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NUCLEAR NONPROLIFERATION

U.S. Efforts to Combat Nuclear Smuggling

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Madam Chairman and Members of the Subcommittee:

I appreciate the opportunity to be here today to discuss our work on U.S. efforts to combat nuclear smuggling. The threat presented by nuclear smuggling is serious and poses national security concerns. Illicit trafficking in or smuggling of nuclear and other radioactive materials occurs worldwide and has reportedly increased in recent years. According to the International Atomic Energy Agency (IAEA) as of December 31, 2001, there have been 181 confirmed cases of illicit trafficking of nuclear materials since 1993. A significant number of cases reported by IAEA involved material that could be used to produce a nuclear weapon or a device that uses conventional explosives with radioactive material—a "dirty bomb"—to spread contamination over a wide area. Nuclear materials can be smuggled across a country's border through a variety of means: they can be hidden in a car; train; or ship; carried in personal luggage through an airport; or walked across an unprotected border.

In my testimony, I will address (1) the different U.S. federal programs tasked with combating the international threat of illicit trafficking in nuclear materials and the amount of U.S. funding spent on this effort, (2) how well the U.S. assistance is coordinated among federal agencies, (3) the effectiveness of the international assistance—equipment and training—provided by the United States, and (4) information about efforts to combat nuclear smuggling at U.S. borders. My statement today is based on the results of our May 16, 2002, report on this subject[1] and information we obtained from the U.S. Customs Service in May and June 2002.

In summary, U.S. efforts to help other countries combat nuclear smuggling are divided among six federal agencies—the Departments of Energy (DOE); State; and Defense (DOD); the U.S. Customs Service; the Federal Bureau of Investigation (FBI); and the U.S. Coast Guard. From fiscal year 1992 through fiscal year 2001, the six agencies spent about $86 million to help about 30 countries, mostly in the former Soviet Union and

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[1]U.S. General Accounting Office, *Nuclear Nonproliferation: U.S. Efforts to Help Other Countries Combat Nuclear Smuggling Need Strengthened Coordination and Planning*, GAO-02-426, (Washington, D.C.: May 16, 2002).

Central and Eastern Europe, combat the threat of smuggling nuclear and other materials that could be used in weapons of mass destruction. The six agencies have provided a variety of assistance, including installing radiation detection equipment, helping countries improve their ability to control the export of goods and technologies that could be used to develop nuclear weapons, and providing other equipment and training to generally improve countries' ability to prevent nuclear smuggling. In particular, DOE has installed radiation detection monitors at eight border crossings and plans to install similar equipment at close to 60 sites in Russia through its Second Line of Defense program. The State Department has provided radiation detection monitors, mobile vans equipped with radiation detectors, hand-held detectors, and other assistance to about 30 countries. DOD has also provided equipment and other assistance to about 20 countries. With funds provided by State and DOD, the U.S. Customs Service, the FBI, and the Coast Guard have provided a range of training and equipment to border guards and law enforcement officials in numerous countries.

Regarding coordination among the agencies, U.S. assistance is not effectively coordinated and lacks an overall governmentwide plan to guide it. Although an interagency group, chaired by the Department of State, exists to coordinate U.S. assistance efforts, the six agencies that are providing the assistance do not always work in unison. The most troubling consequence of the lack of coordination is that DOE, State, and DOD have pursued separate approaches to installing radiation detection equipment at countries' border crossings. As a result, some countries' border crossings are more vulnerable to nuclear smuggling than others. Specifically, DOE is installing equipment at border sites in Russia and DOD is installing equipment in another country that is better able to detect weapons-usable material (highly enriched uranium and plutonium), than the less sophisticated radiation detection monitors the State Department has installed in other countries.

Concerning the effectiveness of the U.S. assistance, there is good news and bad news to report. First, the good news. We found that U.S. assistance is generally helping countries combat the smuggling of nuclear and other radioactive materials.

Representatives from 17 recipient countries told us that U.S. assistance had provided needed equipment and training. Without U.S. assistance, some countries would have neither radiation detection equipment at their borders nor training. The bad news, however, is that serious problems exist with the installation, use, and maintenance of equipment which has undermined U.S. efforts. For example, about one-half of the stationary radiation detection monitors provided to one country in the former Soviet Union were never installed, and radiation detection equipment provided by the State Department to Lithuania was stored in the basement of the U.S. embassy for about 2 years because the department and Lithuanian officials disagreed about whether an existing power line was sufficient to operate the equipment or whether a new one costing $12,600 was needed. These and other problems are largely a result of the lack of oversight and follow-up by the agencies providing the assistance. We can report, however, that U.S. officials are trying to correct some of these problems by, among other things, stationing full-time advisers in countries receiving U.S. assistance.

Concerning efforts to combat nuclear smuggling at U.S. borders, Customs Service officials told us that since September 11, 2001, antiterrorism efforts, including detecting nuclear smuggling, have become a top U.S. Customs Service priority. Customs relies on a three-part strategy to combat nuclear smuggling: training, targeting, and technology. Customs officials told us that they rely on radiation pagers—personal radiation detectors designed to be worn on a belt—as the primary equipment to detect nuclear material. Since fiscal year 1998, Customs has deployed about 4,200 pagers among its approximately 7,500 inspectors and plans to make the pagers standard equipment for every inspector. Most experts we talked to agree that radiation detection pagers are a useful tool in a layered system that includes various kinds of radiation detection equipment. However, DOE officials told us that they view the pagers as personal safety devices, not search instruments, and that the pagers are not designed to detect weapons-usable nuclear material. In addition to the pagers, Customs plans to purchase about 400 portal monitors over the next couple of years.

Background

Over the past decade, the United States has paid increased attention to the threat that unsecured weapons-usable nuclear material in the countries of the former Soviet Union, particularly Russia, could be stolen and fall into the hands of terrorists or countries seeking weapons of mass destruction. Several cases of illicit trafficking in nuclear material in Germany and the Czech Republic in the early to mid-1990s underscored the proliferation threat. The United States responded to the threat by providing assistance to increase security at numerous nuclear facilities in the former Soviet Union, particularly in Russia, to prevent weapons-usable material from being stolen. This effort is considered the first line of defense against potential theft or diversion of nuclear materials.[2]

Radiation detection equipment can detect radioactive materials in medicine and industry; in commodities that are sources of naturally occurring radiation, such as fertilizer; and in nuclear materials that could be used in a nuclear weapon. The capability of the equipment to detect nuclear material depends on many factors, including the amount of material, the size and capacity of the detection device, and whether the material is shielded from detection. Detecting actual cases of illicit trafficking in weapons-usable nuclear material is complicated because one of the materials that is of greatest concern—highly enriched uranium—is among the most difficult materials to detect because of its relatively low level of radioactivity. In contrast, medical and industrial radioactive sources, which could be used in a radiological dispersion device, are highly radioactive and easier to detect. Because of the complexities of detecting and identifying nuclear material, customs officers and border guards who are responsible for operating detection equipment must also be trained in using handheld radiation detectors to pinpoint the source of an alarm, identify false alarms, and respond to cases of nuclear smuggling.

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[2]See U.S. General Accounting Office, *Nuclear Nonproliferation: Security of Russia's Nuclear Material Improving; Further Enhancements Needed*, GAO-01-312 (Washington, D.C.: Feb. 28, 2001).

Six Federal Agencies Spent About $86 Million to Help Countries Combat Nuclear Smuggling

U.S. assistance efforts, which consist primarily of providing equipment and training to combat nuclear smuggling and other materials that could be used in weapons of mass destruction, are divided among six federal agencies: DOE, DOD, State, the Customs Service, the FBI, and the Coast Guard. From fiscal year 1992 through fiscal year 2001, the agencies spent about $86 million in about 30 countries, including all of the countries of the former Soviet Union and numerous countries of Central and Eastern Europe. Providing radiation detection equipment is one of the many types of U.S. assistance. The United States has provided portal monitors (stationary equipment designed to detect radioactive materials carried by pedestrians or vehicles) and smaller, portable radiation detectors at border crossings in many countries of the former Soviet Union and Central and Eastern Europe. This equipment, which is installed at car and truck crossings, railroad crossings, seaports, and airports, serves two purposes: deterring smugglers from trafficking in nuclear materials and detecting cases of actual smuggling. Other equipment ranges from hand tools for taking apart and searching different compartments of a vehicle for hidden contraband to boats and vehicles for conducting patrols. Similarly, training provided ranges from hands-on instruction on using the equipment and conducting searches to high-level technical exchanges on establishing the legal and regulatory basis for preventing illicit trafficking and trade in sensitive goods that could be used in a nuclear weapon.

DOE has two assistance programs: the Second Line of Defense program and the International Export Control Program (IECP). The Second Line of Defense program focuses on providing radiation detection equipment to Russia. DOE had spent $11.2 million through fiscal year 2001 to install 70 portal monitors at eight sites in Russia, including a Moscow airport. DOE has identified close to 60 sites in total in Russia where it plans to install portal monitors over the next decade at a cost of about $50 million. IECP is designed to help countries of the former Soviet Union control the export of

goods and technologies that could be used in the development of nuclear weapons and had spent $22 million on this effort through fiscal year 2001. Whereas the Second Line of Defense program focuses on the nuclear material needed to manufacture a nuclear bomb, the IECP focuses on other high-technology components needed for a bomb, such as equipment for enriching uranium. DOE also spent $1.8 million to support State and DOD programs to combat nuclear smuggling

State spent $11.4 million through two programs—the Nonproliferation Disarmament Fund (NDF) and the Export Control and Related Border Security Assistance program. Through NDF, State spent $8.5 million to, among other things, install portal monitors in countries other than Russia, provide handheld radiation detectors, including radiation pagers, and mobile vans equipped with X-ray machines and radiation detectors. The Export Control and Related Border Security Assistance program spent $2.7 million, which included funding for mobile vans for Russia and Poland. It also spent $0.2 million on a program (implemented by Customs) to provide radiation detection equipment as part of its assistance to strengthen Georgia's overall border infrastructure and security against any type of crime, including nuclear smuggling.

DOD has provided assistance under two programs: the Cooperative Threat Reduction (CTR) program and the International Counterproliferation program. The CTR program spent $16.3 million to assist five countries. Assistance included providing pedestrian portal monitors (to screen people) and handheld radiation detectors. In addition, CTR funds have been used to install portal monitors in one country. As part of the International Counterproliferation program, DOD spent $10.2 million to provide Customs and FBI training and equipment in 17 countries of the former Soviet Union and Central and Eastern Europe.

Customs, FBI, and the Coast Guard have implemented programs with funding from State and DOD. Customs was the largest recipient of funds, spending $11.1 million to combat nuclear smuggling. Customs has provided training and equipment to customs agencies and border guards in close to 30 countries. The equipment includes radiation pagers as

well as other high- and low-tech tools for conducting searches and detecting sensitive goods and materials, such as fiber-optic scopes for examining fuel tanks for contraband. Training includes providing assistance in operating the mobile vans equipped with radiation detectors, providing hands-on instruction for using equipment, and teaching techniques for investigating smuggling operations. In addition to equipment and training, Customs has stationed 22 full-time advisers covering 25 countries on behalf of State to help implement and coordinate the U.S. assistance.

FBI and the Coast Guard have also played a role in combating nuclear smuggling. FBI spent $0.4 million in DOD funds to train and equip law enforcement agencies to investigate and respond to actual seizures of smuggled nuclear or other material. Training included seminars for high-level officials and courses on conducting investigations and managing a crime scene where a seizure has taken place. Equipment provided as part of the training included HAZMAT suits to make handling seized material safer, evidence collection and sampling kits, chemical detection equipment, and radiation pagers. The Coast Guard spent $1.6 million in funds received from State to interdict smuggled nuclear material. Assistance to one country includes providing two boats with spare parts and stationing an in-country Coast Guard adviser.

U.S. Assistance to Combat Nuclear Smuggling Lacks a Coordinated Approach

The six agencies that are providing assistance to combat nuclear smuggling have not effectively coordinated their activities, and there is no overall governmentwide plan to guide their efforts. The most troubling consequence has been that DOE, State, and DOD are pursuing separate approaches to improving countries' border crossings, leaving some countries more vulnerable to nuclear smuggling than others. Specifically, the results of our review showed that DOE and DOD have installed more sophisticated portal monitors at border sites in Russia and another country and State has installed less sophisticated portal monitors in other countries. In addition, DOD's Cooperative Threat Reduction program in the mid-1990s provided less sophisticated portal monitors to still another country in the former Soviet Union. The more sophisticated portal monitors detect two types of radiation: gamma and neutron. The less sophisticated equipment installed by

State and under DOD's CTR program detects only gamma radiation. The ability to detect neutron radiation translates into a greater ability to detect weapons-usable plutonium.

State Department officials said they used less sophisticated portal monitors because of their lower cost and the difficulty many countries would have in maintaining more sophisticated equipment. Because of the different circumstances existing in each country, State officials said that radiation detection assistance should be tailored to individual country needs. However, the Director of State's Office of Export Control Cooperation and Sanctions said that the department is reevaluating its approach, including installing better equipment where appropriate.

The three agencies have also pursued different approaches to providing handheld radiation detection equipment. With funding from DOD and State, Customs has provided foreign customs organizations and border guards with radiation detection pagers. In contrast, DOE's Second Line of Defense program provides larger handheld detectors but not radiation detection pagers. State and Customs officials pointed out that pagers are a useful part of a radiation detection system at border crossings and essentially represent one tool in the toolbox to combat nuclear smuggling.

Although the agencies coordinate their assistance through an interagency group chaired by State, we believe these efforts have been inadequate. No one agency is in charge of the overall U.S. effort to provide assistance and, consequently, the agencies have implemented their programs without always coordinating through the interagency group. The absence of a strong focal point for this assistance has led, not surprisingly, to differing views about the appropriate role that each agency should play in this effort. For example, while State sees itself as the agency that leads the coordination effort, a DOD official said that State does not have the necessary expertise to manage the overall U.S. effort. In contrast, DOE officials told us that State should have a lead role in coordination and diplomatic support. However, DOE officials questioned whether State and DOD are the appropriate agencies for installing portal monitors in countries other than Russia.

There were also coordination problems within individual agencies. For example, although State provides its radiation detection assistance through DOE, the DOE office that works with State is completely separate from the Second Line of Defense program. A Second Line of Defense program official told us that his program office and the other office do not communicate with each other. This official believes that the two offices should be merged, and we recommended in our report that a consolidation occur, preferably under the Second Line of Defense program.

U.S. Assistance Has Helped Countries Combat Nuclear Smuggling but Problems with Equipment Undermine Efforts

U.S. assistance has, in general, strengthened the ability of numerous countries throughout the former Soviet Union and Central and Eastern Europe to deter and detect illicit trafficking in nuclear materials. However, serious problems with installing, using, accounting for, and maintaining radiation detection equipment have undermined U.S. efforts.

Officials from 17 countries receiving U.S. assistance to combat nuclear smuggling told us that the assistance had provided much needed radiation detection equipment and training. According to officials from several countries, U.S.-supplied portal monitors installed at border crossings and handheld detection equipment represent the only assistance of this type that their countries have received. In countries that we visited during our fieldwork, including Russia, we observed that the equipment was working and was being used for the purposes intended. In fact, Russian customs officials told us that equipment funded by DOE had helped accelerate Russia's plans to improve border security. This is a daunting challenge, given the fact that Russia has almost 12,500 miles of borders with 14 countries, including North Korea, and is in close geographical proximity to Afghanistan, Iran, and Iraq.

Despite the benefits of the assistance, we found numerous problems with various types of radiation detection equipment that has been provided by DOD, State, and Customs. According to officials from these agencies and a DOE office responsible for installing portal monitors in some countries, U.S. assistance to combat nuclear smuggling has lacked effective follow-up to ensure that equipment delivered was properly maintained and used for the purposes intended. Several officials told us that funding for maintenance of the equipment and training on how to use it has been inadequate. because of the U.S. practice of delivering the equipment without making provisions for follow-on support.

Examples of the problems we found with U.S.-supplied equipment—some of which we derived from discussions with U.S. program officials and representatives of countries receiving U.S. assistance—include the following.

- About half of the pedestrian portal monitors provided to one country in the former Soviet Union were never installed or are not operational. Officials from this country told us that they were given more equipment than they could use.
- Portal monitors delivered to Lithuania were stored in the U.S. embassy basement for about 2 years because the State Department and the Lithuanian border organization disagreed about whether an existing power supply was sufficient to operate the equipment or a new one costing $12,600 was needed.
- Equipment worth about $80,000 could not be given to Estonia as part of a DOD/FBI training program because an agreement governing the release of such equipment had not been finalized. The equipment was placed in an embassy garage for about 7 months before it was transferred to Estonia in December 2001.
- A portal monitor furnished by the State Department to Bulgaria was installed on an unused road. Plans are under way to relocate the equipment.
- Mobile vans equipped with radiation detection equipment (which cost a total of $900,000) provided to two countries have limited utility because they cannot be operated effectively in cold climates and are very fuel-inefficient. Officials from one

country told us that the van provided to them is stored in a shipping crate at customs' headquarters.

Another problem is that in many cases, countries that have received U.S. radiation detection equipment are not systematically providing information about nuclear materials detected by U.S.-supplied equipment. As a result, it is difficult to determine the overall impact and effectiveness of the equipment.

Actions are being taken to correct these problems. In the past 2 years, the State Department has placed full-time advisers in many of the countries receiving U.S. assistance to improve program effectiveness. These advisers, generally retired Customs officials, are responsible for, among other things, inventorying equipment, determining how it is being used, including assessing its effectiveness. State is also using the advisers to improve equipment sustainability and facilitate routine equipment maintenance and repair.

Other factors also affect U.S. efforts to combat nuclear smuggling, such as corruption in countries' border organizations and the amount of territory that requires protection. According to officials from several recipient countries, corruption is a pervasive problem within the ranks of border security organizations. In addition, because of the large expanses of territory, including borders that are not clearly marked, numerous recipient country officials told us that it is impossible to secure every border crossing. Furthermore, every country has "green" borders—territory that is not patrolled or regulated by border security personnel. These areas are very attractive to smugglers in general.

Efforts to Combat Nuclear Smuggling at U.S. Borders

Since September 11, 2001, antiterrorism efforts, including detecting nuclear smuggling, have become a top U.S. Customs Service priority. While Customs is employing a three-pronged approach to this effort, which focuses on training, targeting, and technology, it

has no overall strategic plan to guide its efforts. In the area of training, by the end of fiscal year 2002, Customs plans to train up to 140 inspectors of its approximately 7,500 inspectors to detect nuclear material. This specialized training is being conducted in cooperation with DOE's national laboratories. In addition, according to Customs, approximately 5000 Customs personnel have received training in familiarization and identification of materials and components associated with the development and deployment of nuclear weapons and radiological devices. Regarding targeting, Customs uses data from importers and exporters; an automated system that screens manifest information; and its Office of Border Security to target incoming and outgoing shipments for further inspection. However, Customs officials told us that one of its greatest needs is better information to more accurately target shipments.

In the area of technology, Customs officials told us that it relies primarily on radiation detection pagers to detect nuclear material. Since fiscal year 1998, Customs has deployed about 4,200 pagers among its approximately 7,500 inspectors. Customs plans to make the radiation detection pagers standard equipment for every inspector and expects to purchase over 4,000 additional pagers to complete deployment by September 2003. Every inspector will have his or her own pager. However, radiation detection pagers have limitations. DOE officials told us that they do not view pagers as search instruments, but rather as personal safety devices that have a limited range and are not designed to detect weapons-usable material. Customs officials told us that the radiation detection pagers were initially purchased as personal protection devices. However, post September 11, 2001, the pagers will be used as radiation detection equipment. According to U.S. officials, pagers are more effectively used in conjunction with other radiation detection equipment, such as portal monitors.

Customs has also deployed over 200 radiation detectors on mobile X-ray van and other X-ray equipment to screen small packages. Regarding portal monitors, Customs plans to install them at every U.S. land, air, and sea port of entry, but so far only one has been deployed as a demonstration project. According to Customs officials, the plan is to

purchase about 400 portal monitors. About half of the monitors will be purchased in this fiscal year and the remainder will be purchased in fiscal year 2003.

These purchases are a step in the right direction and are designed to get radiation detection equipment to U.S. borders quickly. However, Customs does not have a comprehensive strategic plan to guide its overall efforts. Such a plan, at a minimum, would assess vulnerabilities and risks; identify the complement of radiation detection equipment that should be used at each type of border entry point—air, rail, land, and sea—and whether the equipment could be immediately deployed; identify longer-term radiation detection equipment needs; and develop measures to ensure that the equipment is adequately maintained. However, it is not enough to simply deploy equipment. Customs personnel must be effectively trained in radiation science, the use of the equipment, and identifying and responding to alarms. The strategic plan would need to identify total costs, annual budgetary needs, and timeframes for all these activities. The plan would provide for an integrated, systematic approach to Customs antiterrorism efforts and provide the basis for setting priorities and for coordinating efforts with other federal, state, and local agencies that would be involved in these activities. While Customs officials told us that they developed the elements of a plan, including schedules to purchase equipment and train personnel, these elements have not yet been integrated into a comprehensive strategic plan. Although we are not making a formal recommendation to Customs to develop such a plan, we will monitor Customs' progress toward the development of its strategic plan.

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

GAO Contact and Acknowledgments

For further information about this testimony, please contact Gary Jones at (202) 512-3841. Gene Aloise, Joseph Cook, and Glen Levis also made key contributions to this testimony.

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