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United States Government Accountability Office
Washington, DC 20548

March 28, 2006

The Honorable Norm Coleman
Chairman
Permanent Subcommittee on Investigations
Committee on Homeland Security and Governmental Affairs
United States Senate

Dear Mr. Chairman:

This Report Is Temporarily Restricted Pending Official Public Release.

Subject: *Border Security: Investigators Successfully Transported Radioactive Sources Across Our Nation's Borders at Selected Locations*

This report responds to your request that we investigate potential security weaknesses related to the installation of radiation detection equipment at U.S. ports of entry. Based on discussions with your staff, we focused our efforts on testing whether the radiation portal monitors installed at the U.S. ports of entry would detect radioactive material transported in vehicles attempting to enter the United States. We also agreed to provide our observations regarding the procedures that Department of Homeland Security U.S. Customs and Border Protection (CBP) inspectors followed when the radiation portal monitors detected such material.

We have reported on the security of our nation's northern border in terms of detection of illegal transport of radioactive material into the United States in our previous work.

Scope and Methodology

We selected two land ports of entry that had radiation portal monitors installed: one at the U.S.-Canadian border and one at the U.S.-Mexican border. Radiation portal monitors are large pieces of stationary equipment that CBP uses as part of its overall strategy to thwart radiological terrorism by detecting the presence of radioactive materials by screening people, vehicles, and cargo as they pass through ports of entry. In order to safely plan and execute our undercover operation, several of our investigators attended training at the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland. Our investigators received training on the safe handling, storage, and transport of radioactive materials.

When considering the type of radioactive sources to use in our undercover operation, we decided to use one of the most common radioisotopes used in industry for its strong radioactivity. When considering the amount of radioactive sources to use in our undercover border crossing operations, we decided to use an amount NIST officials determined is sufficient to manufacture a dirty bomb.[1]

As part of our investigation, we purchased a small quantity of the radioactive sources from a commercial source by posing as an employee of a fictitious company. This was to demonstrate that anyone can purchase small quantities of radioactive sources for stockpiling because suppliers are not required to exercise any due diligence in determining whether the buyer has a legitimate use for the radioactive sources and suppliers are not required to ask the buyer to produce a Nuclear Regulatory Commission (NRC) document when making purchases in small quantities. We then deployed two teams of investigators to the field to make simultaneous border crossings at the northern and southern borders in an attempt to transport radioactive sources into the United States.

While making our simultaneous crossings, we focused our investigation on whether the radiation portal monitors would detect the radioactive sources we carried and whether CBP inspectors exercised due diligence to determine the authenticity of paperwork presented by individuals attempting to transport radioactive sources across our borders. Although we offer observations on the procedures that CBP inspectors followed for our two border crossings, we did not evaluate the adequacy of the design or effectiveness of those procedures. Our investigation also tested whether an NRC document could be counterfeited using data easily accessible and available to the public. We conducted our investigation from July 2005 through December 2005 in accordance with quality standards for investigations as set forth by the President's Council on Integrity and Efficiency.

Summary of Investigation

For the purposes of this undercover investigation, we purchased a small amount of radioactive sources and one container used to store and transport the material from a commercial source over the telephone. One of our investigators, posing as an employee of a fictitious company located in Washington, D.C., stated that the purpose of his purchase was to use the radioactive sources to calibrate personal radiation detection pagers. The purchase was not challenged because suppliers are not required to determine whether buyers have a legitimate uses for the radioactive sources, nor are suppliers required to ask the buyer to produce an NRC document when making purchases in small quantities.

[1] According to the Centers for Disease Control and Prevention, a dirty bomb is a mix of explosives, such as dynamite, with radioactive powder or pellets. When the dynamite or other explosives are set off, the blast carries radioactive material into the surrounding area.

The radiation portal monitors properly signaled the presence of radioactive material when our two teams of investigators conducted simultaneous border crossings. Our investigators' vehicles were inspected in accordance with most of the CBP policy at both the northern and southern borders. However, our investigators were able to enter the United States with enough radioactive sources to make two dirty bombs using counterfeit documents. Specifically, they were able to successfully represent themselves as employees of a fictitious company and present a counterfeit bill of lading and a counterfeit NRC document during the secondary inspections at both locations. The CBP inspectors never questioned the authenticity of the investigators' counterfeit bill of lading or the counterfeit NRC document authorizing them to receive, acquire, possess, and transfer radioactive sources.

Background

A dirty bomb, or a radiological dispersal device, combines a conventional explosive with radioactive material. In most cases, the conventional explosive would have more immediate lethality than the radioactive material. A dirty bomb would most likely result in small radiation exposures and would typically not contain enough radiation to kill people or cause severe illnesses. However, by scattering the radioactive material, the dirty bomb has the effect of contaminating an area. The extent of local contamination depends on several factors, including the size of the explosive, the amount and type of radioactive material used, and weather conditions. While there could be an increase in the cancer risk among those exposed to radiation from a dirty bomb, the more significant effect of a dirty bomb could be the closing of contaminated areas. The direct costs of cleanup and the indirect losses in trade and business in the contaminated areas could be large. Hence, dirty bombs are generally considered to be weapons of mass disruption instead of weapons of mass destruction.

Many radioactive materials are used in a variety of industrial, scientific, and medical applications. For instance, radioactive materials are used in smoke detectors and for cancer treatments. However, few of the materials are considered suitable for use in a dirty bomb. A Department of Energy and Nuclear Regulatory Commission Interagency Working Group identified radioactive materials of highest concern based on the potential dose impacts of the materials and the availability of such materials in sufficient quantities.[2]

To address the threat of dirty bombs and other nuclear material, the federal government has programs in place that regulate the transportation of radioactive material and to prevent illegal transport of radioactive material across our nation's borders. CBP uses radiation detection equipment at ports of entry to prevent the illicit transport of radioactive material into the United States. The goal of CBP's inspection program is to "...thwart the operations of terrorist organizations by

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[2] Department of Energy/Nuclear Regulatory Commission Interagency Working Group on Radiological Dispersion Devices. *Radiological Dispersal Devices: An Initial Study to Identify Radioactive Materials of Greatest Concern and Approaches to Their Tracking, Tagging, and Disposition,* Report to the Nuclear Regulatory Commission and the Secretary of Energy (May 2003).

detecting, disrupting, and preventing the cross-border travel of terrorists, terrorist funding, and terrorist implements, including Weapons of Mass Destruction and their precursors." Deploying radiation detection equipment is part of CBP's strategy for thwarting radiological terrorism and CBP is using a range of such equipment to meet its goal of screening all cargo, vehicles, and individuals coming into the United States.

Most travelers enter the United States through the nation's 154 land border ports of entry. CBP inspectors at ports of entry are responsible for the primary inspection of travelers to determine their admissibility into the United States and to enforce laws related to preventing the entry of contraband, such as drugs and weapons of mass destruction.

Radiation Detection Devices

To help detect the presence of radiation and identify the type of radiation present, CBP generally relies on three types of radiation detection devices – radiation portal monitors, Personal Radiation Detectors (PRDs), and Radiation Isotope Identifier Devices (RIIDs). Radiation portal monitors have the ability to detect the presence of gamma radiation, which is emitted by all radioactive materials of greatest concern,[3] and neutrons, which are emitted by only a limited number of materials, including plutonium. CBP uses PRDs that detect the presence of gamma radiation but not neutrons. CBP requires its inspectors to wear PRDs while on duty and ensure that the PRDs are activated. PRDs alert inspectors to the presence of harmful levels of radiation when they are conducting cargo and vehicle searches. PRDs can detect radioactive materials that could be used in a radiological dispersal device, also known as a dirty bomb. Another type of radiation detection equipment that CBP uses are RIIDs, which are handheld devices designed to determine the identity of the radioactive material, whether it is a radiological source used in medicine or industry, a naturally occurring source of radiation, or weapons-usable nuclear material.

Radiation Detection Alerts

For the purposes of this report, we focused only on the procedures for gamma radiation, the type of radiation used in our tests. To identify the type of radiation present, inspectors use a handheld RIID. If the radiation portal monitor and the RIID do not detect the presence of neutrons, inspectors follow gamma radiation procedures, which require that they first use their PRDs to determine the safe distance at which to conduct an inspection.

If, after reviewing documentation or obtaining advice from Laboratories and Scientific Services personnel, the CBP inspectors are satisfied that the radioactive source is properly documented or is consistent with innocent radiation sources, the vehicle and passengers can be released. If CBP inspectors are not satisfied that the

[3] Radioactive materials of greatest concern are those materials that could be used in a nuclear weapon such as plutonium and highly enriched uranium.

source is documented or innocent, they must obtain guidance from the Laboratory and Scientific Services.

Documentation Was Produced to Support Undercover Investigation

As part of our undercover investigation, we produced counterfeit documents before sending our two teams of investigators out to the field. We found two NRC documents and a few examples of the documents by searching the Internet.[4] We subsequently used commercial, off-the-shelf computer software to produce two counterfeit NRC documents authorizing the individual to receive, acquire, possess, and transfer radioactive sources.

To support our investigators' purported reason for having radioactive sources in their possession when making their simultaneous border crossings, a GAO graphic artist designed a logo for our fictitious company and produced a bill of lading using computer software.

With Ease, Investigators Purchased, Received, and Transported Radioactive sources across Both Borders

Our two teams of investigators each transported an amount of radioactive sources sufficient to manufacture a dirty bomb when making their recent, simultaneous border crossings. In our earlier work, we had purchased radioactive sources, two containers to store and transport the material, and we had obtained a genuine NRC document.

For the purposes of our current undercover investigation, we purchased a small amount of radioactive sources and one container for storing and transporting the material from a commercial source over the telephone. One of our investigators, posing as an employee of a fictitious company, stated that the purpose of his purchase was to use the radioactive sources to calibrate personal radiation detectors. According to the NRC, suppliers are not required to determine whether the buyer has a legitimate use for the radioactive sources, nor are suppliers required to ask the buyer to produce an NRC document when making purchases in small quantities. The amount of radioactive sources our investigator sought to purchase did not require an NRC document. The company mailed the radioactive sources to an address in Washington, D.C. We could have purchased all of the radioactive sources used in our two undercover border crossings by making multiple purchases from different suppliers, using similarly convincing cover stories, using false identities, and had all of the radioactive sources conveniently shipped to our nation's capital.

[4] None of these documents were available on NRC's Web site.

We have pointed out the weaknesses in federal and state controls over the security[5] of sealed sources in our prior work,[6] noting that it is possible that these materials can be obtained for malicious intent. Sealed radioactive sources, radioactive material encapsulated in stainless steel or other metal, are used worldwide in medicine, industry, and research. We recommended in August 2003 that the Nuclear Regulatory Commission (NRC) modify its process of issuing specific licenses to ensure that sealed sources cannot be purchased before NRC's verification – through inspection or other means – that the materials will be used as intended. NRC has not implemented our licensing recommendation to date, more than 2 years later. However, NRC has recently established an interagency task force to evaluate the licensing, use, and security of radioactive materials. Further delays in implementing our licensing recommendation, given today's security environment, continues to leave NRC's licensing process vulnerable to compromise and inadequate in terms of precluding the smuggling of radioactive material across our nation's borders.

Two Teams of Investigators Conducted Simultaneous Crossings at the U.S.-Canadian Border and U.S.-Mexican Border

Northern Border Crossing

On December 14, 2005, our investigators placed two containers of radioactive sources into the trunk of their rental vehicle. Our investigators – acting in an undercover capacity – drove to an official port of entry between Canada and the United States. They also had in their possession a counterfeit bill of lading in the name of a fictitious company and a counterfeit NRC document.

At the primary checkpoint, our investigators were signaled to drive through the radiation portal monitors and to meet the CBP inspector at the booth for their primary inspection. As our investigators drove past the radiation portal monitors and approached the primary checkpoint booth, they observed the CBP inspector look down and reach to his right side of his booth. Our investigators assumed that the radiation portal monitors had activated and signaled the presence of radioactive sources. The CBP inspector asked our investigators for identification and asked them where they lived. One of our investigators on the two-man undercover team handed the CBP inspector both of their passports and told him that he lived in Maryland while the second investigator told the CBP inspector that he lived in Virginia.

The CBP inspector also asked our investigators to identify what they were transporting in their vehicle. One of our investigators told the CBP inspector that they were transporting specialized equipment back to the United States. A second CBP inspector, who had come over to assist the first inspector, asked what else our

[5] As used in this report, "security" refers to measures to prevent unauthorized access to, loss, and/or theft of sealed sources, or radioactive materials used for medical and industrial purposes. See GAO, *Nuclear Security: Federal and State Action Needed to Improve Security of Sealed Radioactive Sources*, GAO-03-804 (Washington, D.C.: August 2003).

[6] GAO-03-804.

investigators were transporting. One of our investigators told the CBP inspectors that they were transporting radioactive sources for the specialized equipment. The CBP inspector in the primary checkpoint booth appeared to be writing down the information. Our investigators were then directed to park in a secondary inspection zone, while the CBP inspector conducted further inspections of the vehicle.

During the secondary inspection, our investigators told the CBP inspector that they had an NRC document and a bill of lading for the radioactive sources. The CBP inspector asked if he could make copies of our investigators' counterfeit bill of lading on letterhead stationery as well as their counterfeit NRC document. Although the CBP inspector took the documents to the copier, our investigators did not observe him retrieving any copies from the copier.

Our investigators watched the CBP inspector use a RIID, which he said is used to identify the source of radioactive material, to examine the investigators' vehicle. He used the RIID to identify the source of radiation emanating from the investigators' vehicle. He told our investigators that he had to perform additional inspections. After determining that the investigators were not transporting additional sources of radiation, the CBP inspector made copies of our investigators' drivers' licenses, returned their drivers' licenses to them, and our investigators were then allowed to enter the United States. At no time did the CBP inspector question the validity of the counterfeit bill of lading or the counterfeit NRC document.

Southern Border Crossing

On December 14, 2005, our investigators placed two containers of radioactive sources into the trunk of their vehicle. Our investigators drove to an official port of entry at the southern border. They also had in their possession a counterfeit bill of lading in the name of a fictitious company and a counterfeit NRC document.

At the primary checkpoint, our two-person undercover team was signaled to drive through the radiation portal monitors through the use of a traffic light signal and stopped at the primary checkpoint for their primary inspection. As our investigators drove past the portal monitors and approached the primary checkpoint, they observed that the CBP inspector remained in the primary checkpoint for several moments prior to approaching our investigators' vehicle. Our investigators assumed that the radiation portal monitors had activated and signaled the presence of radioactive sources.

The CBP inspector asked our investigators for identification and asked them if they were American citizens. Our investigators told the CBP inspector that they were both American citizens and handed him their state issued driver's licenses. The CBP inspector also asked our investigators about the purpose of their trip to Mexico and asked whether they were bringing anything into the United States from Mexico. Our investigators told the CBP inspector that they were returning from a business trip in Mexico and were not bringing anything into the United States from Mexico.

While our investigators remained inside their vehicle, the CBP inspector used what appeared to be a RIID to scan the outside of the vehicle. One of our investigators told

him that they were transporting specialized equipment. The CBP inspector asked one of our investigators to open the trunk of the rental vehicle and to show him the specialized equipment. Our investigator told the CBP inspector that they were transporting radioactive sources in addition to the specialized equipment. The primary CBP inspector then directed our investigators to park in a secondary inspection zone for further inspection.

During the secondary inspection, the CBP inspector said he needed to verify the type of material our investigators were transporting, and another CBP inspector approached with what appeared to be a RIID to scan the cardboard boxes where the radioactive sources was placed. The instrumentation confirmed the presence of radioactive sources.

When asked again about the purpose of their visit to Mexico, one of our investigators told the CBP inspector that they had used the radioactive sources in a demonstration designed to secure additional business for their company. The CBP inspector asked for paperwork authorizing them to transport the equipment to Mexico. One of our investigators provided the counterfeit bill of lading on letterhead stationery, as well as their counterfeit NRC document. The CBP inspector took the paperwork provided by our investigators and walked into the CBP station. He returned several minutes later and returned the paperwork. At no time did the CBP inspector question the validity of the counterfeit bill of lading or the counterfeit NRC document.

Corrective Action Briefings

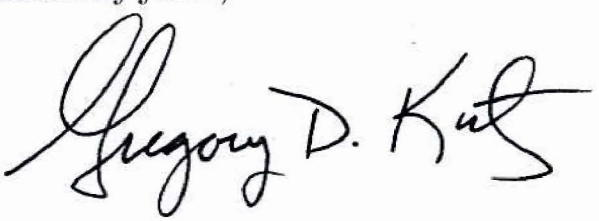
We conducted corrective action briefings with U.S. Customs and Border Protection (CBP) officials and Nuclear Regulatory Commission (NRC) officials shortly after completing our undercover operations. On December 21, 2005, we briefed CBP officials about the results of our border crossing tests. CBP officials agreed to work with the NRC and CBP's Laboratories and Scientific Services to come up with a way to verify the authenticity of NRC materials documents.

We conducted two corrective action briefings with NRC officials on January 12 and January 24, 2006, about the results of our border crossing tests. NRC officials disagreed with the "concern threshold" that officials from the National Institute of Standards and Technology (NIST) provided to us concerning the amount of radioactive material needed to produce a dirty bomb, noting that NRC's "concern threshold" is significantly higher than NIST's. We continue to believe that our purchase of radioactive sources and our ability to counterfeit an NRC document are matters that NRC should address. Further, we believe that the amount of radioactive sources that we were able to transport into the United States during our operation would be sufficient to produce two dirty bombs, which could be used as weapons of mass disruption. Finally, NRC officials told us that they are aware of the potential problems of counterfeiting documents and that they are working to resolve these issues.

As agreed with your office, unless you announce the contents of this report earlier, we will not distribute it until 30 days after its issuance date. At that time, we will send it to the appropriate congressional committees. We will also provide copies to

the Department of Homeland Security and the Nuclear Regulatory Commission. If you or your staff have any questions regarding this report, please contact me at (202) 512-7455 (kutzg@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in enclosure I.

Sincerely yours,



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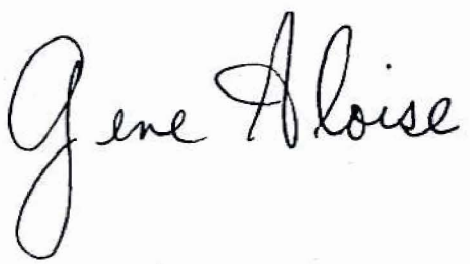

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Director
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Sincerely yours,

Enclosures – 1

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Enclosure I

GAO Contact and Staff Acknowledgments

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Acknowledgments	In addition to the individual named above, Andrew O'Connell, Richard Egan, John Cooney, Paul Desaulniers, Christine Hodakievic, George Ogilvie, Rich Hung, Jim Shafer, Stockton Butler, Kord Basnight, and Renee McElveen made key contributions to this report.