

Key Recommendations and Findings from GAO Reports Related to
Border Security and Nuclear Smuggling Since 9/11/2001

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September 27, 2007

Border Security: Security Vulnerabilities at Unmanned and Unmonitored U.S. Border Locations

[GAO-07-884T](#), September 27, 2007 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 13 pages\)](#) [Accessible Text](#)

Key Points

GAO investigators were able to cross the U.S.-Canada border four times and the U.S.-Mexico border three times while carrying radiological materials in a red duffel bag. Investigators found security vulnerabilities at (1) state roads close to the border, (2) ports of entry with posted hours, and (3) federally managed lands adjacent to the northern and southern borders.

- During one U.S.-Canada crossing, a citizen reported suspicious activity, but the CBP agents were unable to locate the GAO investigators.
- Investigators triggered a CBP response at a port on the northern border which was closed for the night. However, CBP took 20 minutes to respond and did not verify identities or search their vehicle of the GAO investigators.
- Investigators observed no sign of law enforcement or electronic monitoring equipment, but they did see evidence of frequent border crossing at one location along the southern border.
- Investigators were able to step over a four foot fence with no sign of law enforcement or electronic monitoring equipment along the southern border.

Combating Nuclear Smuggling: Additional Actions Needed to Ensure Adequate Testing of Next Generation Radiation Detection Equipment

[GAO-07-1247T](#), September 18, 2007 [Summary \(HTML\)](#) [Full Report \(PDF, 14 pages\)](#)

Key Points

“The Secretary of Homeland Security delay full scale production decision of ASPs until all relevant studies and tests have been completed, and determine in cooperation with CBP, the Department of Energy (DOE), and independent reviewers, whether additional testing is needed.”

- Biased test methods that enhanced the performance of ASP
- Limitations of ASPs’ detection capabilities not tested
- CBP standard operating procedure not used in handheld detector tests

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

[GAO-07-1197R](#) September 11, 2007 [Summary \(HTML\)](#) [Full Report \(PDF, 5 pages\)](#) [Accessible Text](#)

Key Points

The criteria used by the DOE and the Nuclear Regulatory Commission (NRC) to establish each agency's design basis threat (DBT) differs, thus partially explaining the differing approaches to protecting of Category I nuclear materials. "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."

- DOE's key document when establishing its DBT is The Postulated Threat document which is compiled mainly by the DOD Intelligence Agency, but receives input from several other security agencies, including the DOE and NRC.
- The NRC develops its DBT based on what it deems the "limitations that a private guard force can reasonably be expected to defend against."
 - NRC site guards do not have the authority to carry heavier weaponry, like fully automatic weapons.

Department of Homeland Security: Progress Report on Implementation of Mission and Management Functions

[GAO-07-454](#) August 17, 2007 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 320 pages\)](#)

Key Points

"No new recommendations – approximately 700 have been made in the past to DHS which were designed to strengthen departmental operations."

- Overall Progress Report with 171 performance expectations assessed
 - 78 generally achieved, 83 generally not achieved, and 10 not assessed
- Border Security Progress = Moderate with 12 performance expectations
 - 5 generally achieved and 7 generally not achieved

Nuclear Security: Actions Taken by NRC to Strengthen Its Licensing Process for Sealed Radioactive Sources Are Not Effective

[GAO-07-1038T](#) July 12, 2007 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 9 pages\)](#) [Accessible Text](#)

Key Points

GAO recommends that "NRC develop improved screening criteria to evaluate new license applications, conduct periodic reviews of license examiners to ensure the criteria are properly applied, and explore options to prevent license counterfeiting."

- GAO obtained licenses from the NRC for a fictitious company using information from the NRC website and safety training.
- GAO received quotes and shipping commitments from two suppliers for enough radiological materials to reach IAEA category 3.



Combating Nuclear Smuggling: DHS's Decision to Procure and Deploy the Next Generation of Radiation Detection Equipment Is Not Supported by Its Cost-Benefit Analysis

GAO-07-581T March 14, 2007 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 12 pages\)](#) [Accessible Text](#)

Key Points

“GAO’s October 2006 report included two recommendations designed to improve the quality and comprehensiveness of the Department’s analysis. DHS neither agreed nor disagreed with our recommendations, but continued to support its analysis as a solid basis for buying and deploying the new generation of radiation portal monitors.”

- The cost-benefit analysis done by DHS does not fully assess the costs and benefits of new portal monitors units.
 - Performance of portal monitors: assumed without field testing that new monitors would detect HEU 95% of the time, test data that was deemed unreliable in 2004 was used to assess current monitor capabilities, incomplete data on new monitors’ detection capabilities beyond HEU
 - Cost estimates: highly inflated procurement cost estimates for current equipment, no test evidence to support claim that new monitors will reduce secondary inspection costs, DHS cost estimate has exceeded original estimate by \$200 million, and an omission of factors that could affect the total cost of new monitors

Nuclear Nonproliferation: Focusing on the Highest Priority Radiological Sources Could Improve DOE's Efforts to Secure Sources in Foreign Countries

GAO-07-580T March 13, 2007 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 13 pages\)](#) [Accessible Text](#)

Key Points

“While the DOE has secured hundreds of sites in forty countries, some of the highest-risk sources remain unsecured... In its recent report, GAO made recommendations to the Secretary of Energy and the Administrator of the National Nuclear Security Administration recommended to (1) limit the number of hospitals and clinics containing radiological sources that receive security upgrades to only those deemed the highest risk; (2) accelerate efforts to remove as many RTGs in Russia as practicable; and (3) develop a long-term sustainability plan for security upgrades. GAO also asked Congress to consider providing NRC with authority and a direct appropriation to conduct regulatory development activities to help improve other countries’ security over sources.”

- More than 700 radioisotope thermoelectric generators (RTG) remain operational or abandoned in Russia; 4 of 20 waste facilities secured
 - Each RTG has activity levels ranging from 25,000 to 250,000 curies of strontium-90
- 2003 DOE broadens scope of program beyond the Soviet Union and to other types of sites, such as hospitals and oncology clinics



- Teletherapy machines generally have a single cobalt-60 source that ranges from 1,000 to 10,000 curies
- Sept. 30, 2006 – nearly 70% of all secured DOE sites were hospitals and oncology clinics - with no evidence of long term sustainability on upgrades made
- Since 2002, DOE has spent about \$108 million to implement its program.
- DOE coordination with State and NRC has improved but is inconsistent.

Combating Nuclear Smuggling: DNDO Has Not Yet Collected Most of the National Laboratories' Test Results on Radiation Portal Monitors in Support of DNDO's Testing and Development Program

GAO-07-347R March 9, 2007 [Summary \(HTML\)](#) [Full Report \(PDF, 13 pages\)](#)
[Accessible Text](#)

Key Points

“GAO’s October 2006 report concluded that DNDO’s assessment of ASPs did not full support their decision to replace PVTs with them.” DNDO should collaborate with state and local authorities for information on technical performance characteristics and operations. DNDO should compile previous tests results from the national laboratories on PVTs to assist in their decision making.

- A recently established website has information that is valuable to local and state officials, though some are still requesting more prescriptive advice on deployment and use of radiation detection equipment.
- DNDO only provided GAO with 11 out of approximately 54 tests until the Director provided GAO with additional tests reports that she had access to. She said they were in the process of developing a database with this type of information so that it could be more widely available.

Nuclear Nonproliferation: DOE's International Radiological Threat Reduction Program Needs to Focus Future Efforts on Securing the Highest Priority Radiological Sources

GAO-07-282 January 31, 2007 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 76 pages\)](#) [Accessible Text](#)

Key Points

“GAO is making several recommendations to DOE to better prioritize sites to be selected for security upgrades and strengthen program management practices, including developing a long-term sustainability plan to protect DOE’s investment in security upgrades. In addition, GAO is asking Congress to consider providing NRC with authority and a direct appropriation to conduct regulatory development activities to help improve other countries’ security over sources.”

- Limit the number of hospitals and clinics containing radiological sources that receive security upgrades to only those deemed as the highest-risk



- Accelerate efforts to remove as many RTGs in Russia and, as an interim measure, improve the security of those remaining until they can be removed from service.
- Additional recommendations: long-term sustainability plan for upgrades, focus only on highest priority sites, more rigorous contractor selection, cost analysis of securing sites, establish performance measures, encourage cost sharing with other countries, ensure recipient country has a plan to maintain upgrades, and work with European Commission and IAEA to share information and leverage resources.

Combating Nuclear Smuggling: DHS's Cost-Benefit Analysis to Support the Purchase of New Radiation Detection Portal Monitors Was Not Based on Available Performance Data and Did Not Fully Evaluate all the Monitors' Costs and Benefits

GAO-07-133R October 17, 2006 [Summary \(HTML\)](#) [Full Report \(PDF, 26 pages\)](#)
[Accessible Text](#)

Key Points

“DNDO’s cost-benefit analysis does not provide a sound analytical basis for DNDO’s decision to purchase and deploy new portal monitor technology.”

- Current monitors cost about \$55,000 each, but new monitors will cost about \$377,000 each.
 - DNDO used “questionable assumptions about the procurement costs of portal technology” when it estimated the procurement cost for additional units of current technology to be more than double the cost originally paid.
- DNDO did not use the results of its own performance tests, which showed the new monitors detection ability of shielded HEU to be even more limited than current capabilities. Decisions were based on assumptions of the new technology’s performance level.
- No side by side tests conducted or other radiological materials tested.
- Cost-benefit analysis did not meet full criteria outlined in DHS guidelines.
- Focus was placed on time reduction at border portals rather than actual operational performance and detection capabilities.

Terrorism Insurance: Measuring and Predicting Losses from Unconventional Weapons Is Difficult, but Some Industry Exposure Exists

GAO-06-1081 September 25, 2006 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 37 pages\)](#) [Accessible Text](#)

Key Points

“Given the challenges faced by insurers in providing coverage for, and pricing, NBCR risks, any purely market-driven expansion of coverage is highly unlikely in the foreseeable future.”

- Property/casualty insurers are trying to exclude nearly all NBCR events from coverage both for commercial property/casualty and homeowners insurance.
- Workers’ compensation, life, and health insurers are exposed to NBCR risks



- Workers’ – states limit the exclusion of perils for workers’ compensation in many states
- Life and health – difficult to segregate and exclude NBCR risks

Combating Nuclear Terrorism: Federal Efforts to Respond to Nuclear and Radiological Threats and to Protect Emergency Response Capabilities Could Be Strengthened

GAO-06-1015 September 21, 2006 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 34 pages\)](#) [Accessible Text](#)

Key Points

“GAO recommends, among other things, that (1) DOE review the physical security measures at its two key emergency response facilities and (2) DOE and the Department of Homeland Security (DHS) evaluate the costs, benefits, and limitations of making greater use of aerial background radiation surveys of U.S. cities. DHS agreed and DOE neither agreed nor disagreed with the recommendations.”

- Aerial background radiation survey would help detect radiological threats in U.S. cities more quickly and measure contamination levels after a radiological attack to assist in and reduce the costs of cleanup efforts.
- A number of critical capabilities and assets exist only at the Remote Sensing Laboratories that are protected by the lowest level of physical security allowed by the DOE.

Border Security: Investigators Transported Radioactive Sources across Our Nation's Borders at Two Locations

GAO-06-939T July 5, 2006 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 8 pages\)](#) [Accessible Text](#)

Key Points

While portal monitors detected the radiological materials, GAO investigators were able to enter the country with enough radiological material in their trunks to construct two dirty bombs using counterfeit documentation provided to the CBP during secondary inspections.

- Investigators were able to purchase radioactive materials and one secure container over the phone for a fictitious company in levels low enough to not require NRC documentation.
- “The CBP inspectors never questioned the authenticity of the investigators’ counterfeit bill of lading or counterfeit NRC document authorizing them to receive, acquire, possess, and transfer radioactive sources.”



Border Security: Investigators Transported Radioactive Sources across Our Nation's Borders at Two Locations
[GAO-06-583T](#) March 28, 2006 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 8 pages\)](#) [Accessible Text](#)

Key Points

Corrective briefings were held with the CBP and the NRC.

- GAO agents purchased radioactive materials over the phone in small enough quantities not to require NRC documents.
- Radiation monitors were triggered at northern and southern border crossings, but GAO agents were able to enter the U.S. with the materials using counterfeit documents provided to CBP agents during secondary inspections.
- CBP agreed to work with the NRC and CBP's Laboratories and Scientific Services to find a way to verify the authenticity of NRC materials documents.
- NRC disagreed with GAO that they had transported enough material to make two dirty bombs, noting NRC's much higher "concern threshold." NRC is aware of potential problems with counterfeiting documents and is working to resolve it.

Border Security: Investigators Successfully Transported Radioactive Sources across Our Nation's Borders at Selected Locations
[GAO-06-545R](#) March 28, 2006 [Summary \(HTML\)](#) [Full Report \(PDF, 10 pages\)](#) [Accessible Text](#)

Key Points

This is a revised version of the report [GAO-06-583T](#) that was reposted on April 10, 2006 by Gregory Kutz, Managing Director of GAO's Forensic Audits and Special Investigations to reflect changes made on pages 2 and 8.

- "The original version of the report, posted on March 28, implied that officials from the National Institute of Standards and Technology selected the amount of radioactive sources we used in our border testing."
- "The reposted version clarifies that GAO determined the amount of radioactive sources used in the tests after consulting with an outside expert."

Combating Nuclear Smuggling: Challenges Facing U.S. Efforts to Deploy Radiation Detection Equipment in Other Countries and in the United States
[GAO-06-558T](#) March 28, 2006 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 13 pages\)](#) [Accessible Text](#)

Key Points

"In the report on U.S. efforts to combat nuclear smuggling in other countries, GAO made five recommendations to improve, among other things, equipment maintenance, coordination among U.S. programs, and accountability of equipment... In the report on radiation detection at U.S. ports of entry, GAO made nine recommendations designed to help DHS speed up the pace of portal monitor deployments, better account for schedule



delays and cost uncertainties, and improve its ability to interdict illicit nuclear materials.”

- Challenges faced by the DOE, DOD and State when providing detection equipment to foreign countries: corrupt border officials at foreign sites, upgrades needed for gamma and neutron radiation detection, maintenance problems with handheld devices and geographic/climate conditions at remote locations.
 - Since 1994, \$178 million has been spent by the DOE, DOD, and State to deploy radiation detection equipment and provide assistance to 36 foreign countries.
- DHS efforts to install radiation detection equipment at ports of entry: cumbersome review process for releasing information to Congress needed for the release of program funds, negotiations with seaport operators who fear monitors will inhibit flow of commerce or have multiple exits to secure, and uncertain cost estimates for completing domestic detection program.
 - By December 2005, DHS had installed approximately 670 portal monitors (22% of the total number planned for deployment) at U.S. border crossing sites for \$286 million.
 - By 2009, DHS hopes to have 3,034 portal monitors in place for a total cost of \$1.3 billion.

Combating Nuclear Smuggling: DHS Has Made Progress Deploying Radiation Detection Equipment at U.S. Ports-of-Entry, but Concerns Remain
[GAO-06-389 March 22, 2006 Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 54 pages\)](#) [Accessible Text](#)

Key Points

“The Secretary of Homeland Security should work with other agencies, as necessary, to (1) streamline internal review procedures so that spending data can be provided to the Congress in a more timely way; (2) update the current deployment plan; (3) analyze the benefits and costs of advanced portals, then revise the program’s cost estimates to reflect current decisions; (4) develop ways to effectively screen rail containers; (5) revise agency procedures for container inspection; and (6) develop a way for CBP officers to verify NRC licenses.”

- Difficult negotiations with seaport operators regarding detection equipment and DHS’s lengthy review process for providing information to Congress before funds can be released have delayed detection deployment progress.
- DHS has not demonstrated that the additional costs associated with the advanced technology portals that it wishes to deploy will provide the additional capabilities needed to justify their procurement.
- CBP regulations do not currently require radiological material licenses to accompany shipments into the U.S., and agents do not have access to data that would verify license.
- CBP inspection procedures do not include opening and inspecting containers.



Combating Nuclear Smuggling: Corruption, Maintenance, and Coordination Problems Challenge U.S. Efforts to Provide Radiation Detection Equipment to Other Countries

GAO-06-311 March 14, 2006 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 74 pages\)](#) [Accessible Text](#)

Key Points

“GAO is making recommendations to the Secretaries of Energy and State to (1) integrate cost projections for anticorruption measures into long-term program cost estimates; (2) upgrade less sophisticated portal monitors; (3) provide maintenance for all handheld radiation detection equipment provided by U.S. programs; (4) revise the interagency strategic plan; and (5) compile, maintain, and share a master list of all U.S. radiation detection equipment assistance.”

- State is the lead interagency coordinator but has not maintained a master interagency list of all U.S.-funded radiation equipment overseas.
 - The State is unable to accurately assess where and what kind of additional assistance is needed in each country, if equipment is operational and being properly used, and prevent duplicity.
- Challenges include the “corruption of some foreign border security officials, technical limitations of some radiation detection equipment, inadequate maintenance of some equipment, and the lack of supporting infrastructure at some border sites.”

Nuclear Security: DOE Needs Better Information to Guide Its Expanded Recovery of Sealed Radiological Sources

GAO-05-967 September 22, 2005 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 56 pages\)](#) [Accessible Text](#)

Key Points

“GAO recommends that DOE and NRC evaluate and report on the cost implications of DOE’s recovery and disposal of non-greater-than-class C (GTCC) waste, options to recoup these DOE costs from licensees, the feasibility of using DOE disposal sites, and how a national source tracking system can be designed and implemented to improve DOE’s recovery and disposal efforts.”

- The DOE accelerated recovery effort and exceeded its goal by collecting over 10,800 sources.
 - No projection for when a GTCC waste disposal site will be available
- The DOE expanded recovery scope to include non-GTCC waste from sealed radiological sources.
 - Presently recovered and commercially disposed of 433 sources for \$581,000
- The DOE lacks information to identify and recover unwanted radiological sources that could pose a security risk.
 - “According to DOE, nearly all of the sites where it has recovered sources contained individual sources with lesser radioactivity than would be



tracked by NRC, but their combined radioactivity posed enough of a risk to warrant their recovery by DOE.”

Combating Nuclear Smuggling: Efforts to Deploy Radiation Detection Equipment in the United States and in Other Countries
[GAO-05-840T](#) June 21, 2005 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 11 pages\)](#) [Accessible Text](#)

Key Points

No recommendations – Since a 2002 GAO report regarding a the lack of an overall government-wide plan to guide U.S. efforts, some progress has been made, but DHS has not effectively coordinated with other agencies and DOE’s national laboratories on long-term objectives for radiation detection technology.

- From FY 1994 to FY 2005, DHS had received about \$300 million to install U.S. radiation detection equipment, and DOE, DOD, and State have received about \$500 million for similar detection efforts overseas to prevent nuclear smuggling.
- Current detection equipment is limited by its ability to detect shielded devices which makes an integrated approach (involving properly trained border agents and intelligence gathering) integral to preventing smuggling.

Preventing Nuclear Smuggling: DOE Has Made Limited Progress in Installing Radiation Detection Equipment at Highest Priority Foreign Seaports
[GAO-05-375](#) March 31, 2005 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 50 pages\)](#) [Accessible Text](#)

Key Points

“GAO recommends that DOE (1) develop a comprehensive long-term plan for the Initiative that identifies, among other things, criteria for deciding how many and which lower priority ports to complete if DOE continues to have difficulties initiating work at its highest priority ports and (2) reevaluate the current per port cost estimate and adjust long-term cost projections as necessary.”

- Progress and Projections of Megaports Initiative:
 - Completed work at 2 ports and signed agreements to work on 5 other ports.
 - Negotiating with 18 other countries and close to a deal with 5 of them.
 - By the end of 2004, DOE spent \$43 million on Megaports Initiative activities-- \$14 million on two completed ports.
 - Completion of 20 ports for \$337 million by 2010 is the goal.
- Operational and technical challenges at foreign ports could cause further delays and costs to shaky current estimates.



Container Security: A Flexible Staffing Model and Minimum Equipment Requirements Would Improve Overseas Targeting and Inspection Efforts
[GAO-05-557](#) April 26, 2005 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 46 pages\)](#) [Accessible Text](#)

Key Points

“GAO recommends that CBP refine its staffing model to help improve the program’s ability to target shipments at foreign ports, develop minimum technical requirements for the detection capabilities of equipment used in the program, and complete development measures for all program objectives.”

- CBP has been unable to fully staff CSI ports based on its established model due to diplomatic and practical considerations.
 - 35% of shipments were not targeted and therefore not subject to inspection as a result.
- Nonintrusive inspection and radiation detection equipment is not uniform in placement or capabilities at all participating ports.
- CBP is making progress with developing its strategic plan for CSI, as advised by GAO in July 2003.

Homeland Security: Key Cargo Security Programs Can Be Improved
[GAO-05-466T](#) May 26, 2005 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 26 pages\)](#) [Accessible Text](#)

Key Points

“For the C-TPAT program, GAO recommended that CBP eliminate the weaknesses in its validation process, complete its human capital plan and performance measures, and put in place internal controls for the program. For the CSI program, GAO recommends that CBP refine its staffing model to help improve targeting of shipments at CSI ports, develop minimum technical requirements for the capabilities of inspection equipment, and complete development of program measures.”

- Only 11% of C-TPAT members have been validated within CBP’s established 3 year time frame.
- The validation process is not rigorous, CBP has no written guidelines which establish the scope adequate for validation, the newly establish risk-based approach has not been fully fleshed out, and no comprehensive performance measures have been established.
- “CBP has limited assurances that inspections conducted under CSI are effective at detecting and identifying terrorist WMD in containers.”



Nuclear Nonproliferation: DOE Needs to Take Action to Further Reduce the Use of Weapons-Usable Uranium in Civilian Research Reactors
[GAO-04-807 July 30, 2004 Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 43 pages\)](#) [Accessible Text](#)

Key Points

“GAO recommends that DOE consider provide funding for the conversion of 6 US university research reactors, removal of the HEU fuel from the reactors after their conversion, and recommends that DOE evaluate providing additional incentives to foreign research reactors to convert to LEU.”

- DOE’s reactor conversion program: 105 research reactors
 - Fully or partially converted to LEU – 39
 - Could covert to LEU but are still using HEU – 35
 - Cannot covert to LEU and requires new LEU fuel development – 31

Nuclear Security: Federal and State Action Needed to Improve Security of Sealed Radioactive Sources
[GAO-03-804 August 6, 2003 Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 119 pages\)](#) [Accessible Text](#)

Key Points

GAO recommends that NRC (1) collaborate with states to determine availability of highest risk sealed sources, (2) determine if owners of certain devices should apply for licenses, (3) modify NRC’s licensing process so sealed sources cannot be purchased until NRC verifies their intended use, (4) ensure that NRC’s evaluation of federal and state programs assess security of sealed sources, and (5) determine how states can participate in implementing additional security measures.

- While the majority of devices have been recovered, more than 1,300 incidents of lost, stolen, or abandoned sealed sources have occurred in the U.S. since 1998.
- NRC can take up to 12 months to conduct inspections on sealed sources for which it has issued licenses.
- NRC does not assess the security of sealed sources, only the effectiveness of state regulation programs.
- Little progress has been made since 9/11/2001 to create and assure additional security measures for sealed radioactive sources.
 - There are approximately 20,000 users of sealed sources nationwide, as of December 31, 2002.

Container Security: Expansion of Key Customs Programs Will Require Greater Attention to Critical Success Factors

[GAO-03-770](#) July 25, 2003 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 51 pages\)](#) [Accessible Text](#)

Key Points

GAO reports on the US Customs Service's implementation of the Container Security Initiative (CSI) and the Customs-Trade Partnership against Terrorism (C-TPAT). GAO recommends that the Secretary of Homeland Security work with the Commissioner of Customs and Border Protection and managers to

- Develop human capital plans that will describe how the programs will recruit, train, and retain staff.
- Expand efforts to develop performance measures that include outcome-oriented indicators.
- Develop strategic plans that describe the programs' goals, objectives, and implementation strategies.

Nuclear Nonproliferation: U.S. and International Assistance Efforts to Control Sealed Radioactive Sources Need Strengthening

[GAO-03-638](#) May 16, 2003 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 94 pages\)](#) [Accessible Text](#)

Key Points

GAO recommends that the Secretary of Energy (1) develop a comprehensive plan for DOE to guide its future efforts to control sealed radioactive sources, (2) take the lead in developing a government-wide plan to strengthen controls over other countries' sealed sources; and (3) strengthen efforts to increase program expenditures in the countries requiring assistance.

- Precise totals for the number of sealed sources in the world are not known, but there are approximately 10 million in the U.S. and the other 49 countries that responded to GAO's survey.
- While all responders have regulation and legislation in place regarding the security of sealed sources, their implementation and effectiveness varies greatly.
- The DOE, DOD, State, and NRC all have programs aimed at addressing these security issues, but they are not comprehensively targeted or coordinated.

Nuclear Nonproliferation: DOE Action Needed to Ensure Continued Recovery of Unwanted Sealed Radioactive Sources

[GAO-03-483](#) April 15, 2003 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 41 pages\)](#) [Accessible Text](#)

Key Points

In an assessment of the Off- Site Source Recovery Project, "GAO recommends that the Secretary of Energy (1) determine whether the priority given to the project is commensurate with the threat radioactive sources pose; (2) ensure adequate resources

13



are devoted to the project; (3) take immediate action to provide space to store sealed sources containing plutonium-239, strontium-90, and cesium-137; (4) initiate the process to develop a permanent disposal facility for greater-than-Class-C radioactive waste; and (5) develop a plan to ensure the continued recovery of greater-than-Class-C waste until a disposal facility is available. DOE did not comment on the recommendations.”

- DOE is estimated to recover 14,300 GTCCs by the end of FY 2010 for a cost of \$69 million.
- More than 5,000 GTCCs had been recovered from 160 sites in the U.S. as of March 2003 – three problems hinder progress:
 - Not a priority of DOE’s Office of Environmental Management because it does not conform to its mission and funding is committed elsewhere
 - No storage space available at Los Alamos National Laboratory so no more sources containing plutonium-239 can be collected
 - No approved means for storing strontium-90 and cesium-137 until a permanent disposal facility is available
- DOE has not made progress on providing a permanent disposal facility for GTCCs as required by Public Law 99-240 17 years ago.

Homeland Security: Preliminary Observations on Efforts to Target Security Inspections of Cargo Containers

[GAO-04-325T](#) December 16, 2003 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 17 pages\)](#) [Accessible Text](#)

Key Points

GAO reports on CBP programs to address the terrorism risks posed by oceangoing cargo containers.

- CBP strategy should incorporate a comprehensive set of criticality, vulnerability and risk assessments, peer review, testing and validation.
- CBP does not have a national system for reporting and analyzing inspection statistics.
- CBP staff that received the national targeting training were not tested or certified to ensure that they learned the required skills for effective targeting.
- Space limitations and safety concerns about inspection equipment constrained ports in the use of screening equipment.

Nuclear Security: Lessons to Be Learned from Implementing NNSA's Security Enhancements

[GAO-02-358](#) March 29, 2002 [Summary \(HTML\)](#) [Full Report \(PDF, 36 pages\)](#)

Key Points

GAO reports on NNSA progress in implementing 75 initiatives undertaken since 1998, noting that DOE and NNSA have completed 64 percent of the initiatives, and the remaining initiatives should be completed by December 2002. Initiatives include physical security, personnel security, information security, cyber security, and



counterintelligence. GAO offers three recommendations to enhance the effectiveness of the programs:

- Fully consider field perspectives in the development of initiatives.
- Clearly communicate initiatives should be to the field.
- Develop a coordinated process for implementing initiatives.

Nuclear Nonproliferation: U.S. Efforts to Combat Nuclear Smuggling
[GAO-02-989T](#) July 30, 2002 [Summary \(HTML\)](#) [Full Report \(PDF, 14 pages\)](#)

Key Points

In FY2001, six US agencies spent approximately \$86 million to help 30 countries combat nuclear smuggling. However, GAO reports that the six agencies do not always work in unison. In particular, the report indicates that DOE, State, and DOD have pursued separate approaches to the installation of radiation detection equipment at countries' border crossings. GAO also adds that in some circumstances, problems with the installation, use, and maintenance of radiation detection equipment has undermined US assistance.

Customs Service: Acquisition and Deployment of Radiation Detection Equipment
[GAO-03-235T](#) October 17, 2002 [Summary \(HTML\)](#) [Full Report \(PDF, 5 pages\)](#)

Key Points

In a review of the Customs Service's acquisition and deployment of radiation detection equipment and assistance provided by the US to foreign countries, the GAO report indicates that the Customs Service's primary radiation equipment- radiation pagers- may be inappropriate for the task. GAO also states that there is not a comprehensive plan for installing and using radiation detection equipment at all US border crossings and ports of entry.

Container Security: Current Efforts to Detect Nuclear Materials, New Initiatives, and Challenges

[GAO-03-297T](#) November 18, 2002 [Summary \(HTML\)](#) [Highlights Page \(PDF\)](#) [Full Report \(PDF, 22 pages\)](#) [Accessible Text](#)

Key points

The report describes new initiatives to enhance the U.S. port screening programs, including establishing international standards for ports, carriers, and maritime workers; stationing Customs personnel overseas; reducing security vulnerabilities all the way back to points of manufacture; and using new technology to monitor the contents and movement of containers from their point of origin.

- There are three major challenges to implementing efforts to improve security of ports and containers:
 - Creating and enforcing a set of security standards.



- Ensuring the cooperation of diverse groups with competing interests when it comes to the specifics of how things are to be done.
 - Paying the increased security bill.
- The detection ability of U.S. port programs are limited by the small portion of total cargo they screen and insufficient detection aids.