

October 2007

SECURING U.S. NUCLEAR MATERIAL

DOE Has Made Little Progress Consolidating and Disposing of Special Nuclear Material





Highlights of [GAO-08-72](#), a report to congressional requesters

Why GAO Did This Study

The Department of Energy (DOE) recognizes that a terrorist attack on a DOE site containing material that can be used in a nuclear weapon could have devastating consequences. DOE currently stores special nuclear material at 10 sites in 8 states. To reduce security costs, DOE plans to consolidate the material at fewer sites and dispose of material that it no longer needs. In 2005, DOE chartered the Nuclear Material Disposition and Consolidation Coordination Committee (the committee) to plan for consolidation and disposition of DOE's special nuclear material. GAO was asked to (1) examine DOE's progress in consolidating and disposing of special nuclear material and (2) determine if DOE's plans to consolidate and dispose of special nuclear material can be implemented on schedule and within cost. To do this, GAO reviewed the committee's plans and discussed consolidation and disposition with DOE officials.

What GAO Recommends

GAO recommends that DOE (1) specify who in the department is responsible for final approval of the committee's plans and (2) require that the plans include descriptions of organizational roles and responsibilities and performance measures. In commenting on a draft of the report, DOE agreed with the recommendations but believed that the report did not sufficiently recognize DOE's progress.

To view the full product, including the scope and methodology, click on [GAO-08-72](#). For more information, contact Gene Aloise at (202) 512-3841 or aloise@gao.gov.

SECURING U.S. NUCLEAR MATERIAL

DOE Has Made Little Progress Consolidating and Disposing of Special Nuclear Material

What GAO Found

Although the committee has spent nearly 2 years planning to consolidate and dispose of special nuclear material, it has drafted only two of the eight implementation plans it intends to develop; and complexwide consolidation and disposition activities have not yet begun. The committee has drafted plans for consolidating and disposing of plutonium-239 and for disposing of uranium-233:

- *Plutonium-239*: Under the committee's plutonium-239 plan, surplus plutonium currently stored at the Hanford Site, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory will be consolidated at the Savannah River Site. Much of the plutonium-239 would then be prepared for permanent disposition through vitrification—a process that mixes nuclear material with molten glass, which is then poured into metal canisters where it hardens. The vitrified plutonium-239 would be stored on site inside large canisters filled with vitrified high-level radioactive waste and, if DOE's plans are realized, later be permanently disposed of at a geologic repository to be built at Yucca Mountain, Nevada.
- *Uranium-233*: Under the committee's draft uranium-233 plan, most of DOE's uranium-233 will be disposed of by mixing it with other uranium isotopes to convert it into a more stable form that requires less security and that is suitable for long-term storage or disposition as radioactive waste. DOE has begun activities to modify an existing facility that can perform this process at Oak Ridge National Laboratory, where most of DOE's uranium-233 is currently stored. Other sites that store uranium-233 would either ship it to Oak Ridge for processing or send it to DOE radioactive waste disposal facilities in New Mexico or Nevada.

The remaining six plans are still in early stages of development. Factors that have contributed to DOE's limited progress in finalizing plans include leadership changes on the committee and uncertainty over who in the department has final approval authority for the committee's plans. Because of such factors, DOE is unlikely to meet its goal of completing all eight implementation plans by December 2008.

DOE cannot ensure that its plans are carried out on schedule and within cost because the plans drafted to date have only limited descriptions of organizational roles and responsibilities and lack performance measures to monitor the department's progress toward meeting its consolidation and disposition goals. DOE officials stated that the plans do not need to include such information because a forthcoming revision of a DOE order on nuclear material management will define organizational roles and responsibilities and the department already uses performance measures. However, the revision to the DOE order is not scheduled to be completed until late 2007, and the performance measures that DOE uses are not specifically intended to monitor activities required to implement consolidation and disposition plans.

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Abbreviations

DBT	Design Basis Threat
DOE	Department of Energy
NNSA	National Nuclear Security Administration

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United States Government Accountability Office
Washington, DC 20548

October 4, 2007

The Honorable Joe Barton
Ranking Member
Committee on Energy and Commerce
House of Representatives

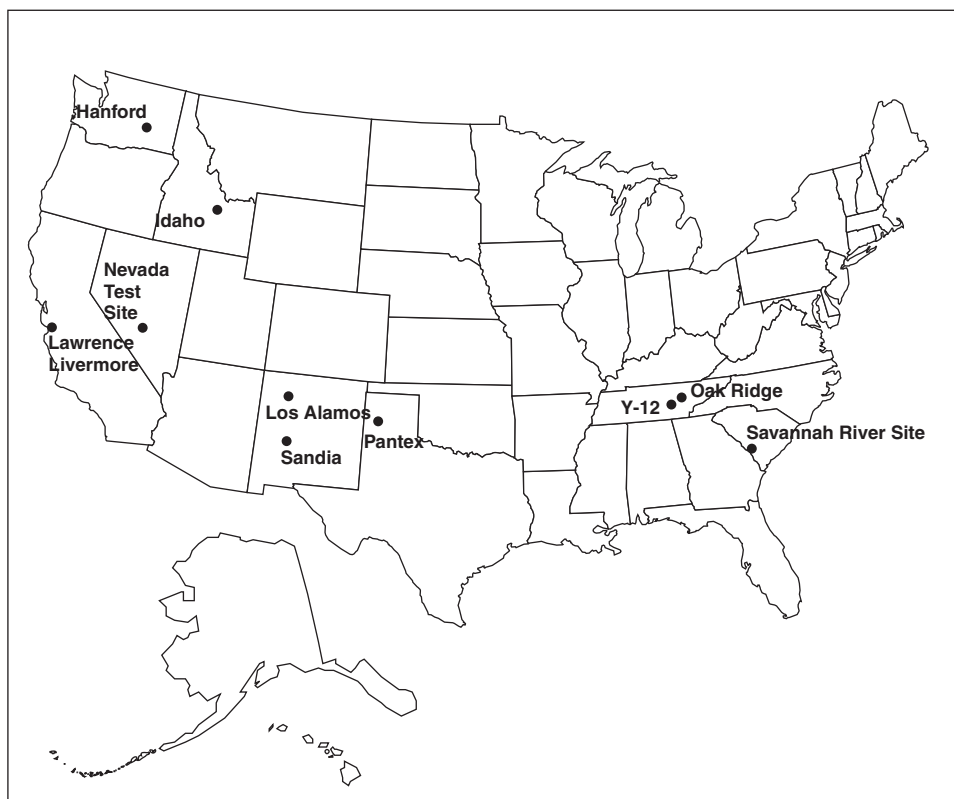
The Honorable Ed Whitfield
Ranking Member
Subcommittee on Oversight and Investigations
Committee on Energy and Commerce
House of Representatives

The Department of Energy (DOE) has long recognized that a successful terrorist attack on a site containing special nuclear material—material that can be used in nuclear weapons such as plutonium-239, uranium-233, and highly enriched uranium (uranium that is enriched to over 20 percent concentration of uranium-235)—could have devastating consequences for the site and its surrounding communities. The National Nuclear Security Administration (NNSA), a separately organized agency within DOE, and other DOE program offices, such as the Office of Environmental Management and the Office of Nuclear Energy, are responsible for the storage, transportation, and management of hundreds of tons of special nuclear material. These organizations currently store special nuclear material at 10 sites in 8 states, including the Hanford Site in Washington, the Pantex Plant in Texas, the Savannah River Site in South Carolina, Idaho National Laboratory in Idaho, Oak Ridge National Laboratory in Tennessee, Y-12 National Security Complex in Tennessee, Lawrence Livermore National Laboratory in California, Los Alamos National Laboratory in New Mexico, Sandia National Laboratory in New Mexico, and the Nevada Test Site in Nevada.

All of the sites listed above have facilities that contain Category I special nuclear material (see fig. 1). Category I material includes specified quantities of plutonium, uranium-233, and highly enriched uranium in the following forms: (1) assembled nuclear weapons and test devices; (2) pure products containing higher concentrations of plutonium, uranium-233, or highly enriched uranium, such as major nuclear components and recastable metal; and (3) high-grade materials, such as carbides, oxides, and nitrates. The risks associated with Category I special nuclear material vary but include (1) the nuclear detonation of a weapon or test device at

or near design yield; (2) the creation of improvised nuclear devices capable of producing a nuclear yield; (3) theft for use in an illegal nuclear weapon; and (4) the potential for sabotage in the form of radioactive dispersal, or “dirty bomb.” Quantities of special nuclear material less than Category I quantities are referred to as Category II, III, and IV quantities. Although Category II, III, IV quantities are not, by themselves, capable of producing a nuclear yield, they must still be secured to prevent theft and use for radioactive dispersal or accumulation for use in a nuclear weapon.

Figure 1: DOE Sites Currently Storing Category I Special Nuclear Material



Source: DOE Draft Strategic Plan.

Because special nuclear material, especially Category I special nuclear material, poses such risks, the costs to secure it can be high. For example, DOE predicts that Lawrence Livermore National Laboratory will spend \$464 million to secure and store Category I and II special nuclear material from fiscal year 2007 through fiscal year 2014. In addition, DOE estimates that continued storage of Category I quantities of plutonium-239 at the Hanford Site will cost over \$800 million through 2018. Many of these costs

could be reduced or avoided, if special nuclear material were consolidated at fewer sites. DOE could also reduce storage costs by permanently disposing of about 50 metric tons of plutonium-239 and about 375 metric tons of highly enriched uranium that the department has determined it no longer needs for nuclear weapons. Unless it disposes of this material, DOE must store it indefinitely—with the department incurring costs for continued storage and security.

In 2005, DOE chartered the Nuclear Materials Disposition and Consolidation Coordination Committee (the committee) to study and plan for the consolidation of DOE’s inventory of special nuclear material at fewer sites (see fig. 2.), and the permanent disposition of material it no longer needs.

Figure 2: Proposed Consolidation Sites for Category I Special Nuclear Material



Source: DOE Draft Strategic Plan.

The committee consists of members from NNSA and the other DOE program offices that manage special nuclear material. Since its creation, the committee has adopted a two-pronged approach to its consolidation planning efforts. First, the committee has been developing a strategic plan that will assist the department in, among other things, identifying opportunities to consolidate and dispose of special nuclear material. When completed, the strategic plan will serve as a high level out-year planning document for the department's program offices to follow in their budgeting and project planning. Second, the committee is developing eight separate implementation plans, which are intended to analyze viable alternatives and cost estimates for each of the eight consolidation and disposition tasks DOE has identified. Specifically, the committee is developing implementation plans to:

- *Remove plutonium pits from Zone 4 at Pantex.* DOE currently stores plutonium “pits”—the central core of a nuclear weapon, consisting largely of plutonium-239—in a secure area at the Pantex Plant known as Zone 4 West. DOE plans to eventually transport pits that are no longer required for nuclear weapons to the Savannah River Site, disassemble them, convert the plutonium-239 into oxide, and blend it with uranium oxide to produce mixed-oxide fuel for commercial nuclear power plants.¹
- *Consolidate and dispose of plutonium-239 in nonpit forms.* In addition to plutonium pits at Pantex, DOE also stores plutonium-239 that is no longer needed for nuclear weapons in nonpit forms, such as contaminated metal, oxides, solutions, and residues remaining from the nuclear weapons production process. Because nonpit plutonium is in forms that can be easily dispersed and plutonium can be dangerous to human health, even in small quantities, it must be stabilized and packaged appropriately to minimize the risk of accidental release. DOE stores most of its nonpit plutonium-239 at Hanford, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, and the Savannah River Site.²

¹For more information on the storage of plutonium pits at Pantex, see GAO, *Nuclear Weapons: Storage of Plutonium Pits at the Pantex Plant*, [GAO-07-539RSU](#) (Washington, D.C.: Mar. 23, 2007).

²For more information on plutonium storage at the Savannah River Site, see GAO, *Securing U.S. Nuclear Materials: DOE Needs to Take Action to Safely Consolidate Plutonium*, [GAO-05-665](#) (Washington, D.C.: July 20, 2005) and GAO, *Securing U.S. Nuclear Materials: Poor Planning Has Complicated DOE's Plutonium Consolidation Efforts*, [GAO-06-164T](#) (Washington, D.C.: Oct. 7, 2005).

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- *Consolidate plutonium-238.* In addition to plutonium-239, DOE also stores plutonium-238, a special nuclear material that is used to produce heat sources for space probes. Most of DOE's plutonium-238 is currently stored at Los Alamos and Idaho National Laboratories, with smaller amounts stored at Lawrence Livermore National Laboratory, Oak Ridge National Laboratory, Hanford, Pantex, and the Savannah River Site. DOE plans to consolidate storage of plutonium-238 and evaluate disposition options for some of its inventory that is not still being used.
 - *Dispose of uranium-233.* DOE has already consolidated the majority of its uranium-233 at Oak Ridge National Laboratory; however, smaller inventories are stored at other laboratories including Los Alamos National Laboratory and Idaho National Laboratory.
 - *Remove Category I and II special nuclear material from Sandia National Laboratory.* Sandia currently stores Category I quantities of highly enriched uranium that are used in the Sandia Pulse Reactor—a fast-burst reactor that is used to simulate nuclear weapons effects.
 - *Remove Category I and II special nuclear material from Los Alamos National Laboratory.* Los Alamos currently stores Category I quantities of plutonium-239, plutonium-238, and smaller amounts of highly enriched uranium that it uses for nuclear weapons certification and design activities and to fabricate new plutonium pits.
 - *Remove Category I and II special nuclear material from Lawrence Livermore National Laboratory.* Lawrence Livermore currently stores Category I quantities of plutonium-239 and smaller amounts of highly enriched uranium that it uses for nuclear weapons certification and design activities.
 - *Consolidate or remove special nuclear material at the Y-12 National Security Complex.* Y-12 currently stores Category I quantities of highly enriched uranium that it uses to fabricate nuclear weapons components. DOE plans to consolidate highly enriched uranium into fewer locations at the site and to remove some material that is no longer needed for nuclear weapons from the site entirely, by blending it with other uranium isotopes to produce fuel for commercial nuclear power plants.

In October 2005, DOE's Principal Deputy Assistant Secretary of Environmental Management, who now chairs the committee, testified that the committee was 1 to 2 years away from completing a strategic plan to consolidate and dispose of special nuclear material. According to the committee's draft strategic plan, it intends to complete its implementation

plans by December 31, 2008. In this context, you asked us to (1) examine the progress DOE has made consolidating and disposing of special nuclear material and (2) determine whether DOE can ensure that these plans will be implemented on schedule and within cost.

To achieve these objectives, we reviewed DOE's draft strategic plan for nuclear materials management and the two implementation plans for the consolidation and disposition of special nuclear materials that the committee has developed to date. We reviewed relevant DOE orders and policies, and we examined environmental assessments and other DOE documents prepared in accordance with the National Environmental Policy Act. We also interviewed members of the committee and their staff, including officials from NNSA and DOE's Office of Environmental Management. Additional information on our objectives, scope, and methodology can be found in appendix I. We conducted our work between August 2006 and October 2007 in accordance with generally accepted government auditing standards.

Results in Brief

Although DOE has spent nearly 2 years planning for the consolidation and disposition of special nuclear material, its plans are incomplete; and complexwide consolidation and disposition activities for special nuclear material have not begun. DOE has completed only two of the eight implementation plans for consolidating and disposing of special nuclear material—one for plutonium-239 in nonpit forms and one for uranium-233:

- The plutonium-239 implementation plan recommends relocating the surplus nonpit plutonium-239 currently stored at Hanford, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory and consolidating it at the Savannah River Site, pending disposition. Much of the plutonium-239 would then be prepared for permanent disposition through vitrification—a process that mixes nuclear material with molten glass, which is then poured into metal canisters, where it hardens. The vitrified plutonium-239 would be stored on site inside large canisters filled with vitrified high level radioactive waste and, if DOE's plans are realized, later be permanently disposed of at a geologic repository to be built at Yucca Mountain, Nevada. Although this is essentially the same plutonium consolidation and disposition strategy the department has proposed since 2005, and despite the fact that the implementation plan states that consolidation could be completed by October 2009 if shipments began in the spring of 2007, shipments of plutonium to the Savannah River Site are not scheduled to begin until October 2007.

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- The draft uranium-233 implementation plan calls for disposing of the majority of DOE's uranium-233 by mixing it with other uranium isotopes to convert it into a more stable form that requires less security and that is suitable for long-term storage or disposition as radioactive waste. DOE currently estimates that modification of an existing facility at Oak Ridge National Laboratory to process the uranium-233 will be completed in 2011 at a cost of approximately \$433.3 million, which includes the cost of securing the material. The facility is planned to operate through 2015. Other sites storing smaller quantities of uranium-233, such as Los Alamos and Idaho National Laboratories, among others, would dispose of uranium-233 either by shipping it to Oak Ridge National Laboratory for processing or transporting it to DOE radioactive waste disposal facilities in New Mexico or Nevada.

The remaining six implementation plans are still in early stages of development and have not yet been reviewed by the committee. Several factors have contributed to DOE's limited progress in finalizing plans, including leadership changes on the committee, insufficient data initially on the quantities of special nuclear material stored by each DOE site, and uncertainty over who in the department has final approval authority for implementation plans developed by the committee. Because of such factors, DOE is unlikely to meet its goal of completing all eight implementation plans by December 2008.

DOE cannot ensure that its implementation plans are carried out on schedule and within cost because the two plans completed to date have only limited descriptions of organizational roles and responsibilities and lack performance measures that could be used to monitor the department's progress toward meeting its consolidation and disposition goals. Neither DOE's plutonium-239 plan nor its uranium-233 plan specifies which DOE organization will ultimately be responsible for ensuring that consolidation and disposition occur. In addition, both plans lack any milestones or other performance measures to track whether plutonium-239 and uranium-233 shipments for consolidation and/or disposition occur on schedule. According to DOE officials, the plans do not need to include such information because, among other things, a forthcoming revision of a DOE order on nuclear material management will define the program offices' and sites' roles and responsibilities, and the department already uses performance measures to monitor nuclear material management activities. However, the revision to the DOE order is not scheduled to be completed until late 2007 and, until the revision is complete, program offices and sites will lack updated guidance on their roles and responsibilities for consolidation and disposition. In addition,

the performance measures that DOE uses—such as the number of containers of enriched uranium packaged for long-term storage and the volume of waste disposed—are not specifically intended to monitor the activities required to implement DOE’s consolidation and disposition plans.

We are recommending that DOE clarify who in the department is responsible for approving implementation plans developed by the committee. We are also recommending that DOE ensure that the implementation plans have clear definitions of organizational roles and responsibilities and performance measures so that the department and outside entities such as the Congress can ensure accountability for successfully implementing these plans and monitor the progress the department is making consolidating and disposing of special nuclear material.

In its comments on a draft version of the report, DOE agreed with our recommendations, but the department stated that we did not give sufficient credit for the progress it has made consolidating and disposing of special nuclear material or for the improvements the committee has made to communication and cooperation within the department. DOE specifically noted that the completion of the plutonium-239 implementation plan will allow the department to begin shipping plutonium from Hanford, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory to the Savannah River Site in early October 2007. We recognized throughout our report the progress DOE has made and the important contributions the committee has made to the department’s consolidation and disposition efforts by improving communication and cooperation among the various DOE program offices and sites that currently store special nuclear material. DOE also provided detailed technical comments that we have incorporated into this report when appropriate.

Background

Since the beginning of the Manhattan Project in the 1940s, a primary mission of DOE and its predecessor organizations has been to design, build, and test the nation’s nuclear weapons. To accomplish this mission, DOE constructed a vast nuclear weapons complex throughout the United States. Much of this complex was devoted to the production and fabrication of nuclear weapons components. In the late 1980s and early 1990s, DOE temporarily suspended some operations throughout the weapons complex because of safety and environmental concerns. Many of these shutdowns became permanent with the end of the Cold War.

Because these shutdowns were initially considered to be temporary, the department did not make long-term plans for the storage or the permanent disposition of special nuclear material before suspending operations. As a result, large quantities of special nuclear material were left without a clear plan for their long-term storage or permanent disposition.

While in storage, DOE must secure special nuclear material from potential terrorists interested in acquiring it for use in a nuclear weapon, improvised nuclear device, or “dirty bomb.” To manage potential security risks, DOE has developed the Design Basis Threat (DBT), a classified document that identifies the potential size and capabilities of terrorist forces. DOE requires the contractors operating its sites to provide sufficient security personnel and equipment to defend against the threats identified in the DBT. Since September 11, 2001, the DBT has been revised several times. The increasing security threats outlined in the DBT have greatly increased the cost of protecting special nuclear material. Although specific measures vary from site to site, all protective systems at the department’s most sensitive sites include the following:

- integrated alarms and sensors capable of detecting intruders;
- physical barriers, such as fences;
- hardened facilities and/or vaults; and
- a heavily armed paramilitary protective force equipped with items such as automatic weapons, night vision equipment, body armor, and chemical protective gear.

To help meet the requirements of the current DBT and reduce overall security costs, DOE plans to consolidate and dispose of special nuclear material that it no longer needs. In 2004, we recommended that DOE develop a departmentwide plan to meet the May 2003 DBT and that this plan should include activities related to consolidation, such as the transportation of special nuclear materials.³ Similarly, in 2005, we recommended that the department develop a detailed plan for the

³GAO, *Nuclear Security: DOE Needs to Resolve Significant Issues Before It Fully Meets the New Design Basis Threat*, [GAO-04-623](#) (Washington, D.C.: Apr. 27, 2004); GAO, *Nuclear Security: Several Issues Could Impede the Ability of DOE’s Office of Energy, Science, and Environment to Meet the May 2003 Design Basis Threat*, [GAO-04-894T](#) (Washington, D.C.: June 22, 2004).

transportation and consolidation of special nuclear materials as part of a departmentwide plan to meet the requirements of the October 2004 DBT.⁴ We also recommended in 2005 that DOE develop a comprehensive strategy for consolidating, storing, and disposing of plutonium.⁵

DOE's Plans to Consolidate and Dispose of Special Nuclear Material Are Not Yet Complete

DOE has spent nearly 2 years developing plans for the consolidation and disposition of special nuclear material, but its plans are incomplete; and complexwide consolidation and disposition activities have not begun. Of the eight implementation plans the department has committed to complete by 2008, DOE has developed only two draft implementation plans: one for consolidating and disposing of plutonium-239, and one for disposing of uranium-233. However, the remaining six implementation plans are still in early stages of development and have not yet been considered by the committee. Several factors have contributed to DOE's limited progress in finalizing plans. These factors include several committee leadership changes and the need for accurate data on the department's nuclear material inventory.

DOE Has Developed Consolidation and Disposition Plans for Plutonium-239 and Uranium-233

DOE has developed implementation plans for plutonium-239 in nonpit forms and uranium-233. Both plans identify the location, form, and quantity of material to be consolidated and/or disposed of and the relevant factors that must be considered before the plans are implemented.

Plutonium-239 Implementation Plan

The plutonium-239 implementation plan recommends relocating the surplus, nonpit plutonium-239 stored at Hanford, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory and consolidating it with plutonium-239 already stored at the Savannah River Site. Removing plutonium-239 from the Hanford site presents the greatest near-term potential cost savings to DOE. By removing plutonium-239 from the site, Hanford would eliminate its only remaining Category I special nuclear material storage facility; and the department would avoid spending several hundred million dollars for security upgrades that would

⁴GAO, *Nuclear Security: DOE's Office of the Under Secretary for Energy, Science and Environment Needs to Take Prompt, Coordinated Action to Meet the New Design Basis Threat*, GAO-05-611 (Washington, D.C.: July 15, 2005).

⁵GAO-05-665 and GAO-06-164T.

be required for this facility to meet DOE's security requirements. The department estimates the cost of security upgrades and continued storage of plutonium-239 at Hanford through 2018 at \$831 million. Once the plutonium-239 is relocated to the Savannah River Site, most of it would then be prepared for permanent disposition through vitrification—a process that would stabilize the plutonium-239 by mixing it with molten glass and then pouring it into small metal canisters, where it hardens. The smaller canisters containing vitrified plutonium-239 would then be placed into larger canisters, which would then be filled with high-level radioactive waste. These large canisters would be stored on-site and, if DOE's plans are realized, eventually shipped to a geologic repository that DOE intends to construct at Yucca Mountain, Nevada. Construction of a new facility at the Savannah River Site to vitrify the plutonium-239 is estimated to be completed in 2012 and to operate through 2019 at a cost of between \$300 million and \$500 million with estimated annual operating costs of \$75 million. DOE is also planning on disposing of smaller quantities of plutonium-239 by processing the plutonium-239 with other high-level radioactive waste in the Savannah River Site's H Canyon facility.

The plutonium-239 implementation plan is essentially the same plutonium consolidation and disposition strategy the department has proposed since 2005; however, shipments of plutonium-239 to the Savannah River Site are not scheduled to begin until October 2007. There are several reasons for DOE's failure to make progress consolidating plutonium-239. First, as discussed in our July 2005 report,⁶ DOE is prohibited from shipping plutonium to the Savannah River Site by law⁷ until a disposition plan is developed and submitted to the Congress. It was not until September 2007, while our draft report was at DOE for review and comment, that DOE submitted the disposition plan required by law. In addition, although the plutonium-239 implementation plan has been approved by the committee and by the committee's Executive Steering Committee—which is comprised of the chairman of the full committee and the Under Secretaries for Energy, Science, and Nuclear Security—DOE officials told us that the plan could not be implemented until the Secretary of Energy approved actions contained in the plan that required secretarial approval.

Uranium-233 Implementation Plan

Most of DOE's uranium-233 is stored at Oak Ridge National Laboratory in Tennessee, in a Category I special nuclear material storage facility known

⁶GAO-05-665.

⁷50 U.S.C. § 2567 (Supp. IV 2004).

as the Building 3019A complex. DOE is planning to equip these buildings to dispose of uranium-233 by mixing it with other uranium isotopes to convert it into a more stable form that requires less security and that is suitable for long-term storage or disposition as radioactive waste—a process known as downblending. The downblended uranium-233 will then be placed in storage at another location at Oak Ridge, and the Building 3019A complex will be closed. Uranium-233, which is a special nuclear material, must be secured to prevent theft, among other things. However, after the material has been downblended, it will not be Category I material, and DOE will no longer have to provide it with a high level of security. According to DOE, construction of a facility at Building 3019A to downblend uranium-233 will be completed in 2011. The department estimates that carrying out its plan for the Building 3019A complex will cost about \$433.3 million, including security and construction expenses. DOE, which has already begun construction activities at Building 3019A, plans to operate the facility through 2015.

In addition to Oak Ridge National Laboratory, DOE stores smaller quantities of uranium-233 at other sites, including the Los Alamos, Idaho, Argonne, and Brookhaven National Laboratories, among others. The draft uranium-233 implementation plan recommends shipping some of Los Alamos National Laboratory's uranium-233 to Oak Ridge National Laboratory. In addition, the plan notes that some sites—such as Idaho, Argonne, and Brookhaven laboratories, among others—possess smaller amounts of uranium-233 that can be disposed of without processing. Although the plan's recommendations vary by site, in general, the plan calls for these sites to send material to DOE waste disposal facilities, such as the Waste Isolation Pilot Plant in New Mexico and the Nevada Test Site. According to DOE's estimates, shipping and disposing of uranium-233 at these facilities will cost more than \$10 million.

Although DOE's uranium-233 plan calls for processing most of the material at Oak Ridge National Laboratory and directly disposing of the remainder, the plan also notes that some material may be retained for programmatic use. For instance, DOE's Brookhaven and New Brunswick laboratories have requested to receive small quantities of uranium-233 currently stored at Building 3019A. In addition, NNSA plans to retain small quantities of material, which will be used to maintain the technologies and infrastructure that would be needed if the United States were to resume nuclear testing. Furthermore, the uranium-233 plan states that NNSA has proposed retaining an additional approximately 45 kilograms of uranium-233 currently stored at Oak Ridge National Laboratory for future use. According to the plan, if this material is retained, it will not be stored at

Oak Ridge; instead, it will be relocated to an unspecified NNSA facility. However, because 45 kilograms constitutes a Category I quantity of uranium-233, any site that receives this material will be required to meet costly security requirements.

Several Factors Have Contributed to the Limited Progress DOE Has Made In Finalizing Consolidation and Disposition Plans

Although DOE and NNSA officials have begun drafting the remaining six implementation plans, the plans have not yet been reviewed by the committee. The committee has not been able to meet its own established timelines for completing these plans. For example, the committee planned to complete implementation plans for removing special nuclear material from Sandia National Laboratory by January 2007 and for consolidating special nuclear material into fewer facilities and removing material no longer needed for nuclear weapons from the Y-12 National Security Complex by March 2007. However, according to a DOE official, the Sandia plan was scheduled to be complete by August 2007, and work on the Y-12 plan did not begin until July 2007. In the interim, Sandia National Laboratory has been working to consolidate and/or remove its special nuclear material under a separate plan that was developed by Sandia in 2004.

Several factors have limited the committee's progress in finalizing consolidation and disposition plans. First, the committee experienced several leadership changes between January 2005 and November 2005. For example, the first chairman of the committee, appointed on January 31, 2005, only held the position until March 2005. The second chair held the position for about 6 months, and the Deputy Secretary of Energy appointed the third and current chair to the position in November 2005. According to DOE officials, these frequent leadership changes hindered the committee's initial planning efforts. In addition, DOE and NNSA program offices that manage special nuclear material had little involvement with early committee efforts. For example, the second chairperson began developing special nuclear material consolidation and disposition plans independent of program offices with nuclear materials management, disposition, and security responsibilities.

Furthermore, prior to the committee's development of consolidation and disposition plans, the committee needed to first determine the exact amounts of special nuclear material stored at each site. DOE maintains a nuclear material inventory assessment database that is designed to identify fiscal year-end nuclear material inventories. However, according to DOE officials, the data in this database are typically between 6 and 18 months old, limiting their usefulness. In April 2006, the committee began

requesting nuclear material inventory data directly from program managers at each site in an effort to identify all nuclear material intended for consolidation and/or permanent disposition. This request resulted in the identification of some special nuclear material, specifically, uranium-233 at one DOE site for which a method for permanent disposition had not yet been determined. This discovery delayed the development of the uranium-233 implementation plan while disposition alternatives were developed.

Another factor that has contributed to the department's limited progress is uncertainty about who is responsible for approving the committee's implementation plans. According to the committee's charter, the committee's Executive Steering Committee is authorized to approve the committee's strategic plan and to direct departmental resources required to implement the approved strategic plan. Although the charter is silent on who approves individual implementation plans, the committee has been preparing implementation plans under the assumption that they would be approved by the Executive Steering Committee and subsequently carried out under its authority. As previously noted, the plutonium-239 implementation plan has been approved by the Executive Steering Committee; however, the uranium-233 implementation plan, to date, has not. Notwithstanding the Executive Steering Committee's approval of the plutonium-239 implementation plan in early 2007, this plan has only recently begun to be carried out. This is because DOE's Office of General Counsel has taken the position that, despite the authority provided in the committee's charter for the Executive Steering Committee to approve and implement the committee's strategic plan, the department must comply with all statutory and regulatory requirements associated with actions contained in the committee's implementation plans prior to the plans being carried out. DOE's Office of General Counsel considers the implementation plans to be only recommendations until the Secretary approves such actions. The plutonium-239 implementation plan listed among actions "proposed to be taken" the Secretary's submittal of a disposition plan to the Congress. The Secretary did not submit the disposition plan until September 2007.

DOE's Plans Lack Information Necessary to Help Ensure Their Implementation Is on Schedule and within Cost

DOE cannot ensure that its implementation plans for consolidating and disposing of special nuclear material will be carried out on schedule and within cost because the two plans completed to date include only limited information on organizational roles and responsibilities—such as who is ultimately responsible for ensuring that consolidation and disposition occur—and they lack performance measures, such as milestones and outcome-related measures. DOE officials told us it is addressing organizational roles and responsibilities and performance measures through, among other things, a forthcoming revision to a DOE order on nuclear materials management and existing performance measures used to monitor nuclear material management. However, the revision to the DOE order is not scheduled to be completed until late 2007; and until it is complete, program offices and sites will lack updated guidance on their roles and responsibilities for consolidation and disposition. Furthermore, DOE's existing performance measures are not specifically intended to monitor the department's progress in implementing its consolidation and disposition plans. For instance, the Savannah River Site uses various performance measures, such as the number of containers of enriched uranium packaged for disposition. According to a DOE official, however, these measures—known collectively as the “gold chart”—are not detailed enough to be used to monitor the execution of individual implementation plans.

DOE's Plans Have Limited Information on Organizational Roles and Responsibilities

DOE's two completed plans for consolidation and disposition include limited information on organizational roles and responsibilities. *GAO's Standards for Internal Control in the Federal Government*, notes the importance of clearly defining organizational roles and responsibilities to establish accountability to help achieve desired results. Federal law states that agencies must establish internal administrative controls in accordance with the standards prescribed by the Comptroller General.⁸ The Comptroller General published such standards in *Standards for Internal Control in the Federal Government*, which sets out internal control standards for all aspects of an agency's operation. Internal control comprises the plans, methods, and procedures used to meet missions, goals, and objectives, and supports performance-based management.

In particular, GAO's internal control standards note that the manner in which an agency delegates authority and responsibility throughout the

⁸31 U.S.C. §§ 3512(b), (c) (2000).

organization affects accountability within the agency. Our previous work has found that national strategies—plans that may be national in scope, cut across levels of government, and involve a large number of organizations and entities both within and outside of government—should include information on organizational roles and responsibilities to foster accountability and coordination.⁹ DOE’s plans share the characteristics of a national strategy because the plans involve different levels of government and multiple organizations, such as program offices and sites.

DOE’s two completed implementation plans differ in how much detail they provide on organizational roles and responsibilities. As we have previously noted, defining organizational roles and responsibilities helps to answer the fundamental question about who is in charge.¹⁰ For example, the plutonium-239 plan states that the committee’s Executive Steering Committee must approve the plan, but does not include any information on which program offices, sites, or other DOE organizations are responsible for carrying out the other actions that the plan identifies as necessary next steps, such as finalizing a schedule for plutonium-239 shipments from Hanford, Los Alamos, and Lawrence Livermore. In contrast, the uranium-233 implementation plan includes program- and site-specific responsibilities. For instance, in its discussion of the recommended alternative for each site that has special nuclear material, the plan states that Los Alamos, should work with the Building 3019A project and DOE’s Carlsbad field office, which manages the Waste Isolation Pilot Plant radioactive waste disposal facility, to determine the details of packaging, transporting, and receiving uranium-233. In addition, the plan states that DOE’s Office of Science, which has expressed interest in obtaining uranium-233 from Building 3019A for use by its Brookhaven and New Brunswick laboratories, should obtain the necessary funding, collaborate with NNSA’s Office of Stockpile Technology, and retrieve the requested material.

However, both plans have only limited information about which entities are responsible for funding and coordinating consolidation and disposition

⁹For more information on the characteristics of an effective national strategy, see GAO, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*. [GAO-04-408T](#) (Washington, D.C.: Feb. 3, 2004); GAO, *Rebuilding Iraq: More Comprehensive National Strategy Needed to Help Achieve U.S. Goals*, [GAO-06-788](#) (Washington, D.C.: July 11, 2006).

¹⁰[GAO-04-408T](#).

activities, and neither plan states which program office, site, or other DOE organization is ultimately accountable for ensuring that consolidation and disposition occur. The plutonium-239 plan provides estimates for the overall cost of consolidation, but it does not specifically identify which program offices and sites are responsible for paying these costs. For example, the plan estimates that consolidation at the Savannah River Site will incur about \$116 million in secure transportation costs, but it does not state which office or site is responsible for paying these expenses. The uranium-233 plan also includes cost estimates by site for consolidation and disposition activities but notes that its estimates are not complete. For instance, the plan acknowledges that the estimate for removing material from Los Alamos National Laboratory does not include the cost of disposing the material. However, the uranium-233 plan includes some information on which program office or site will pay for consolidation and disposition activities. For instance, it notes that the Office of the Assistant Deputy Administrator for Secure Transportation is responsible for the cost of transporting uranium-233 from Los Alamos National Laboratory to Oak Ridge National Laboratory for processing. However, the plan does not assign responsibility for all of the costs associated with activities at a site. For example, in its discussion of alternatives for disposing of uranium-233 currently at Idaho National Laboratory, the plan estimates that it will cost \$4.1 million to shuttle material from Idaho National Laboratory to the Nevada Test Site; but it does not state who will pay for these shipments. Finally, neither plan designates responsibility to a program office or site for providing overall coordination of the multiple entities involved in consolidation and disposition of special nuclear material.

We have reported in the past about DOE's problems achieving the coordination necessary to accomplish its consolidation goals. For example, we found that DOE's reliance on individual sites to create consolidation plans resulted in inconsistent plans. Specifically, the Hanford site planned to ship plutonium to the Savannah River Site in a form that the Savannah River Site did not have plans for storing; and, as a result, the Savannah River Site was unable to receive some of Hanford's plutonium.¹¹ In our April 2004 and two July 2005 reports, we recommended that DOE develop and implement a departmentwide plan to achieve the

¹¹[GAO-05-665](#).

needed cooperation and agreement among program offices and sites to consolidate special nuclear material.¹²

DOE's Plans Lack Performance Measures to Monitor Progress Consolidating and Disposing of Special Nuclear Material

GAO's internal control standards also call for the establishment and review of performance measures to help ensure that agency management's orders are carried out. Our prior work has found that effective national strategies incorporate outcome-related performance measures to address steps needed to achieve desired results. Furthermore, we have previously reported that measuring performance allows organizations to track their progress toward their goals and gives managers crucial information on which to base their organizational and management decisions.¹³ We have also noted that milestones are an important means for an agency to evaluate its progress and for the Congress to hold an agency accountable.¹⁴

Both of DOE's completed implementation plans lack performance measures, such as outcome-related measures and milestones. First, neither plan includes outcome-related measures that indicate how the program offices and sites will track how much material has been consolidated or disposed. For example, the plans do not include targets for the amount of material being packaged or shipped for consolidation. Second, neither plan includes milestones to help ensure that implementation occurs on schedule. For example, the plutonium-239 plan states that consolidation of this material can be completed by fiscal year-end 2009, if shipments begin in spring 2007; but it lacks any interim milestones to track whether shipments occur on schedule. As noted earlier, these shipments have not begun, to date. Similarly, the uranium-233 plan states that the current schedule for the shutdown of Building 3019A calls for all shipments to be completed by June 2012. However, the plan does not include milestones to help determine whether the site is on-schedule to meet this deadline. The plan includes only one milestone, a cleanup milestone for Idaho National Laboratory that was already in place when the plan was created.

¹²GAO-04-623, GAO-05-611, and GAO-05-665.

¹³GAO, *Executive Guide: Effectively Implementing the Government Performance and Results Act*, GAO/GGD-96-118 (Washington, D.C.: June 1996).

¹⁴GAO, *Nuclear Weapons: Views on Proposals to Transform the Nuclear Weapons Complex*, GAO-06-606T (Washington, D.C.: Apr. 26, 2006).

DOE Officials Contend that Other Guidance and Current Practices Address Organizational Roles and Responsibilities and Performance Measures

DOE officials stated that they believe departmental guidance and current practices address organizational roles and responsibilities and performance measures. Specifically:

Organizational roles and responsibilities. Officials stated that forthcoming guidance and current practices address organizational roles and responsibilities for consolidation and disposition activities. These include the following:

- *Forthcoming revision to DOE Order 5660.1B (Management of Nuclear Materials).* Officials noted that the department's order on nuclear materials management is currently being revised to include organizational responsibilities for consolidation and disposition activities. The order has not been updated since it was written in 1994, and it does not mention new DOE organizations, such as NNSA, which was established in 2000. DOE officials told us that the revised order will outline specific responsibilities for NNSA's Office of Defense Programs, DOE's Office of Environmental Management, DOE's Office of Nuclear Energy, and DOE field organizations that oversee contractors' management of nuclear materials. However, the revised order is not scheduled to be completed until late 2007. Until it is complete, the program offices and sites will lack updated guidance on their roles and responsibilities for consolidation and disposition.
- *Additional guidance for specific sites and/or program offices.* DOE officials asserted that the department's implementation plans to consolidate and dispose of special nuclear material do not include detailed information on how they will be implemented because they are intended to be high-level plans. Officials noted that other guidance will provide more detailed information. According to a DOE official, the action memorandum that will accompany each plan will clarify responsibilities if there is uncertainty among the program offices or sites on this issue. A department official also told us that the revised order, when completed, will require the development of site-specific disposition plans, in addition to maintaining the current order's requirement for nuclear material management plans by site. Although we acknowledge that the committee does not intend for the plans to provide detailed guidance, our prior work on national strategies indicates that the more information a plan includes, the easier it will be for the responsible parties to implement the plan and achieve its goals.¹⁵

¹⁵GAO-04-408T.

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- *Current practices.* DOE officials stated that it is not necessary for the implementation plans to include organizational roles and responsibilities because the relevant program offices already understand their roles and responsibilities. According to a DOE official, the committee includes representatives from all of the program offices that manage special nuclear material; and, as such, the program offices are aware of their duties for carrying out the plans. However, the committee is scheduled to dissolve after it has completed the last implementation plan for consolidation and disposition. Therefore, if clarification about organizational roles and responsibilities is necessary in the future, it may be difficult for the program offices to resolve such issues after the committee has disbanded.

Performance measures. DOE officials also noted that the department currently uses performance measures to monitor its nuclear material management activities. A DOE official noted that each DOE program office uses its own performance measures. For instance, the department's Office of Environmental Management's current performance measures include the following:

- *Quarterly project reviews.* An official noted that DOE sites submit quarterly project reviews that include performance measures for activities related to managing special nuclear material, such as monitoring containers used to store this material. The quarterly project review for the Savannah River Site, for example, includes numeric measures, such as the number of containers of enriched uranium packaged for disposition. However, a DOE official acknowledged that these measures, known collectively as the "gold chart," are not detailed enough to be used to monitor the execution of individual implementation plans. In addition, because the performance measures are not specifically intended to address activities needed to implement DOE's plans to consolidate and dispose of special nuclear material, it is unclear whether they will be helpful in monitoring the department's progress in carrying out these plans.

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- *Milestone Report.* DOE's 2006 Milestone Report¹⁶ includes performance measures such as the number of certified containers of plutonium metal or oxide packaged for long-term storage and the volume of low-level waste disposed. However, like the performance measures in the quarterly project reviews, these measures are not intended to monitor the progress of consolidation and disposition activities. The Milestone Report states that its performance measures are intended to track the Office of Environmental Management's progress toward site cleanup targets.

Conclusions

The successful consolidation and disposition of special nuclear material has the potential to significantly reduce the risks posed by storing this material as well as the security costs that can reach hundreds of millions of dollars at each DOE site that stores it. Until DOE completes its plans and clarifies who has final approval authority, the department will have difficulty ensuring that consolidation and disposition activities begin in a timely manner. Further, without incorporating descriptions of organizational roles and responsibilities and performance measures in the plans, the department cannot ensure that its plans can be implemented on schedule and within cost. Moreover, until the plans include defined organizational roles and responsibilities, the Congress may have difficulty in holding DOE accountable for its responsibilities in consolidating and disposing of special nuclear material. Similarly, the Congress may face challenges in evaluating the progress of consolidation and disposition activities because DOE's plans lack performance measures to provide such information. Given the large cost savings that DOE could realize by consolidating and disposing of special nuclear material that is no longer needed for national security purposes, we believe that it is vital that DOE develop plans for consolidation and disposition that provide the department and the Congress with the necessary tools to ensure their successful implementation.

¹⁶The conference report for the Fiscal Year 2006 Energy and Water Development Appropriations Act requests the department to submit semiannual reports that include information on whether the department is meeting its cleanup milestones, as well as annual budget estimates and life-cycle costs for cleanup, for the years 2006, 2012, and 2035. Reports are due on March 1 and September 1 of each year. H.R. Rep. No. 109-275, at 149 (2005).

Recommendations for Executive Action

To help ensure that DOE begins implementing its plans to consolidate and dispose of special nuclear material in a timely manner, we recommend that the Secretary of Energy specify who in the department—the Nuclear Materials Disposition and Consolidation Coordination Committee, the committee’s Executive Steering Committee, or the Secretary himself—is responsible for final approval of plans.

In addition, we recommend that the Secretary of Energy require that DOE’s implementation plans for consolidating and disposing of special nuclear material include the following:

- A description of the organizational roles and responsibilities for consolidating and disposing of DOE’s special nuclear material such as information about which program offices or sites are responsible (1) for ensuring that consolidation and disposition occurs, (2) for paying for consolidation and disposition activities, and (3) for coordinating the activities of the numerous DOE organizations involved in consolidation and disposition; and
- Performance measures that will allow DOE and the Congress to monitor the department’s progress in consolidating and disposing of special nuclear material, including milestones for shipping special nuclear material for consolidation and outcome-based measures, such as quantities of special nuclear material that have been consolidated and disposed.

Agency Comments and Our Evaluation

We provided DOE with a draft version of this report for its review and comment. DOE agreed, in principle, with our recommendations to identify consolidation and disposition plan approval authority, clarify organizational roles and responsibilities, and establish performance measures.

However, DOE believed that our report lacked balance and objectivity because the report did not give the department sufficient credit for the progress it has made consolidating and disposing of special nuclear material or for the improvements the Nuclear Materials Disposition and Consolidation Coordination Committee has made to communication and cooperation within the department. For example, DOE stated that the committee has made a substantial contribution by completing an implementation plan that recommended consolidation of weapons-usable plutonium at the Savannah River Site. As a result, DOE anticipates shipments of plutonium from Hanford, Lawrence Livermore National


Laboratory, and Los Alamos National Laboratory to the Savannah River Site will begin in early October 2007.

We recognize throughout our report the progress DOE has made and the important contributions the committee has made to the department's consolidation and disposition efforts by improving communication and cooperation among the various DOE program offices and sites that currently store special nuclear material. For example, our draft report discussed the committee's plutonium-239 implementation plan in detail. It is important to note, however, that the plutonium-239 implementation plan is only one of eight implementation plans the committee is developing and, to date, only one other—for disposition of uranium-233—has been completed. Furthermore, as our draft report noted, the plutonium-239 implementation plan is essentially the same plutonium consolidation and disposition strategy the department has proposed since 2005. It was not until September 2007, while our draft report was at DOE for its review and comment, that the department submitted to the Congress the disposition plan required by law that will allow DOE to begin shipping plutonium to the Savannah River Site.

DOE also provided detailed technical comments that we have incorporated into this report when appropriate. DOE's comments on our draft report are included in appendix II.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution of it until 30 days from the date of this report. We will then send copies to the Secretary of Energy, the Administrator, NNSA; the Director, Office of Management and Budget; and appropriate congressional committees. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report or need additional information, please contact me at (202) 512-3841 or aloise@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this statement. GAO staff who made major contributions to this report are listed in appendix III.

A handwritten signature in black ink that reads "Gene Aloise". The signature is written in a cursive style with a large, looping initial "G".

Gene Aloise
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

At the request of the Ranking Member, Committee on Energy and Commerce, House of Representatives, and the Ranking Member, Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, House of Representatives, we examined (1) the progress the Department of Energy (DOE) has made in consolidating and disposing of special nuclear material and (2) whether DOE can ensure that these plans will be implemented on schedule and within cost.

To obtain information on DOE's progress in consolidating and disposing of special nuclear material, we reviewed the activities of DOE's Nuclear Materials Disposition and Consolidation Coordination Committee (the committee). Specifically, we reviewed the committee's charter, minutes from the committee's meetings, and congressional testimonies prepared by the chairman of the committee to obtain information about the committee's progress in developing plans to consolidate and/or dispose of special nuclear material. We also reviewed a draft strategic plan and two draft implementation plans for the consolidation and disposition of special nuclear material that were prepared by the committee. Specifically, we reviewed the draft *Department of Energy Strategic Plan for Nuclear Materials Management*, the November 2006 draft *Implementation Plan for Consolidation and Disposition of Surplus Weapons-Usable Plutonium*, and the June 2007 draft *Implementation Plan for Disposition of Surplus Uranium-233*. We also reviewed relevant DOE orders and policies, such as the DOE Order 5660.1B, *Management of Nuclear Materials*. In addition, we examined environmental assessments and other DOE documents prepared in accordance with the National Environmental Policy Act such as DOE/EA-1574, *Environmental Assessment for U-233 Stabilization, and Building 3019 Complex Shutdown at the Oak Ridge National Laboratory, Oak Ridge, Tennessee*, as well as its accompanying Finding of No Significant Impact published in the *Federal Register*. To obtain additional information on the status and content of DOE's plans, we interviewed members of the committee) including officials from the National Nuclear Security Administration and DOE's Office of Environmental Management and staff of committee members.

To determine whether DOE will be able to ensure that its plans will be implemented on schedule and within cost, we reviewed the two draft implementation plans and the draft strategic plan prepared by the committee. We assessed the two implementation plans using our *Standards for Internal Control in the Federal Government* and the characteristics of an effective national strategy developed in our prior work, which reviewed several sources of information, including legislative and executive branch guidance on national strategies, the Government

Performance and Results Act of 1993, general literature on strategic planning and performance, and our past reports and testimonies.¹ In addition, we also interviewed members of the committee to learn about DOE's efforts to ensure the effective implementation of its nuclear material consolidation and disposition plans.

We conducted our work from August 2006 to October 2007 in accordance with generally accepted government auditing standards.

¹ [GAO-04-408T](#) and [GAO-06-788](#).

Appendix II: Comments from the Department of Energy



Department of Energy

Washington, DC 20585

September 11, 2007

Mr. James Noel
Assistant Director
Natural Resources and Environment,
Government Accountability Office
441 G Street, NW, Room 2J28
Washington, DC 20548

Dear Mr. Noel:

Thank you for the opportunity to review the draft report, "SECURING NUCLEAR MATERIAL, DOE Has Made Little Progress Consolidating and Disposing of Special Nuclear Material" (GAO-07-1182). We agree, in principle, with the draft report's recommendations to identify consolidation and disposition plan approval authority(ies), clarify organizational roles and responsibilities, and establish performance measures.

However, the draft report contains a number of factual inaccuracies and errors of omission resulting in a report lacking balance and objectivity. As indicated in our detailed comments (enclosed), the Department has made substantial progress over the past several years in both the areas of special nuclear material (SNM) consolidation and disposition. While much of this progress pre-dates the establishment of the Nuclear Materials Disposition and Consolidation Coordination Committee (NMDCCC), the committee has improved the communication and cooperation within the Department. The committee has helped the Department to achieve its goals to enhance the security of excess and surplus SNM and its ultimate disposition. For example, the NMDCCC has already made a very substantial contribution to the Department's nuclear material consolidation and disposition progress by completing an implementation plan that recommended consolidation of weapons-usable plutonium at the Savannah River Site (SRS), and by playing a key role in completing all five actions identified in that plan for implementing that recommendation. Those five actions were all subsequently completed essentially on schedule, thus addressing the Department's most urgent nuclear material consolidation issue: the removal of plutonium from the Hanford Site. As a result of completing those actions, the Department anticipates shipments of plutonium from Hanford, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory to SRS will begin in early October 2007, to further consolidate plutonium storage pending disposition.

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If you have any questions, please call me at (202) 586-7709 or Mr. Karl Goodwin,
Acting Director of Safeguards and Security/Emergency Management, at
(301) 903-5498.

Sincerely,



Charles E. Anderson, Chairperson
Nuclear Materials Disposition and
Consolidation Coordination Committee

Enclosure

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Gene Aloise (202) 512-3841 or aloisee@gao.gov

Staff Acknowledgments

In addition to the individual named above, Ryan T. Coles, Assistant Director; A. Don Cowan; James Noël; Omari Norman; Alison O'Neill; and Susan W. Tieh made key contributions to this report.

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