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United States Government Accountability Office  
Washington, DC 20548

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September 11, 2007

The Honorable Christopher Shays  
Ranking Member, Subcommittee on National Security  
and Foreign Affairs  
Committee on Oversight and Government Reform  
House of Representatives

Subject: *Nuclear Security: DOE and NRC Have Different Security Requirements for Protecting Weapons-Grade Material from Terrorist Attacks*

Dear Mr. Shays:

In terrorists' hands, weapons-grade nuclear material—known as Category I special nuclear material when in specified forms and quantities—can be used to construct an improvised nuclear device capable of producing a nuclear explosion. Responsibility for the security of Category I special nuclear material is divided between the Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC). Specifically, DOE and the National Nuclear Security Administration (NNSA), a separately organized agency within DOE, are responsible for overseeing physical security at government-owned and contractor-operated sites with Category I special nuclear material. NRC, which is responsible for licensing and overseeing commercially owned facilities with nuclear materials, such as nuclear power plants, is responsible for regulating physical security at those licensees that store and process Category I special nuclear material under contract, primarily for DOE.

Because of the risks associated with Category I special nuclear material, both DOE and NRC recognize that effective security programs are essential. The key component in both DOE's and NRC's security programs is each agency's design basis threat (DBT)—classified documents that identify the potential size and capabilities of terrorist threats to special nuclear material. To counter the threat contained in their respective DBTs, both DOE sites and NRC licensees use physical security systems, such as alarms, fences, and other barriers; trained and armed security forces; and operational security procedures, such as a "two-person" rule that prevents unobserved access to special nuclear material. In addition, to ensure DBT requirements are being met and to detect potential security vulnerabilities, DOE and NRC employ a variety of other measures, including inspection programs; reviews; and force-on-force performance tests, in which the site's security forces undergo simulated attacks by a group of mock terrorists.

Over the past several years, we have raised concerns about certain aspects of security at DOE sites and at NRC-regulated commercial nuclear power plants. For example, we reported that DOE had taken some action in response to the terrorist attacks of September 11, 2001, but that it needed to improve the management of its security program.<sup>1</sup> In addition, we found that DOE needed to fully implement security improvements initiated in response to its DBT, such as the consolidation of special nuclear material and the development of a better-trained and -organized security force, in order to ensure that its sites were adequately prepared to defend themselves.<sup>2</sup>

Regarding NRC, in September 2003, we reported that NRC's oversight of security at commercial nuclear power plants needed to be strengthened.<sup>3</sup> In March 2006, we reported that commercial nuclear power plants had upgraded security against terrorist attacks, and NRC had improved its force-on-force inspections at these plants. However, we found that NRC's DBT process, as it is applied to commercial nuclear power plants, should be improved to remove the appearance that changes to the DBT were based on what the nuclear industry considered feasible to defend against rather than on an assessment of the terrorist threat itself.<sup>4</sup> While NRC has a more rigorous DBT for its licensees that store and process Category I special nuclear material than it does for the commercial nuclear power plants that it licenses and regulates, NRC uses a similar DBT development process for both sets of licensees.

In this context, you asked us to determine (1) whether DOE's and NRC's requirements for protecting Category I special nuclear material from terrorist threats differ from one another; (2) the reasons for any differences between these requirements; and (3) if, as a result, there are differences between how NRC-licensed facilities that store and process Category I special nuclear material and how DOE facilities that store and process Category I special nuclear material are defended against a terrorist attack. In February 2007, we reported to you on the results of our work in a classified report.<sup>5</sup> Subsequently, you asked us to provide you with an unclassified summary of our report. This report provides the unclassified summary. We conducted our work for this report between May 2007 and September 2007 in accordance with generally accepted government auditing standards.

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<sup>1</sup>GAO, *Nuclear Security: NNSA Needs to Better Manage Its Safeguards and Security Program*, [GAO-03-471](#) (Washington, D.C.: May 30, 2003).

<sup>2</sup>GAO, *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); and *Nuclear Security: DOE's Office of the Under Secretary for Energy, Science, and the Environment Needs to Take Prompt, Coordinated Action to Meet the New Design Basis Threat*, [GAO-05-611](#) (Washington, D.C.: July 15, 2005).

<sup>3</sup>GAO, *Nuclear Regulatory Commission: Oversight of Security at Commercial Nuclear Power Plants Needs to Be Strengthened*, [GAO-03-752](#) (Washington, D.C.: Sept. 4, 2003).

<sup>4</sup>GAO, *Nuclear Power Plants: Efforts Made to Upgrade Security, but the Nuclear Regulatory Commission's Design Basis Threat Process Should Be Improved*, [GAO-06-388](#) (Washington, D.C.: Mar. 14, 2006).

<sup>5</sup>GAO, *(U) Nuclear Security: DOE and NRC Security Requirements for Special Nuclear Material*, [GAO-07-41C](#) (Washington, D. C.: Feb. 16, 2007).

In summary:

Historically, DOE and NRC have sought comparability in their respective DBTs because DOE sites and NRC licensees often deal with the same types of Category I special nuclear material. For example, in 2000, NRC imposed additional security requirements on its licensees because, as it stated at the time, NRC is responsible for ensuring that weapons-usable material in the commercial sector receives protection comparable with that provided to similar DOE material. Following the September 11, 2001, terrorist attacks, both DOE and NRC put in place more demanding DBTs. NRC issued its most recent DBT in 2003, and DOE issued its most recent DBT in 2005. More importantly, even though DOE's sites and NRC's licensees store and process similar weapons-grade nuclear material, the DBTs each agency adopted for Category I special nuclear material are different.

Several factors have contributed to the differences between DOE's and NRC's DBTs. First, a key document used in the development of DOE's DBT was the *Postulated Threat to U.S. Nuclear Weapon Facilities and Other Selected Strategic Facilities (Postulated Threat)*. The *Postulated Threat* is developed by the U.S. intelligence community, principally the Department of Defense's Defense Intelligence Agency, and the security organizations of several different agencies, including DOE and NRC. The most recent *Postulated Threat*, issued in 2003, identified, among other things, the most likely threats to U.S. facilities with Category I special nuclear material. While NRC participated in the development of the *Postulated Threat*, NRC believes that the *Postulated Threat* does not apply to commercial nuclear facilities such as its licensees. Second, DOE and NRC also differ in their consideration of other intelligence information in developing their DBTs. In this context, NRC has developed its DBT to be within the range of what it has determined are the limitations that a private guard force can reasonably be expected to defend against. Specifically, NRC believes that the defense against threats not contained in its DBT is the responsibility of the federal government, in conjunction with state and local governments. Finally, even though they did so in the past, since September 11, 2001, DOE and NRC have not fully cooperated in sharing classified information on potential misuse of Category I special nuclear material.

Reflecting the differences in their respective DBTs, we found differences in the actions DOE sites and NRC licensees are taking to increase their preparedness to defeat a large and sophisticated terrorist attack. For example, currently, NRC licensees do not have the same legal authority as DOE sites to acquire heavier weaponry, such as fully automatic weapons, or the same legal authority to use deadly force to protect special nuclear material. NRC is pursuing new regulations, authorized by the Energy Policy Act of 2005, to allow its licensees to use automatic weapons, but expects to take from 1 to 2 years to issue such regulations. At the same time, DOE is implementing plans that, if fully realized, will further increase security at its sites. These plans include developing and deploying improved security technologies; consolidating special nuclear material into fewer, better protected locations; and providing better training and equipment for its security forces. Finally, DOE has better developed tools for assessing security preparedness and understanding vulnerabilities, such as computer modeling and force-on-force testing programs that simulate terrorist attacks on facilities. However, NRC is in the process

of adopting computer modeling and implementing a new force-on-force testing program.

A successful attack on a facility with Category I special nuclear material could have unacceptable human, economic, and symbolic consequences. Consequently, we believe that, regardless of location, there should not be differences in the protection of Category I special nuclear material. To address these differences, we made a series of recommendations in our February 2007 report, including the following:

- DOE and NRC should develop a common DBT for DOE sites and NRC licensees that store and process Category I special nuclear material.
- NRC should expedite its efforts to ensure that its licensees have the same legal authorities to acquire heavier weaponry and use deadly force as DOE sites currently have to protect such material.
- DOE and NRC should cooperate in establishing computer modeling capabilities and force-on-force performance testing programs to better assess security preparedness and detect vulnerabilities.

In addition, we recommended that Congress should consider amending the Atomic Energy Act of 1954, as amended, to give NRC licensees the same legal authority to use deadly force as DOE sites have to protect Category I special nuclear material.

We provided DOE and NRC with a draft of our February 2007 report for review and comment. Overall, DOE, through NNSA, and NRC agreed with several of our recommendations. Specifically, both NNSA and NRC agreed to cooperate on improving force-on-force performance testing and computer modeling. NRC also agreed that obtaining legal authority to acquire heavier weapons and to clarify policies on the use of deadly force to protect Category I special nuclear material could enhance security at its licensees. NRC cited ongoing efforts in both areas. Finally, NNSA supported having Congress amend the Atomic Energy Act to provide NRC licensees with the legal authority to use deadly force to protect Category I special nuclear material. However, NNSA and NRC did not support our recommendation to develop a common DBT for facilities that store and process Category I special nuclear material. Specifically, in its comments on our report, NRC stated that it believes that it is more important to set protection levels that are appropriate for the potential scenarios that involve the malevolent use of the nuclear materials stored or handled at a given site. NRC also stated that both agencies have recognized that protection strategies may differ between the sites they oversee based on the type, form, purpose and quantity of material at their sites. However, in our evaluation of the agency's comments, we noted that all of the sites and licensees have one important thing in common—they all possess significant quantities of Category I special nuclear material. As such, we believe, there should not be differences in their level of protection.

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As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 14 days after the date of this report. We will then send copies to appropriate congressional committees, the Secretary of

Energy; the Administrator, NNSA; the Chairman of the Nuclear Regulatory Commission; and the Director of the Office of Management and Budget. We will make copies of this report available to others upon request. This report will also be available at no charge on GAO's 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 [aloisee@gao.gov](mailto:aloisee@gao.gov). Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this report. James Noel, Assistant Director, and Jonathan Gill made key contributions to this report.

Sincerely yours,

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

(360882)

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