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Comptroller General  
of the United States

## Accessible Version

April 22, 2020

The Honorable Dan Brouillette  
Secretary  
U.S. Department of Energy  
1000 Independence Ave., SW  
Washington, D.C. 20585

## Priority Open Recommendations: Department of Energy

Dear Mr. Secretary:

The purpose of this letter is to provide an update on the overall status of the Department of Energy's (DOE) implementation of GAO's recommendations and to call your continued personal attention to areas where open recommendations should be given high priority.<sup>1</sup> In November 2019, we reported that on a government-wide basis, 77 percent of our recommendations made 4 years ago were implemented.<sup>2</sup> DOE's recommendation implementation rate was 78 percent. As of March 2020, DOE had 188 open recommendations. Fully implementing these open recommendations could significantly improve agency operations.

Since our April 2019 letter, DOE has implemented four of our 18 open priority recommendations.

- Specifically, the National Nuclear Security Administration (NNSA) issued two directives in February 2019 that establish policies for conducting program management activities and independent cost estimates and reviews within NNSA. We believe that these agency actions satisfy the intent of our two November 2014 recommendations to improve NNSA's development of programmatic cost estimates and to improve NNSA's programmatic reviews of cost estimates.
- Further, in September 2019, DOE completed implementation of our April 2018 recommendation that DOE revise the Office of River Protection's organizational structure on the Hanford Waste Treatment and Immobilization Plant project and assess the quality assurance functional reporting lines, responsibilities, and processes. Having done so, we believe DOE has better assurance that the quality assurance function is independent of the office's upper management and that it may better enhance the independence of the quality function from cost and schedule influences.

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<sup>1</sup>Priority recommendations are those that GAO believes warrant priority attention from heads of key departments or agencies. They are highlighted because, upon implementation, they may significantly improve government operation, for example, by realizing large dollar savings; eliminating mismanagement, fraud, and abuse; or making progress toward addressing a high-risk or duplication issue.

<sup>2</sup>GAO, *Performance and Accountability Report: Fiscal Year 2019* [GAO-20-1SP](#) (Washington, D.C.: Nov. 19, 2019).

- Finally, in March 2020, DOE established a policy and completed a 3-year technical roadmap for modernizing legacy information technology (IT) systems that includes time frames, activities to be performed, and functions to be replaced or enhanced. Having done so, DOE established a documented plan to modernize or replace selected legacy systems that will enhance government oversight and provide greater assurance that IT investments are timely and effective.

We ask your continued attention to the remaining priority recommendations. We are also adding eight new recommendations related to strengthening DOE program and project management, contract oversight and risk management, managing DOE environmental cleanup liability, electric grid cybersecurity risk management, and overall cybersecurity risk management strategies, bringing the total number of priority recommendations to 20. (See the enclosure for the list of recommendations.)

The 20 priority recommendations fall into the following seven major areas.

### **Improve Project and Program Management.**

We have identified four priority recommendations that would help improve DOE's management of its major projects and programs. In June 2014, we recommended that DOE take steps to reduce uncertainty about the expected cost and schedule of the U.S. share of the International Thermonuclear Experimental Reactor Project and its potential impact on the U.S. fusion program. DOE agreed with our recommendation. Since it began in 2006, the estimated cost of the U.S. share of the project has grown by more than \$3 billion, and its estimated completion date has slipped by more than 20 years. DOE has taken some actions, including approving a performance baseline for a portion of the project in January 2017. To fully address our recommendation, DOE should approve a performance baseline for the entire project and communicate information on that baseline to Congress.

We also identified a priority recommendation to strengthen DOE's management of programs. In November 2016, we recommended that DOE establish a program management policy that addresses the responsibilities and authorities of program managers and that addresses leading program management practices, such as developing program plans. DOE did not comment on our recommendation. After our report, DOE stated that it would address our recommendation as part of its effort to meet the requirements of the Program Management Improvement Accountability Act of 2016. As part of that effort, in November 2018, DOE submitted a draft implementation plan to the Office of Management and Budget that described DOE's strategy for developing a DOE program management policy. In particular, this draft plan stated that DOE has established a working group to help develop the department's program management policy. To fully address our recommendation, DOE needs to finalize and issue its program management policy.

In February 2019, we made two recommendations for DOE's Office of Environmental Management (EM) to review and revise its cleanup policy to include project and program management leading practices related to scope, cost, schedule performance, and independent reviews. DOE agreed with our recommendations. DOE responded to our recommendations by stating that EM intends to replace its current cleanup policy with two separate project and program management policies that will incorporate leading practices related to scope, cost, schedule, and independent reviews, as appropriate. EM officials stated that they expect to issue the new project management policy in spring 2020 and the new program management policy in fall 2020. By revising its cleanup policy to include these project and program management

leading practices, the EM program may better mitigate the risks of uncontrolled changes to scope, exceeding its cost estimates and schedule, failing to meet its goals, and increasing DOE's environmental liabilities.

### **Improve Contract Management.**

We have identified five priority recommendations that would help improve DOE's oversight and management of contractors. Contract management is one of the highest risks facing the government, and aspects of DOE's contract management and administration have appeared on GAO's [High Risk List](#) since its inception in 1990. In May 2015, we recommended that NNSA establish comprehensive policies and guidance, beyond a general framework, for using information from contractor assurance systems to conduct oversight of management and operating (M&O) contractors. DOE agreed with our recommendation. As we noted in previous letters, NNSA has taken an important step by approving a revised corporate site governance policy in August 2016, and NNSA further revised its policy in October 2019. In addition, NNSA has since indicated that its field offices have been directed to modify local policies and procedures as necessary to accommodate the new policy. To fully address our recommendation, these procedures need to specify how to use information from contractor assurance systems and appropriately balance use of information from those systems with other, more direct activities to oversee M&O contractors.

In July 2016, we recommended that DOE revise its safety management policy and guidance to clarify what constitutes evidence of a chilled work environment and define the appropriate steps DOE should take to hold contractors accountable for unlawful retaliation against whistle-blowers or creating a chilled work environment. Doing so would strengthen the department's oversight of contractors' efforts to maintain an open environment for raising safety or other concerns without fear of retaliation. DOE agreed with our recommendation. In January 2018, DOE issued a revised safety management policy. The update to the policy is a positive step, but it is only a general policy statement. To fully address our recommendation, DOE should revise its safety management guidance that supports the policy to (1) clarify what constitutes evidence of a chilled work environment and (2) define the appropriate steps DOE should take to hold contractors accountable when DOE finds a contractor has created a chilled work environment.

In March 2019, we made two recommendations to DOE on strengthening subcontract oversight. Specifically, we recommended that the Office of Acquisition Management (1) develop documented procedures or guidance requiring DOE's local offices to monitor the contractors' progress in completing required subcontract audits in a manner that ensures unallowable costs can be recovered within the 6-year limitation period in the Contract Disputes Act; and (2) require local officials to independently review subcontractor ownership information as part of DOE consent reviews and assess potential conflicts of interest to ensure contractors are mitigating them. DOE partially concurred with our recommendation on requiring local offices to monitor contractors' progress on subcontract audits in a timely matter. DOE did not concur with our recommendation to require local officials to independently review subcontractor ownership information. Developing procedures or guidance requiring local offices to monitor contractors' progress in completing the required subcontract audits in a timely matter may better ensure that any unallowable costs are identified within the 6-year limitation period of the Contract Disputes Act so that DOE may recover those costs. By establishing a requirement that DOE independently review subcontractor ownership information and assess potential conflicts of interest related to ownership between contractors and subcontractors as part of its consent reviews, DOE would have better assurance that contractors are adequately mitigating conflicts of interest.

In September 2019, we recommended that NNSA's Associate Administrator for Acquisition and Project Management develop a process to verify that contracting officers are carrying out the steps to oversee support service contracts at risk of including inherently governmental functions throughout the term of the contract. NNSA generally agreed with our recommendation. With NNSA increasingly using support service contracts across the agency since 2010 to meet the demands of its increasing workload at a time when the size of its federal workforce has decreased, developing a process to verify that the contracting officer has implemented the planned oversight steps for support service contracts that have a high risk of including inherently governmental functions would provide NNSA better assurance that planned oversight is being carried out. Taking these actions could also help NNSA better ensure that planned oversight steps continue, even if the contracting officer or other oversight official changes during the term of the contract.

### **Improve Financial and Cost Information.**

We identified two priority recommendations that would help DOE improve the quality of its financial and cost information. In March 2017, we recommended that DOE implement leading practices for managing the department's risk of fraud, including creating a dedicated entity within DOE to design and oversee fraud risk management activities. DOE partially agreed with our recommendation. DOE responded to our recommendation by stating that it would rely on the existing Office of Financial Policy and Internal Controls and on the DOE Office of Inspector General to design and oversee financial fraud risk management activities. We disagree that reliance on these offices meets best practices for managing the risk of fraud because neither office is solely dedicated to designing or overseeing fraud risk management activities. Furthermore, according to best practices, the dedicated entity should not be the agency's office of inspector general. To fully address our recommendation, DOE should establish an entity solely dedicated to designing and overseeing fraud risk management activities and that is not the Office of Inspector General.

In January 2019, we recommended that, as part of its financial integration efforts, NNSA implement a common work breakdown structure across its program offices. A work breakdown structure is a method of deconstructing a program's end product into successive levels of detail with smaller specific elements until the work is subdivided to a level suitable for management control. This common work breakdown structure should be standardized at a high level to allow for program office customization, but also to allow for the collection of total program costs. By dividing NNSA's work into standardized categories across program offices and sites, a common work breakdown structure would improve access to data and meet Congressional oversight needs. NNSA neither agreed nor disagreed with our recommendation. Since October 2019, NNSA has been assessing the feasibility of implementing a common work breakdown structure across all of the program offices by collecting M&O contractors' financial data using the common structure. In June 2020, the NNSA Administrator is expected to make a final decision on whether to implement a common work breakdown structure across NNSA program offices. To fully address our recommendation, NNSA should implement a common work breakdown structure to improve financial data collected across the nuclear security enterprise.

### **Strengthen Planning for the Future of the Strategic Petroleum Reserve.**

We identified three priority recommendations to strengthen planning for the future of the Strategic Petroleum Reserve (SPR). The SPR was established more than 4 decades ago to reduce the impact of disruptions in supplies of petroleum products. As of March 2020, the SPR was valued at about \$12 billion based on a SPR size of 635 million barrels of crude oil. In the

decades since its creation, the structure of the SPR generally has not changed, though markets for crude oil and petroleum products have changed significantly. In May 2018, we recommended that DOE (1) conduct periodic strategic reviews of the SPR that take into account changes in crude oil and petroleum product market conditions and the costs and benefits of a wide range of SPR sizes, (2) conduct or complete studies on the costs and benefits of regional petroleum product reserves, and (3) consider a full range of options for handling potentially excess assets. Doing so may help DOE ensure that the SPR is effective at meeting U.S. energy security needs and other obligations while being managed and maintained in an efficient manner. DOE agreed with our recommendations to conduct strategic reviews and consider options for handling excess assets, but disagreed with our recommendation to conduct or complete studies on regional petroleum product reserves. DOE has taken steps to implement our recommendation to consider a full range of options for handling potentially excess assets, but it has not yet provided documentation of its analysis or study to us for review. To fully address our recommendations, DOE should complete the reviews and studies and provide the results to Congress.

### **Address Nuclear Modernization Challenges.**

NNSA is carrying out an ambitious, costly, decades-long effort to modernize the nation's nuclear security enterprise. This effort includes ensuring that existing nuclear weapons remain safe and reliable and that aging and outdated weapons-related facilities are replaced or renovated. We have identified one priority recommendation that would help address challenges to this modernization effort. In April 2017, we recommended that NNSA include an assessment of the affordability of NNSA's portfolio of modernization programs in future versions of its *Stockpile Stewardship and Management Plan*. NNSA did not explicitly agree or disagree with our recommendation. Taking this additional step to more fully discuss the affordability and priority of modernization programs would help congressional and NNSA decision makers better understand the potential trade-offs and rebalancing of priorities that may be needed to fit future budgets.

The importance of implementing this recommendation is highlighted by the February 2018 Nuclear Posture Review and the President's fiscal year 2021 budget proposal, which called for additional modernization work and increased funding levels. NNSA included a new section in the fiscal year 2020 *Stockpile Stewardship and Management Plan* about its analysis of the affordability of its weapons modernization plans. However, this section does not include details about, or an assessment of, the options NNSA might have to take in the future—such as adjusting the schedules or scopes of certain programs or projects—to address an apparent misalignment between the future budget estimates of its portfolio of nuclear modernization programs and the projections of potential future budgets.

Therefore, we will continue to review future *Stockpile Stewardship and Management Plans* to assess whether NNSA has included additional information or an assessment consistent with this recommendation. To fully address our recommendation, NNSA should take actions to include an assessment of the affordability of NNSA's modernization programs in its *Stockpile Stewardship and Management Plan* that, for example, prioritizes programs to provide NNSA options for bringing the plans and funding needs for its portfolio of modernization programs into alignment with potential future budget estimates.

### **Address DOE's Environmental Liability.**

We made two priority recommendations that could reduce cleanup costs that contribute to DOE's environmental liability. The federal government's environmental liability has been

growing for the past 20 years and is likely to continue to increase. As such, we added the federal government's environmental liability to our [High Risk List](#) in February 2017. DOE is responsible for by far the largest share of this liability—\$505.3 billion of \$595.4 billion reported in fiscal year 2019. In addition, we have reported that DOE has not consistently taken a risk-informed approach to decision-making for environmental cleanup and therefore may be missing opportunities to reduce costs while also more quickly reducing environmental risks.

In May 2017, we recommended that DOE develop updated information on the effectiveness of treating and disposing of all the different portions of Hanford's supplemental low-activity waste with alternate methods or at alternate disposal sites. Based on this information, DOE should identify potential treatment and disposal pathways for different portions of the waste, considering the risks posed by the waste. DOE agreed with our recommendation. DOE contracted with Savannah River National Laboratory, a federally funded research and development center, to evaluate viable treatment options for the waste, and the laboratory issued its final report in October 2019. The National Academies of Sciences, Engineering, and Medicine conducted a peer review of that evaluation and issued a final report in late March 2020.

According to DOE officials, both reports include information DOE may be able to use in making a decision about treating supplemental low-activity waste, and the officials plan to use the studies as scoping documents as they move forward with the decision process. According to the National Academies' report, DOE may need to conduct additional research and analysis prior to deciding how to treat supplemental low-activity waste. For example, DOE officials stated that they may need more information on the performance of specific grout formulations for use in disposal cells. Until DOE develops information that reflects what is now known about the performance of alternate treatment and disposal methods, congressional and agency decision makers will not have access to current scientific information as they decide how to best allocate limited financial resources among many competing needs.

In January 2019, we recommended that the Secretary of Energy direct EM to develop a program-wide strategy that outlines how DOE will direct available resources to address human health and environmental risks across and within sites. DOE agreed with our recommendation. As the gap between the costs of cleanup and available funds widens, it is increasingly important for EM to ensure that taxpayer dollars are used to address the environmental and human health risks from legacy defense waste in a cost-effective manner. EM relies primarily on individual sites to locally negotiate cleanup activities and establish priorities, and EM sites generally do not consider other sites' risks and priorities when making cleanup decisions.

We and others have recommended that DOE direct its resources to address the greatest risks by developing national cleanup priorities and directing funding to high-risk activities that threaten human health and safety or the environment across and within its sites. With a strategy that sets national priorities and describes how DOE will direct available resources to address the greatest human health and environmental risks across and within sites, EM may have better assurance that it is making the most cost-effective cleanup decisions within and across its sites.

### **Cybersecurity.**

We made three priority recommendations to improve DOE's efforts to manage cybersecurity. In February 2018, we recommended that the Secretary of Energy take steps to consult with respective sector partners, such as the sector coordinating council, Department of Homeland Security (DHS), and National Institute of Standards and Technology (NIST), as appropriate, to develop methods for determining the level and type of NIST cybersecurity framework adoption

by entities across their respective sector. DOE did not explicitly agree or disagree with our recommendation. In August 2018, DOE held a meeting of the Cybersecurity Capability Maturity Model Working Group, which included partners from the electricity, oil, and natural gas subsectors; DHS; and NIST. In February 2020, DOE officials stated that the voluntary nature of the framework made it difficult to determine the level and type of framework adoption, but they would update the framework implementation guidance once they updated the model. To fully address our recommendation, DOE should have a more comprehensive understanding of the framework's use by sector entities. Doing so would help DOE ensure that its facilitation efforts are successful and determine whether organizations are realizing positive results by adopting the framework.

Further, in July 2019, we recommended that DOE develop a cybersecurity risk management strategy that includes key elements such as risk tolerance and risk mitigation strategies. DOE agreed with our recommendation. As of January 2020, DOE stated that it was developing a department-wide risk management plan, to include a risk management strategy, and this would be completed by May 2020. With a comprehensive risk management strategy, DOE may better ensure that it has an organization-wide understanding of acceptable risk levels and appropriate risk response strategies to protect its systems and data.

In August 2019, we recommended that DOE develop a plan aimed at implementing the federal cybersecurity strategy for the electric grid. DOE agreed with our recommendation. The U.S. electric grid faces an increasing array of cybersecurity risks, as well as significant challenges to addressing those risks. Although DOE has developed plans and an assessment aimed at implementing the federal strategy for confronting the cyber threats facing the grid, those documents do not fully address all of the key characteristics needed to implement a national strategy, including a full assessment of cybersecurity risks to the grid. Having a plan that fully addresses all of the key characteristics may better provide decision makers guidance in allocating resources to address grid cybersecurity risks and challenges.

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As you know, in March 2019 we issued our biennial update to our [High Risk List](#), which identifies government operations with greater vulnerabilities to fraud, waste, abuse, and mismanagement or the need for transformation to address economy, efficiency, or effectiveness challenges.<sup>3</sup> Our [High Risk List](#) has served to identify and help resolve serious weaknesses in areas that involve substantial resources and provide critical services to the public. One of our high-risk areas—DOE's contract and project management for NNSA and the Office of Environmental Management—centers directly on DOE.<sup>4</sup> Several other government-wide high-risk areas also have direct implications for DOE and its operations, including (1) addressing the U.S. government's environmental liability, (2) improving the management of IT acquisitions and operations, (3) improving strategic human capital management, (4) managing federal real property, and (5) ensuring the cybersecurity of the nation.<sup>5</sup> We urge your attention to the DOE

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<sup>3</sup>GAO, *High-Risk Series: Substantial Efforts Needed to Achieve Greater Progress on High-Risk Areas*, [GAO-19-157SP](#) (Washington, D.C.: Mar. 6, 2019).

<sup>4</sup>For a full discussion of the [Department of Energy's Contract and Project Management for NNSA and Office of Environmental Management](#) high-risk area, see pages 217 through 221 of our 2019 high-risk report.

<sup>5</sup>For a full discussion of the [U.S. Government's Environmental Liability](#), [Improving Management of IT Acquisitions and Operations](#), [Strategic Human Capital Management](#), [Managing Federal Real Property](#), and [Ensuring the Cybersecurity](#)

and government-wide high-risk issues as they relate to DOE. Progress on high-risk issues has been possible through the concerted actions and efforts of Congress, OMB, and the leadership and staff in agencies, including within DOE.

Copies of this report are being sent to the Director of the Office of Management and Budget and appropriate congressional committees including the Committees on Appropriations, Budget, and Homeland Security and Governmental Affairs, United States Senate, and the Committees on Appropriations, Budget, and Oversight and Reform, House of Representatives.

In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

I appreciate DOE's continued commitment to these important issues. If you have any questions or would like to discuss any of the issues outlined in this letter, please do not hesitate to contact me or Mark Gaffigan, Managing Director, Natural Resources and Environment, at 202-512-3841 or [gaffiganm@gao.gov](mailto:gaffiganm@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Our teams will continue to coordinate with your staff on all of the 188 open recommendations, as well as those additional recommendations in the high-risk areas for which DOE has a leading role. Thank you for your attention to these matters.

Sincerely yours,



Gene L. Dodaro  
Comptroller General  
of the United States

Enclosure – 1

cc: The Honorable Lisa E. Gordon-Hagerty, Administrator, National Nuclear Security Administration

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[of the Nation](#) high-risk areas, see pages 138 through 142, 123 through 127, 75 through 77, 78 through 85, and 178 through 184, respectively, of our 2019 high-risk report.



## **Enclosure --Priority Open Recommendations to the Department of Energy (DOE)**

### **Improve Project and Program Management**

Fusion Energy: Actions Needed to Finalize Cost and Schedule Estimates for U.S. Contributions to an International Experimental Reactor. GAO-14-499. Washington, D.C.: June 5, 2014.

**Recommendation:** To reduce uncertainty about the expected cost and schedule of the International Thermonuclear Experimental Reactor (ITER) Project and its potential impact on the U.S. fusion program, once the ITER Organization completes its reassessment of the international project schedule, the Secretary of Energy should direct the Associate Director of the Office of Fusion Energy Sciences to use that schedule, if reliable, to propose a final, stable funding plan for the U.S. ITER Project, approve a performance baseline with finalized cost and schedule estimates, and communicate this information to Congress.

**Action Needed:** DOE agreed with our recommendation. In January 2017, DOE approved a performance baseline for the first plasma portion of the U.S. ITER Project and communicated that performance baseline to Congress. However, the performance baseline did not include the post-first plasma portion of the U.S. ITER Project. To fully address our recommendation, DOE should approve a performance baseline for the entire project and communicate information on that baseline to Congress.

**Director:** Frank Rusco, Natural Resources and Environment

**Contact information:** [ruscof@gao.gov](mailto:ruscof@gao.gov) or (202) 512-3841

Program Management: DOE Needs to Develop a Comprehensive Policy and Training Program. GAO-17-51. Washington, D.C.: November 21, 2016.

**Recommendation:** To help ensure that NNSA effectively manages the performance of its programs, the Secretary of Energy should establish a program management policy that (1) assigns responsibilities and delegates authority to program managers and establishes expectations of competence for them, in accordance with federal internal control standards, and (2) addresses leading program management practices, such as developing program plans.

**Action Needed:** DOE did not comment on our recommendation. Subsequently, DOE stated that it would address our recommendation as part of its effort to meet the requirements of the Program Management Improvement Accountability Act of 2016. In June 2018, the Office of Management and Budget (OMB) issued guidance on implementing the act, guidance which directed federal agencies to submit an implementation plan in 2019, among other actions. In November 2018, DOE submitted a draft implementation plan to OMB that described DOE's strategy for developing a DOE program management policy. In particular, its draft plan stated that DOE has established a working group to help develop the department's program management policy. To fully address our recommendation, DOE should finalize and issue its program management policy.

**High-Risk Area:** [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

**Director:** Allison B. Bawden, Natural Resources and Environment

**Contact information:** [bawdena@gao.gov](mailto:bawdena@gao.gov) or (202) 512-3841

Nuclear Waste Cleanup: DOE Could Improve Program and Project Management by Better Classifying Work and Following Leading Practices. GAO-19-223. Washington, D.C.: February 19, 2019.

**Recommendations:** The Secretary of Energy should

- direct the Assistant Secretary of the Office of Environmental Management (EM) to review and revise EM's 2017 cleanup policy to include program management leading practices related to scope, cost, schedule performance, and independent reviews; and
- direct the Assistant Secretary of the Office of Environmental Management to review and revise EM's 2017 cleanup policy to include project management leading practices related to scope, cost, schedule performance, and independent reviews.

**Action Needed:** DOE agreed with our recommendations. In August 2019, DOE responded to our recommendations by stating that EM was in the process of reviewing its cleanup policy for necessary updates, revisions, and modifications. EM intends to replace its current cleanup policy with two separate project and program management policies that will incorporate leading practices related to scope, cost, schedule, and independent reviews, as appropriate. In February 2020, EM officials stated that its new project management policy (expected to be issued in spring 2020) will include project management leading practices but will apply only to capital asset projects in the decontamination and decommissioning phase and not to operations activities or other EM work that could be considered projects. According to EM officials, EM also plans to complete a program management policy (expected to be completed in fall 2020) that will apply to the EM program as a whole and will incorporate the program management leading practices mentioned in our report. This policy may also include the project management leading practices that would apply to the remaining types of cleanup activities, such as operations activities and other EM work that could be considered projects. Until EM has revised its cleanup policies to include (1) project management leading practices that also apply to the management of operations activities and EM projects other than capital asset projects, and (2) program management leading practices that would apply to the EM program as a whole, the EM program as a whole is at risk of uncontrolled changes to scope, exceeding its cost estimates and schedules, failing to meet its goals, and increasing DOE's environmental liabilities. To fully address these recommendations, EM should ensure its new cleanup policies include project and program management leading practices that would also apply to the management of operations activities and to the EM program as a whole.

**High-Risk Area:** [U.S. Government's Environmental Liability](#)

**Director:** Allison B. Bawden, Natural Resources and Environment

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### **Improve Contract Management**

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.

**Recommendation:** To improve the internal control environment for oversight using information from contractor assurance systems (CAS) and develop a consistent approach to the use of information from CAS in management and operating (M&O) contractor oversight and

performance evaluation across the nuclear security enterprise, the Administrator of the National Nuclear Security Administration (NNSA) should establish comprehensive NNSA policies and guidance, beyond a general framework as included in NNSA Policy-21, for using information from CAS to conduct oversight of M&O contractors, clarifying whether CAS is to cover mission-related activities, and describing how to conduct assessments of risk, CAS maturity, and the level of the contractor's past performance.

**Action Needed:** NNSA agreed with our recommendation. In August 2016, NNSA approved a revised corporate site governance policy, Supplemental Directive 226.1B, that improves on the agency's prior policy by clarifying one element in our recommendation that CAS is to cover mission-related activities. Furthermore, in October 2019, NNSA again revised its site governance policy, Supplemental Directive 226.1C, that clarifies some aspects of NNSA governance. However, the policy is still a general framework, and NNSA has not established associated implementing guidance. To fully address our recommendation, NNSA needs to develop guidance for using information from CAS and appropriately balancing use of information from CAS with other, more direct activities to oversee M&O contractors.

**High-Risk Area:** [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

**Director:** Allison B. Bawden, Natural Resources and Environment

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[Department of Energy: Whistleblower Protections Need Strengthening. GAO-16-618.](#)  
Washington, D.C.: July 11, 2016.

**Recommendation:** To help improve DOE's ability to take enforcement actions against unlawful retaliation when appropriate and take action against contractors that create a chilled work environment, the Secretary of Energy should revise DOE's Integrated Safety Management (ISM) policy and guidance to clarify what constitutes evidence of a chilled work environment and define the appropriate steps DOE should take to hold contractors accountable for creating a chilled work environment.

**Actions Needed:** DOE agreed with our recommendation. In January 2018, DOE issued a revision to DOE Policy 450.4A. The revised policy states that organizations should foster a culture that allows employees to "feel free to raise safety concerns to management without fear of retaliation ... and supporting a questioning attitude concerning safety by all employees." However, the policy does not define the appropriate steps DOE should take to hold contractors accountable for creating a chilled work environment. To fully address our recommendation, DOE should revise its ISM guidance that supports the policy to define appropriate steps for holding contractors accountable.

**High-Risk Area:** [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

**Director:** Allison B. Bawden, Natural Resources and Environment

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[Department of Energy Contracting: Actions Needed to Strengthen Subcontract Oversight. GAO-19-107.](#)  
Washington, D.C.: March 12, 2019.

**Recommendations:** The Director of DOE's Office of Acquisition Management should

- develop documented procedures or guidance that requires DOE’s local offices to monitor the contractors’ progress in completing required subcontract audits in a manner that ensures unallowable costs can be recovered within the 6-year limitation period in the Contract Disputes Act; and
- require local officials to independently review subcontractor ownership information as part of DOE consent reviews and assess potential conflicts of interest to ensure contractors are mitigating them.

**Action Needed:** DOE partially concurred with our recommendation to develop documented procedures or guidance that requires local offices to monitor contractors’ progress on subcontract audits in a timely matter. DOE did not concur with our recommendation to require local officials to independently review subcontractor ownership information. DOE agreed to review existing requirements and guidance to consider the extent to which it requires its field offices to monitor contractors’ progress in completing required subcontract audits. In December 2019, DOE reported that it plans to update its contracting officer risk assessment manual and tool to emphasize review of contractors’ subcontract auditing. Instead of requiring local officials to independently review subcontractor ownership information, DOE reported in December 2019 that it would issue guidance re-emphasizing the importance of contracting officers reviewing, and providing independent analyses of, contractors’ disclosures as well as addressing issues potentially created by close working relationships, conflicts of interest, or ownership affiliations between contractors and subcontractors regarding consent to subcontract. DOE also plans to issue guidance re-emphasizing the importance of identifying and evaluating potential organizational conflicts of interest as early as possible in the acquisition process and before contract award. We believe that DOE has taken positive steps toward resolving the issues identified in the report. However, we believe that the actions called for in our recommendations remain valid and that DOE could more efficiently address these issues by implementing the recommended actions. To fully address our recommendations, DOE should develop documented procedures or guidance that requires local offices to monitor contractors’ progress on subcontract audits in a timely matter, and it should require local officials to independently review subcontractor ownership information.

**High-Risk Area:** [DOE’s Contract and Project Management for NNSA and Office of Environmental Management](#)

**Director:** Allison B. Bawden, Natural Resources and Environment

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Support Service Contracts: NNSA Could Better Manage Potential Risks of Contractors Performing Inherently Governmental Functions. [GAO-19-608](#). Washington, D.C.: September 26, 2019.

**Recommendation:** The Associate Administrator for Acquisition and Project Management should develop a process to verify that contracting officers are carrying out the steps identified to oversee contracts at risk of including inherently governmental functions throughout the term of the contract.

**Action Needed:** NNSA generally agreed with our recommendation. In written responses to our report, NNSA stated awareness is a key factor to support effective oversight by contracting officers. NNSA stated that determination forms—which include questions about whether contractors’ work may include inherently government functions—document that awareness. NNSA stated that it plans to take several actions, such as (1) reviewing and revising, as necessary, the template for contracting officer representative (COR) designation letters to

ensure they address expectations for awareness and monitoring for risks associated with high-risk contracts; (2) developing and distributing a checklist that further identifies expectations for daily operational awareness and oversight of specific high-risk contracts that CORs and program officials support; and (3) including examination of the documentation of oversight responsibilities in future internal reviews and assessments. To fully address this recommendation, NNSA should develop a process to verify that contracting officers are carrying out the steps identified to oversee contracts at risk of including inherently governmental functions throughout the term of the contract.

**High-Risk Area:** [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

**Director:** Allison B. Bawden, Natural Resources and Environment

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### **Improve Financial and Cost Information**

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

**Recommendation:** To help DOE take a more strategic approach to managing improper payments and risk, including fraud risk, the Secretary of Energy should implement leading practices for managing the department's risk of fraud, including creating a structure with a dedicated entity within DOE to design and oversee fraud risk management activities.

**Actions Needed:** DOE partially agreed with our recommendation. In written responses to our report, DOE stated that it considers our recommendation to be closed without corrective action and that it would rely on the existing Office of Financial Policy and Internal Controls and on the DOE Office of Inspector General (OIG) to design and oversee financial fraud risk management activities. We disagree that reliance on these offices meets best practices because neither office is solely dedicated to designing or overseeing fraud risk management activities. Furthermore, according to the best practices in GAO's Fraud Risk Framework, the dedicated entity should not be the OIG. To fully address our recommendation, DOE should establish an entity solely dedicated to designing and overseeing fraud risk management activities and that is not the OIG.

**High-Risk Area:** [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

**Director:** Allison B. Bawden, Natural Resources and Environment

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National Nuclear Security Administration: Additional Actions Needed to Collect Common Financial Data. [GAO-19-101](#). Washington, D.C.: January 31, 2019.

**Recommendation:** The NNSA Administrator should implement a common work breakdown structure across NNSA program offices in the nuclear security enterprise, standardized at a high level to allow for program office customization but also to allow for the collection of total program costs.

**Action Needed:** NNSA neither agreed nor disagreed with our recommendation. Since October 2019, NNSA has been assessing the feasibility of implementing a common work breakdown structure across all of the program offices by collecting M&O contractors' financial data using the common structure. NNSA also collected M&O contractors' financial data for the Offices of Safety, Infrastructure, and Operations and Defense

Nuclear Nonproliferation using their programmatic work breakdown structures to determine whether analytical products could be completed using data collected using the common and programmatic structures. In June 2020, the NNSA Administrator is expected to make a final decision on whether to implement a common work breakdown structure across NNSA program offices. To fully address our recommendation, NNSA should implement a common work breakdown structure to improve financial data collected across the nuclear security enterprise.

**High-Risk Area:** [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

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### **Strengthen Planning for the Future of the Strategic Petroleum Reserve**

[Strategic Petroleum Reserve: DOE Needs to Strengthen Its Approach to Planning the Future of the Emergency Stockpile. GAO-18-477. Washington, D.C.: May 30, 2018.](#)

**Recommendations:** The Secretary of Energy should

- take actions to ensure that the agency periodically conducts and provides to Congress a strategic review of the Strategic Petroleum Reserve (SPR) that, among other things, takes into account changes in crude oil and petroleum product market conditions and contains additional analysis, such as the costs and benefits of a wide range of different SPR sizes;
- conduct or complete studies on the costs and benefits of regional petroleum product reserves for all U.S. regions that have been identified as vulnerable to fuel supply disruptions, and the Secretary should report the results to Congress; and
- in completing DOE's ongoing study on the effects of congressionally mandated sales, consider a full range of options for handling potentially excess assets and, if needed, request congressional authority for the disposition of these assets.

**Actions Needed:** DOE agreed with our recommendation to periodically conduct strategic reviews. As of December 2019, DOE continued to believe that a 5-year time interval between reviews is an appropriate time frame and allows current strategic plans to be implemented and assessed. Given that the agency completed the SPR Long-Term Strategic Review in 2016 as the first of such strategic plans, the next strategic review of the SPR should be completed by the end of fiscal year 2021. DOE disagreed with our recommendation to conduct or complete studies on the costs and benefits of regional petroleum product reserves because the agency's position is that government-owned and -operated regional petroleum product reserves are an inefficient and expensive solution to respond to regional fuel supply disruptions. In December 2019, DOE noted that given the inefficient and expensive nature of storing refined petroleum products in above-ground tanks, it would be an inappropriate use of taxpayer funds to conduct any additional studies on the use of federal government-owned storage of refined petroleum products. However, the Quadrennial Energy Review of 2015 recommended that similar analyses be completed for other areas deemed by DOE to be vulnerable to fuel supply disruptions. Therefore, we continue to believe that conducting these analyses, as recommended in the Quadrennial Energy Review of 2015, will provide Congress with information needed to make decisions about regional product reserves. DOE also agreed with our recommendation to

consider a full range of options for handling potentially excess assets and has taken steps to implement it. As of December 2019, according to DOE officials, the agency completed its analysis of leasing storage (e.g., excess assets) and was including this analysis in a broader study of the reserve's configuration, which is currently under review. However, DOE has not yet provided documentation of its analysis or study to us for review. DOE stated that it was having discussions with at least one country that might be interested in leasing storage from the United States to meet its international obligations. To fully address these recommendations, DOE should complete the reviews and studies and provide the results to Congress.

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### **Address Nuclear Modernization Challenges**

National Nuclear Security Administration: Action Needed to Address Affordability of Nuclear Modernization Programs. [GAO-17-341](#). Washington, D.C.: April 26, 2017.

**Recommendation:** To help NNSA put forth more credible modernization plans, the NNSA Administrator should include an assessment of the affordability of NNSA's portfolio of modernization programs in future versions of the *Stockpile Stewardship and Management Plan*—for example, by presenting options NNSA could consider to bring its estimates of modernization funding needs into alignment with potential future budgets, such as potentially deferring the start of or canceling specific modernization programs.

**Actions Needed:** NNSA did not explicitly agree or disagree with our recommendation. To address our recommendation, NNSA should include in future versions of the *Stockpile Stewardship and Management Plan* an assessment of the affordability of NNSA's portfolio of nuclear modernization programs. The affordability assessment could discuss options NNSA could consider to bring the plans and funding needs for its portfolio of modernization programs into alignment with potential future budget estimates. This could include determining which programs should receive the highest priority and identifying programs for cancellation or deferral in consultation with the Department of Defense and the military services so as to ensure an affordable modernization program. NNSA included a new section in the fiscal year 2020 *Stockpile Stewardship and Management Plan* about its analysis of the affordability of its weapons modernization plans. However, this section does not include details about, or an assessment of, the options NNSA might have to take in the future—such as adjusting the schedules or scopes of certain programs or projects—to address an apparent misalignment between the future budget estimates of its portfolio of nuclear modernization programs and the projections of potential future budgets. Therefore, we will continue to review future *Stockpile Stewardship and Management Plans* to assess whether NNSA has included additional information or an assessment consistent with this recommendation.

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### **Address DOE's Environmental Liability**

Nuclear Waste: Opportunities Exist to Reduce Risks and Costs by Evaluating Different Waste Treatment Approaches at Hanford. [GAO-17-306](#). Washington, D.C.: May 3, 2017.

**Recommendation:** To help ensure that DOE's treatment of Hanford's supplemental low-activity waste (LAW) is risk-based and cost-effective, the Secretary of Energy should

develop updated information on the effectiveness of treating and disposing of all the different portions of Hanford's supplemental LAW with alternate methods or at alternate disposal sites and, based on this information, identify potential treatment and disposal pathways for different portions of Hanford's supplemental LAW, considering the risks posed by the LAW. In implementing this recommendation, DOE should take into account the results of the analysis required by Section 3134 of the National Defense Authorization Act for Fiscal Year 2017.

**Actions Needed:** DOE agreed with our recommendation. DOE contracted with Savannah River National Laboratory, a federally funded research and development center, to evaluate viable treatment options for the waste, and the laboratory issued its final report in October 2019. The National Academies of Sciences, Engineering, and Medicine conducted a peer review of that evaluation and issued a final report in late March 2020. According to DOE officials, both reports include information DOE might be able to use in making a decision about treating supplemental LAW, and the officials plan to use the studies as scoping documents as they move forward with the decision process. Also, in response to GAO's recommendation, in November 2018 DOE was beginning a second phase to demonstrate the feasibility of grouting, transporting, and disposing of 2,000 gallons of Hanford's LAW at an alternate disposal site in Andrews, Texas. However, DOE stopped the demonstration project in spring 2019 when it withdrew its permit application for the initiative because Washington's Department of Ecology proposed that DOE engage in negotiations on its approach to the retrieval and treatment of Hanford's tank waste. DOE officials do not have specific plans for resuming the initiative. To fully address our recommendation, DOE should develop information that reflects what is now known about the performance of alternate treatment and disposal methods and take steps to identify potential treatment and disposal pathways for different portions of Hanford's supplemental LAW, considering the risks posed by the LAW.

**High-Risk Area:** [U.S. Government's Environmental Liability](#)

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[Department of Energy: Program-Wide Strategy and Better Reporting Needed to Address Growing Environmental Cleanup Liability. GAO-19-28. Washington, D.C.: January 29, 2019.](#)

**Recommendation:** The Secretary of Energy should direct DOE's Office of Environmental Management to develop a program-wide strategy that outlines how DOE will direct available resources to address human health and environmental risks across and within sites.

**Actions Needed:** DOE agreed with our recommendation. In its written response to our report, DOE stated that it was identifying and evaluating opportunities across the complex to reduce risk and life-cycle costs through more efficient and innovative approaches. We and others have previously recommended that DOE direct its resources to address the greatest risks by developing national cleanup priorities and directing funding to high-risk activities that threaten human health and safety or the environment. EM has tried at various times to develop and implement a program-wide strategy that balances the costs of cleanup actions with the level of health and environmental risks they are designed to address, but EM does not currently have such a strategy. To fully address our recommendation, DOE should develop an EM program-wide strategy that sets national priorities and describes how DOE will address its greatest risks.

**High-Risk Area:** [U.S. Government's Environmental Liability](#)

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## Cybersecurity

Critical Infrastructure Protection: Additional Actions Are Essential for Assessing Cybersecurity Framework Adoption. [GAO-18-211](#). Washington, D.C.: February 15, 2018.

**Recommendation:** The Secretary of Energy should take steps to consult with respective sector partner(s), such as the sector coordinating council, Department of Homeland Security (DHS), and National Institute of Standards and Technology (NIST), as appropriate, to develop methods for determining the level and type of framework adoption by entities across their respective sector.

**Action Needed:** DOE did not explicitly agree or disagree with our recommendation. In its April 2018 letter, DOE stated it planned to consult with sector partners on the development of methods for determining the level and type of NIST framework adoption as part of updating its Cybersecurity Capability Maturity Model (C2M2) tool in 2018. In August 2018, DOE held a meeting of the C2M2 Working Group, which includes industry partners from the electricity, oil, and natural gas subsectors; DHS; and NIST. DOE stated that it worked with stakeholders to better align the C2M2 with the updated NIST cybersecurity framework but did not provide specific information regarding the adoption or use of the framework. In February 2020, officials from the DOE's Office of Cybersecurity, Energy Security, and Emergency Response stated that the voluntary nature of the framework made it difficult to determine the level and type of framework adoption. However, officials stated that they were in the process of updating the model and would update the framework implementation guidance once the model has been updated. To fully address our recommendation, DOE should have a more comprehensive understanding of the framework's use by sector entities if DOE, along with other entities, want to ensure that its facilitation efforts are successful and determine whether organizations are realizing positive results by adopting the framework.

### High-Risk Area: [Ensuring the Cybersecurity of the Nation](#)

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Cybersecurity: Agencies Need to Fully Establish Risk Management Programs and Address Challenges. [GAO-19-384](#). Washington, D.C.: July 25, 2019.

**Recommendation:** The Secretary of Energy should develop a cybersecurity risk management strategy that includes the key elements identified in this report.

**Action Needed:** DOE agreed with our recommendation. DOE acknowledged that it had not developed a cybersecurity risk management strategy that includes key elements such as risk tolerance and risk mitigation strategies, among other things. According to agency officials, this was due to the federated nature of the agency and difficulty in establishing an agency-wide understanding of risk tolerance, among other factors. Further, these officials stated that they intended to develop such a strategy or were considering doing so. As of January 2020, DOE stated that it was developing a department-wide risk management plan, to include a risk management strategy, and this would be completed by May 31, 2020. Without a comprehensive risk management strategy, DOE may lack an organization-wide understanding of acceptable risk levels and appropriate risk response strategies to protect its systems and data. To fully address this recommendation, DOE should develop a cybersecurity risk management strategy that includes the key elements we identified in our report.

**High-Risk Area:** [Ensuring the Cybersecurity of the Nation](#)

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Critical Infrastructure Protection: Actions Needed to Address Significant Cybersecurity Risks Facing the Electric Grid. [GAO-19-332](#). Washington, D.C.: August 26, 2019.

**Recommendation:** The Secretary of Energy, in coordination with DHS and other relevant stakeholders, should develop a plan aimed at implementing the federal cybersecurity strategy for the electric grid and ensure that the plan addresses the key characteristics of a national strategy, including a full assessment of cybersecurity risks to the grid.

**Actions Needed:** DOE agreed with our recommendation. In its response to our report, DOE stated that it was working through an interagency process to develop a *National Cyber Strategy Implementation Plan* that will consider DOE's *Multiyear Plan for Energy Sector Cybersecurity*. To fully address our recommendation, DOE should coordinate with DHS and other relevant stakeholders to develop a plan for implementing the federal cybersecurity strategy for the electric grid and ensure that the plan addresses the key characteristics of a national strategy.

**High-Risk Area:** [Ensuring the Cybersecurity of the Nation](#)

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