

GAO

Testimony

Before the Committee on Homeland
Security and Governmental Affairs,
U.S. Senate

For Release on Delivery
Expected at 10:00 a.m. EDT
Wednesday, June 30, 2010

COMBATING NUCLEAR SMUGGLING

DHS Has Made Some Progress but Not Yet Completed a Strategic Plan for Its Global Nuclear Detection Efforts or Closed Identified Gaps

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Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE 30 JUN 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE Combating Nuclear Smuggling: DHS Has Made Some Progress but Not Yet Completed a Strategic Plan for Its Global Nuclear Detection Efforts or Closed Identified Gaps				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) United States Government Accountability Office, 441 G St NW, Washington, DC, 20548				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 17	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



Highlights of [GAO-GAO-10-883T](#), a testimony before the Committee on Homeland Security and Governmental Affairs, U.S. Senate

Why GAO Did This Study

In April 2005, a Presidential Directive established the Domestic Nuclear Detection Office (DNDO) within the Department of Homeland Security (DHS) to enhance and coordinate federal, state, and local efforts to combat nuclear smuggling abroad and domestically. DNDO was directed to develop, in coordination with the departments of Defense, Energy, and State, an enhanced global nuclear detection system of radiation detection equipment and interdiction activities. (DNDO refers to this system as an architecture.) DNDO is to implement the domestic portion of the architecture. Federal efforts to combat nuclear smuggling have largely focused on established ports of entry, such as seaports and land border crossings, and DNDO has also been examining nuclear detection strategies along other pathways.

Over the past 7 years, GAO has issued numerous recommendations on nuclear or radiological detection to the Secretary of Homeland Security, most recently in January 2009. This testimony discusses the status of DHS efforts to (1) complete the deployment of radiation detection equipment to scan all cargo and conveyances entering the United States at ports of entry, (2) prevent smuggling of nuclear or radiological materials via the critical gaps DNDO identified, and (3) develop a strategic plan for the global nuclear detection architecture. GAO's testimony is based on prior work that was updated by obtaining DHS documents and interviewing DHS officials.

View [GAO-GAO-10-883T](#) or key components. For more information, contact Gene Aloise at 202-512-3841 or aloise@gao.gov.

COMBATING NUCLEAR SMUGGLING

DHS Has Made Some Progress but Not Yet Completed a Strategic Plan for Its Global Nuclear Detection Efforts or Closed Identified Gaps

What GAO Found

DHS has made significant progress in both deploying radiation detection equipment and developing procedures to scan cargo and conveyances entering the United States through fixed land and sea ports of entry for nuclear and radiological materials since GAO's 2006 report. While DHS reports it scans nearly 100 percent of the cargo and conveyances entering the United States through land borders and major seaports, it has made less progress scanning for radiation (1) in railcars entering the United States from Canada and Mexico; (2) in international air cargo; and (3) for international commercial aviation aircraft, passengers, or baggage.

DHS efforts to prevent the smuggling of nuclear and radiological materials into the United States through gaps DNDO identified in developing the nuclear detection architecture remain largely developmental since GAO's 2009 report. The gaps DHS identified include land border areas between ports of entry into the United States, international general aviation, and small maritime craft such as recreational boats and commercial fishing vessels. These gaps are important because of their size, volume of traffic, and the difficulty of deploying available radiological and nuclear detection technologies. DHS's actions to address these gaps consist primarily of efforts to develop, test, and deploy radiation detection equipment; conduct studies or analyses to identify and address particular threats or gaps; develop new procedures to guide scanning for radiation; and develop and learn from pilot programs.

DHS does not yet have a strategic plan for the global nuclear detection architecture, but DHS officials said they began working on a plan earlier this year and expect to complete it by fall 2010—2 years after GAO last recommended this to DNDO—and more than 7 years after we first identified the need for a comprehensive plan in October 2002. The lack of a strategic plan has limited DHS's efforts to complete such an architecture, because although each agency with a role in combating nuclear smuggling has its own planning documents, without an overarching strategic plan, it is difficult to address the gaps and move to a more comprehensive global nuclear detection strategy. DNDO's 4-year effort to develop an advanced radiation detection monitor is an example of the consequences of not having a strategic plan and not reaching consensus on such a plan with other federal agencies. In GAO's view, the proposed deployment of this monitor distracted DNDO from its mission to fully deploy the architecture and close the gaps it identified. Also, in 2006 GAO recommended that the decision to deploy this monitor be based on an analysis of both benefits and costs—which GAO later estimated at over \$2 billion—and a determination of whether any additional detection capability provided by the monitor was worth its additional cost. DNDO proceeded with ASP testing without fully completing such an analysis. Further, DNDO focused this monitor deployment effort on replacing components of the architecture where a radiation detection system was already in place—at established ports of entry—and shifting its focus away from closing the gaps it identified in the architecture.

Mr. Chairman and Members of the Committee:

I am pleased to be here today to discuss the Domestic Nuclear Detection Office's (DNDO) efforts to develop a global nuclear detection architecture—an integrated system of radiation detection equipment and interdiction activities to combat nuclear smuggling in foreign countries, at the U.S. border, and inside the United States—and to provide an update on the deployment of radiation detection equipment at U.S. borders. Preventing terrorists from using radiological or nuclear material to carry out an attack in the United States is a top national priority. DNDO, within the Department of Homeland Security (DHS), is charged with enhancing and coordinating federal, state, and local efforts to prevent radiological and nuclear attacks.¹ Among other things, DNDO is required to coordinate with other federal agencies to develop an enhanced global nuclear detection architecture. It is also responsible for developing, acquiring, and deploying radiation detection equipment to support the efforts of DHS and other federal agencies. While federal efforts to combat nuclear smuggling have largely focused on established ports of entry, such as seaports and land border crossings, DNDO has also been examining nuclear detection strategies along other potential pathways and has identified several gaps in the architecture, including (1) land border areas between ports of entry into the United States; (2) international general aviation; and (3) small maritime craft, such as recreational boats and commercial fishing vessels.

Even before DNDO's inception in 2005, we were highlighting the need for a more comprehensive strategy for nuclear detection. In 2002, we reported on the need for a comprehensive plan for installing radiation detection equipment, such as radiation portal monitors, at all U.S. border crossings and ports of entry that (1) addresses vulnerabilities and risks; (2) identifies the complement of radiation detection equipment that should be used at each type of border entry point—air, rail, land, and sea—and whether equipment could be immediately deployed; (3) identifies longer-term radiation detection needs; and (4) develops measures to ensure that the equipment is adequately maintained.² More recently, in July 2008, we

¹National Security Presidential Directive 43 / Homeland Security Presidential Directive 14, *Domestic Nuclear Detection*, April 15, 2005. DNDO was established in statute by the Security and Accountability for Every Port Act of 2006 (SAFE Port) Act, Pub. L. No. 109-347, § 501 (codified at 6 U.S.C. §§ 591-596a).

²GAO, *Customs Service: Acquisition and Deployment of Radiation Detection Equipment*, [GAO-03-235T](#) (Washington, D.C.: Oct. 17, 2002).

testified that DNDO had still not developed an overarching strategic plan,³ and recommended that DHS coordinate with the Departments of Defense, Energy, and State to develop one. In January 2009, we recommended that the Secretary of Homeland Security develop a strategic plan for the domestic part of the global nuclear detection strategy to help ensure the success of initiatives aimed at closing gaps and vulnerabilities.⁴ We stated that this plan should focus on, among other things, establishing time frames and costs for the three gaps DNDO had identified—land border areas between ports of entry, aviation, and small maritime vessels. DHS agreed with the recommendation that we made in our 2008 testimony on the need for an overarching strategic plan to guide future efforts to combat nuclear smuggling and move toward a more comprehensive global nuclear detection strategy.

In addition, since 2006, we have been reporting on longstanding problems with DNDO's efforts to deploy advanced spectroscopic portal (ASP) radiation detection monitors, a more advanced and significantly more expensive type of radiation portal monitor to replace the polyvinyl toluene (PVT) portal monitors in many locations that the Customs and Border Protection (CBP), an agency within DHS, currently uses to screen cargo at ports of entry.⁵ We have issued seven reports and testified before Congress five times identifying problems with the cost and performance of the ASPs and the lack of rigor in testing this equipment. For example, we found that tests DNDO conducted in early 2007 used biased test methods that enhanced the apparent performance of ASPs and did not use critical CBP operating procedures that are fundamental to the performance of

³GAO, *Nuclear Detection: Preliminary Observations on the Domestic Nuclear Detection Office's Efforts to Develop a Global Nuclear Detection Architecture*, [GAO-08-999T](#) (Washington, D.C.: July 16, 2008).

⁴GAO, *Nuclear Detection: Domestic Nuclear Detection Office Should Improve Planning to Better Address Gaps and Vulnerabilities*, [GAO-09-257](#) (Washington, D.C.: Jan. 29, 2009).

⁵CBP conducts primary inspections with radiation detection equipment called portal monitors—large stationary detectors through which cargo containers and vehicles pass as they enter the United States where they are screened for smuggled nuclear or radiological material that could be used in an improvised nuclear device or radiological dispersal device (a “dirty bomb”). When radiation is detected, CBP conducts secondary inspections using a second portal monitor to confirm the original alarm and a handheld radioactive isotope identification device to identify the radiation's source and determine whether it constitutes a threat.

current radiation detectors.⁶ In addition, in 2008 we estimated the lifecycle cost of each standard cargo version of the ASP (including deployment costs) to be about \$822,000, compared with about \$308,000 for the PVT standard cargo portal monitor, and the total program cost for DNDO's latest plan for deploying radiation portal monitors to be about \$2 billion. Based in part on our work, DHS informed this committee in February 2010, after spending over \$224 million, that the department had scaled back its plans for development and use of ASP technology. However, this \$224 million figure does not include the considerable cost of physical testing of ASPs at national labs, the Nevada Test Site, and field validation at working ports of entry at land borders and seaports. We have asked DNDO for this information, and DNDO officials are in the process of providing it to us.

As I will discuss today, while some progress has been made, DHS and other federal agencies have yet to fully address critical gaps in the global nuclear detection architecture. Specifically, my testimony discusses the status of DHS efforts to (1) complete the deployment of radiation detection equipment to scan all cargo and conveyances entering the United States at ports of entry, (2) prevent smuggling of nuclear or radiological materials via the critical gaps DNDO identified, and (3) develop a strategic plan for the global nuclear detection architecture.

My testimony is based on our prior work on U.S. government efforts to detect and prevent the smuggling of nuclear and radiological materials from October 2002 through January 2009,⁷ and details on the scope and methodology for those reviews are available in our published reports. With information from DHS officials, we updated our prior work on (1) DHS's deployment of radiation detection equipment since we last reported on this topic in 2006 and (2) DHS efforts to develop a strategic plan since we last reported on this topic in 2009. We conducted the work for this performance audit in accordance with generally accepted government

⁶GAO, *Combating Nuclear Smuggling: Additional Actions Needed to Ensure Adequate Testing of Next Generation Radiation Detection Equipment*, [GAO-07-1247T](#) (Washington, D.C.: Sept. 18, 2007).

⁷[GAO-03-235T](#); GAO, *Combating Nuclear Smuggling: DHS Has Made Progress Deploying Radiation Detection Equipment at U.S. Ports-of-Entry, but Concerns Remain*, [GAO-06-389](#) (Washington, D.C.: Mar. 22, 2006); GAO, *Nuclear Detection: Preliminary Observations on the Domestic Nuclear Detection Office's Efforts to Develop a Global Nuclear Detection Architecture*, [GAO-08-999T](#) (Washington, D.C.: July 16, 2008); and [GAO-09-257](#).

auditing standards. Those standards require that we plan and perform the audit 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.

DHS Scans Almost All Cargo and Conveyances Entering the United States through Land Borders and Major Seaports but Is Still Developing Options to More Systematically Scan Rail, Air Cargo, and Commercial Aviation

DHS has made significant progress in deploying both radiation detection equipment and developing procedures to scan cargo and conveyances entering the United States through fixed land and sea ports of entry for nuclear and radiological materials. Specifically, DHS has deployed nearly two-thirds of the more than 2,100 radiation portal monitors identified in its deployment plan—over 1,400—but needs to deploy more than 700 more to complete the plan. According to DHS officials, the department scans nearly 100 percent of the cargo and conveyances entering the United States through land borders and major seaports. However, DHS has made less progress scanning for radiation (1) in railcars entering the United States from Canada and Mexico; (2) in international air cargo; and (3) for international commercial aviation aircraft, passengers, or baggage.

Land Ports of Entry

According to DHS officials, since November 2009 almost all non-rail land ports of entry have been equipped with one or more PVTs. Of the over 1,400 radiation portal monitors deployed, 885 PVTs have been deployed along the northern and southern borders of the lower 48 states to all but a few non-rail ports of entry. At present, 100 percent of all cargo, conveyances, drivers, and passengers driving into the United States through commercial lanes at land borders are scanned for radiation, as are more than 99 percent of all personally operated vehicles (non-commercial passenger cars and light trucks), drivers, and passengers.

Seaports

According to DHS officials, the department now scans nearly all containerized cargo entering the U.S. seaports for nuclear and radiological materials. Specifically, in addition to the PVTs deployed for land ports of entry, DHS has deployed 444 PVTs to major American seaports—including the largest seaports accounting for the majority of cargo. However, some smaller seaports that receive cargo may not be equipped with PVTs. DHS officials stated that current deployment plans have been in place to

address all the remaining gaps in the deployment of PVTs to seaports but that current and future budget realities require a complete re-planning of the deployment schedule.

International Rail

At present there is limited systematic radiation scanning of the roughly 4,800 loaded railcars in approximately 120 trains entering the United States each day from Canada and Mexico through 31 rail ports of entry. Much of what scanning for radioactive materials takes place at these ports of entry is conducted with portable, hand-held radioactive isotope identification devices (RIID). Such scans are triggered when, for example, anomalous readings are detected from imaging scans of rail car contents. According to DHS officials, international rail traffic represents one of the most difficult challenges for radiation detection systems due to the nature of trains and the need to develop close cooperation with officials in Mexico and Canada. In addition, there are unique operational challenges in this environment due to the length of the trains (up to 2 miles), the distance required to stop moving trains, and the difficulties in separating alarming cars for further examination. Furthermore, DHS officials told us that rail companies resist doing things that might slow down rail traffic and typically own the land where DHS would need to establish stations for primary and secondary screening. Moreover, DHS officials said that it takes time to develop the necessary close cooperation with officials in Mexico and Canada and that an effective solution would require scanning of at least some rail traffic on Mexican or Canadian soil, before a train enters the United States. As a result, DHS is only in the early stages of developing the procedures and technology to feasibly scan international rail traffic. DHS is currently undertaking an International Rail Threat and Gap Study to determine the most promising radiation detection approach. DHS officials also told us that implementing the results of this study is subject to the availability of adequate funding.

International Air Cargo and Commercial Aviation

DHS is in the early stages of addressing the challenges of scanning for radioactive materials presented by air cargo and commercial aviation. At present DHS is scanning for radioactive materials at certain major international airports in the United States, and has deployed some of the PVTs in its plans. It plans to deploy more PVTs by the end of 2011.

International Air Cargo. At present, DHS officials are developing plans to increase their capacity to scan for radioactive materials in international air cargo conveyed on commercial airlines. DHS officials stated that their experience scanning air cargo at a few major international airports in the

United States has helped them develop scanning procedures and inform current and future deployment strategies for both fixed and mobile radiation detection equipment. However, these officials told us that scanning air cargo planes is a challenge because of the lack of natural choke points in airports where fixed detection equipment could be deployed. They believe that further operational experience and research is necessary before they can develop practicable mobile scanning strategies and procedures. Until solutions to these challenges can be found, DHS's goal of scanning 99 percent of air cargo at 33 international airports by 2014 is currently on hold. According to DHS officials, whatever scanning for radioactive materials occurs at these 33 airports is currently conducted with hand-held detectors.

International Commercial Aviation. As part of a pilot program, DHS is developing plans to effectively scan commercial aviation aircraft, passengers, and baggage for radioactive materials.

DHS's Efforts to Prevent Smuggling of Nuclear and Radiological Materials into the United States via the Gaps DNDO Identified Are Still in the Early Stages of Development

DHS efforts to prevent the smuggling of nuclear and radiological materials into the United States through the critical gaps DNDO identified—land border areas between ports of entry, international general aviation, and small maritime craft—remain largely developmental. These pathways are important because dangerous quantities of nuclear and radiological material can be small and portable enough to be carried across land borders by vehicles or pedestrians, on most private aircraft, or by small maritime craft.

In addition, these pathways are challenging because of their size, volume of traffic, and the difficulty of deploying available radiological and nuclear detection capabilities and technologies. For example, the United States has more than 6,000 miles of land border with many locations outside of established ports of entry where people and vehicles can enter the United States. In the maritime environment, a Coast Guard risk assessment revealed that small boats pose a greater threat for nuclear smuggling than shipping containers. There are at least 13 million registered domestic pleasure craft in the United States and 110,000 commercial fishing vessels. These small boats have traditionally been used to smuggle drugs and people but could be used to smuggle nuclear or radiological material.

DHS's actions to address these gaps consist primarily of efforts to develop, test, and deploy current generation or newly developed radiation detection equipment; conduct studies or analyses to identify and address particular threats or gaps; develop new procedures to guide scanning for radiation in

pathways where no scanning had occurred before; and develop and learn from pilot programs.

Land Border Areas between Ports of Entry

DHS is taking a number of steps it believes will improve its odds of deterring or detecting attempts to smuggle nuclear or radiological materials across the more than 6,000 miles of land border susceptible to illegal crossings by people and vehicles into the United States. Specifically, according to DHS officials, the department is procuring more current generation mobile radiation detection technology, seeking new technology, and further studying gaps in the detection architecture and the threat they pose. These efforts are, however, not yet complete and in some cases are behind schedule. For example, DHS is currently working to equip Border Patrol officers responsible for patrolling the U.S. borders with Canada and Mexico between ports of entry with current generation portable radiological and nuclear detection equipment—specifically, personal radiation detectors (PRD) and RIIDs. Portability is critical to strengthening radiation detection efforts, according to DHS officials, because it expands border patrol agents’ ability to detect a potential radiological threat beyond fixed ports of entry. According to its deployment plan, DHS planned to buy a certain number of PRDs and RIIDs each fiscal year from 2008 through 2011 to complete acquisition by 2012. However, the department has fallen short of these targets, citing a lack of funds.

International General Aviation

According to officials, DHS has undertaken some initiatives to scan private aircraft entering the United States as international general aviation. Since December 2007, DHS has been scanning 100 percent of arriving international general aviation aircraft (approximately 400 flights per day) with a standard hand-held RIID for nuclear and radiological material. DHS depends on the aircraft operators to obey the law by either arriving in the United States only at an international airport—which are all equipped with scanning capability—or departing for the United States from one of four overseas airports where such aircraft can be scanned before departure. Accordingly, DHS has already initiated studies to help it address this challenge and plans, according to officials, to initiate further studies in 2011. Specifically, among other things, DHS plans to update its analysis of pre-clearance scanning capabilities at airports overseas and evaluate the feasibility of expanding the number of overseas airports with scanning capabilities. It also plans to study the characteristics of aircraft that do not comply with U.S. scanning requirements and develop interim surveillance

options to enhance DHS capabilities and mitigation strategies to detect and interdict these aircraft.

Small Maritime Craft

A Coast Guard analysis revealed that small boats pose a greater threat than shipping containers for nuclear smuggling.⁸ These small boats, which include maritime craft less than 300 gross tons, number in the millions. DHS has developed and tested equipment for detecting nuclear material on small maritime vessels. However, efforts to use this equipment in a port area have been limited to pilot programs. Whereas initiatives to combat smuggling at land border areas between established ports of entry and through aviation routes are being integrated into already existing CBP screening operations, initiatives in the maritime environment require DHS to acquire and test new equipment and procedures with the Coast Guard and local law enforcement agencies. DHS is currently conducting 3-year pilot programs in Puget Sound, Washington, and San Diego, California, to design, field test, and evaluate equipment and is working with CBP, the Coast Guard, state, local, tribal officials, and others as they develop procedures for screening. These pilot programs are scheduled to end in 2010, when DHS will decide the future path of screening of small vessels for nuclear and radiological materials. According to DHS officials, initial feedback from federal, state, and local officials involved in the pilot programs has been positive.

DHS hopes to sustain the capabilities created through the pilot programs via federal grants to state and local authorities through the port security grant program.⁹ By working with state and local authorities in Puget Sound and San Diego since 2007, DHS hopes that equipment and procedures can be developed that could be transferred to other ports and other waterways and sustained with federal grants. DHS's goal is to build some capacity for radiation detection in all small and large ports so that

⁸From testimony delivered by Vice Admiral Thad Allen on the role of Coast Guard in border and maritime security, Committee on Appropriations, Subcommittee on Homeland Security, U.S. Senate, Apr. 6, 2006.

⁹The Port Security Grant Program (PSGP), established by the Maritime Transportation Security Act of 2002, is one of several DHS grant programs focusing on transportation infrastructure security. The purpose of the PSGP is to promote sustainable, risk-based efforts to protect critical port infrastructure from terrorism, particularly attacks using explosives and non-conventional threats that could cause major disruption to commerce. In fiscal year 2010, the total amount of funds distributed under this grant will be \$288 million.

federal, state and local law enforcement has the capacity for, at the least, random searches to keep would-be smugglers guessing, thereby offering some measure of deterrence to nuclear and radiological smuggling in this pathway.

According to DHS officials, the Puget Sound and San Diego pilot programs have been useful for assessing and developing technologies to address the specific challenges of nuclear and radiological detection in a maritime environment. DHS expects its testing of existing commercial and government off-the-shelf boat-mounted sensors to conclude in the summer of 2010 and, depending on the results, will either move forward with acquisition of this technology for future deployment or initiate a program to develop new technology to meet this need. According to officials, DHS also plans to complete or initiate a number of studies to analyze options for underwater detection and offshore secondary screening of nuclear and radiological materials and study the existing detection architecture of inland waterways. DHS also plans to conduct a top-down analysis of sea ports of entry to assess the effectiveness of existing and proposed nuclear and radiological detection architectures.

DHS Has Not Yet Completed a Strategic Plan for the Global Nuclear Detection Architecture

DHS does not yet have a strategic plan for the global nuclear detection architecture, but DHS officials told us they began working on a strategic plan earlier this year and expect to complete it by the fall of 2010—2 years after we last recommended such a plan—and more than 7 years after we first identified the need for comprehensive plan in October 2002. In our view, DHS might have made greater progress towards completing the architecture if it had a strategic plan.

DHS Officials Are Working on a Strategic Plan

According to DHS officials, DNDO is in the process of establishing a steering committee to guide and oversee the development of the strategic plan with interagency partners including the Departments of Defense, Energy, Justice, and State, the Nuclear Regulatory Commission, and the Office of the Director of National Intelligence. DHS officials attributed the delay in developing a strategic plan to a number of factors, including DNDO's initial focus on installing radiation detection equipment at ports of entry at land border crossings and major seaports in response to the requirements of the SAFE Port Act, which set a number of benchmarks and deadlines for scanning cargo entering the United States. DHS officials also cited the challenges and difficult decisions involved in addressing gaps in the areas between ports of entry.

In addition, DHS officials said that they recognized that increasing detection capabilities in one area of the architecture could simply lead a potential smuggler of nuclear or radiological materials to use another pathway into the United States. In developing the strategic plan, they are considering ways to cover a greater range of potential pathways into the United States. Drawing lessons from the tactics police use to catch speeding motorists, DHS officials have concluded that the most effective way to deter and make more difficult the smuggling of nuclear and radiological materials into the United States is to develop more agile and randomly deployed detection capabilities, similar to how local and state police deploy officers and speed detection equipment randomly to deter drivers from traveling over the lawful speed limit. DHS officials described this approach as a shift from “detection to prevention.” This approach is consistent with the basic design principles developed by DHS, as part of a multinational collaborative process, to guide countries’ efforts to prevent nuclear terrorism. DHS identified several attributes of an effective nuclear detection architecture including, among other things, the capacity to balance risk reduction and cost effectiveness, rely on multiple layers of protection, adapt and evolve over time to changing threats, be unpredictable to the adversary, augment the effectiveness of radiation detection technologies with the use of intelligence and other information sources that could help law enforcement select certain targets for scrutiny, and be integrated within a larger national and international security framework.

DHS Might Have Completed the Architecture Sooner If It Had a Strategic Plan

In our view, the lack of a strategic plan has limited DNDOS’s efforts to develop a global nuclear detection architecture. Strategic planning is a way to respond to this governmentwide problem on a governmentwide scale. Our past work on crosscutting issues suggests that governmentwide strategic planning can integrate activities that span a wide array of federal, state, and local entities.¹⁰ Although each agency with a role in combating nuclear smuggling has its own planning documents, an overarching strategic plan is needed to guide these efforts to address the gaps and move to a more comprehensive global nuclear detection strategy. In 2005, we reported that strategic plans should clearly define objectives to be accomplished, identify the roles and responsibilities for meeting each

¹⁰GAO, *A Call For Stewardship: Enhancing the Federal Government’s Ability to Address Key Fiscal and Other 21st Century Challenges*, [GAO-08-93SP](#) (Washington, D.C.: Dec. 17, 2007).

objective, ensure that the funding necessary to achieve the objectives is available, and employ monitoring mechanisms to determine progress and identify needed improvements.¹¹ For example, such a plan would define how DNDO would monitor the goal of detecting the movement of radiological and nuclear materials through potential smuggling routes, such as small maritime craft or land border areas in between ports of entry. Moreover, this plan would include agreed-upon processes and procedures to guide the improvement of the efforts to combat nuclear smuggling and coordinate the activities of the participating federal agencies. DNDO's 4-year effort to develop ASPs is an example of the consequences of not having a strategic plan and not reaching consensus on such a strategic plan with other federal agency partners. We believe the proposed deployment of ASPs distracted DNDO from its mission to fully deploy a nuclear architecture and close the gaps it identified in the architecture. In addition, in 2006 we recommended that the decision to deploy ASPs be based on an analysis of both the benefits and costs¹²—which we later estimated at over \$2 billion¹³—and a determination of whether any additional detection capability provided by the ASP is worth its additional cost. DNDO has proceeded with ASP testing without fully completing such an analysis. Furthermore, DNDO focused its ASP deployment efforts on replacing components of the architecture with ASPs where a detection system was already in place—established ports of entry that were using PVTs and RIIDs—and shifting its focus away from finishing the PVT deployments at ports of entry and closing the gaps it identified in the architecture.

Similarly, in our view, had a strategic plan to complete the global nuclear detection architecture been in place, DHS may have been less likely to expend time and resources on ASPs when a radiation detection system was already in place at ports of entry but not at other potential pathways into the United States. A recent development that complicates the future deployments of radiation detection equipment is that both PVTs and ASPs

¹¹GAO, *Managing for Results: Enhancing Agency Use of Performance Information for Management Decision Making*, [GAO-05-927](#) (Washington, D.C.: Sept. 9, 2005); GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, [GAO-06-15](#) (Washington, D.C.: Oct. 21, 2005).

¹²[GAO-06-389](#).

¹³GAO, *Combating Nuclear Smuggling: DHS Needs to Consider the Full Costs and Complete All Tests Prior to Making a Decision on Whether to Purchase Advanced Portal Monitors*, [GAO-08-1178T](#) (Washington, D.C.: Sept. 25, 2008).

require helium-3, which was recently found to be in short supply.¹⁴ According to DHS officials, if an alternative to helium-3 is not found by late 2011, further deployments of PVTs planned for the southern land border and at seaports may be delayed. We are currently conducting work on the helium-3 shortage—describing the federal government’s current priority for how the limited supply of helium-3 will be allocated and assessing, among other things, what alternative technologies are currently available or in development that could replace helium-3. We plan to issue a report later this year.

In addition to lacking a strategic plan, we also found that DHS did not use the Joint Annual Interagency Review of the Global Nuclear Detection Architecture to effectively coordinate U.S. government nuclear detection priorities. In July 2007, Congress passed the Implementing Recommendations of the 9/11 Commission Act of 2007,¹⁵ which required DHS to collaborate with the Departments of Defense, Energy, Justice, and State as well as the Director of National Intelligence on an annual report assessing federal agencies’ involvement, support, and participation in the development, revision, and implementation of the global nuclear detection architecture. In January 2009, we recommended that DHS use this review to guide future strategic efforts to combat nuclear smuggling, including analyzing overall budget allocations to determine whether governmentwide resources clearly align with identified priorities to maximize results and whether there is duplication of effort across agencies.¹⁶ DHS did not directly comment on our recommendation and did not use the most recent Joint Annual Interagency Review it issued in January 2010 as a tool to analyze nuclear detection budgets across the agencies with which it is required to collaborate on the report. Specifically, the 2010 report does not describe a process through which DHS used the review to guide or modify budget allocations or better align resources with identified priorities. While the report has been reviewed and approved by DHS and the Departments of Defense, Energy, Justice,

¹⁴Helium-3 is a by product of the production of tritium, a key isotope used in nuclear weapons. With the end of the Cold War the production of helium-3 has been reduced significantly. However, since September 2001, the demand of helium-3 has increased dramatically because radiation portal monitors deployed for homeland security and non-proliferation use it for neutron detection; neutrons are emitted by special nuclear materials, which can be used to construct a nuclear weapon.

¹⁵Pub. L. No. 110-53 (2007).

¹⁶[GAO-09-257](#).

State, and the Office of the Director of National Intelligence, the report does not make clear whether it is used as a part of these agencies' programmatic or strategic planning processes.

In conclusion, DHS is at a crossroads. With such vast land borders, coast lines, and air space to protect, addressing the gaps in the architecture is, in many respects, a more difficult task than preventing the smuggling of nuclear material through ports of entry. Now that land border crossings and seaports appear to have become more secure through law enforcement and technology, it makes the other gaps in the architecture potentially more attractive to would-be smugglers and terrorists. At a time of flat or declining federal agency budgets, it is especially important that DHS develop a strategic plan for its global nuclear detection architecture so that it can articulate its priorities in addressing these gaps and allocate resources based on those priorities to maximize results. In addition, given the national security implications and urgency attached to combating nuclear smuggling globally, and that multiple federal agencies are involved, we continue to believe that such a plan needs to be established as soon as possible. Without an overarching plan that ties together the various domestic and international efforts to combat nuclear smuggling and clearly describes goals, responsibilities, priorities, resource needs, and performance metrics, it is unclear how a strategy will evolve or whether it is evolving in the right direction.

Mr. Chairman, this completes my prepared statement. I would be happy to respond to any questions that you or the other Members of the committee may have at this time.

GAO Contact and Staff Acknowledgments

For further information about this testimony, please contact me at (202) 512-3841 or aloisee@gao.gov. Dr. Timothy Persons (Chief Scientist), Ned Woodward (Assistant Director), Joseph Cook, Carol Kolarik, Jonathan Kucskar, Alison O'Neill, Kevin Tarmann, and Kiki Theodoropoulos made key contributions to this testimony.

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