conducts research in energy innovation and sustainable energy.	UChicago Argonne, LLC	2006	2020	2026	**7,314,348,389**
Brookhaven National Laboratory	Research and development	Conducts research in energy, environmental, physical and life sciences; energy technologies; and national security.	Brookhaven Science Associates, LLC	2014	2020	2035	**6,603,352,619**
Fermi National Accelerator Laboratory	Research and development	Conducts research in experimental and theoretical particle physics, astrophysics, and accelerator science.	Fermi Research Alliance, LLC	2006	2019	2025	**4,257,656,488**

Contract name	Mission type	Description	Contractor	Award year[a]	Contract end year[a]	Potential end year with all options/ award terms[a]	Total Spending Fiscal Years 2006 Through 2016[b] (dollars)
Lawrence Berkeley National Laboratory	Research and development	Conducts research in particle and nuclear physics and in physical, chemical, computational, biological, and environmental systems.	The Regents of the University of California	2005	2020	2025	**7,801,785,441**
Oak Ridge National Laboratory	Research and development	Conducts research in neutron scattering, advanced materials, high-performance computing, and nuclear science and engineering.	UT-Battelle, LLC	1999	2020	2020	**14,578,697,577**
Pacific Northwest National Laboratory	Research and development	Conducts research in electricity management, sustainability, threat detection and reduction, in situ chemical imaging and analysis, simulation, and analytics.	Battelle Memorial Institute	2002	2022	2022	**9,143,180,857**
Princeton Plasma Physics Laboratory	Research and development	Conducts research in plasma and fusion energy sciences.	The Trustees of Princeton University	2009	2019	2019	**901,120,766**
SLAC National Accelerator Laboratory	Research and development	Conducts research in materials, chemical and energy science, structural biology, and particle physics and astrophysics.	Stanford University	1962	2017	2017	**4,043,758,056**
Thomas Jefferson National Accelerator Facility	Research and development	Conducts research in the fundamental nature of particles and superconducting radio-frequency technology.	Jefferson Science Associates, LLC	2006	2019	2024	**1,553,204,215**

Source: GAO analysis of Department of Energy data. | GAO-19-5.

[a]These columns refer to calendar, rather than fiscal, years.

[b]"Spending" column represents DOE Budgetary Cost Data. Presented in nominal dollars.

[c]Triad National Security, LLC was awarded the contract for Los Alamos National Laboratory in 2018.

[d]Mission Support and Test Services, LLC became the contractor in 2017.

[e]Y-12 National Security Complex and the Pantex Plant had separate contracts prior to their consolidation in 2014.

[f]This total includes spending data for both the individual Y-12 and Pantex contracts as well as the consolidated National Production Office Sites contract.

[g]National Technology and Engineering Solutions of Sandia, LLC was awarded the contract in December 2016 with full performance beginning May 2017.

Table 8: Total Spending on Department of Energy's Management and Operating Contracts, Fiscal Years 2006 Through 2016, Adjusted to Fiscal Year 2017 Dollars

Contract name	Total spending fiscal years 2006 through 2016 adjusted to fiscal year 2017 dollars (dollars)
National Renewable Energy Laboratory	4,324,584,176
Savannah River Site and Savannah River National Laboratory	15,223,671,713
Waste Isolation Pilot Plant	2,221,871,771
Strategic Petroleum Reserve Office	1,574,589,106
Idaho National Laboratory	10,649,391,361
Bettis and Knolls Atomic Power Laboratories	10,353,265,571
Kansas City National Security Campus (formerly Kansas City Plant)	7,151,204,366
Lawrence Livermore National Laboratory	18,580,484,390
Los Alamos National Laboratory	26,606,880,342
Nevada National Security Site	5,892,711,021
NNSA Production Office Sites (Y-12 National Security Complex and Pantex Plant sites)	17,823,192,895
Sandia National Laboratories	29,785,734,245
Ames Laboratory	445,761,856
Argonne National Laboratory	7,975,773,676
Brookhaven National Laboratory	7,229,885,695
Fermi National Accelerator Laboratory	4,665,840,377
Lawrence Berkeley National Laboratory	8,512,702,522
Oak Ridge National Laboratory	15,947,495,173
Pacific Northwest National Laboratory	9,999,403,733
Princeton Plasma Physics Laboratory	987,514,077
SLAC National Accelerator Laboratory	4,422,152,894
Thomas Jefferson National Accelerator Facility	1,690,031,934

Source: GAO analysis of Department of Energy data. | GAO-19-5.

Appendix III: Additional Information on the Office of Energy Efficiency and Renewable Energy's Performance Evaluations

The Office of Energy Efficiency and Renewable Energy (EERE) focuses on aiding the development and implementation of renewable energy technologies and improving energy efficiency across various sectors. EERE administers its management and operating (M&O) contract at the National Renewable Energy Laboratory (NREL), in Golden, Colorado.[1] As we describe in our report, EERE follows a Science and Energy Lab approach to evaluate its M&O contractor's performance that uses broad, office-wide performance criteria, which are mostly subjective. Table 9 provides the full list of the goals and objectives EERE used to evaluate its M&O contractor performance in fiscal year 2016. For the most part, these performance criteria remained unchanged from fiscal year 2006 through fiscal year 2016.

Table 9: List of Goals and Objectives for Evaluating the Performance of the Office of Energy Efficiency and Renewable Energy's Management and Operating Contractor for Fiscal Year 2016

Goals	Objectives
1. Efficient and Effective Mission Accomplishment	1.1 Advance Science and Technology
	1.2 Deliver Credible and Objective Analyses
	1.3 Demonstrate Relevance and Market Impact
2. Efficient and Effective Stewardship and Operation of Research Facilities	2.1 Effectively Steward the ESIF User Facility
	2.2 Effectively Steward Major Research Facilities
3. Provide Effective and Efficient Program Management	3.1 Effective Program Planning and Execution
	3.2 Effective Communications and Response
4. Provide Sound and Competent Leadership and Stewardship of the Laboratory	4.1 Laboratory Strategy
	4.2 Steward Core Competencies
	4.3 Leadership and Lasting Value
	4.4 The contractor leads or participates on teams to effectively align resources to support DOE policy priorities and cross-cutting initiatives
5. Environment, Health, and Safety Management	5.1 Alliance maintains a safe and healthful workplace through continuous improvement of its integrated safety management systems.
	5.2 Alliance systems are effective in providing environmental protection and environmental compliance
6. Business Operations	6.1 Alliance develops, enhances, operates, and maintains risk-based business systems to support research, development, deployment, and demonstration (RDD&D).
	6.2 Alliance operates and maintains effective financial systems that support RDD&D management and enable fiscal responsibility

[1]NREL also has its National Wind Technology Center near Boulder, Colorado.

Goals	Objectives
	6.3 Alliance procurement processes support mission goals and DOE socioeconomic efforts
	6.4 Alliance human resource management systems are effective in providing the talent needed to implement the NREL mission
7. Infrastructure Development and Site Operations	7.1 Alliance effectively maintains research and support infrastructure
	7.2 Alliance demonstrates NREL leadership in sustainable laboratory operations
8. Security and Emergency Management	8.1 Alliance creates a secure work environment based on identified and assessed security vulnerabilities and threats, and manages programs to avoid or mitigate these risks
	8.2 Alliance protects computer information networks and proprietary business-sensitive information and addresses PIV requirements
	8.3 Alliance mitigates potential site emergencies and effectively responds to actual emergencies

Source: Office of Energy Efficiency and Renewable Energy's Fiscal Year 2016 Performance Evaluation and Measurement Plan. | GAO-19-5

As we describe in our report, EERE uses detailed methodologies to determine ratings and incentives. To illustrate the detailed formulas and calculations involved, Figure 5 provides an example of how ratings and fees are calculated.

Figure 5: Example of the Office of Energy Efficiency and Renewable Energy's Rating and Fee Determination Methodologies—Excerpts from the National Renewable Energy Laboratory's Fiscal Year 2016 Performance Evaluation Report

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Numerical scores for Mission Goals 1-3 were weighted using funds costed, by program, for work completed in FY16. For Mission Goal 1, costing profiles were established by individual Program for each of the three separate Performance Objectives. For Mission Goals 2 and 3, costing profiles consisted of the total FY16 costing at NREL for each individual Program. Performance Objectives in Mission Goal 4 were not weighted since the EERE Deputy Assistant Secretaries (DASs) determined the final scores. The costing amounts used to determine weighting factors are shown in Appendix 2.

The Alliance's overall performance for FY16 has been rated as a score of **3.6**, or an **A-**, by the DOE Performance Evaluation Board. For Mission Goals 1-4, the following table highlights the numerical equivalent of the grade issued by each of the rating organizations by Performance Goal and the overall grade. The subsequent table summarizes the ratings for Operations Goals 5-8 from the staff of the GFO. A table showing the Scoring Standards is also included below for reference.

Source: Department of Energy's Office of Energy Efficiency and Renewable Energy's Fiscal Year 2016 Performance Evaluation Report. | GAO-19-5 Part 1 of 3

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Scoring Results for Mission Goals 1 – 4

Program	1.0: EFFICIENT AND EFFECTIVE MISSION ACCOMPLISHMENT		2.0: EFFICIENT AND EFFECTIVE STEWARDSHIP AND OPERATION OF RESEARCH FACILITIES		3.0: PROVIDE EFFECTIVE AND EFFICIENT PROGRAM MANAGEMENT		4.0: PROVIDE SOUND AND COMPETENT LEADERSHIP AND STEWARDSHIP OF THE LABORATORY	
EERE DASs							3.5	A-
Adv. Manufacturing	3.6	A-	N/A	N/A	3.4	B+		
Bioenergy	3.8	A	3.5	A-	4.0	A		
Buildings	3.9	A	4.0	A	3.9	A		
FEMP	3.8	A	N/A	N/A	2.8	B		
Fuel Cells	3.9	A	3.6	A-	3.6	A-		
Geothermal	3.5	A-	N/A	N/A	3.6	A-		
Grid/ESIF	N/A	N/A	3.1	B+	N/A	N/A		
Solar	3.2	B+	3.2	B+	3.3	B+		
Strategic Programs	3.7	A-	3.2	B+	3.6	A-		
Vehicles	4.1	A+	4.0	A	3.3	B+		
Water	3.7	A-	3.8	A	3.2	B+		
Wind	3.7	A-	3.7	A-	2.9	B		
Electricity Delivery - OE	3.5	A-	N/A	N/A	4.0	A		
Science - BER	3.5	A-	N/A	N/A	3.5	A-		
Science - BES	3.4	B+	N/A	N/A	3.4	B+		
Average Scores	3.7	A-	3.5	A-	3.5	A-	3.5	A-
Costing-Weighted Scores	3.6	A-	3.5	A-	3.5	A-	3.5	A-
Weight per Goal	55%		10%		15%		20%	
OVERALL MISSION SCORE (Costing Weighted)	3.6							
	A-							

Source: Department of Energy's Office of Energy Efficiency and Renewable Energy's Fiscal Year 2016 Performance Evaluation Report. | GAO-19-5

Part 2 of 3

Annual Performance Evaluation of the Alliance for Sustainable Energy at the National Renewable Energy Laboratory | FY16

Scoring Results for Operations Goals 5 – 8

Golden Field Office Scoring	5.0 Environment, Health, and Safety Management		6.0 Business Operations		7.0 Infrastructure Stewardship and Site Operations		8.0 Security and Emergency Management	
Goal Score	4.0	A	4.0	A	3.9	A	3.9	A
Weight per Goal	30%		25%		20%		25%	
Weighted Score	1.2		1.0		0.8		1.0	
OVERALL OPERATIONS PERFORMANCE SCORE	3.9							
	A							

Scoring Standards (for reference)

Numerical Score	4.1-4.3	3.8-4.0	3.5-3.7	3.1-3.4	2.8-3.0	2.5-2.7	2.1-2.4	1.8-2.0	1.1-1.7	0.8-1.0	0.0-0.7
Letter Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

Source: Department of Energy's Office of Energy Efficiency and Renewable Energy's Fiscal Year 2016 Performance Evaluation Report. | GAO-19-5

Part 3 of 3

Table 10 shows the performance incentives that EERE included in its M&O contract.

Table 10: Performance Incentives Available to the Office of Energy Efficiency and Renewable Energy's Management and Operating Contractors for Fiscal Years 2006 through 2016

Contract rating site	Award fee	Fixed fee	Total available fee as percentage of total contract spending (percent)	Award term available
National Renewable Energy Laboratory	YES	YES (Only in 2006)	1.9	NO

Source: GAO analysis of Department of Energy data | GAO-19-5

Table 11 shows the rating scores the contractors earned for Mission and Operations goals.

Table 11: Mission and Operations Rating Scores by Contract Rating Site, Fiscal Years 2007 - 2016

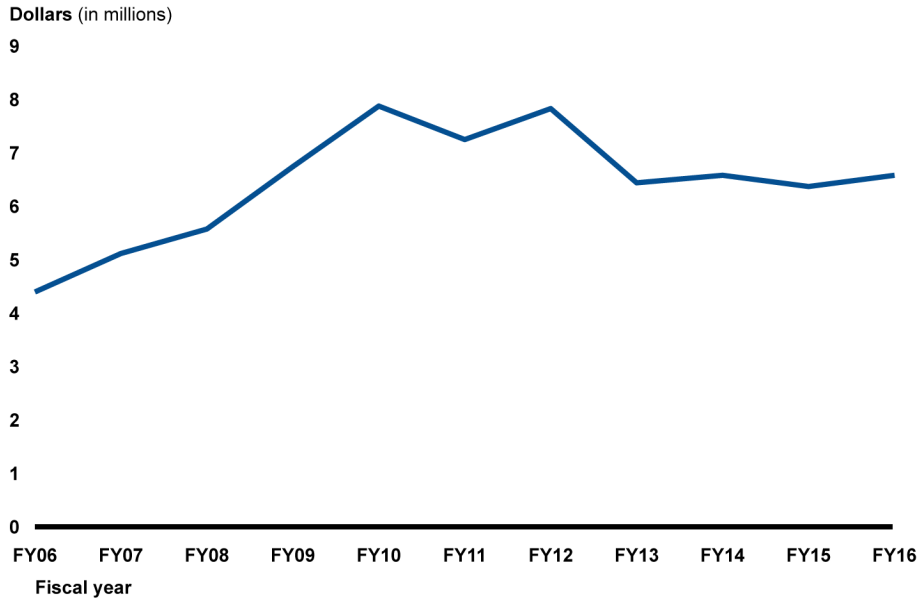
Contract rating site		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average
National Renewable Energy Laboratory	Mission	(A-)	(A-)	(A-)	3.465 (B+)	3.49 (B+)	3.4 (B+)	3.6 (A-)	3.6 (A-)	3.5 (A-)	3.6 (A-)	3.5 (A-)
	Operations	(A)	(A)	(A-)	3.685 (A-)	3.92 (A)	3.9 (A)	4.0 (A)	3.9 (A)	3.7 (A-)	3.9 (A)	3.9 (A)

Source: GAO analysis of Department of Energy data. | GAO-19-5

Note: Mission and Operations level scores were not available for fiscal year 2006 and fiscal years 2007 through 2009 did not have numerical scores.

Figure 6 shows the annual total fee (both award fee and fixed fee) EERE provided to its M&O contractors for fiscal years 2006 through 2016.

Figure 6: Annual Fee Earned by the Office of Energy Efficiency and Renewable Energy's National Renewable Energy Laboratory Management and Operating Contractors, Fiscal Years 2006 through 2016



Source: GAO analysis of Department of Energy data. | GAO-19-5

Note: Amounts are presented in nominal dollars.

Table 12 provides the percentage of available award and incentive fees provided to the M&O contractors for fiscal years 2006 through 2016 by contract rating site.

Table 12: Percentages of Available Award and Incentive Fees Earned by the Office of Energy Efficiency and Renewable Energy's Management and Operating Contractors Each Fiscal Year, 2006 through 2016

All numbers are percentages

Contract rating site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
National Renewable Energy Laboratory	78	94	94	94	93	93	93	95	94	91	94

Source: GAO analysis of Department of Energy data. | GAO-19-5

Appendix IV: Additional Information on the Office of Environmental Management's Performance Evaluations

The Department of Energy's Office of Environmental Management (EM) is responsible for decontaminating and decommissioning facilities and sites that are contaminated from decades of nuclear weapons production and nuclear energy research. EM has two management & operating (M&O) contract sites:

- the Savannah River Site (SRS) in Aiken, South Carolina; and
- the Water Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico.

As we describe in our report, EM follows a Site Specific approach to evaluate its M&O contractors that uses detailed performance criteria specific to each contract. Under this approach, most performance criteria we reviewed are objective criteria, and a few are broader, subjective criteria. Tables 13 through 16 provide examples of some of the specific criteria EM used at each site. We provide examples rather than a full list because each site has numerous individual metrics, which are often quite technical. Specifically, Tables 13 and 14 provide examples of EM's objective performance criteria, which are defined based on quantifiable metrics (e.g., a contractor's demonstrated waste processing rate) and milestones (e.g., whether a contractor completed a task on or before a scheduled date). Table 13 includes 3 of the 6 objective performance criteria EM used to evaluate the SRS contractor's performance during fiscal year 2016. Table 14 contains examples of 3 of the 9 objective criteria EM used to evaluate the WIPP contractor in fiscal year 2016.

Table 13: Examples of the Objective Performance Criteria for Evaluating Performance of the Office of Environmental Management's Savannah River Site (SRS) Management and Operating Contractor for Fiscal Year 2016

Performance criteria/description	Metrics used to rate the objective performance criteria (abbreviated list)	Fee allocated (dollars)
Environmental Management Operations Receive, characterize, and disposition materials in H-Area through activities that include maximizing risk reduction of surplus nuclear materials and utilizing Department of Energy (DOE)-Savannah River facilities to disposition surplus nuclear materials.	Dissolve two batches of Material Test Reactor fuel in 6.4D. Complete Target Residue Material startup and declare readiness to receive.	3,000,000 250,000 per batch 1,500,000
Solid Waste Ensure the receipt, storage, and disposal of low-level waste is environmentally sound, cost effective, and in compliance with DOE Directives, applicable regulations, and requirements; and Maintain cost-effective and compliant operations of the Solid Waste Management facilities.	Dispose of 100 legacy contaminated transuranic waste storage culverts as low-level waste. Remove Large Container Non-Destructive Examination equipment and instrumentation from the Low Activity Waste Vault Cells 1 & 2 and make available for reuse or recycle (within DOE restrictions) where possible.	1,850,000 250,000 200,000
Area Completion Project (ACP) Meet all Federal Facility Agreement (FFA) Milestones,[a] Resource Conservation and Recovery Act (RCRA) Permit[b] and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Record of Decision commitments[c] and monitor, perform monthly/quarterly/annual sampling, analysis and reporting on over 2,000 groundwater wells and five major streams due between 10/1/2015, and 9/30/2016, as described in the FFA for the SRS.	Achieve all RCRA Permit commitments and FFA milestones from April 1, 2016 through September 30, 2016. Savannah River Nuclear Solutions will provide documentation from the Administrative Record File demonstrating that milestone/submittal dates were met. Achieve Mechanical Completion of Field Work for the 488-4D Ash Landfill. Mechanical Completion is defined as completion of construction, the performance of a Final Acceptance Inspection (FAI-51) consistent with procedure 51 of the 8Q manual, and the acceptable resolution of punch list items. SRNS will provide documentation of the FAI-51 walkdown.	3,200,000

Source: GAO analysis of Savannah River Site's Fiscal Year 2016 Performance Evaluation Measurement Plan | GAO-19-5

[a]The Savannah River Site FFA was negotiated between the DOE, the U.S. Environmental Protection Agency-Region 4 (EPA), and the South Carolina Department of Health and Environmental Control—FFA entered into force on August 16, 1993. The FFA directs the comprehensive remediation of the SRS. It contains requirements for (1) site investigation and remediation of releases and potential releases of hazardous substances, and (2) interim status corrective action for releases of hazardous wastes or hazardous constituents.

[b]42 U.S.C. §§ 6901 et. seq. RCRA prohibits the treatment, storage, or disposal of hazardous waste without a permit from EPA or an authorized state.

[c]42 U.S.C. §§ 9601 et seq. CERCLA authorizes the federal government to respond to releases or threatened releases of hazardous substances. For DOE sites subject to CERCLA, DOE, among other things, identifies, assesses, and remedies releases of hazardous substances, pollutants, and contaminants.

Table 14: Examples of Objective Performance Criteria for Evaluating the Performance of the Office of Environmental Management's Waste Isolation Pilot Plant (WIPP) Management and Operating Contractor for Fiscal Year 2016

Performance criteria/ descriptions	Metrics used to rate the objective performance criteria	Fee allocated (dollars)
Completing the enhanced Acceptable Knowledge process for six Central Characterization Program waste streams and for characterizing Remote Handled Transuranic waste during the performance period	Implement the enhanced Acceptable Knowledge process for the Central Characterization Program waste streams in accordance with the Radiation Release Event Accident Investigation Board Phase 2 Report Corrective Action Plan	A fee of 50,000 will be earned per waste stream up to a maximum total of 300,000
	Characterizing each cubic meter of Remote Handled Transuranic waste in excess of 3 cubic meters	A fee of 16,666.66 will be earned up to a maximum total of 100,000 (9 cubic meters characterized)
Continuing the Permanent Ventilation System capital asset projects (Safety Significant Confinement Ventilation System and Exhaust Shaft and Drifts) with a certifiable earned value management system (EVMS) to support Critical Decision 2/3.	Declaring the EVMS to be compliant with Electronic Industries Alliance/American National Standards Institute-748C by July 31, 2016.	300,000
	Declaring the EVMS to be ready for Certification Assessment by the Department of Energy by September 30, 2016	300,000
Radiological down-posting of Panel 7 from a High Contamination Area to a Contamination Area.	The radiological down-posting of the following five areas associated with Panel 7 from a High Contamination Area to a Contamination Area by September 30, 2016	750,000

Source: WIPP's Fiscal Year 2016 Performance Evaluation and Measurement Plan | GAO-19-5

Tables 15 and 16 provide examples of EM's subjective criteria, which are used for aspects of performance that may be difficult to capture objectively. Table 15 provides examples of 3 of the 12 subjective criteria for evaluating the SRS M&O contractor's performance during fiscal year 2016, while Table 16 contains the fiscal year 2016 subjective criteria for evaluating the WIPP M&O contractor's performance.

Table 15: Examples of Subjective Performance Criteria for Evaluating the Performance of the Office of Environmental Management's Savannah River Site (SRS) Management and Operating Contractor for Fiscal Year 2016

Performance criteria	Metrics used to rate the subjective performance criteria (abbreviated list)
Office of Safety & Quality Assurance	Improve the safety culture at SRS through enhancements in key site-wide initiatives Advance the SRS position as a leader in Integrated Safety Management throughout the Department of Energy Complex
Office of Civil Rights	Maintain essential elements of a Model Equal Employment Opportunity program Demonstrate firm commitment to equality of opportunity for all employees and applicants for employment.
Office of External Affairs	The Contractor shall provide general planning, management and administrative services for all its public affairs activities and for other organizations as directed by the Contracting Officer.

Source: Savannah River Site's Fiscal Year 2016 Performance Evaluation Measurement Plan. | GAO-19-5

Table 16: Subjective Performance Criteria for Evaluating the Performance of the Office of Environmental Management's Waste Isolation Pilot Plant (WIPP) Management and Operating Contractor for Fiscal Year 2016

Performance criteria	Metrics used to rate the subjective performance criteria (abbreviated list)	Maximum available fee (dollars)
Mission performance	WIPP Plant availability to support recovery and readiness to resume transuranic waste disposal operations in FY2017. The extent to which CCP waste characterization capability remains available to assigned sites	842,827
Management performance	Implement effective corrective action closures to address Judgments of Needs from the Accident Investigation Board Reports on the Underground Salt Haul Truck Fire Event of February 5, 2014, and the Radiological Release Event of February 14, 2014, and prevent recurrence. Achieving the community commitments described in clause H.47 of the contract	842,827
Environment, safety, and health performance	Environmental and Regulatory Compliance Safeguards and Security Compliance and Implementation	842,827
Cost Control	Effectiveness of cost planning Clarity of and ability to trace cost relative to work schedule/technical progress	842,827

Source: WIPP's Fiscal Year 2016 Performance Evaluation and Measurement Plan. | GAO-19-5

The following tables and figure provide details on the incentives available to and earned by EM's M&O contractors from fiscal year 2006 through fiscal year 2016. Table 17 shows the performance incentives that EM included in its M&O contracts. We use the term "contract rating sites" rather than individual contractors or physical sites, because the individual contractors and how certain sites align with the contracts may have changed over time.

Table 17: Performance Incentives Available to the Office of Environmental Management's (EM) Management and Operating Contractors by Contract Rating Site for Fiscal Years 2006 through 2016

Contract rating site	Award/incentive fee	Fixed fee	Total available fee as percentage of contract spending (percent)	Award term available
Savannah River Site - EM	YES	NO	3.7[a]	NO
Waste Isolation Pilot Plant	YES	NO	6.8	NO

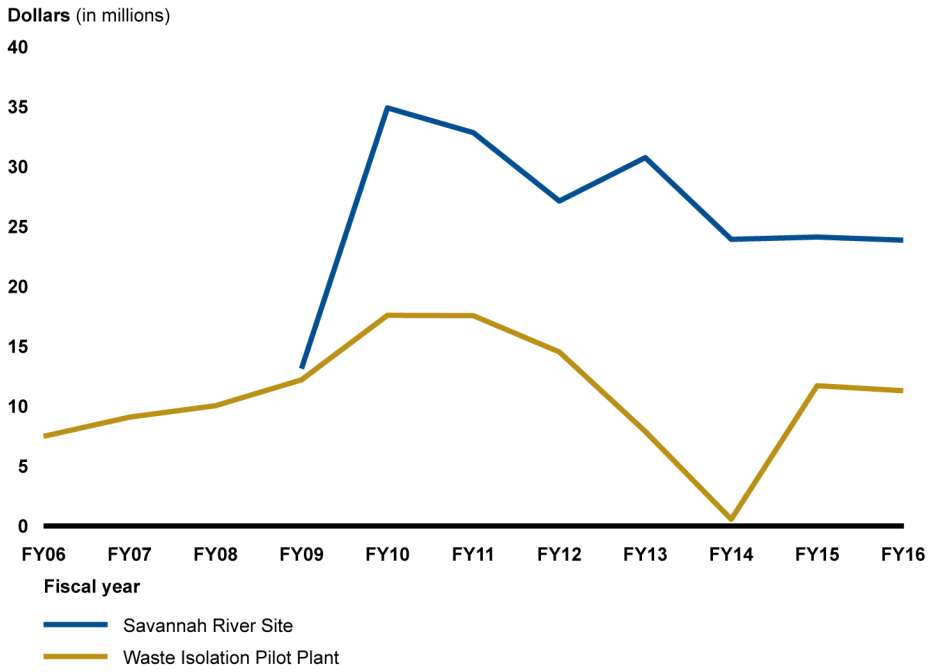
Source: GAO analysis of Department of Energy data | GAO-19-5

Note: This table represents only EM's portion of the Savannah River Site (SRS) incentives. Incentive data on the portion of SRS activities rated by the National Nuclear Security Administration can be found in Appendix VI.

[a]The EM portion of the SRS contract for fiscal years 2006 through 2008 had multi-year award fee targets that did not align with individual fiscal years. This figure does not include fee amounts from those years.

Figure 7 shows the annual total fee (both award fee and fixed fee) provided to EM M&O contractors for fiscal years 2006 through 2016. Because EM and National Nuclear Security Administration activities at the Savannah River Site are rated separately, only the EM portion of fees is represented below.

Figure 7: Annual Fee Earned by the Office of Environmental Management's Management and Operating Contractors, Fiscal Years 2006 through 2016



Source: GAO analysis of Department of Energy data. | GAO-19-5

Notes: From fiscal year 2006 through fiscal year 2008, the Savannah River Site (SRS) contract did not break out annual award and incentive fees. Rather, the contract in place at the time had multi-year award and incentive fee targets that did not line up with individual fiscal years. Fiscal year 2009 was a transition year and the fee represented above is only for part of that fiscal year. During fiscal years 2006 through 2009, the SRS contractor received a total of $239.9 million in fees, some of which was for work conducted prior to fiscal year 2006. This figure represents only the Office of Environmental Management's portion of SRS fees. While the SRS M&O contract is an Office of Environmental Management contract, the National Nuclear Security Administration evaluates the contractor's performance for NNSA-related activities at the site separately. Fee data on the portion of SRS activities rated by the National Nuclear Security Administration can be found in Appendix VI.

Table 18 provides the percentage of available award and incentive fees EM's M&O contractors earned for fiscal years 2006 through 2016.

Table 18: Percentages of Available Award and Incentive Fees Earned by the Office of Environmental Management's (EM) Management and Operating Contractors Each Fiscal Year, 2006 through 2016

All numbers are percentages

Contract rating site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Savannah River Site - EM[a]	N/A	N/A	N/A	86	90	88	97	96	94	89	89
Waste Isolation Pilot Plant	81	90	81	100	100	98	98	96	17	86	84

Source: GAO analysis of Department of Energy data. | GAO-19-5

[a]The EM portion of the Savannah River Site (SRS) contract for fiscal years 2006 through 2008 had multi-year award fee targets that did not align with individual fiscal years. This table represents only EM's portion of SRS fees. Fee data on the portion of SRS activities rated by the National Nuclear Security Administration can be found in Appendix VI.

Appendix V: Additional Information on the Office of Fossil Energy's Performance Evaluations

The Department of Energy's Office of Fossil Energy (FE) manages the nation's Strategic Petroleum Reserve (SPR), which consists of salt caverns storing crude oil in Texas and Louisiana. As we describe in our report, FE follows a Site Specific approach to evaluate its M&O contractors that uses detailed performance criteria specific to each contract. Under this approach, most performance criteria we reviewed are objective criteria, and a few are broader, subjective criteria. Table 19 provides examples of FE's objective performance criteria, which are defined based on quantifiable metrics (e.g., the contractor's demonstrated oil drawdown rate) and performance targets (e.g., whether a contractor completed a task on or before a scheduled date). Table 19 includes 4 of the 11 objective performance criteria FE used to evaluate the Strategic Petroleum Reserve Office (SPRO) contractor's performance during fiscal year 2016. We provide examples rather than a full list because there were numerous individual metrics, which are often quite technical.

Table 19: Examples of the Objective Performance Criteria for Evaluating Performance of the Office of Fossil Energy's Management and Operating Contractor for Fiscal Year 2016

Objective performance criteria/description	Metric(s) used to rate the objective performance criteria	Performance target(s)/minimum(s) used to determine fee	Amount(s) of fee that contractor may earn by meeting performance target(s)/minimum(s) (dollars)
90-Day Drawdown Rate Ensure the Strategic Petroleum Reserve's (SPR) capability to respond to an energy emergency consistent with the established drawdown criteria	90-day drawdown rate in barrels per day (12-month average)	**Target:** Meet drawdown rate of 4.22 Million Barrels per day (12-month average)	**Target**: 1,225,380
Maintenance Performance Appraisal Rating Maintain SPR facilities and systems at a level adequate to meet program requirements	Calculated Maintenance Performance Appraisal Rating score	**Target:** ≥ 98 point fiscal year average SPR-wide and ≥ 95 point fiscal year average at each SPR site	**Target:** 653,537
		Minimum: ≥ 95 point fiscal year average SPR-wide and ≥ 94 point fiscal year average at each SPR site	**Minimum:** 603,537
Reliability Availability Maintainability	Calculated percentage of site availability to be validated by quarterly	**Target:** ≥ 95 percent for each site each quarter	**Target:** 258,461

Objective performance criteria/description	Metric(s) used to rate the objective performance criteria	Performance target(s)/minimum(s) used to determine fee	Amount(s) of fee that contractor may earn by meeting performance target(s)/minimum(s) (dollars)
Provide adequate assurance of the availability and reliability of system components necessary to carry out the SPR mission	equipment exercise and required performance of drawn-down critical equipment to support full rate drawdown	**Minimum:** ≥ 95 percent for SPR-wide average each quarter calculated of all four sites	**Minimum:** 201,276
Annual Operating Plan (AOP)	Executes FY 2016 AOP straight-time labor at or below obligated amount	**Target:** $41,670,600	**Target:** 245,076
		Minimum: $42,087,306	**Minimum:** 195,076

Source: GAO analysis of Office of Fossil Energy's Fiscal Year 2016 Performance Evaluation and Measurement Plan. | GAO-19-5

NOTE:The terms "target" and "minimum" as used on this table mean that there is a performance target, and if the contractor hits the target, they get the "target" fee amount. If they fall short but still hit the "minimum" target, then they get the "minimum" amount—and both are set by the government—according to Fossil Energy's fiscal year 2016 Performance Evaluation and Measurement Plan.

Table 20 contains the full list of FE's subjective performance criteria—which FE uses for aspects of performance that may be difficult to capture objectively—for evaluating the SPRO M&O contractor's performance during fiscal year 2016.

Table 20: Subjective Performance Criteria for Evaluating the Performance of the Office of Fossil Energy's Management and Operating Contractor for Fiscal Year 2016

Subjective performance criteria	Metrics used to rate subjective performance criteria (abbreviated list)	Percentage of fee allocated
Environmental, Safety and Health	Prevention of harm to the Strategic Petroleum Reserve (SPR), its workers, the general public, and the environment consistent with mission objectives.	8
Safeguards and Security	Protection of SPR personnel, resources, property, and classified information from theft, misuse, espionage, and/or sabotage	4
Information Technology	Establishment, maintenance, and administration of a program for effective Information Technology consistent with Department of Energy (DOE) and SPR Orders and applicable Federal Information Security Management Act Directives	4

Subjective performance criteria	Metrics used to rate subjective performance criteria (abbreviated list)	Percentage of fee allocated
Customer Service Survey	Conducting DOE employee satisfactory surveys as a means to measure the Contractor's performance in fulfilling contract requirements, taking into account the Department's goals and objectives	4
Financial Management	Effectively and efficiently managing, controlling, measuring, and reporting the status of financial resources and financial activity performance	5

Source: GAO analysis of Office of Fossil Energy's Fiscal Year 2016 Performance Evaluation and Measurement Plan. | GAO-19-5

Note: The Office of Fossil Energy began using subjective performance criteria during fiscal year 2014, and since then its policy has been that areas within a subjective performance measure are not sub-criteria and will not be individually rated but considered in the overall evaluation for the particular measure.

Table 21 shows the performance incentives that FE included in its M&O contract.

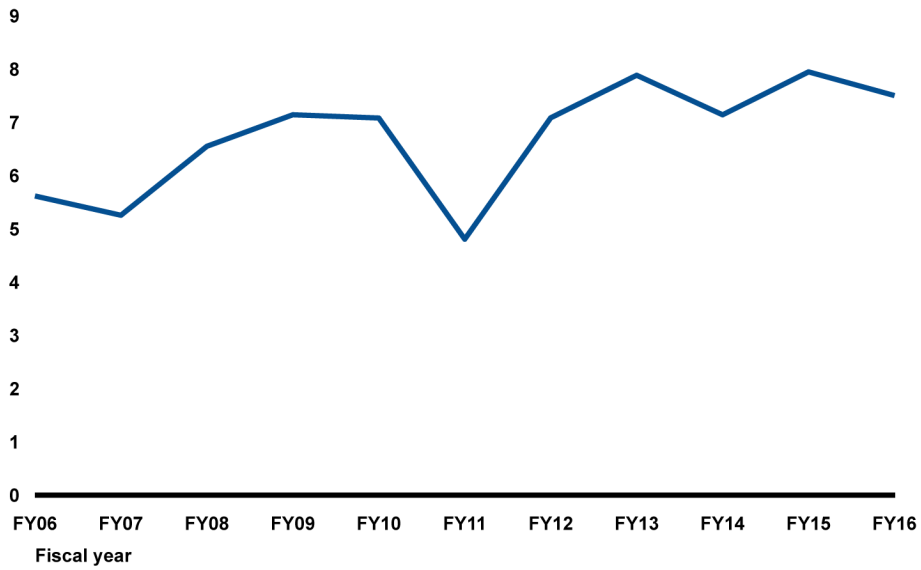
Table 21: Performance Incentives Available to the Office of Fossil Energy's Management and Operating Contractors for Fiscal Years 2006 through 2016

Contract rating site	Award fee	Fixed fee	Total available fee as percentage of total contract spending	Award term
Strategic Petroleum Reserve Office	YES	NO	5.7	NO

Source: GAO analysis of Department of Energy data | GAO-19-5

Figure 8 shows the annual total fee (both award fee and fixed fee) FE provided to its M&O contractors for fiscal years 2006 through 2016.

Figure 8: Annual Fee Earned by the Office of Fossil Energy's Strategic Petroleum Reserve Office Management and Operating Contractors, Fiscal Years 2006 through 2016



Source: GAO analysis of Department of Energy data. | GAO-19-5

Note: Amounts are presented in nominal dollars.

Table 22 provides the percentage of available award and incentive fees provided to M&O contractors for fiscal years 2006 through 2016.

Table 22: Percentages of Available Award and Incentive Fees Earned by the Office of Fossil Energy's Management and Operating Contractors Each Fiscal Year, 2006 through 2016

Contract rating site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Strategic Petroleum Reserve Office	97	92	100	96	94	99	99	99	87	96	92

Source: GAO analysis of Department of Energy data | GAO-19-5

Appendix VI: Additional Information on the National Nuclear Security Administration's Performance Evaluations

The National Nuclear Security Administration (NNSA), a separately organized agency within DOE, is responsible for maintaining and enhancing the safety, reliability, and performance of the nation's nuclear weapons stockpile, promoting international nuclear safety and nonproliferation, and supporting U.S. leadership in science and technology.[1] NNSA administers management and operating (M&O) contracts at eight national laboratories, plants, and sites:

- Bettis and Knolls Atomic Power Laboratory in West Mifflin, Pennsylvania, and Niskayuna and West Milton, New York[2]
- Kansas City National Security Campus in Kansas City, Missouri
- Lawrence Livermore National Laboratory in Livermore, California
- Los Alamos National Laboratory in Los Alamos, New Mexico
- Nevada National Security Site near Las Vegas, Nevada
- NNSA Production Office Sites[3]
  - Pantex Plant in Amarillo, Texas
  - Y-12 National Security Complex in Oak Ridge, Tennessee
- Sandia National Laboratories in Albuquerque, New Mexico
- Savannah River Site in Aiken, South Carolina[4]

As we describe in our report, NNSA follows an approach to evaluate its M&O contractors that uses broad, office-wide performance criteria that are mostly subjective. Table 23 provides the full list of the goals and objectives NNSA used to evaluate its M&O contractors' performance in fiscal year 2016. While there have been some language amendments,

[1]Pub. L. No. 106-65, § 3211(b) (1999).

[2]We excluded the Bettis and Knolls Atomic Power Laboratories' M&O contract from our analyses because the contract did not have an incentive structure and annual performance evaluation reports comparable to the other DOE M&O contracts. However, we do provide information on this contract here and in table 24 and figure 10 below in order to present a complete list of NNSA's M&O contracts and for context.

[3]Two separate contracts were combined into the NNSA Production Office Sites contract in 2014.

[4]While the Savannah River Site M&O contract is an Office of Environmental Management contract, NNSA evaluates performance for its activities at the site separately, thus we also include it for NNSA here and in the below tables.

overall, goals and objectives have remained the same from fiscal year 2013 through fiscal year 2016.

Table 23: List of Goals and Objectives for Evaluating the Performance of the National Nuclear Security Administration's (NNSA) Management and Operating Contractors for Fiscal Year 2016

Goals	Objectives
1. Manage the Nuclear Weapons Mission	1.1 Accomplish work as negotiated with program sponsors and partners integrating quality requirements into an effective quality assurance program at their sites and through their suppliers that results in the design, production, and delivery of safe, secure, and reliable weapon products meeting performance, transportation, and cost effective operations.
	1.2 Maintain knowledge of the state of the stockpile, resulting from successful execution of the stockpile surveillance program and a robust scientific and engineering understanding for the delivery of the annual stockpile assessment.
	1.3 Execute stockpile work to deliver stockpile system maintenance, production, limited-life component exchanges, weapon containers and dismantlements.
	1.4 Demonstrate the application of new strategies, technologies, and scientific understanding to support stewardship of the existing stockpile and future stockpile needs.
	1.5 Sustain unique science and engineering capabilities, facilities, and essential skills to ensure current and future Nuclear Weapons mission requirements will be met.
	1.6 Execute Phase 6.X and product realization processes and activities in support of nuclear weapon life extension programs, modification and alterations in accordance with NNSA requirements and Nuclear Weapons Council guidance.
2. Reduce Nuclear Security Threats	2.1 Support efforts to secure, account for, and interdict the illicit movement of nuclear weapons, weapons-useable nuclear materials and radiological materials.
	2.2 Support U.S. national and nuclear security objectives in reducing global nuclear security threats through the innovation of unilateral and multi-lateral technical capabilities to detect, identify, and characterize 1) foreign nuclear weapons programs, 2) illicit diversion of special nuclear materials, and 3) global nuclear detonations.
	2.3 Support efforts to achieve permanent threat reduction by managing and minimizing excess weapons-useable nuclear materials and providing nuclear materials for peaceful uses.
	2.4 Support efforts to prevent proliferation, ensure peaceful nuclear uses, and enable verifiable nuclear reductions in order to strengthen the nonproliferation and arms control regimes.
	2.5 Sustain and improve nuclear counterterrorism and counterproliferation science, technology, and expertise; execute unique emergency response missions; implement policy in support of incident response and nuclear forensics missions; and assist international partners/organizations.

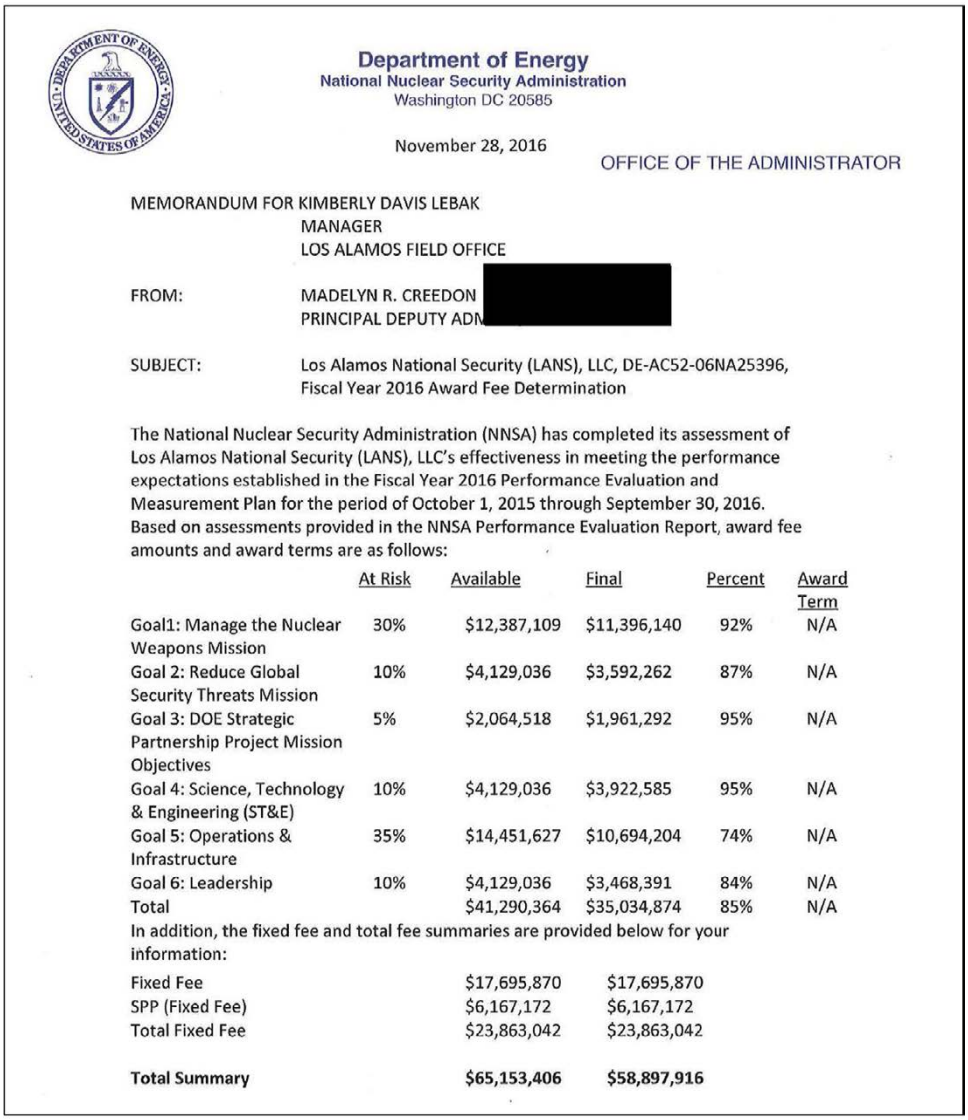
Goals	Objectives
3. Department of Energy (DOE) and Strategic Partnership Projects Mission Objectives	3.1 Pursue and perform high-impact work for DOE that strategically integrates with the DOE/NNSA mission and leverages, sustains, and strengthens unique science and engineering capabilities, facilities, and essential skills.
	3.2 Pursue and perform high-impact Strategic Partnership Projects that strategically integrate with the DOE/NNSA mission and leverage, sustain and strengthen unique science and engineering capabilities, facilities, and essential skills in support of national security mission requirements.
4. Science, Technology, and Engineering	4.1 Execute a research strategy that is clear and aligns discretionary investments with plant/laboratory strategy and supports DOE/NNSA priorities.
	4.2 Ensure that research is relevant, enables the national security missions, and benefits DOE/NNSA and the nation.
	4.3 Ensure that research is transformative, innovative, leading edge, high quality, and advances the frontiers of science and engineering.
	4.4 Maintain a healthy and vibrant research environment that enhances technical workforce competencies and research capabilities.
	4.5 Research and develop high-impact technologies through effective partnerships and technology transfer mechanisms that support the plant's/laboratory's strategy, DOE/NNSA priorities and impact the public good; ensure that reporting and publishing (via DOE's Public Access Plan) requirements for broad availability of federally funded scientific research are implemented.
5. Operations and Infrastructure	5.1 Deliver effective, efficient, and responsive environment, safety, health, and quality management and processes.
	5.2 Accomplish capital projects in accordance with scope, cost, and schedule baselines.
	5.3 Deliver effective, efficient, and responsive safeguards and security. Deliver effective site emergency management programs in support of the DOE/NNSA Emergency Management Enterprise.
	5.4 Maintain, operate and modernize DOE/NNSA facilities, infrastructure, and equipment in an effective, energy-efficient manner; including disposition of unneeded infrastructure and excess hazardous materials. Demonstrate progress to advance DOE's crosscut initiative to halt the growth of deferred maintenance and support arresting the declining state of infrastructure.
	5.5 Deliver efficient, effective, and responsible business operations, systems, and financial management, including financial transparency, budget formulation and execution, and internal controls.
	5.6 Deliver efficient and effective management of legal risk and incorporation of best legal practices.
	5.7 Deliver effective, efficient, and responsive information technology systems and cyber security.
6. Leadership	6.1 Define and implement a realistic strategic vision for the laboratory/plant/site, in alignment with the NNSA Strategic Vision, which demonstrates enterprise leadership and effective collaborations across the NNSA enterprise to ensure DOE/NNSA success.

Goals	Objectives
	6.2 Demonstrate performance results through the institutional utilization of a Contractor Assurance System and promoting a culture of critical self-assessment, transparency, and accountability through the entire organization, while also leveraging parent company resources and expertise.
	6.3 Work selflessly within the DOE/NNSA complex to develop, integrate, and implement enterprise solutions that maximize program outputs at best value to the government; identify innovative business and management solutions that greatly improve enterprise-wide efficiencies.
	6.4 Exhibit professional excellence in performing roles/responsibilities while pursuing opportunities for continuous learning.

Source: National Nuclear Security Administration's Fiscal Year 2016 Corporate Evaluation Process Guidance. | GAO-19-5

As we describe in our report, under the NNSA approach, goals are assigned specific portions of the available award fee for each contract at the beginning of the fiscal year—and at the end of the fiscal year, officials determine ratings and fees at the same time in a collaborative meeting with NNSA leadership. Figure 9 provides an example of award fee amounts assigned to individual goals.

Figure 9: Example of National Nuclear Security Administration Award Fees—Excerpt from the Los Alamos National Laboratory's Fiscal Year 2016 Fee Determination Letter



Department of Energy
National Nuclear Security Administration
Washington DC 20585

November 28, 2016

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR KIMBERLY DAVIS LEBAK
MANAGER
LOS ALAMOS FIELD OFFICE

FROM: MADELYN R. CREEDON
PRINCIPAL DEPUTY ADM [redacted]

SUBJECT: Los Alamos National Security (LANS), LLC, DE-AC52-06NA25396, Fiscal Year 2016 Award Fee Determination

The National Nuclear Security Administration (NNSA) has completed its assessment of Los Alamos National Security (LANS), LLC's effectiveness in meeting the performance expectations established in the Fiscal Year 2016 Performance Evaluation and Measurement Plan for the period of October 1, 2015 through September 30, 2016. Based on assessments provided in the NNSA Performance Evaluation Report, award fee amounts and award terms are as follows:

	At Risk	Available	Final	Percent	Award Term
Goal1: Manage the Nuclear Weapons Mission	30%	$12,387,109	$11,396,140	92%	N/A
Goal 2: Reduce Global Security Threats Mission	10%	$4,129,036	$3,592,262	87%	N/A
Goal 3: DOE Strategic Partnership Project Mission Objectives	5%	$2,064,518	$1,961,292	95%	N/A
Goal 4: Science, Technology & Engineering (ST&E)	10%	$4,129,036	$3,922,585	95%	N/A
Goal 5: Operations & Infrastructure	35%	$14,451,627	$10,694,204	74%	N/A
Goal 6: Leadership	10%	$4,129,036	$3,468,391	84%	N/A
Total		$41,290,364	$35,034,874	85%	N/A

In addition, the fixed fee and total fee summaries are provided below for your information:

Fixed Fee	$17,695,870	$17,695,870
SPP (Fixed Fee)	$6,167,172	$6,167,172
Total Fixed Fee	$23,863,042	$23,863,042
Total Summary	**$65,153,406**	**$58,897,916**

Source: National Nuclear Security Administration's Los Alamos National Laboratory's Fiscal Year 2016 Fee Determination Letter.
GAO-19-5

Table 24 shows the performance incentives that NNSA included in its M&O contracts. We use the term "contract rating sites" rather than individual contractors or physical sites, because the individual contractors and how certain sites align with the contracts have changed over time.

Specifically, NNSA consolidated its Y-12 National Security Complex and Pantex Plant contracts into the National Production Office Sites contract in fiscal year 2014, and NNSA and the Office of Environmental Management separately evaluated their respective activities carried out by the Savannah River Site contractor.

Table 24: Performance Incentives Available to the National Nuclear Security Administration's Management and Operating Contractors by Contract Rating Site for Fiscal Years 2006 through 2016

Contract rating sites	Award fee	Fixed fee	Total available fee as percentage of total contract spending	Award term available (dates available)
Bettis and Knolls Atomic Power Laboratory	NO	YES	1.0	NO
Kansas City National Security Campus[a]	YES	YES	6.6	NO
Lawrence Livermore National Laboratory	YES	YES	2.6	YES (2009 – 2016)
Los Alamos National Laboratory	YES	YES	3.2	YES (2008-2015)
Nevada National Security Site	YES	YES	5.8	YES (2008-2012)
NNSA Production Office Sites[b]	YES	YES	2.7	NO
Pantex Plant[b]	YES	YES	7.0	NO
Y-12 National Security Complex[b]	YES	YES	6.6	NO
Sandia National Laboratory	YES	YES	1.1	YES (2006-2008)
Savannah River - NNSA	YES	YES (Only in 2008)	4.6	NO

Source: GAO analysis of Department of Energy data | GAO-19-5

[a]Formerly known as the Kansas City Plant

[b]Two sites with separate contracts—the Y-12 National Security Complex in Tennessee and Pantex Plant in Texas—were combined into the NNSA Production Office Sites contract for fiscal years 2015 and 2016.

Table 25 provides annual performance ratings by goal for fiscal years 2013 through 2016 for each NNSA contract rating site.

Table 25: National Nuclear Security Administration (NNSA) Goal Ratings for Management and Operating Contractors, Fiscal Years 2013 through 2016

	Manage the Nuclear Weapons Mission Goal 1	Reduce Global Security Threats/ Broader National Security Goal 2	Strategic Partnership Project Goal 3[a]	Science, Tech, & Engineering Goal 4	Operations & Infrastructure Goal 5	Leadership Goal 6
Kansas City National Security Campus[b]						
2013	97 Excellent	98 Excellent		95 Excellent	90 Very Good	97 Excellent
2014	97 Very Good	97 Excellent		96 Excellent	92 Excellent	98 Excellent
2015	95 Excellent	88 Very Good	97 Excellent	96 Excellent	92 Excellent	96 Excellent
2016	91 Excellent	86 Very Good	92 Excellent	97 Excellent	94 Excellent	95 Excellent
Lawrence Livermore National Laboratory						
2013	83 Very Good	88 Very Good		91 Excellent	80 Very Good	40 Satisfactory
2014	91 Excellent	88 Very Good		93 Excellent	76 Very Good	86 Very Good
2015	92 Excellent	88 Very Good	91 Excellent	93 Excellent	81 Very Good	91 Excellent
2016	92 Excellent	93 Excellent	91 Excellent	93 Excellent	71 Good	81 Very Good
Los Alamos National Laboratory						
2013	87 Very Good	91 Excellent		95 Excellent	49 Satisfactory	90 Very Good
2014	87 Very Good	80 Very Good		30 Satisfactory	0 Unsatisfactory	30 Satisfactory
2015	88 Very Good	87 Very Good	96 Excellent	92 Excellent	49 Satisfactory	60 Good
2016	92 Excellent	87 Very Good	95 Excellent	95 Excellent	74 Good	84 Very Good
Nevada National Security Site						
2013	95 Excellent	90 Very Good		95 Excellent	85 Very Good	89 Very Good
2014	90 Very Good	85 Very Good		96 Excellent	68 Good	85 Very Good

	Manage the Nuclear Weapons Mission Goal 1	Reduce Global Security Threats/ Broader National Security Goal 2	Strategic Partnership Project Goal 3[a]	Science, Tech, & Engineering Goal 4	Operations & Infrastructure Goal 5	Leadership Goal 6
2015	89	85	94	98	87	90
	Very Good	Very Good	Excellent	Excellent	Very Good	Very Good
2016	91	95	94	98	90	94
	Excellent	Excellent	Excellent	Excellent	Very Good	Excellent
NNSA Production Office Sites[c]						
2015	45	85	90	90	55	45
	Satisfactory	Very Good	Very Good	Very Good	Good	Satisfactory
2016	86	88	88	95	60	77
	Very Good	Very Good	Very Good	Excellent	Good	Very Good
Pantex Plant						
2013	85	90		90	91	80
	Very Good	Very Good		Very Good	Excellent	Very Good
2014	95	85		91	92	86
	Excellent	Very Good		Excellent	Excellent	Very Good
Y-12 National Security Complex						
2013	85	90		94	40	40
	Very Good	Very Good		Excellent	Satisfactory	Satisfactory
2014	84	75		86	74	72
	Very Good	Good		Very Good	Good	Good
Sandia National Laboratories						
2013	93	97		95	76	76
	Excellent	Excellent		Excellent	Very Good	Very Good
2014	85	85		95	65	76
	Very Good	Very Good		Excellent	Good	Very Good
2015	87	93	94	94	78	50
	Very Good	Excellent	Excellent	Excellent	Very Good	Satisfactory
2016	91	95	96	95	82	90
	Excellent	Excellent	Excellent	Excellent	Very Good	Very Good
Savannah River Site – NNSA						
2013	98	15		92	89	70
	Excellent	Satisfactory		Excellent	Very Good	Good
2014	92	60		85	60	78
	Excellent	Good		Very Good	Good	Very Good
2015	95	49	N/A	87	70	89
	Excellent	Satisfactory		Very Good	Good	Very Good

	Manage the Nuclear Weapons Mission Goal 1	Reduce Global Security Threats/ Broader National Security Goal 2	Strategic Partnership Project Goal 3[a]	Science, Tech, & Engineering Goal 4	Operations & Infrastructure Goal 5	Leadership Goal 6
2016	94	82	N/A	89	75	91
	Excellent	Very Good		Very Good	Good	Excellent

Source: GAO analysis of Department of Energy data | GAO-19-5

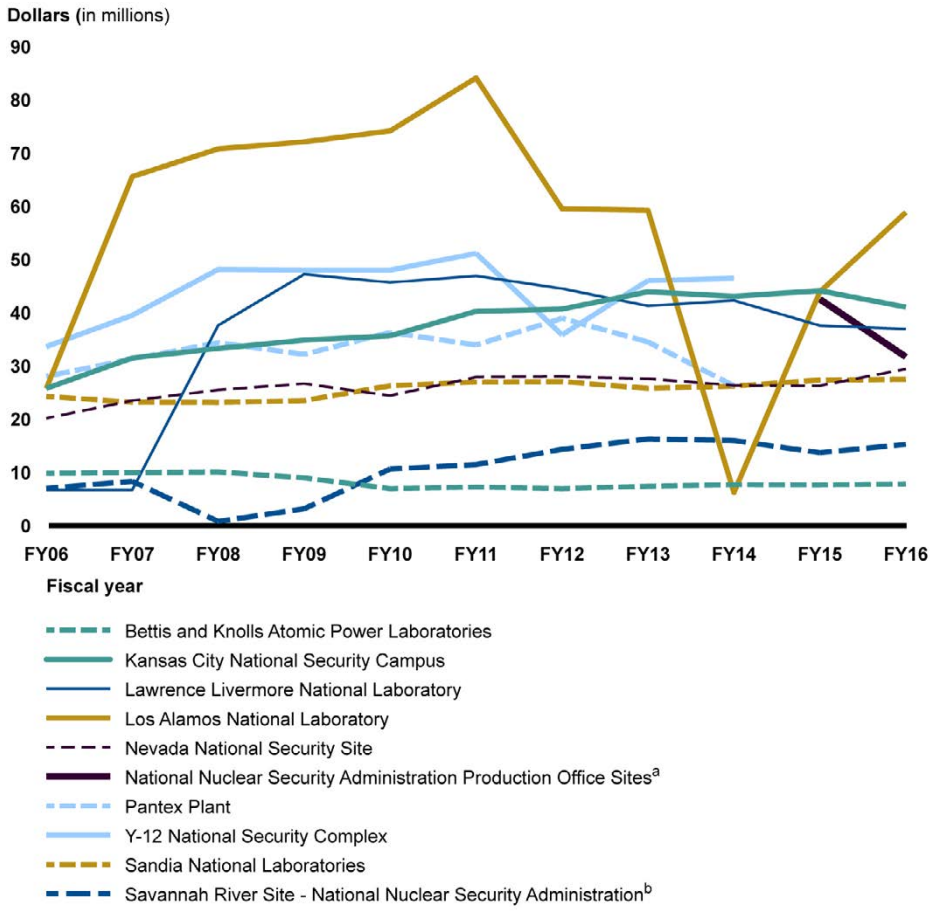
[a]NNSA began using Goal 3 in fiscal year 2015. Goal 3 is not applicable to the Savannah River Site – NNSA performance evaluation.

[b]Formerly known as the Kansas City Plant

[c]Two sites with separate contracts—the Y-12 National Security Complex in Tennessee and Pantex Plant in Texas—were combined into the NNSA Production Office Sites contract for fiscal years 2015 and 2016.

Figure 10 shows the annual total fee (both award fee and fixed fee) provided to NNSA M&O contractors for fiscal years 2006 through 2016 by contract rating site.

Figure 10: Annual Fee Earned by the National Nuclear Security Administration's Management and Operating Contractors, Fiscal Years 2006 through 2016



Source: GAO analysis of Department of Energy data. | GAO-19-5

Note: Amounts are presented in nominal dollars

[a]Two sites with separate contracts—the Y-12 National Security Complex in Tennessee and Pantex Plant in Texas—were combined into the National Nuclear Security Administration Production Office Sites contract for fiscal years 2015 and 2016.

[b]While the Savannah River Site M&O contract is an Office of Environmental Management contract, the National Nuclear Security Administration evaluates performance for its activities at the site separately.

Table 26 provides the percentage of available award and incentive fees provided to M&O contractors for fiscal years 2006 through 2016 by contract rating site.

Table 26: Percentages of Available Award and Incentive Fees Earned by the National Nuclear Security Administration's (NNSA) Management and Operating Contractors Each Fiscal Year, 2006 through 2016

All numbers are percentages

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
KCNSC[a]	76	95	95	95	95	96	96	94	96	94	92
LLNL	92	92	54	79	86	88	80	79	87	89	86
LANL	Fixed[b]	71	81	84	81	83	68	82	45	74	85
NNSS	76	84	95	93	88	96	92	90	83	88	92
NPO[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	57	77
PTX[c]	92	92	94	95	96	96	91	88	90	N/A	N/A
Y-12[c]	71	82	89	92	91	92	57	57	78	N/A	N/A
SNL	87	91	78	82	86	85	93	90	81	85	91
SRS-NNSA	100	99	Fixed[b]	94	92	92	69	68	76	74	84

Legend
Contract Rating Site Names
KCNSC: Kansas City National Security Campus
LLNL: Lawrence Livermore National Laboratory
LANL: Los Alamos National Laboratory
NNSS: Nevada National Security Site
NPO: NNSA Production Office Sites
PTX: Pantex Plant
Y-12:Y-12 National Security Complex
SNL: Sandia National Laboratories
SRS-NNSA: Savannah River Site - National Nuclear Security Administration

Source: GAO analysis of Department of Energy data. | GAO-19-5

[a]Formerly known as the Kansas City Plant

[b]Contract did not have award fee this fiscal year; because it was a contract transition year, only a fixed fee was provided.

[c]Two sites with separate contracts—the Y-12 National Security Complex in Tennessee and Pantex Plant in Texas—were combined into the NNSA Production Office Sites contract for fiscal years 2015 and 2016.

Appendix VII: Additional Information on the Office of Nuclear Energy's Performance Evaluations

The Office of Nuclear Energy's (NE) primary mission is to advance nuclear power as a resource capable of making major contributions in meeting U.S. energy supply, environmental, and energy security needs. NE administers its management and operating (M&O) contract at the Idaho National Laboratory (INL), in Idaho Falls, Idaho. As we describe in our report, NE follows a Science and Energy Lab approach to evaluate its M&O contractor that uses broad, office-wide performance criteria that are mostly subjective. Table 27 provides the full list of the goals and objectives NE used to evaluate its M&O contractor performance in fiscal year 2016. For the most part, these performance criteria have remained unchanged from fiscal year 2007 through fiscal year 2016.

Table 27: List of Goals and Objectives for Evaluating the Performance of the Office of Nuclear Energy's Management and Operating Contractor for Fiscal Year 2016

Goals	Objectives
1. Efficient and Effective Mission Accomplishment	1.1 Nuclear Energy
	1.2 National & Homeland Security
	1.3 Science and Technology Addressing Broad Department of Energy Missions
	1.4 Collaborations
2. Efficient and Effective Stewardship and Operations of Research Facilities	2.1 Provide effective facility design(s) as required to support laboratory programs
	2.2 Provide for the effective and efficient construction of facilities and/or fabrication of components
	2.3 Operation and Maintenance of Facilities
	2.4 Utilization of facility(ies) to provide impactful S&T results and benefits to internal and external user communities
3. Sound and Competent Leadership and Stewardship of the Laboratory	3.1 Leadership and Stewardship of the Laboratory
	3.2 Management and operation of the laboratory
	3.3 Contractor value-added
4. Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health and Environmental Protection	4.1 Provide an Efficient and Effective Worker Health and Safety Program
	4.2 Provide Efficient and Effective Environmental Management System
5. Deliver Efficient, Effective, and Responsive Business Systems and Resources that Enable Successful Achievement of the Laboratory Mission(s)	5.1 Provide an Efficient, Effective, and Responsive Financial Management System
	5.2 Provide an Efficient, Effective, and Responsive Acquisition Management System and Property Management System
	5.3 Provide an Efficient, Effective, and Responsive Human Resources Management System and Diversity Program
	5.4 Provide Efficient, Effective, and Responsive Contractor Assurance Systems, including Internal Audit and Quality

Goals	Objectives
	5.5 Provide Efficient, Effective, and Responsive Information Management System
6. Sustain Excellence in Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio to Meet Laboratory Needs	6.1 Manage Facilities and Infrastructure in an Efficient and Effective Manner that Optimizes Usage, Addresses Sustainability Goals, Minimizes Life Cycle Costs, and Ensures Site Capability to Meet Mission Needs
	6.2 Provide Planning for and Acquire the Facilities and Infrastructure Required to Support the Continuation and Growth of Laboratory Missions and Programs
7. Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management and Emergency Management Systems	7.1 Provide an Efficient and Effective Emergency Management System
	7.2 Provide an Efficient and Effective Cyber Security System for the Protection of Classified and Unclassified Information
	7.3 Provide an Efficient and Effective Physical Security Program for the Protection of Special Nuclear Materials, Classified Matter, Classified Information, Sensitive Information, and Property

Source: Office of Nuclear Energy's Fiscal Year 2016 Performance Evaluation Management Plans. | GAO-19-5

As discussed above, NE uses detailed methodologies to determine ratings and incentives. To illustrate the detailed formulas and calculations involved, Figure 11 provides an excerpt from a fee determination letter as an example of how ratings and fees are calculated.

Figure 11: Example of the Office of Nuclear Energy's Rating and Fee Determination Methodologies—Excerpt from the Idaho National Laboratory (INL) Fiscal Year 2016 Fee Determination Letter

FY16 INL Performance Evaluation and Measurement Plan - Final Grade

GOAL 1.0 Efficient and Effective Mission Accomplishment					
Objectives		Letter Grade Earned	Numeric Score from Table B	Weight	Weighted Score
1.1	Nuclear Energy	A	3.9	55%	2.145
1.2	National and Homeland Security	A	3.9	25%	0.975
1.3	Science and Technology Addressing Broad DOE Missions	A	3.9	10%	0.39
1.4	Collaborations	A	3.9	10%	0.39
				Total Score for GOAL 1.0	3.9

GOAL 2.0 Efficient and Effective Stewardship and Operation of Research Facilities					
Objectives		Letter Grade Earned	Numeric Score from Table B	Weight	Weighted Score
2.1	Provide Effective Facility Design(s) as Required to Support Laboratory Programs	A	3.9	5%	0.195
2.2	Provide for the Effective and Efficient Construction of Facilities and/or Fabrication of Components	A-	3.6	10%	0.36
2.3	Operation and Maintenance of Facilities	A-	3.6	55%	1.98
2.4	Utilization of Facility(ies) to Provide Impactful S&T Results and Benefits to Internal and External User Communities	A-	3.6	30%	1.08
				Total Score for GOAL 2.0	3.615

GOAL 3.0 Sound and Competent Leadership and Stewardship of the Laboratory					
Objectives		Letter Grade Earned	Numeric Score from Table B	Weight	Weighted Score
3.1	Leadership and Stewardship of the Laboratory	A	3.9	40%	1.56
3.2	Management and Operation of the Laboratory	A-	3.6	40%	1.44
3.3	Contractor Value-added	A-	3.6	20%	0.72
				Total Score for GOAL 3.0	3.72

GOAL 4.0 Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health and Environmental Protection					
Objectives		Letter Grade Earned	Numeric Score from Table B	Weight	Weighted Score
4.1	Provide an Efficient and Effective Worker Health and Safety Program	B+	3.3	60%	1.98
4.2	Provide Efficient and Effective Environmental Management System	B+	3.3	40%	1.32
				Total Score for GOAL 4.0	3.3

Source: Department of Energy's Office of Nuclear Energy's Fiscal Year 2016 Performance Evaluation and Fee Determination Letter. | GAO-19-5

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GOAL 5.0 Deliver Efficient, Effective, and Responsive Business Systems and Resources that Enable the Successful Achievement of the Laboratory Mission(s)					
Objectives		Letter Grade Earned	Numeric Score from Table B	Weight	Weighted Score
5.1	Provide an Efficient, Effective, and Responsive Financial Management System	A	3.9	20%	0.78
5.2	Provide an Efficient, Effective, and Responsive Acquisition Management System and Property Management System	A	3.9	20%	0.78
5.3	Provide an Efficient, Effective, and Responsive Human Resources Management System and Diversity Program	A-	3.6	20%	0.72
5.4	Provide Efficient, Effective, and Responsive Contractor Assurance Systems, including Internal Audit and Quality	A-	3.6	20%	0.72
5.5	Provide Efficient, Effective, and Responsive Information Management System	A	3.9	20%	0.78
				Total Score for GOAL 5.0	3.78

GOAL 6.0 Sustain Excellence in Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio to Meet Laboratory Needs					
Objectives		Letter Grade Earned	Numeric Score from Table B	Weight	Weighted Score
6.1	Manage Facilities and Infrastructure in an Efficient and Effective Manner that Optimizes Usage, Addresses Sustainability Goals, Minimizes Life Cycle Costs, and Ensures Site Capability to Meet Mission Needs	A-	3.6	60%	2.16
6.2	Provide Planning for and Acquire the Facilities and Infrastructure Required to Support the Continuation and Growth of Laboratory Missions and Programs	A-	3.6	40%	1.44
				Total Score for GOAL 6.0	3.6

GOAL 7.0 Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management (ISSM) and Emergency Management Systems					
Objectives		Letter Grade Earned	Numeric Score from Table B	Weight	Weighted Score
7.1	Provide an Efficient and Effective Emergency Management System	A-	3.6	15%	0.54
7.2	Provide an Efficient and Effective Cyber Security System for the Protection of Classified and Unclassified InformationAcquisition Management System and Property Management System	A	3.9	35%	1.365
7.3	Provide an Efficient and Effective Physical Security Program for the Protection of Special Nuclear Materials, Classified Matter, Classified Information, Sensitive Information, and Property	A	3.9	50%	1.95
				Total Score for GOAL 7.0	3.855

Source: Department of Energy's Office of Nuclear Energy's Fiscal Year 2016 Performance Evaluation and Fee Determination Letter. | GAO-19-5

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Table C. Performance Goal Calculations				
Performance Goals		Total Numeric Score (rounded to nearest hundredth)	Weight	Weighted Score
1.0	Efficient and Effective Mission Accomplishment	3.90	70%	2.7
2.0	Efficient and Effective Stewardship and Operation of Research Facilities	3.62	15%	0.5
3.0	Sound and Competent Leadership and Stewardship of the Laboratory	3.72	15%	0.6
	Total Weighted Score (1.0, 2.0, 3.0)			**3.8**
4.0	Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health and Environmental Protection	3.30	30%	1.0
5.0	Deliver Efficient, Effective, and Responsive Business Systems and Resources that Enable the Successful Achievement of the Laboratory Mission(s)	3.78	25%	0.9
6.0	Sustain Excellence in Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio to Meet Laboratory Needs	3.60	20%	0.7
7.0	Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management (ISSM) and Emergency Management Systems	3.86	25%	1.0
	Total Weighted Score (4.0, 5.0, 6.0, 7.0)			**3.6**

Table E. Overall Fee Earned and Final Grade Determination	
Total Weighted Score (Goals 1.0, 2.0, 3.0) from Table C	3.8
Fee Percentage (Goals 1.0, 2.0, 3.0) from Table B	97%
Fee Multiplier (Goal 4.0) from Table D	x 100%
Overall Earned Performance-Based Fee %	97%
Overall Earned Performance-Based Fee $ (overall earned fee % x total available fee pool of $16.0M)	**$15,520,000**
Final Letter Grade (Table B. General Letter Grade, Adjectival Rating, Numeric Range, Definition, and Award-Fee Pool Available To Be Earned)	A
Final FAR 16 Adjectival Rating (Table A. FAR 61-1 Contractor Adjectival Rating and Award-Fee Available Scale)	Excellent

Source: Department of Energy's Office of Nuclear Energy's Fiscal Year 2016 Performance Evaluation and Fee Determination Letter. | GAO-19-5 Part 3 of 3

Table 28 shows the performance incentives that NE included in its M&O contract.

Table 28: Performance Incentives Available to the Office of Nuclear Energy's Management and Operating Contractor for Fiscal Years 2006 through 2016

Contract rating site	Award fee	Fixed fee	Total available fee as percentage of total contract spending	Award term available
Idaho National Laboratory	YES	NO	2.1	NO

Source: GAO analysis of Department of Energy data. | GAO-19-5

Table 29 shows the rating scores the contractor earned for Mission and Operations goals.

Table 29: Mission and Operations Rating Scores by Contract Rating Site, Fiscal Years 2007 - 2016

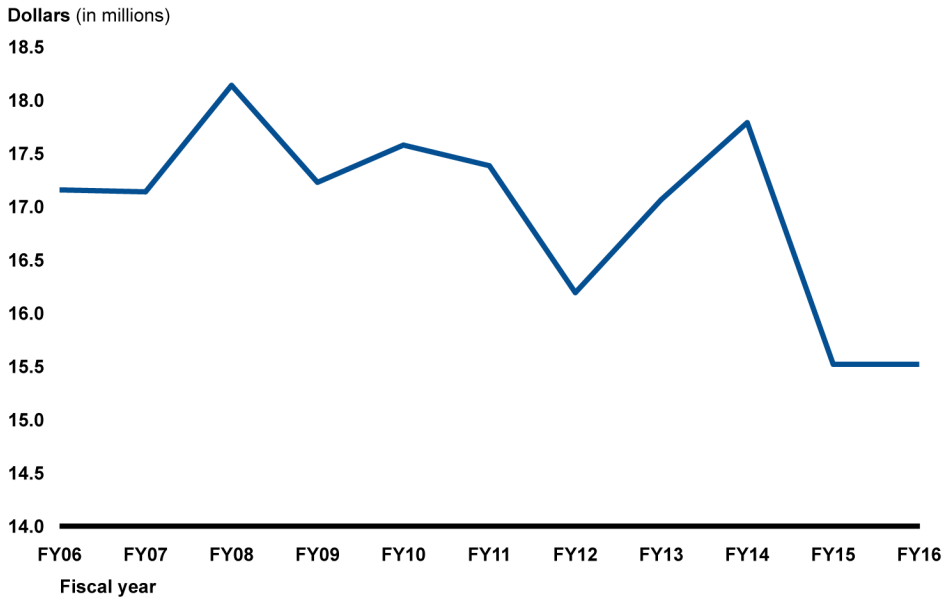
Contract rating site		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	**Average**
Idaho National Laboratory	Mission	4.0 (A)	3.83 (A)	3.69 (A-)	N/A	N/A	N/A	N/A	3.8 (A)	3.81 (A)	3.8 (A)	**3.8 (A)**
	Operations	3.3 (B+)	3.79 (A-)	3.22 (B+)	N/A	N/A	N/A	N/A	3.4 (B+)	3.66 (A-)	3.6 (A-)	**3.5 (A-)**

Source: GAO analysis of Department of Energy data. | GAO-19-5

Note: Comparable Mission and Operations level scores were not available for fiscal years 2006 and 2010 through 2013.

Figure 12 shows the annual total fee (both award fee and fixed fee) provided to NE's M&O contractor for fiscal years 2006 through 2016.

Figure 12: Annual Fee Earned by the Office of Nuclear Energy's Idaho National Laboratory Management and Operating Contractor Fiscal Years 2006 through 2016



Source: GAO analysis of Department of Energy data. | GAO-19-5

Table 30 provides the percentage of available award and incentive fees provided to M&O contractor for fiscal years 2006 through 2016.

Table 30: Percentages of Available Award and Incentive Fees Earned by the Office of Nuclear Energy's Management and Operating Contractor Each Fiscal Year, 2006 through 2016

Contract rating site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Idaho National Laboratory	92	97	97	94	94	94	91	93	97	97	97

Source: GAO analysis of Department of Energy data. | GAO-19-5

Appendix VIII: Additional Information on the Office of Science's Performance Evaluations

The Office of Science (SC) supports scientific research for energy and the physical sciences both by directly supporting such research, for example, through grants to and cooperative agreements with universities, and by supporting the development, construction, and operation of scientific user facilities. SC administers management and operating (M&O) contracts at 10 national laboratory sites:

- Ames Laboratory in Ames, Iowa
- Argonne National Laboratory in Argonne, Illinois
- Brookhaven National Laboratory in Upton, New York
- Fermi National Accelerator Laboratory in Batavia, Illinois
- Lawrence Berkeley National Laboratory in Berkeley, California
- Oak Ridge National Laboratory, in Oak Ridge, Tennessee
- Pacific Northwest National Laboratory in Richland, Washington
- Princeton Plasma Physics Laboratory in Princeton, New Jersey
- SLAC National Accelerator Laboratory in Stanford, California[1]
- Thomas Jefferson National Accelerator Facility in Newport News, Virginia

As we describe in our report, SC follows a Science and Energy Lab approach to evaluate its M&O contractors that uses broad, office-wide performance criteria that are mostly subjective. Table 31 provides the full list of the goals and objectives SC used to evaluate its M&O contractors' performance in fiscal year 2016. Generally, these performance criteria remained mostly unchanged from fiscal year 2006 through fiscal year 2016.

[1]"SLAC" is not an acronym.

Table 31: List of Goals and Objectives for Evaluating the Performance of the Office of Science's Management and Operating Contractors for Fiscal Year 2016

Goals	Objectives
1. Provide for Efficient and Effective Mission Accomplishment	1.1 Provide science and technology (S&T) results with meaningful impact on the field
	1.2 Provide quality leadership in S&T that advances community goals and DOE mission goals
2. Provide for Efficient and Effective Design, Construction and Operation of Research Facilities	2.1 Provide effective facility design(s) as required to support laboratory programs
	2.2 Provide for the effective and efficient construction of facilities and/or fabrication of components (execution phase, post CD-2 to CD-4)
	2.3 Provide efficient and effective operations of facilities
	2.4 Utilization of facility(ies) to provide impactful S&T results and benefits to external user communities
3. Provide for Efficient and Effective Science and Technology Project/Program Management	3.1 Provide effective and efficient strategic planning and stewardship of scientific capabilities and program vision
	3.2 Provide effective and efficient S&T project/program/facilities management
	3.3 Provide efficient and effective communications and responsiveness to headquarters needs
4. Provide Sound and Competent Leadership and Stewardship of the Laboratory	4.1 Leadership and stewardship of the laboratory
	4.2 Management and operation of the laboratory
	4.3 Contractor Value-added
5. Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health, and Environmental Protection	5.1 Provide an efficient and effective worker health and safety program
	5.2 Provide efficient and effective environmental management system
6. Deliver Efficient, Effective, and Responsive Business Systems and Resources that Enable the Successful Achievement of the Laboratory Mission	6.1 Provide an efficient, effective, and responsive financial management system
	6.2 Provide an efficient, effective, and responsive acquisition management system and property management system
	6.3 Provide an efficient, effective, and responsive human resources management system and diversity program
	6.4 Provide efficient, effective, and responsive contractor assurance systems, including internal audit and quality
	6.5 Demonstrate effective transfer of knowledge and technology and the commercialization of intellectual assets
7. Sustain Excellence in Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio to Meet Laboratory Needs	7.1 Manage facilities and infrastructure in an efficient and effective manner that optimizes usage, minimizes life cycle costs, and ensures site capability to meet mission needs
	7.2 Provide planning for and acquire the facilities and infrastructure required to support the continuation and growth of laboratory missions and programs
8. Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management (ISSM) and Emergency	8.1 Provide an efficient and effective emergency management system
	8.2 Provide an efficient and effective cyber security system for the protection of classified and unclassified information

Goals	Objectives
Management Systems	8.3 Provide an efficient and effective physical security program for the protection of special nuclear materials, classified matter, classified information, sensitive information, and property

Source: Office of Science's Fiscal Year 2016 Performance Evaluation and Management Plans. | GAO-19-5

As discussed above, SC uses detailed methodologies to determine ratings and incentives. To illustrate the detailed formulas and calculations involved, Figure 13 provides excerpts from a performance evaluation report as an example of how ratings and fees are calculated.

Figure 13: Example of the Office of Science's Rating and Fee Determination Methodologies—Excerpts from Brookhaven National Laboratory's Fiscal Year 2016 Performance Evaluation Report

Calculating Individual Goal Scores and Letter Grades:

Each Objective is assigned the earned numerical score by the evaluating office. The Goal rating is then computed by multiplying the numerical score by the weight of each Objective within a Goal. These values are then added together to develop an overall numerical score for each Goal. For the purpose of determining the final Goal grade, the raw numerical score for each Goal will be rounded to the nearest tenth of a point using the standard rounding convention discussed below and then compared to Figure 1. A set of tables is provided at the end of each Performance Goal section of this document to assist in the calculation of Objective numerical scores to the Goal grade. No overall rollup grade shall be provided. The raw numerical score for Science and Technology (S&T) and Management and Operations (M&O) will be rounded to the nearest tenth of a point for purposes of determining fee. A standard rounding convention of x.44 and less rounds down to the nearest tenth (here, x.4), while x.45 and greater rounds up to the nearest tenth (here, x.5).

Score	0-0.7	0.8-1.0	1.1-1.7	1.8-2.0	2.1-2.4	2.5-2.7	2.8-3.0	3.1-3.4	3.5-3.7	3.8-4.0	4.1-4.3
Grade	F	D	C-	C	C+	B-	B	B+	A-	A	A+

Figure 1. FY 2016 Contractor Letter Grade Scale

The eight performance Goal grades shall be used to create a report card for the laboratory (see Figure 2, below).

Performance Goal	Grade
1.0 Mission Accomplishment	B+
2.0 Design, Fabrication, Construction and Operations of Research Facilities	B+
3.0 S&T Program Management	B+
4.0 Leadership/Stewardship	A
5.0 ES&H	B+
6.0 Business Systems	A-
7.0 Infrastructure	A
8.0 Safeguards/Security	B+

Figure 2. Laboratory Report Card

Source: Department of Energy's Brookhaven National Laboratory's Fiscal Year 2016 Performance Evaluation Report. | GAO-19-5

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Determining the Amount of Performance-Based Fee Earned:
The Office of Science (SC) uses the following process to determine the amount of performance-based fee earned by the Contractor. The S&T score from each evaluator shall be used to determine an initial numerical score for S&T (see Table A, below),and the rollup of the scores for each M&O Performance Goal shall be used to determine an initial numerical M&O score (see Table B, below).

S&T Performance Goal	Numerical Score	Weight	Total Score
Goal 1.0 Mission Accomplishment	3.4	19.00%	
Goal 2.0 Design, Fabrication, Construction and Operations of Research Facilities	3.3	56.00%	
Goal 3.0 S&T Program Management	3.4	25.00%	
		Initial S&T Score	3.4

Table A. Fiscal Year Contractor Evaluation Initial S&T Score Calculation

For Goals 1.0 and 2.0, the weights are based on fiscal year costs for each program distributed between Goals 1.0 and 2.0. For Goal 3.0, the weight is set as a fixed percentage of 25% for all laboratories.

M&O Performance Goal	Numerical Score	Weight	
5.0 ES&H	3.2	30.0%	
6.0 Business Systems	3.5	30.0%	
7.0 Infrastructure	3.8	30.0%	
8.0 Safeguards/Security	3.3	10.0%	
		Initial M&O Score	3.5

Table B. Fiscal Year Contractor Evaluation Initial M&O Score Calculation

While tables within this report show scores rounded at the Goal level, in calculating the S&T and M&O scores all decimal places are carried over until the final calculation.

These initial scores will then be adjusted based on the numerical score for Performance Goal 4.0 (See Table C, below).

	Numerical Score	Weight	
Initial S&T Score	3.4	75%	
Goal 4.0 Leadership/Stewardship	3.8	25%	
		Final S&T Score	3.5
Initial M&O Score	3.5	75%	
Goal 4.0 Leadership/Stewardship	3.8	25%	
		Final M&O Score	3.6

Table C. Fiscal Year Final S&T and M&O Score Calculation

Source: Department of Energy's Brookhaven National Laboratory's Fiscal Year 2016 Performance Evaluation Report. | GAO-19-5 Part 2 of 3

The percentage of the available performance-based fee that may be earned by the Contractor shall be determined based on the final score for S&T (See Table C) and then compared to Figure 3, below. The final score for M&O from Table C shall then be utilized to determine the final fee multiplier (see Figure 3) which will determine the final percentage of fee earned (see Table D). The actual amount of performance-based fee earned for FY 2016 is then calculated as shown in Table E.

Overall Weighted Score from Table C	Percent S&T Fee Earned	M&O Fee Multiplier
4.1 to 4.3	100.00%	100.00%
3.8 to 4.0	97.00%	100.00%
3.5 to 3.7	94.00%	100.00%
3.1 to 3.4	91.00%	100.00%
2.8 to 3.0	88.00%	95.00%
2.5 to 2.7	85.00%	90.00%
2.1 to 2.4	75.00%	85.00%
1.8 to 2.0	50.00%	75.00%
1.1 to 1.7	0.00%	60.00%
0.8 to 1.0	0.00%	0.00%
0.0 to 0.7	0.00%	0.00%

Figure 3. Performance Based Fee Earned Scale

Overall Fee Determination	
Percent S&T Fee Earned From Figure 3.	**94.00%**
M&O Fee Multiplier From Figure 3.	**X 100.00%**
Overall Earned Performance-Based Fee	**94.00%**

Table D. Final Percentage of Performance Based Fee Earned Determination

Earned Fee Calculation	
Available Fee	**$6,900,000**
Overall Earned Performance - Based Fee (Table D)	**X 94.00%**
Earned Fee	**$6,486,000**

Table E. Earned Fee Calculation

Source: Department of Energy's Brookhaven National Laboratory's Fiscal Year 2016 Performance Evaluation Report. | GAO-19-5 Part 3 of 3

The following tables and figure provide details on the incentives available to and earned by SC's M&O contractors from fiscal year 2006 through 2016. Table 32 shows the performance incentives that SC included in its M&O contracts. We use the term "contract rating sites" rather than individual contractors or physical sites, because the individual contractors and how certain sites align with the contracts may have changed over time.

Table 32: Performance Incentives Available to the Office of Science's Management and Operating Contractors by Contract Rating Site for Fiscal Years 2006 through 2016

Contract rating site	Award fee	Fixed fee	Total available fee as percentage of total contract spending (percent)	Award term available
Ames Laboratory	YES	YES	2.1	YES (2007 -2016)
Argonne National Laboratory	YES	NO	0.8	YES (2007 -2016)
Brookhaven National Laboratory	YES	NO	1.2	YES (2015-2016)
Fermi National Accelerator Laboratory	YES	NO	0.9	YES (2007-2016)
Lawrence Berkley National Laboratory	YES	NO	0.7	YES (2006-2016)
Oak Ridge National Laboratory	YES	NO	0.8	NO
Pacific Northwest National Laboratory	YES	NO	1.2	NO
Princeton Plasma Physics Laboratory	YES	NO	1.6	YES (2009-2013)
SLAC National Accelerator Laboratory	YES	NO	1.2	NO
Thomas Jefferson National Accelerator Facility	YES	NO	2.1	YES (2006- 2016)

Source: GAO analysis of Department of Energy data. | GAO-19-5

Table 33 shows the rating scores the contractor earned for the Science and Technology goals and Maintenance and Operations goals, by contract rating site.

Table 33: Science & Technology (S&T) and Management & Operations (M&O) Rating Scores by Contract Rating Site, Fiscal Years 2006 - 2016

Contract rating site		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average
Ames Laboratory	S&T	3.1 (B+)	3.2 (B+)	3.5 (A-)	3.5 (A-)	3.5 (A-)	3.5 (A-)	3.5 (A-)	3.5 (A-)	3.5 (A-)	3.5 (A-)	3.5 (A-)	3.4 (B+)
	M&O	3.2 (B+)	3.5 (A-)	3.5 (A-)	3.4 (B+)	3.4 (B+)	3.3 (B+)	3.4 (B+)	3.4 (B+)	3.3 (B+)	3.4 (B+)	3.4 (B+)	3.4 (B+)
Argonne National Laboratory	S&T	3.7 (A-)	3.7 (A-)	3.6 (A-)	3.6 (A-)	3.7 (A-)	3.6 (A-)	3.6 (A-)	3.5 (A-)	3.6 (A-)	3.6 (A-)	3.5 (A-)	3.6 (A-)
	M&O	3.4 (B+)	3.1 (B+)	3.3 (B+)	3.2 (B+)	3.2 (B+)	3.4 (B+)	3.6 (A-)	3.2 (B+)	3.3 (B+)	3.4 (B+)	3.4 (B+)	3.3 (B+)
Brookhaven National	S&T	3.7 (A-)	3.6 (A-)	3.8 (A)	3.4 (B+)	3.6 (A-)	3.3 (B+)	3.3 (B+)	3.4 (B+)	3.5 (A-)	3.6 (A-)	3.5 (A-)	3.5 (A-)

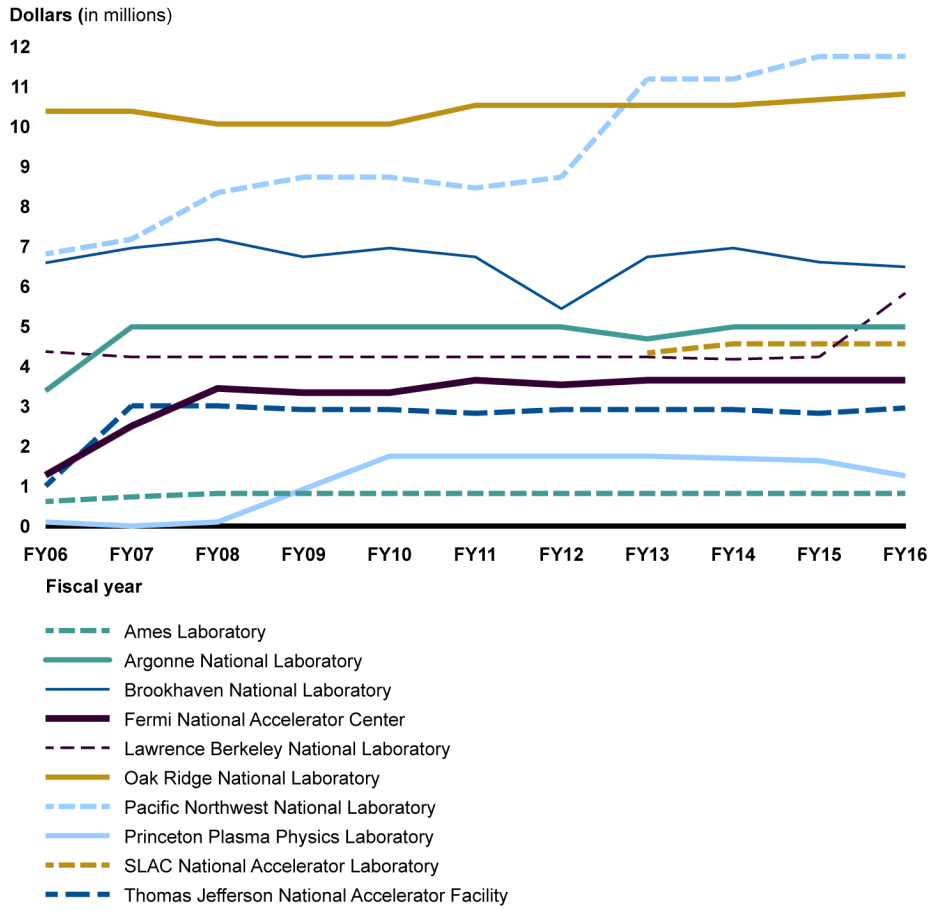
Contract rating site		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average
Laboratory	M&O	2.8	3.3	3.3	3.4	3.5	3.1	2.8	3.3	3.3	3.5	3.6	3.3
		(B)	(B+)	(B+)	(B+)	(A-)	(B+)	(B)	(B+)	(B+)	(A-)	(A-)	(B+)
Fermi National Accelerator Laboratory	S&T	3.6	3.7	3.8	3.6	3.6	3.5	3.3	3.5	3.5	3.6	3.6	3.6
		(A-)	(A-)	(A)	(A-)	(A-)	(A-)	(B+)	(A-)	(A-)	(A-)	(A-)	(A-)
	M&O	3.5	3.4	3.5	3.4	3.4	3.4	3.3	3.5	3.4	3.6	3.5	3.4
		(A-)	(B+)	(A-)	(B+)	(B+)	(B+)	(B+)	(A-)	(B+)	(A-)	(A-)	(B+)
Lawrence Berkley National Laboratory	S&T	3.9	3.6	3.7	3.6	3.5	3.6	3.6	3.6	3.5	3.5	3.5	3.6
		(A)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)
	M&O	3.8	3.5	3.2	3.3	3.4	3.4	3.4	3.3	3.1	3.3	3.2	3.4
		(A)	(A-)	(B+)	(B+)	(B+)	(B+)	(B+)	(B+)	(B+)	(B+)	(B+)	(B+)
Oak Ridge National Laboratory	S&T	3.8	3.8	3.7	3.6	3.5	3.6	3.6	3.6	3.5	3.7	3.7	3.6
		(A)	(A)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)
	M&O	3.4	3.6	3.6	3.6	3.5	3.6	3.5	3.4	3.2	3.6	3.5	3.5
		(B+)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)	(B+)	(B+)	(A-)	(A-)	(A-)
Pacific Northwest National Laboratory	S&T	3.99	3.9	4.0	3.8	3.8	3.7	3.8	3.6	3.6	3.7	3.7	3.8
		(A)	(A)	(A)	(A)	(A)	(A-)	(A)	(A-)	(A-)	(A-)	(A-)	(A)
	M&O	2.68	2.8	3.1	3.2	3.3	3.6	3.5	3.5	3.4	3.4	3.5	3.3
		(B-)	(B)	(B+)	(B+)	(B+)	(A-)	(A-)	(A-)	(B+)	(B+)	(A-)	(B+)
Princeton Plasma Physics Laboratory	S&T	3.8	3.0	N/A	3.6	3.5	3.5	3.6	3.6	3.3	3.0	2.1	3.3
		(A)	(B)		(A-)	(A-)	(A-)	(A-)	(A-)	(B+)	(B)	(C+)	(B+)
	M&O	3.6	3.1	N/A	3.5	3.4	3.4	3.2	3.3	3.2	3.2	2.6	3.3
		(A-)	(B+)		(A-)	(B+)	(B+)	(B+)	(B+)	(B+)	(B+)	(B-)	(B+)
SLAC National Accelerator Laboratory	S&T	3.4	3.1	3.6	3.6	3.8	3.8	3.7	3.6	3.6	3.6	3.5	3.6
		(B+)	(B+)	(A-)	(A-)	(A)	(A)	(A-)	(A-)	(A-)	(A-)	(A-)	(A-)
	M&O	2.6	2.6	3.1	3.2	3.5	3.5	3.4	3.0	3.3	3.5	3.5	3.2
		(B-)	(B-)	(B+)	(B+)	(A-)	(A-)	(B+)	(B)	(B+)	(A-)	(A-)	(B+)
Thomas Jefferson National Accelerator Facility	S&T	3.87	3.82	3.9	3.6	3.5	3.4	3.6	3.5	3.5	3.4	3.6	3.6
		(A)	(A)	(A)	(A-)	(A-)	(B+)	(A-)	(A-)	(A-)	(B+)	(A-)	(A-)
	M&O	3.58	3.59	3.5	3.3	3.4	3.2	3.3	3.3	3.4	3.2	3.5	3.4
		(A-)	(A-)	(A-)	(B+)	(B+)	(B+)	(B+)	(B+)	(B+)	(B+)	(A-)	(B+)

Source: GAO analysis of Department of Energy data. | GAO-19-5

Note: S&T and M&O scores, while used for performance fee and award term determinations, are not included in the public report card. According to officials, SC posts the eight goal letter grades to reflect the differences in performance annually in each of the eight performance goals.

Figure 14 shows the annual total fee (both award fee and fixed fee) SC M&O contractors earned for fiscal years 2006 through 2016 by contract rating site.

Figure 14: Annual Fee Earned by the Office of Science's Management and Operating Contractors, Fiscal Years 2006 through 2016



Source: GAO analysis of Department of Energy data. | GAO-19-5

Note: The SLAC National Accelerator Laboratory did not have award fee until fiscal year 2013. From fiscal year 2006 through fiscal year 2008, Princeton Plasma Physics Laboratory had an all-or-nothing $100,000 award fee.

Table 34 provides the percentage of available award and incentive fees SC's M&O contractors earned for fiscal years 2006 through 2016 by contract rating site.

Table 34: Percentages of Available Award and Incentive Fees Earned by the Office of Science's (SC) Management and Operating Contractors Each Fiscal Year, 2006 through 2016

All numbers are percentages

Contract rating site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ames Laboratory	91	91	94	94	94	94	94	94	94	94	94
Argonne National Laboratory	94	94	94	94	94	94	94	94	94	94	94
Brookhaven National Laboratory	89	94	97	91	94	91	86	91	94	94	94
Fermi National Accelerator Laboratory	94	94	97	94	94	94	91	94	94	94	94
Lawrence Berkley National Laboratory	97	94	94	94	94	94	94	94	94	94	94
Oak Ridge National Laboratory	97	97	94	94	94	94	94	94	94	94	94
Pacific Northwest National Laboratory	87	92	97	97	97	94	97	94	94	94	94
Princeton Plasma Physics Laboratory	100[b]	0[b]	100[b]	94	94	94	94	94	91	88	68
SLAC National Accelerator Laboratory[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	89	94	94	94
Thomas Jefferson National Accelerator Facility	97	97	97	94	94	91	94	94	94	91	94

Source: GAO analysis of Department of Energy data. | GAO-19-5

Note: During interviews with us, SC noted that its award fee structure is designed (1) for laboratories to earn most of their award fee (>90%) by meeting expectations in both S&T and M&O performance areas, and (2) the maximum available fee is a relatively small percentage of the laboratory operating costs, as shown in Table 35.

[a]The SLAC National Accelerator Laboratory did not have award fee until fiscal year 2013.

[b]From fiscal year 2006 through fiscal year 2008, Princeton Plasma Physics Laboratory had an all-or-nothing $100,000 award fee.

Table 35: Available Award Fee as Percentage of Laboratory Operating Costs, Fiscal Year 2016

Contract rating site	Available award fee as percentage of operating costs
Ames Laboratory	1.6[a]
Argonne National Laboratory	0.7
Brookhaven National Laboratory	1.2
Fermi National Accelerator Laboratory	0.9
Lawrence Berkley National Laboratory	0.8
Oak Ridge National Laboratory	0.9
Pacific Northwest National Laboratory	1.5
Princeton Plasma Physics Laboratory	2.0
SLAC National Accelerator Laboratory	1.0
Thomas Jefferson National Accelerator Facility	1.7

Source: GAO analysis of Department of Energy data. | GAO-19-5

[a]Includes a $500,000 base fee that was 60 percent of the available fee.

Under the award term incentive, some SC M&O contractors are able to earn one additional year of performance under the contract for each year they exceed certain thresholds in their annual performance evaluations. Table 36 shows award term results for fiscal years 2006 through 2016 by contract rating site.

Table 36: Award Terms Earned by the Office of Science's (SC) Management and Operating Contractors, Fiscal Years 2006 through 2016

Contract rating site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ames Laboratory	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Argonne National Laboratory	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Brookhaven National Laboratory	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	Y
Fermi National Accelerator Laboratory	N/A	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Lawrence Berkley National Laboratory	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Princeton Plasma Physics Laboratory	N/A	N/A	N/A	Y	Y	Y	Y	Y	N/A	N/A	N/A

Thomas Jefferson National Accelerator Facility	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y

Legend

Y (Yes): Awarded 1 year of additional contract term for performance

N (No): Award term available, but not earned

N/A: Award term not available

Source: GAO analysis of Department of Energy data. | GAO-19-5

Appendix IX: Comments from the Department of Energy

Department of Energy
Washington, DC 20585

January 24, 2019

Ms. Allison Bawden
Director, Natural Resources and Environment
U. S. Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Ms. Bawden,

The U.S. Department of Energy (DOE) and the National Nuclear Security Administration (NNSA) appreciate the opportunity to comment on the Government Accountability Office's (GAO) draft report entitled, *Performance Evaluations Could Better Assess Management and Operating Contractor Costs (GAO-19-5, January 2019).* The attachment to this letter contains the consolidated comments of DOE and NNSA to the draft report and the seven recommendations.

If you have questions regarding this response, please contact Ms. MiMi Martin at (202)287-1929 or mimi.martin@hq.doe.gov.

Sincerely,

for John R. Bashista
Director, Office of Acquisition Management

Attachments
DOE Responses to Report Recommendation
DOE Technical and General Report Comments

Response to GAO-19-5 Report Recommendations

Recommendation 1: The Administrator for the National Nuclear Security Administration should develop and document clear procedures for implementing NAP-4C, specifying the process for collecting contractor performance information and describing how officials are to ensure this information can be traced to rating determinations.

Management Response: Concur.

The National Nuclear Security Administration (NNSA) has a strong, objective policy, and a descriptive process for evaluating contractor performance to achieve justifiable rating determinations. As noted in the Corporate Performance Evaluation Process description in the general comments provided to GAO, NNSA has developed a mature performance evaluation and incentive process that aligns mission priorities with contractor performance. NNSA concurs with the recommendation and will include additional details in the annual implementation guidance to summarize the process for collecting contractor performance information which will enhance rating traceability. Starting in FY 2020, NNSA annual implementation guidance will include the process for collecting contractor performance information and describe the way officials can use this information to trace the rating final determinations.

Estimated Completion Date: June 30, 2020.

Recommendation 2: The Assistant Secretary for the Office of Energy Efficiency and Renewable Energy should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance.

Management Response: Partially Concur.

The Office of Energy Efficiency and Renewable Energy (EERE) continues to have concerns that the final report gives the impression that DOE does not review the cost performance of the EERE national laboratory in an adequate manner by attempting to separate the review of technical performance, operational performance, and cost performance when these three often overlap. It also focuses on the annual performance reports and does not capture the cost performance reviews conducted in day-to-day contract oversight, the annual laboratory planning process, and contract extend/compete decisions.

Since cost performance reviews are conducted by DOE in their normal operations and at the year-end annual evaluation process, adequate information available to assess whether the contractor cost performance is acceptable to the Department. EERE will continue to look for ways to incorporate more information on cost performance in the annual year-end performance reports of the contractor of the EERE national laboratory.

Estimated Completion Date: EERE considers this recommendation closed.

Recommendation 3: The Assistant Secretary for Office of Environmental Management should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance.

***Management Response*:** Concur.

The Office of Environmental Management (EM) agrees with the GAO Recommendation #3. The requirement for quality information on cost performance will be included in EM's policy document, "Requirements for the Management of EM's Cleanup Program." Also, EM will re-publicize the expectations and guidance for Performance Evaluation and Measurement Plan (PEMP) development to emphasize that PEMPs comply with the requirements of the DOE Acquisition Guide chapter 16.405, "Award-Fee Plans and Performance Evaluation Plans." DOE Acquisition Guide chapter 16.405 requires the evaluation and control of costs along with the evaluation of schedule and technical performance.

Estimated Completion Date: June 30, 2019

Recommendation 4: The Assistant Secretary for the Office of Fossil Energy should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance.

Management Response: Concur.

On October 1, 2018, the Office of Fossil Energy revised its Performance Evaluation and Measurement Plan (PEMP), for the current Management and Operating contract to add a new PEMP measure that addresses monitoring cost growth, additional activities in internal audit, and data quality for Life Extension 2.

Estimated Completion Date: Based on actions already taken, FE considers this recommendation closed.

Recommendation 5: The Administrator for National Nuclear Security Administration should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance.

Management Response: Concur.

As noted in the general comments provided to GAO, NNSA has a mature performance evaluation process that evaluates and measures cost performance in all six Performance Evaluation Report goals, particularly Goals 5 and 6. NNSA will evaluate options to identify additional appropriate strategic quality information on cost performance to support the agency in improving the overall assessment of Management and Operating contractor cost performance.

Through the NNSA Work Authorization and Implementation Plan Process, NNSA is improving cost management at the project level. This process helps to compare outcomes verse expectations, in particular, M&O cost performance.

Estimated Completion Date: September 30, 2020.

Recommendation 6: The Assistant Secretary for Nuclear Energy should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance.

Management Response: Partially Concur.

The Office of Nuclear Energy (NE) continues to have concerns that the final report gives the impression that DOE does not review the cost performance of the NE national laboratory in an adequate manner by attempting to separate the review of technical performance, operational performance, and cost performance when these three often overlap. It also focuses on the annual performance reports and does not capture the cost performance reviews conducted in day-to-day contract oversight, the annual laboratory planning process, and contract extend/compete decisions.

Since cost performance reviews are conducted by DOE in normal operations and at the year-end annual evaluation process, adequate information available to assess whether the contractor cost performance is acceptable to the Department. NE will not need to fundamentally change its policy but will continue to look for ways to incorporate more information on cost performance in the annual year-end performance reports of the contractors of the NE national laboratory.

Estimated Completion Date: NE considers this recommendation closed.

Recommendation 7: The Director of the Office of Science should update its policy to require that Performance Evaluation Reports include quality information on cost performance to enable an overall assessment of Management and Operating contractor cost performance.

Management Response: Partially Concur.

The Office of Science (SC) continues to have concerns that the final report gives the impression that DOE does not review the cost performance of the SC national laboratories in an adequate manner by attempting to separate the review of technical performance, operational performance, and cost performance when these three often overlap. It also focuses on the annual performance reports and does not capture the cost performance reviews conducted in day-to-day contract oversight, the annual laboratory planning process, and contract extend/compete decisions.

Since cost performance reviews are being conducted by DOE in normal operations and at the year-end annual evaluation process, there is adequate information available to assess whether the contractor cost performance is acceptable to the Department. SC will not need to fundamentally change its policy but will continue to look for ways to incorporate more information on cost performance in the annual year-end performance reports of the contractors of the SC national laboratories.

Estimated Completion Date: SC considers this recommendation closed.

Appendix X: GAO Contact and Staff Acknowledgments

GAO Contact:

Allison B. Bawden, (202) 512-3841 or bawdena@gao.gov

Staff Acknowledgements:

In addition to the contact named above, Quindi Franco (Assistant Director), Ryan Gottschall (Analyst in Charge), Danny Baez, and Diantha Garms made key contributions to this report. Also contributing to this report were John Delicath, Brenna Derritt, Cindy Gilbert, Timothy Guinane, Rich Johnson, Danny Royer, Kiki Theodoropoulos, and Tatiana Winger.