MODERNIZING THE NUCLEAR SECURITY ENTERPRISE

Observations on the Organization and Management of the National Nuclear Security Administration

Statement of Gene Aloise, Director
Natural Resources and Environment
Why GAO Did This Study

During the late 1990s, DOE had difficulties with a lack of clear management authority and responsibility that contributed to security problems at the nation’s nuclear weapons laboratories and management problems with major projects. In response, Congress created NNSA as a separately organized agency within DOE under the NNSA Act. NNSA is responsible for managing nuclear weapon- and nonproliferation-related national security activities in laboratories and other facilities, collectively known as the nuclear security enterprise. GAO continues to identify problems across the nuclear security enterprise, from projects’ cost and schedule overruns to inadequate oversight of safety and security at NNSA’s sites. With NNSA proposing to spend tens of billions of dollars to modernize its facilities, it is important to ensure scarce resources are spent in an effective and efficient manner.

This testimony addresses (1) NNSA’s early experiences organizing and operating as a separately organized agency within DOE and (2) NNSA’s efforts to correct long-standing management deficiencies. It is based on prior GAO reports issued from January 1995 to March 2012.

DOE and NNSA continue to act on the numerous recommendations GAO has made to improve NNSA’s management. GAO will continue to monitor DOE’s and NNSA’s implementation of these recommendations.

What GAO Found

After the enactment of Title 32 of the National Defense Authorization Act for Fiscal Year 2000 (NNSA Act), the Department of Energy (DOE) and the National Nuclear Security Administration (NNSA) struggled to determine how NNSA should operate as a separately organized agency within the department. A number of factors contributed to this. First, DOE and NNSA did not have a useful model to follow for establishing a separately organized agency in DOE. Several federal agencies were suggested as models, such as the National Oceanic and Atmospheric Administration in the Department of Commerce. However, GAO reported in January 2007 that agency officials GAO interviewed did not consider their agency to be separately organized or believed that their agency’s operational methods were transferable to NNSA. Second, DOE’s January 2000 plan to implement the NNSA Act did not define how NNSA would operate as a separately organized agency within DOE. Internal DOE opposition to the creation of NNSA led the department to fill virtually every significant statutory position in NNSA with DOE officials (i.e., having DOE officials contemporaneously serve in NNSA and DOE positions). As GAO testified in April 2001, this practice of “dual-hatting” caused considerable concern about NNSA’s ability to independently function. Also, lack of formal agreement between DOE and NNSA in a number of key areas such as, among others, budgeting and procurement, led to organizational conflicts that inhibited effective operations. Even where formal procedures were developed, interpersonal disagreements hindered effective cooperation. For example, a January 2007 GAO report described the conflict between NNSA and DOE counterintelligence offices, which led to Congress subsequently amending the NNSA Act to consolidate the counterintelligence programs of DOE and NNSA under DOE.

NNSA has made considerable progress resolving some of its long-standing management deficiencies, but significant improvement is still needed especially in NNSA’s management of its major projects and contracts. GAO reported in June 2004 that NNSA has better delineated lines of authority and has improved communication between its headquarters and site offices. In addition, NNSA’s establishment of an effective headquarters security organization has made significant progress resolving many of the security weaknesses GAO has identified. Nevertheless, NNSA continues to experience major cost and schedule overruns on its projects, such as research and production facilities and nuclear weapons refurbishments, principally because of ineffective oversight and poor contractor management. In some areas, NNSA can be viewed as a success. Importantly, NNSA has continued to ensure that the nuclear weapons stockpile remains safe and reliable in the absence of underground nuclear testing. At the same time, NNSA’s struggles in defining itself as a separately organized agency within DOE, and the considerable management problems that remain have led to calls in Congress and other organizations to increase NNSA’s independence from DOE. However, senior DOE and NNSA officials have committed to continuing reform, and DOE’s and NNSA’s efforts have led to some management improvements. As a result, GAO continues to believe, as it concluded in its January 2007 report, that drastic organizational change to increase independence is unnecessary and questions whether such change would solve the agency’s remaining management problems.
Chairman Turner, Ranking Member Sanchez, and Members of the Subcommittee:

We are pleased to be here today to discuss the creation and implementation of the National Nuclear Security Administration (NNSA)—a separately organized agency within the Department of Energy (DOE). As you know, NNSA is responsible for the management and security of the nation’s nuclear weapons, nuclear nonproliferation, and naval reactor programs at research and development laboratories, production plants, and other facilities known collectively as the nuclear security enterprise.

During the late 1990s, DOE experienced management difficulties with its nuclear weapons program that contributed to security problems at the nation’s nuclear weapons laboratories and significant cost overruns on major projects. According to a June 1999 report by the President’s Foreign Intelligence Advisory Board, DOE’s management of the nuclear weapons laboratories, while representing “science at its best,” also embodied “security at its worst” because of “organizational disarray, managerial neglect, and…a culture of arrogance.” The board urged Congress to create a new organization that, whether established as an independent agency or a semiautonomous agency within DOE, would have a clear mission, streamlined bureaucracy, and drastically simplified lines of authority and accountability. Responding to the board’s recommendations, Congress created NNSA under Title 32 of the National Defense Authorization Act for Fiscal Year 2000—the NNSA Act.

The NNSA Act established NNSA as a “separately organized agency” within DOE. The act established the position of DOE Under Secretary for Nuclear Security, who was also designated as the Administrator of NNSA. The Secretary of Energy and the Deputy Secretary of Energy were allowed to establish policy for NNSA and to give direction to NNSA through the Administrator; however, other DOE employees were

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1 Specifically, NNSA manages three national nuclear weapon design laboratories—Lawrence Livermore National Laboratory in California, Los Alamos National Laboratory in New Mexico, and Sandia National Laboratories in New Mexico and California. It also manages four nuclear weapons production plants—the Pantex Plant in Texas, the Y-12 National Security Complex in Tennessee, the Kansas City Plant in Missouri, and the Tritium Extraction Facility at DOE’s Savannah River Site in South Carolina. NNSA also manages the Nevada National Security Site, formerly known as the Nevada Test Site.

prohibited from directing the activities of individual NNSA employees. In addition, the NNSA Act required that, among other things, NNSA develop a planning, programming, and budgeting process to ensure that NNSA operated under sound financial management principles. Using this planning, programming, and budgeting process, NNSA is also required to annually submit to Congress a Future Years Nuclear Security Program (FYNSP) plan that details NNSA’s planned expenditures for the next 5 years.

DOE’s and NNSA’s management of the nuclear security enterprise has been the subject of much criticism. The department’s problems are longstanding. For example, we first designated DOE’s management of its contracts as an area at high risk of fraud, waste, abuse, and mismanagement in 1990 because of the department’s record of inadequate management and oversight of its contractors. In January 1995, we reported that DOE’s laboratories did not have clearly defined missions that focus their considerable resources on accomplishing the department’s changing objectives and national priorities.\(^3\) Noting that the laboratories have made vital contributions to the nation’s defense and civilian science and technology efforts, we reported that DOE had not coordinated these laboratories’ efforts to solve national problems but had instead managed each laboratory on a program-by-program basis. The establishment of NNSA as a semiautonomous agency within DOE in 2000 was intended to correct these long-standing and widely recognized DOE management problems, which had been underscored by significant cost overruns on major projects and security problems at the national laboratories.

NNSA’s creation, however, has not yet had the desired effect of fully resolving these management problems. Progress has been made, but NNSA and DOE’s Office of Environmental Management remain on our high-risk list.\(^4\) Furthermore, we continue to identify problems across the nuclear security enterprise, ranging from significant cost and schedule overruns on major projects to ineffective federal oversight of safety and


security at NNSA’s sites. Security violations have also been raised by national laboratory and other officials that DOE’s and NNSA’s oversight of the laboratories’ activities has been excessive and that the safety and security requirements the laboratories are subject to are overly prescriptive and burdensome, which has resulted in a negative effect on the quality of science performed at these laboratories.

In January 2007, we testified before this Subcommittee on the extent to which NNSA has taken steps to improve security at its facilities, improve its management practices, and revise its organizational structure. Similarly, in February 2012, we testified before this Subcommittee on NNSA’s management of the nuclear security enterprise. My testimony today, which is based on these and other reports and testimonies we have issued since NNSA’s creation, discusses (1) NNSA’s early experiences organizing and operating as a separately organized agency within DOE and (2) NNSA’s efforts to correct long-standing management deficiencies. Detailed information about scope and methodology can be found in our issued reports. We conducted the performance audit work that supports this statement in accordance with generally accepted government auditing standards. Those standards require that we plan and perform audits to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.


DOE is responsible for a diverse set of missions, including nuclear security, energy research, and environmental cleanup. These missions are managed by various organizations within DOE and largely carried out by contractors at DOE sites. According to federal budget data, NNSA is the largest organization in DOE, overseeing nuclear weapons, nuclear nonproliferation, and naval reactors missions at its sites. With a $10.5 billion budget in fiscal year 2011—nearly 40 percent of DOE’s total budget—NNSA is responsible for, among other things, providing the United States with safe, secure, and reliable nuclear weapons in the absence of underground nuclear testing and maintaining core competencies in nuclear weapons science, technology, and engineering. Ensuring that the nuclear weapons stockpile remains safe and reliable in the absence of underground nuclear testing is extraordinarily complicated and requires state-of-the-art experimental and computing facilities, as well as the skills of top scientists in the field. Over the past decade, the United States has invested billions of dollars in sustaining the cold war-era stockpile and upgrading the laboratories and, in 2011, the administration announced plans to request $88 billion from Congress over the next decade to operate and modernize the nuclear security enterprise and ensure that base scientific, technical, and engineering capabilities are sufficiently supported, and the nuclear deterrent in the United States can continue to be safe, secure, and reliable.

Under DOE’s long-standing model of having unique management and operating (M&O) contractors at each site, management of its sites has historically been decentralized and, thus, fragmented. Since the Manhattan Project produced the first atomic bomb during World War II, NNSA, DOE, and their predecessor agencies have depended on the expertise of private firms, universities, and others to carry out research and development work and efficiently operate the facilities necessary for the nation’s nuclear defense. DOE’s relationship with these entities has been formalized over the years through its M&O contracts—agreements that give DOE’s contractors unique responsibility to carry out major portions of DOE’s missions and apply their scientific, technical, and management expertise.8

8 M&O contracts are agreements under which the government contracts for the operation, maintenance, or support, on its behalf, of a government-owned or -controlled research, development, special production, or testing establishment wholly or principally devoted to one or more of the major programs of the contracting federal agency. Federal Acquisition Regulation, 48 C.F.R. § 17.601.
Currently, DOE spends 90 percent of its annual budget on M&O contracts, making it the largest non-Department of Defense contracting agency in the government. The M&O contractors at DOE’s NNSA sites have operated under DOE’s direction and oversight but largely independently of one another. Various headquarters and field-based organizations within DOE and NNSA develop policies, and NNSA site offices, collocated with NNSA’s sites, conduct day-to-day oversight of the M&O contractors and evaluate the contractors’ performance in carrying out the sites’ missions.

DOE and NNSA Struggled to Determine How NNSA Should Operate as a Separately Organized Agency

NNSA focused considerable attention on reorganizing its internal operations; however, it and DOE have struggled with establishing how NNSA should operate as a separately organized agency within the department. Several factors contributed to this situation. First, DOE and NNSA did not have a useful model to follow for establishing a separately organized agency in DOE. The President’s Foreign Intelligence Advisory Board’s June 1999 report suggested several federal agencies, such as the National Oceanic and Atmospheric Administration in the Department of Commerce, which could be used as a model for NNSA. However, as we reported in January 2007, none of the agency officials we interviewed considered their agency to be separately organized or believed that their agency’s operational methods were transferable to NNSA. Second, DOE’s January 2000 implementation plan, which was required by the NNSA Act, did not define how NNSA would operate as a separately organized agency within DOE. Instead, reflecting the opposition of the then DOE senior leadership to the creation of NNSA, the implementation plan “dual-hatted” virtually every significant statutory position in NNSA with DOE officials (i.e., having DOE officials contemporaneously serve in NNSA and DOE positions), including the Director of NNSA’s Office of Defense Nuclear Counterintelligence and General Counsel. As we testified in April 2001, this practice caused considerable concern about NNSA’s ability to function with the independence envisioned in the NNSA

Act.\textsuperscript{10} Dual-hatting was subsequently forbidden by an amendment to the NNSA Act.\textsuperscript{11}

A lack of formal agreement between DOE and NNSA in a number of key areas—budgeting, procurement, information technology, management and administration, and safeguards and security—resulted in organizational conflicts that inhibited effective operations. Even where formal procedures were developed, interpersonal disagreements hindered effective cooperation. For example, our January 2007 report described the conflict between NNSA and DOE counterintelligence offices.\textsuperscript{12} Specifically, NNSA and DOE counterintelligence officials disagreed over (1) the scope and direction of the counterintelligence program, (2) their ability to jointly direct staff in the headquarters counterintelligence program offices, (3) the allocation of counterintelligence resources, (4) counterintelligence policy making and (5) their roles and responsibilities in handling specific counterintelligence matters. Subsequently, Congress amended the NNSA Act to consolidate the counterintelligence programs of DOE and NNSA under the Department of Energy.\textsuperscript{13}

These persistent challenges defining NNSA’s role as a separately organized agency have led to calls in Congress and other organizations to enhance NNSA’s ability to operate independently of DOE. For example, the Defense Science Board proposed in 2006 that a completely independent nuclear weapons agency be created.\textsuperscript{14} DOE’s Office of Inspector General has also recently questioned the relationship between DOE and NNSA. Specifically, in November 2011, DOE’s Office of Inspector General reported that NNSA, as a result of its separately

\textsuperscript{10} GAO-01-602T
\textsuperscript{12} GAO-07-36.
\textsuperscript{14} The Defense Science Board provides the Department of Defense with independent advice and recommendations on matters relating to the department’s scientific and technical enterprise See Defense Science Board Task Force, Nuclear Capabilities (Washington, D.C.: December 2006).
organized status, maintains a costly set of distinctly separate overhead and indirect cost operations that often duplicate existing DOE functions.\textsuperscript{15} For example, NNSA retains separate functions in areas such as, among others, congressional affairs, general counsel, human resources, procurement and acquisition, and public affairs. According to this November 2011 report, these redundant operations are costly and can complicate communications and program execution. There have been continuing calls for removing NNSA from DOE and establishing it as a separate agency. We reported in January 2007 that former senior DOE and NNSA officials with whom we spoke generally did not favor removing NNSA from DOE; we concluded that such drastic change was unnecessary to produce an effective organization.\textsuperscript{16}

Since its creation, NNSA has made considerable progress resolving some of its long-standing management deficiencies. For example, we reported in June 2004 that NNSA had better delineated lines of authority and improved communication between NNSA headquarters and its site offices.\textsuperscript{17} Furthermore, our January 2007 report contained 21 recommendations to the Secretary of Energy and the Administrator of NNSA that were intended to correct deficiencies in five areas—organization, security, project management, program management, and financial management. DOE and NNSA have taken important steps to address most of these recommendations. For example, to improve security, we recommended that the Administrator of NNSA, among other things, implement a professional development program for security staff to ensure the completion of needed training, develop a framework to evaluate results from security reviews and guide security improvements, and establish formal mechanisms for sharing and implementing lessons learned across the weapons complex. NNSA’s establishment of an effective headquarters security organization has made significant progress implementing these recommendations by performing security

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\textsuperscript{16} GAO-07-36

reviews, developing security performance measures, and instituting a security lessons-learned center.

Nevertheless, NNSA continues to experience significant deficiencies, particularly in its management of major projects and contracts. As we testified in February 2012, a basic tenet of effective management is the ability to complete projects on time and within budget. However, for more than a decade, NNSA has continued to experience significant cost and schedule overruns on its major projects, principally because of ineffective oversight and poor contractor management. We have reported that NNSA’s efforts to extend the operational lives of nuclear weapons in the stockpile have experienced cost increases and schedule delays, such as a $300 million cost increase and 2-year delay in the refurbishment of the W87 nuclear warhead and a $70 million cost increase and 1-year delay in the refurbishment of the W76 nuclear warhead. Furthermore, we reported that the estimated cost to construct a modern Uranium Processing Facility at NNSA’s Y-12 National Security Complex experienced a nearly sevenfold cost increase from between $600 million and $1.1 billion in 2004 to between $4.2 billion and $6.5 billion in 2011. We also reported in March 2012 that NNSA’s project to construct a new plutonium research facility at Los Alamos National Laboratory—the Chemistry and Metallurgy Research Replacement Nuclear Facility—would cost between $3.7 billion and $5.8 billion—nearly a sixfold increase from NNSA’s original estimate. NNSA’s February 2012 decision to defer construction of this facility for at least 5 years will result in a total delay of between 8 and 12 years from its original plans.

NNSA’s planning, programming, and budgeting process has also experienced a setback, which raises questions about the process’s

18 GAO-12-473T.


capability and flexibility. Specifically, NNSA’s modernization and operations plans are detailed and annually updated in the agency’s Stockpile Stewardship and Management Plan (SSMP), which provides details of nuclear security enterprise modernization and operations plans over the next two decades. In addition, as discussed above, the NNSA Act requires NNSA to annually submit to Congress an FYNSP—a budget document approved by the Office of Management and Budget that details NNSA’s planned expenditures for the next 5 years. Furthermore, Section 1043 of the National Defense Authorization Act for Fiscal Year 2012 requires the Department of Defense and NNSA to jointly produce an annual report that, among other things, provides a detailed 10-year estimate of modernization budget requirements. NNSA neither submitted an FYNSP based on “programmatic requirements” nor the Section 1043 annual report with its fiscal year 2013 budget submission. In addition, NNSA has yet to release an updated SSMP. According to the Secretary of Energy, the August 2011 Budget Control Act created “new fiscal realities” that have caused the agency to revise its long-range modernization and operations plans and budget. An NNSA official told us that the revised plans, which will include the FYNSP, Section 1043 annual report, and updated SSMP should be completed in July 2012. We are currently reviewing NNSA’s planning, programming, and budgeting process in response to a request from the Subcommittee on Energy and Water Development, Senate Committee on Appropriations, and we expect to issue a report on this work in the next few months.

In conclusion, producing a well-organized and effective agency out of what was widely considered a dysfunctional enterprise has been a considerable challenge. In some areas, NNSA can be viewed as a success. In particular, NNSA has successfully ensured that the nuclear

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22 The NNSA fiscal year 2013 budget submission said that future year funding levels based on actual programmatic requirements will be produced a later date.

23 The Budget Control Act of 2011, amending the Balanced Budget and Emergency Deficit Control Act of 1985, establishes limits on discretionary spending for fiscal years 2012 through 2021. In addition, the act specifies additional limits on discretionary spending and automatic reductions in direct spending because legislation was not enacted that would reduce projected deficits by at least $1.2 trillion by the end of fiscal year 2021. Among other things, the Budget Control Act requires the Office of Management and Budget to calculate, and the President to order, a sequestration of discretionary and direct spending on January 2, 2013, to achieve reductions for that fiscal year. See GAO, Agency Operations: Agencies Must Continue to Comply with Fiscal Laws Despite the Possibility of Sequestration, GAO-12-675T (Washington, D.C.: Apr. 25, 2012).
weapons stockpile remains safe and reliable in the absence of underground nuclear testing, accomplishing this complicated task by using state-of-the-art facilities, as well as the skills of top scientists. As we testified in February 2012, maintaining government-owned facilities that were constructed more than 50 years ago and ensuring M&O contractors are sustaining critical human capital skills that are highly technical in nature and limited in supply are both difficult undertakings. Careful federal oversight over the tens of billions of dollars NNSA proposes to spend to modernize nuclear facilities will be necessary to ensure these funds are spent in as an effective and efficient manner as possible, especially given NNSA’s record of weak management of its major projects.

Over the past decade, we have made numerous recommendations to DOE and NNSA to improve their management and oversight practices. DOE and NNSA have acted on many of these recommendations and have made considerable progress. Nevertheless, enough significant management problems remain that prompt some to call for removing NNSA from DOE and either moving it to another department or establishing it as a separate agency. As we concluded in January 2007, however, we do not believe that such drastic changes are necessary, and we continue to hold this view today. Importantly, we are uncertain whether such significant organizational changes to increase NNSA’s independence would produce the desired effect of creating a modern, responsive, effective, and efficient nuclear security enterprise. In light of the substantial leadership commitment to reform made by senior DOE and NNSA officials, and the significant improvements that have already been made, we believe that NNSA remains capable of delivering the management improvements necessary to be an effective organization, and we will continue to monitor NNSA’s progress making these improvements.

Chairman Turner, Ranking Member Sanchez, and Members of the Subcommittee, this completes my prepared statement. I would be pleased to respond to any questions you may have at this time.

If you or your staff members have any questions about this testimony, please contact me at (202) 512-3841 or aloisee@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this testimony. GAO staff who made key contributions to this testimony are Allison Bawden, Ryan T. Coles,
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