

Special Report

Management Challenges at the Department of Energy – Fiscal Year 2014

DOE/IG-0899

November 2013



Department of Energy

Washington, DC 20585

November 26, 2013

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman

Inspector General

SUBJECT: INFORMATION: Special Report on "Management Challenges at the

Department of Energy – Fiscal Year 2014"

BACKGROUND

The Department of Energy executes some of the Nation's most complex and technologically advanced missions. Since the passage of the *Department of Energy Organization Act* in 1977, the Department has shifted its emphasis and priorities over time as the Nation's energy and security needs have evolved. In recent years, the Department has focused on issues such as clean energy innovation, energy efficiency and conservation, and science and engineering research and development. While these areas have received increased attention, particularly with the infusion of funding from the *American Recovery and Reinvestment Act of 2009*, the Department has continued its vital work in the areas of environmental cleanup, nuclear weapons stewardship, and nuclear nonproliferation. To advance this diverse portfolio, the Department receives an annual appropriation approaching \$25 billion, employs more than 115,000 Federal and contractor personnel, and manages assets valued at \$180 billion. This includes, among other facilities, an extraordinary complex of national research and development laboratories.

With its critically important missions in mind, the Office of Inspector General identifies what it considers to be the most significant management challenges facing the Department each year. The purpose of this effort is to identify challenges to the Department's wide-ranging operations as well as problems with specific management processes. The overall goal is to focus attention on key issues with the objective of aiding Department managers in their efforts to enhance the effectiveness of agency programs and operations.

MANAGEMENT CHALLENGES

Based on the results of our body of work over the past year, in our judgment, the management challenges list for Fiscal Year (FY) 2014 remains largely consistent with that of the previous year. These challenges include:

- Operational Efficiency and Cost Savings
- Contract and Financial Assistance Award Management
- Cyber Security

- Environmental Cleanup
- Human Capital Management
- Nuclear Waste Disposal
- Safeguards and Security
- Stockpile Stewardship

One notable change involves the removal of Energy Supply from the management challenges list. Initially included in the report for FY 2007, Energy Supply was defined, in part, as achieving a stable and reliable energy supply system. Since that time, these matters have evolved and the area has been subsumed into other management challenge categories.

We also develop an annual "watch list" consisting of significant issues that do not meet the threshold of a management challenge, yet, in our view, warrant special attention by Department officials. This year the watch list includes: *Infrastructure Modernization*; *Loan Guarantee Program*; and *Worker and Community Safety*.

A brief synopsis of each management challenge is included in the attachment. Also included is a summary of a recently issued Office of Inspector General report as an example supporting the challenge area. Additional relevant reports can be found at: http://energy.gov/ig/calendar-year-reports.

DEPARTMENTAL INITIATIVES

In the past year, the Department has taken a number of actions to address long-standing management issues. For example, under your leadership, the Department established a new Office of the Under Secretary for Management and Performance. The stated focus of this office is to consolidate the mission support functions of the Department in order to improve the effectiveness and efficiency of agency operations. Another objective of this reorganization is to improve project management and performance in key areas such as the Department's environmental remediation program. Also, you initiated a review of the structure of the Department's human capital functions. This study, which is nearing completion, seeks to find ways to streamline and enhance agency personnel operations.

We look forward to working with you, the Deputy Secretary, and your leadership team in addressing the Department's management challenges.

Attachment

cc: Deputy Secretary

Acting Administrator, National Nuclear Security Administration Acting Under Secretary for Science and Energy Acting Under Secretary for Management and Performance Chief of Staff Acting Chief Financial Officer

MANAGEMENT CHALLENGES – FISCAL YEAR 2014

Operational Efficiency and Cost Savings

Beginning with our Management Challenges Report for Fiscal Year (FY) 2012, we concluded that the current economic climate and associated Federal budgetary concerns dictated that finding ways to improve efficiency and reduce the cost of agency operations was the preeminent management challenge facing the Department. In doing so, we suggested a series of operational efficiency and cost reduction ideas for management's consideration. These suggestions are more fully described in a previous management challenges report, available at: http://energy.gov/sites/prod/files/IG-0858.pdf.

Recent Department of Energy budget constraints, along with the implementation of sequestration, have only exacerbated our concerns. As a result, we continue to believe that, looking forward, Operational Efficiency and Cost Savings should be a top priority for Department management. Emblematic of the Department's potential opportunities to advance operational efficiencies and potential cost savings, a recent Office of Inspector General (OIG) report examined foreign travel, most notably, opportunities for cost savings related to the Department's sizeable contractor workforce.

The Department of Energy's Management of Foreign Travel October 16, 2012, DOE/IG-0872

The Department and its workforce of 115,000 Federal and contractor personnel have numerous international exchanges and interactions at different levels and for a variety of important programmatic and other purposes. According to the Department's centralized travel database, the Foreign Travel Management System (FTMS), Federal and contractor employees made approximately 109,000 individual international trips at a cost of about \$360 million from FY 2007 through FY 2012. Consistent with the Department's organizational structure and its significant reliance on contractor assistance, the vast majority of these taxpayer-funded trips, in fact about 85 percent, were taken by contractor employees. This equates to over 90,000 contractor employee foreign travel trips in the period with a cost to the Government of just over \$300 million.

Despite the sizable expenditure of Federal funds, the Department had not made a concerted effort to reduce contractor international travel costs. In particular, an October 2012 OIG review found that the FTMS was not being fully utilized to identify overall trends in foreign travel, potential wasteful practices, and possible strategies to reduce the Department's international travel expenditures. Further, while the Department implemented a mandatory 30 percent reduction in Federal employee travel, management officials informed us that parallel action had not been taken to manage or control foreign travel by contractors. Based directly on the information sourced from the FTMS, had the Department applied the 30 percent reduction criteria to the international travel costs incurred by its 100,000 contractor workforce, as much as \$15 million could be saved each year.

The full report is available at: http://energy.gov/sites/prod/files/DOE-IG-0872.pdf.

Contract and Financial Assistance Award Management

As the largest civilian contracting agency in the Federal government, the Department awards contracts, grants, and other financial assistance instruments to industrial companies, small

businesses, academic institutions, and non-profit organizations. In fact, approximately 90 percent of the Department's budget is spent through such instruments. The challenges associated with managing the Department's sizeable contracting portfolio have been recognized internally by the agency as well as externally by the U.S. Government Accountability Office (GAO). Specifically, GAO has included inadequate contract and project oversight on its High-Risk List since 1990.

Given the number of contracts handled by the Department and the complexity and importance of the Department's numerous multi-million dollar projects, we believe that the area of Contract and Financial Assistance Management remains a significant management challenge. As an example of the continuing nature of the challenges associated with contract and project management, the following OIG report summary outlines deficiencies related to the effectiveness of the Department's administration and oversight of the operations of new biomass facilities.

The Department's Administration of Energy Savings Performance Contract Biomass Projects August 26, 2013, DOE/IG-0892

In 2012, to help achieve renewable energy goals and realize energy cost savings, the Department began operating two new biomass facilities located at the Oak Ridge National Laboratory and the Savannah River Site. An August 2013 OIG review disclosed that the Savannah River Site had generally developed and administered its Biomass Facility in an effective manner. However, we found planning and operational issues with the Oak Ridge Biomass Plant could cause the Department to incur \$67 million more than necessary over the life of the project. Specifically, we noted that the Oak Ridge Site Office had not always planned and operated its Biomass Plant to minimize the Government's risk. For instance, it had not mitigated the risk of biomass fuel shortages and cost fluctuations, which could result in fuel costs exceeding original plans/projections by more than \$23 million over the life of the project.

These problems were due in part to inadequate guidance and oversight. The Department had not required major Energy Savings Performance Contract (ESPC) construction projects to adhere to critical elements of its existing capital project management and acquisition directive, and had not developed a process to identify, document and disseminate lessons learned from ESPC projects across the complex. We made several recommendations designed to assist the Department with ongoing biomass projects and with planning, designing and operating future ESPCs and biomass facilities.

The full report is available at: http://energy.gov/sites/prod/files/2013/08/f2/IG-0892.pdf.

Cyber Security

Given the importance and sensitivity of the Department's activities, along with the vast array of data it processes and maintains, cyber security has become a crucial aspect of the Department's overall security posture. Although the Department has implemented numerous countermeasures in recent years, security challenges and threats to the Department's information systems continue and are constantly evolving. Adversaries routinely attempt to compromise the information technology assets of the Department. Over the past year, major intrusions of the Department's information technology systems have highlighted the importance of protecting these systems as well as the difficulty and diligence required to guard against such intrusions.

During our annual evaluation of the Department's information technology systems, we highlighted specific weaknesses and offered recommendations to aid in correcting recognized

deficiencies. Clearly, it is critical that cyber security protective measures keep pace with the growing threat. As a result of these inherent risks and the sensitivity of much of the Department's work, we have identified Cyber Security as a continuing and significant management challenge.

The Department of Energy's Unclassified Cyber Security Program – 2013 October 29, 2013, DOE/IG-0897

Cyber security threats are a major concern for all Federal entities, including the Department of Energy. Several recent cyber attacks against the Department's networks and systems have underscored the importance and urgency of a strong cyber security program. For instance, a recent attacker exploited a known vulnerability resulting in the compromise of personally identifiable information for over 100,000 current and former employees, employee dependents and contractors. The *Federal Information Security Management Act of 2002* (FISMA) established the requirement for Federal agencies to develop, implement and manage agency-wide information security programs, and provide acceptable levels of security for the information and systems that support the operations and assets of the agency.

As part of our responsibilities under FISMA, the OIG conducts an annual independent evaluation to determine whether the Department's unclassified cyber security program adequately protected its unclassified data and information systems. Our most recent FISMA evaluation found that the Department had taken a number of positive steps over the past year to correct cyber security weaknesses related to its unclassified information systems, including corrective actions to resolve 28 of the 38 conditions we identified during our FY 2012 evaluation. In spite of these efforts, we found that significant weaknesses and associated vulnerabilities continued to expose the Department's unclassified information systems to a higher than necessary risk of compromise. Our testing revealed various weaknesses related to security reporting, access controls, patch management, system integrity, configuration management, segregation of duties and security management. In total, we discovered 29 new weaknesses and confirmed that 10 weaknesses from the prior year's review had not been resolved. These problems were spread across 11 of the 26 Department locations where we performed testing. The weaknesses identified occurred, in part, because Department elements had not ensured that cyber security requirements were fully developed and implemented.

The full report is available at: http://energy.gov/sites/prod/files/2013/11/f4/IG-0897.pdf.

Environmental Cleanup

With the end of the Cold War, the Department's environmental remediation mission took on a greater focus as the agency began to dispose of large volumes of radioactive waste resulting from more than 50 years of nuclear defense and energy research work. This effort involves 2 million acres of land and employs more than 30,000 Federal and contractor employees. For example, at one of the largest cleanup efforts of its kind in the world, the Hanford Site in southeastern Washington, 11,000 employees are working to remediate 40 years of plutonium processing which resulted in, among several challenges, millions of gallons of radioactive waste stored in 177 large underground tanks. Cleanup activities at most sites are governed by one or more regulatory agreements or court orders that establish scopes of work, timeframes, and specific achievement milestones. The disposal and cleanup effort is complex and very costly. In fact, at the current date, these efforts are projected to cost more than \$280 billion and will continue well into the foreseeable future.

As has been the case in previous years, Environmental Cleanup remains a management challenge that warrants attention on the part of Departmental management. A notable example of the Department's environmental cleanup challenge, highlighted in the following summary, is the design and construction of the Waste Treatment and Immobilization Plant (WTP) at the Hanford Site.

Department of Energy Quality Assurance: Design Control for the Waste Treatment and Immobilization Plant at the Hanford Site September 30, 2013, DOE/IG-0894

The Department is constructing the \$12.2 billion Waste Treatment and Immobilization Plant to vitrify approximately 56 million gallons of radioactive and chemically hazardous waste stored at the Hanford Site. To ensure the vitrification process is safe for workers, the public and the environment, the Department required the contractor for the WTP, Bechtel National Inc., to develop and follow a quality assurance program based on the American Society of Mechanical Engineer's Quality Assurance Requirements for Nuclear Facility Applications Standard.

In response to an allegation that Bechtel was missing design control documentation for the WTP and as such, could not demonstrate that equipment was appropriately manufactured, a September 2013 OIG review revealed significant shortcomings in the Department's process for managing the design and fabrication changes of waste processing equipment procured for the WTP. The Department had not ensured that Bechtel subjected design changes requested by suppliers to the required review and approval by Bechtel's Environmental & Nuclear Safety Group. Further, the Department had not ensured that Bechtel properly verified that deviations from design requirements that could affect nuclear safety were implemented. Management concurred with our recommendations and provided corrective actions taken and planned to address specific weaknesses identified in our report.

The full report is available at: http://energy.gov/sites/prod/files/2013/10/f3/IG-0894.pdf.

Human Capital Management

For a number of years, strategic management of human capital has been recognized by oversight organizations as one of the Government's most significant challenges. In the past, officials have recognized that the Department's staff lacked adequate project and contract management skills required to oversee large projects. Subsequently, the Department undertook an effort to perform a gap analysis to review and evaluate specific critical skill needs. These actions led to our removal of the human capital focus area from our management challenges in FY 2009. However, given the aging demographic of the contractor and Federal workforces and overall reductions in appropriations as a result of the current budgetary environment, the Department must address the need to maintain a highly skilled workforce with the technical knowledge to perform its broad and important missions. This concern is illustrated by the recent contractor employee layoffs at various Department sites.

The general need for an aggressive and highly effective human capital management program has been highlighted by recent OIG reviews that raised concerns about ethical standards of conduct by Department officials, including nepotism and misuse of position. Most prominently, our recent OIG review substantiated allegations concerning questionable personnel practices at the

Bonneville Power Administration, specifically related to the treatment of veterans in the Federal hiring process. We continue to believe that this challenge represents a critical area that will affect nearly all major program elements.

Review of Allegations Regarding Prohibited Personnel Practices at the Bonneville Power Administration

October 3, 2013, IG-0895

Following a June 2012 Management Alert as a result of an anonymous complaint alleging prohibited personnel practices at the Bonneville Power Administration, in October 2013, the OIG issued a full report on allegations that included violations of Office of Personnel Management regulations and the inappropriate dismissal of veterans during their probationary period. The complaint also alleged violations of Department policies regarding the application of veterans' preference and the use of the category rating process in the exercise of Bonneville's delegated examining authority for competitive hiring.

We found that Bonneville's hiring practices disadvantaged veterans and other applicants. Bonneville consistently manipulated the applicant rating process, and did not fully disclose to the Department that the inappropriate personnel practices had occurred or the adverse impact on veterans and other applicants despite specific requirements to do so. Further, Bonneville neither notified the affected applicants nor did it initiate corrective actions required to remedy the inappropriate practices. In addition, we found that the management culture at Bonneville contributed to an environment that enabled the prohibited practices to occur. Notably, we observed that Bonneville officials spent considerable effort trying to distance the organization from Departmental procedures, processes and oversight.

Compounding problems associated with the general environment and culture, our inquiry revealed that Bonneville exercised inadequate oversight and accountability of its own personnel recruitment functions. In short, there was a massive breakdown in procedures, processes and management attentiveness at several levels of Bonneville's operation. The impact of Bonneville's improper hiring practices was widespread, subjected affected individuals to economic consequences, disrupted Department and Bonneville operations, and exposed the Department to a variety of legal challenges. Most importantly, adversely impacted veterans have not received promised benefits.

The full report is available at: http://energy.gov/sites/prod/files/2013/10/f3/IG-0895.pdf.

Nuclear Waste Disposal

Under the *Nuclear Waste Policy Act of 1982*, as amended, the Department is responsible for the management and safe disposal of high-level defense and commercial waste and spent nuclear fuel. For a number of years, the centerpiece of the Department's efforts relating to the disposal of nuclear waste was the development of the Yucca Mountain Nuclear Waste Repository in Nye County, Nevada. The Department's FY 2010 budget request, however, included no funding for the Yucca Mountain Project, effectively terminating the Office of Civilian Radioactive Waste Management. Since that time, the Blue Ribbon Commission on America's Nuclear Future issued a report at the direction of the President on policies for managing the back end of the nuclear fuel cycle, which includes alternative storage sites. Subsequently, in January 2013, the Department released its *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste*, and is currently working to plan, develop, and implement this strategy.

Given the importance of a coherent strategy on nuclear waste disposal that protects public health, safety, and the environment and until a viable solution for disposal and storage is developed, the area of Nuclear Waste Disposal will be recognized as a significant challenge facing the Department. The following summary on safety aspects of wet storage of spent nuclear fuel reflects ongoing concern in this challenge area.

Safety Aspects of Wet Storage of Spent Nuclear Fuel July 10, 2013, OAS-L-13-11

The Department is responsible for managing and storing spent nuclear fuel (SNF) generated by weapons and research programs and recovered through nonproliferation programs. The SNF consists of irradiated reactor fuel and cut up assemblies containing uranium, thorium and/or plutonium. The Department stores 34 metric tons of heavy metal SNF primarily in two wet storage basins located at the Savannah River Site and the Idaho National Laboratory. Wet storage requires operational vigilance and reliance on mechanical systems to ensure the safety of workers, the public and the environment. The risk associated with long-term wet storage of SNF is well-demonstrated by the recent disaster in Japan. While not subject to damage from tsunamis, environmental or mechanical issues are within the realm of possible damage scenarios faced by the Department's SNF storage facilities.

Because it lacks a clear disposition path, the Department had not developed definitive plans to dispose of its SNF. As noted previously, in FY 2010, the Department withdrew its intent to develop a geological repository at Yucca Mountain, Nevada to dispose of SNF and high-level waste. Then in 2011, the Department deferred processing aluminum-clad SNF, some of which is in wet storage, until recommendations of the Blue Ribbon Commission on America's Nuclear Future were issued and evaluated. As a consequence, the Department determined it must maintain interim SNF wet storage facilities longer than planned and until disposition options become available.

Given the lack of disposition paths, the Department is taking steps to manage the safety of its SNF wet storage basins. A July 2013 OIG review revealed that, as required by both Federal and Department regulations, program officials had analyzed the risks related to storage, documented these analyses, and concluded that the continued use of the wet storage facilities was appropriate. While the Savannah River Site has initiated activities designed to support the prolonged storage of SNF in L-Basin, completion of these activities is being deferred due to funding constraints.

The full report is available at: http://energy.gov/sites/prod/files/2013/07/f2/OAS-L-13-11.pdf.

Safeguards and Security

Given the purpose of the Manhattan Project and resulting activities, the origins of the Department are inexorably linked to national security. While the Department has shifted its focus over time, special emphasis on safeguards and security has remained a vital aspect of the Department's mission. In order to faithfully execute its mission, the Department employs numerous security personnel, protects various classified materials and other sensitive property, and develops policies designed to safeguard national security and other critical assets. Last year, Safeguards and Security was elevated to the management challenges list primarily as a result of events at the Y-12 National Security Complex (Y-12), which highlighted the need for a robust security apparatus with effective Federal oversight. Further, as a direct result of the Y-12 security breach, the Department reported the Y-12 incident as a material weakness in its FY 2012

Statement of Assurance. Given the policy issues that have arisen as a result of this event and the importance of ensuring the safe and secure storage of nuclear materials at Department sites, Safeguards and Security remains a significant management challenge.

Review of the Compromise of Security Test Materials at the Y-12 National Security Complex October 26, 2012, IG-0875

Following the July 28, 2012, security breach at the Y-12 National Security Complex, the Department's Office of Health, Safety and Security (HSS) was tasked with conducting a comprehensive inspection of the site's security organization. The inspection, initiated on August 27, 2012, included both practical exercises and tests designed to evaluate the knowledge, skills and abilities of the site's Protective Force. In our continued monitoring of the situation, the OIG initiated a special review into an alleged compromise of the HSS inspection.

Our October 2012 review confirmed that the security knowledge test, including answers to the test questions, had been compromised and that it had been distributed in advance of the test to numerous WSI-Oak Ridge Captains, Lieutenants, and Security Police Officers, the very people whose knowledge was to have been evaluated as part of this process. Specifically, despite the fact that the document was labeled as a test and was initially distributed via encrypted email to individuals appointed as "Trusted Agents," WSI-Oak Ridge officials treated the document as if it were a training aid, mentioned its receipt at daily Protective Force supervisor meetings, and widely distributed it to a variety of officers.

As with the previous intrusion at the Highly Enriched Uranium Materials Facility described in our August 2012 Special Report on *Inquiry into the Security Breach at the National Nuclear Security Administration's Y-12 National Security Complex*, problems with the administration of NNSA's contractor governance system appeared to have had a role in the compromise of the test materials at Y-12. Certainly, the assurance system did not prevent the compromise. Therefore, we made several recommendations that, if fully implemented, should help restore confidence in the integrity of the Department's protective forces.

The full reports are available at: http://energy.gov/sites/prod/files/IG-0875_2.pdf and http://energy.gov/sites/prod/files/IG-0868_0.pdf.

Stockpile Stewardship

The Department is responsible for the maintenance, certification, and reliability of the Nation's nuclear weapons stockpile. To help ensure that our nuclear weapons continue to serve their essential deterrence role, the Department conducts stockpile surveillance and engineering analyses, refurbishes selected nuclear systems, and sustains the ability to restore the manufacturing infrastructure for the production of replacement weapons. Our reviews in recent years have suggested that sustained efforts to improve operational efficiency are necessary to manage problems associated with an aging weapons complex and the implementation of multiple, overlapping weapons life extensions within a constrained budget environment.

While the Department has taken action in recent years to further enhance the safety and reliability of the Nation's nuclear weapons stockpile, sustained efforts will be necessary if the Department is to extend the life of aging warheads and maintain a viable weapons stockpile. Emblematic of these efforts to enhance the safety and reliability of the stockpile, a recent OIG review examined the Department's transfer of criticality experiment capabilities.

Resumption of Criticality Experiments Facility Operations at the Nevada National Security Site September 30, 2013, OAS-M-13-09

Citing safety and security concerns, in 2004, NNSA halted criticality experiments at the Los Alamos National Laboratory and authorized a capital project to transfer this capability to the Device Assembly Facility at the Nevada National Security Site. The project remodeled a portion of the Device Assembly Facility to form the National Criticality Experiments Research Center (NCERC). A September 2013 review found that NNSA restored many of the former capabilities of the Criticality Experiments Facility at the NCERC in Nevada. We noted, however, that several problems with start-up activities resulted in delays in restoring the full array of experimental capabilities included in the project. Specifically, NNSA was unable to authorize the start-up of NCERC operations until May 2011. The program experienced further delays in the start-up activities of each criticality machine. Further, NCERC has been unable to restore its full capability to perform plutonium-based criticality experiments.

The delays in restoring capabilities occurred because NNSA had not ensured that contractors had developed adequate procedures for correcting concerns identified during the process to authorize the start-up of NCERC, the safety basis documentation matched facility conditions, and procured safety equipment met cited standards. Additionally, NNSA had not ensured effective management of the multiple contractors involved in developing and amending the safety basis documentation. Finally, NNSA has struggled to successfully integrate and resolve issues between the multiple contractors involved in NCERC facility operations.

The full report is available at: http://energy.gov/sites/prod/files/2013/10/f3/OAS-M-13-09.pdf.

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