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NUCLEAR NONPROLIFERATION

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

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Natural Resources and Environment

March 13, 2007

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Highlights

Highlights of GAO-07-580T, a testimony to the Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia, Committee on Homeland Security and Governmental Affairs, U.S. Senate

Why GAO Did This Study

Following the terrorist attacks of September 11, 2001, U.S. and international experts raised concerns that unsecured radiological sources posed a significant security threat to the United States and the international community. If certain types of these sources were obtained by terrorists, they could be used to produce a radiological dispersion device, or dirty bomb. In response, the Department of Energy (DOE) established the International Radiological Threat Reduction Program to identify, recover, and secure vulnerable, high-risk radiological sources.

GAO was asked to (1) assess DOE's progress in securing sources in foreign countries, (2) identify DOE's current and planned program costs, and (3) determine the extent to which DOE has coordinated its efforts with other federal agencies and with international organizations, such as the International Atomic Energy Agency (IAEA). In January 2007, GAO issued a report— *Nuclear Nonproliferation: DOE's International Radiological Threat Reduction Program Needs to Focus Future Efforts on Securing the Highest Priority Radiological Sources*, (GAO-07-282)—that addressed these matters.

To carry out its work, GAO reviewed DOE policies, plans and budgets; observed installed physical security upgrades; and interviewed senior DOE, Department of State (State), and Nuclear Regulatory Commission (NRC) officials.

www.gao.gov/cgi-bin/getrpt?GAO-07-580T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Gene Aloise, (202) 512-3841, aloisee@gao.gov .

What GAO Found

While DOE has improved the security of hundreds of sites that contain radiological sources in more than 40 countries, many of the highest-risk sources remain unsecured. For example, more than 700 radioisotope thermoelectric generators (RTG) remain operational or abandoned across Russia, representing the largest unsecured quantity of radioactivity in the world. Each of these devices has activity levels ranging from 25,000 to 250,000 curies of strontium-90—similar to the amount of such material released from the Chernobyl nuclear reactor accident. In addition, only 4 of 20 waste storage facilities in Russia and Ukraine have been secured.

In 2003, when DOE decided to broaden the scope of the program beyond the former Soviet Union, it also expanded the types of sites that required security upgrades to include hospitals and oncology clinics. In contrast to higher priority sources, such as RTGs, these facilities operate teletherapy machines that generally contain a single cobalt-60 source ranging from about 1,000 to 10,000 curies. As of September 30, 2006, almost 70 percent of all sites secured by DOE's program were hospitals and oncology clinics. Moreover, DOE has not developed a plan to ensure that countries receiving security upgrades will be able to sustain them over the long-term.

Since 2002, DOE has spent about $108 million to implement its program. Funding for the program has steadily declined as DOE has placed a higher priority on securing special nuclear material, such as plutonium and highly enriched uranium.

Finally, although DOE has improved coordination with State and NRC, these efforts have been inconsistent. For example, DOE chose not to transfer $5 million of its fiscal year 2004 appropriation to NRC for international regulatory activities, causing friction between the agencies. In addition, GAO found that critical gaps in information-sharing between DOE and IAEA have impeded DOE's ability to target the most vulnerable sites in IAEA member states for security improvements.

In its recent report, GAO made recommendations to the Secretary of Energy and the Administrator of the National Nuclear Security Administration 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. In addition, GAO 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. DOE said that our recommendations were helpful and would further strengthen its program. NRC said it would work closely with relevant executive branch agencies and IAEA if Congress acts upon GAO's matter for consideration.

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss our work on the actions the Department of Energy (DOE) has taken to secure radiological sources in foreign countries. Specifically, my remarks are based on the report we are issuing today—*Nuclear Nonproliferation: DOE's International Radiological Threat Reduction Program Needs to Focus Future Efforts on Securing the Highest Priority Radiological Sources*, which was prepared at the request of this subcommittee.[1]

Following the terrorist attacks of September 11, 2001, U.S. and international experts raised concerns that unsecured radiological sources were vulnerable to theft and posed a significant security threat to the United States and the international community. If certain types of these sources were obtained by terrorists, they could be used to produce a simple and crude but potentially dangerous weapon—known as a radiological dispersion device, or dirty bomb.

In 2001, a congressional report directed DOE to address the threat posed by dirty bombs. In response, the National Nuclear Security Administration (NNSA)[2] established the Radiological Threat Reduction Task Force to identify, recover, and secure vulnerable, high-risk radiological sources. This effort was focused in countries of the former Soviet Union (FSU) because DOE determined this region had the greatest number of vulnerable sources. In 2003, at the direction of the Secretary of Energy, DOE expanded the scope of the program to secure sealed sources worldwide, ultimately establishing the International Radiological Threat Reduction (IRTR) Program. The program's primary objective is to protect U.S. national security interests by (1) implementing rapid physical security upgrades at vulnerable sites containing radioactive sources; (2) locating, recovering, and consolidating lost or abandoned high-risk radioactive sources; and (3) supporting the development of the infrastructure necessary to sustain security enhancements and supporting regulatory controls, including the development of regional partnerships to leverage international resources.

[1]GAO-07-282.

[2]NNSA is a separately organized agency within DOE that was created by the National Defense Authorization Act for Fiscal Year 2000, Pub. L. No. 106-65 (2000), with responsibility for the nation's nuclear weapons, nonproliferation, and naval reactors programs.

The Department of State (State) and the Nuclear Regulatory Commission (NRC) also fund efforts to secure radiological sources in other countries, though on a much smaller scale than DOE. State, among other things, provides the International Atomic Energy Agency (IAEA) with funds to conduct training, workshops, and advisory missions to improve member states' radiological source security practices and procedures. NRC has provided guidance on the development of programs in Armenia, Georgia, and Kazakhstan to improve nuclear regulatory controls over radiological sources, including establishing radiological source inventories and promoting the development of laws, rules, and regulations governing controls over this material.

In this context, you asked us to (1) assess the progress DOE has made in implementing its program to help other countries secure their sealed radiological sources, (2) identify DOE's current and planned program costs, and (3) determine the extent to which DOE has coordinated its efforts with other federal agencies and with international organizations, such as IAEA and the European Commission. In conducting our review, we analyzed DOE's IRTR program documentation, including project work plans for each country and program activity; strategic plans; and internal briefings. We supplemented the documentation with interviews with senior level DOE officials responsible for implementing the IRTR program. We also visited four countries—Russia, Lithuania, Poland and Georgia—representing about 35 percent of overall DOE program expenditures, observed physical security upgrades implemented by DOE's program, and met with host government officials in each country. We reviewed budget documents detailing IRTR program expenditures and determined the program's total carryover of unspent and unobligated funds. Finally, we met with senior officials at State, NRC, IAEA and the European Commission. We performed our review in Washington, D.C., and other locations, from November 2005 to December 2006 in accordance with generally accepted government auditing standards.

In summary

DOE has improved the security of hundreds of sites that contain radiological sources in more than 40 countries and achieved some noteworthy accomplishments, including the removal of cobalt-60 and cesium-137 sources from a poorly protected nuclear waste repository in Chechnya. However, many of the highest-risk and most dangerous sources remain unsecured. For example, hundreds of large devices known as radioisotope thermoelectric generators (RTG) remain operational or abandoned in Russia. Each of these devices has activity levels ranging from 25,000 to 250,000 curies of strontium-90—similar to the amount of

strontium-90 released from the Chernobyl nuclear reactor accident in 1986.[3] In addition, security upgrades at a majority of waste storage facilities—which can individually store up to 3 million curies of material—located primarily in Russia and Ukraine, have not been completed. Moreover, in 2003, when DOE decided to broaden the program's scope beyond the former Soviet Union, it also expanded the types of sites that required security upgrades to include medical facilities operating teletherapy machines which are used to provide radiation treatment to cancer patients. These machines generally contain a single cobalt-60 radiological source ranging from about 1,000 to 10,000 curies. As a result, as of September 2006, almost 70 percent of all sites secured were hospitals and oncology clinics. In the view of several DOE national laboratory and security specialists responsible for implementing the program, DOE installed security upgrades at so many of these facilities primarily because the upgrades are relatively modest in scope and cost.

In addition, DOE has also experienced a number of challenges, such as, problems with foreign contractor performance and lack of adequate physical infrastructure to support security upgrades, which impeded program implementation; caused project delays; and in some extreme cases, prevented DOE from initiating projects at all. Finally, DOE has not developed a plan to ensure that countries receiving security upgrades will be able to sustain them over the long term. This is particularly problematic, since we identified numerous problems with the maintenance of DOE-funded security equipment and storage facilities during our site visits.

Regarding program costs, as of August 31, 2006, DOE had spent approximately $108 million to secure radiological sources worldwide. A majority of this money—$68 million—was spent to (1) physically secure sites; (2) locate, recover, and dispose of lost or abandoned sources; and (3) help countries draft laws and regulations to increase security and accounting of sources. In addition, DOE provided $13.5 million to IAEA to support activities to strengthen controls over radiological sources in IAEA member states and spent $26.5 million on program planning activities such as, developing program guidance documents, hiring private consultants, and conducting studies. DOE officials told us that securing radiological

[3]A curie is a unit of measurement of radioactivity. In modern nuclear physics, it is defined as the amount of substance in which 37 billion atoms per second undergo radiological disintegration. In the international system of units, the becquerel is the preferred unit of radioactivity. One curie equals 3.7×10^{10} becquerels.

sources in other countries is a lower priority than securing more dangerous nuclear materials, such as plutonium and highly enriched uranium (HEU). As a result, recent budget allotments for radiological security activities were reduced. Consequently, DOE program officials are concerned that the agency may be unable to meet outstanding contractual commitments to maintain the more than $40 million in security upgrades already installed.

Concerning coordination between DOE, State and NRC, efforts have improved since we reported on this matter in 2003.[4] Specifically, DOE has involved State and NRC in its international radiological threat reduction activities more often and has increased information-sharing with the agencies. However, DOE has not always integrated its nuclear regulatory infrastructure development efforts with these agencies efficiently. For example, DOE and NRC disagreed about whether, as directed by the Senate Appropriations Committee, DOE should have transferred $5 million from its fiscal year 2004 appropriation to NRC for the purpose of strengthening international regulatory controls over radiological sources. Ultimately, DOE did not transfer the funds, causing friction between the agencies. Finally, DOE has improved coordination with IAEA to strengthen controls over other countries' radiological sources and has developed bilateral and multilateral partnerships with IAEA member states to improve their regulatory infrastructures. However, significant gaps in information-sharing between DOE and IAEA have impeded DOE's ability to target the most vulnerable sites for security improvements.

To help ensure that DOE's future efforts focus on securing the highest priority sources, our report recommends that the Secretary of Energy and the Administrator of the NNSA, among other things, (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 that includes, among other things, future resources required to implement such a plan. Additionally, we asked that the Congress consider providing NRC with the authority and a direct appropriation to conduct international regulatory infrastructure development activities. DOE said that our recommendations

[4]GAO, *Nuclear Nonproliferation: U.S. and International Assistance Efforts to Control Sealed Radiological Sources Need Strengthening*, GAO-03-638 (Washington, D.C.: May 16, 2003).

were helpful and would further strengthen its program. NRC said it would work closely with relevant executive branch agencies and IAEA if Congress acts upon our matter for consideration.

Background

The small size, portability and potential value of sealed radiological sources make them vulnerable to misuse, improper disposal and theft. According to IAEA, the confirmed reports of illicit trafficking in radiological materials have increased since 2002. For example, in 2004, about 60 percent of the cases involved radiological materials, some of which are considered by U.S. government and IAEA as attractive for the development of a dirty bomb. Although experts generally believe that a dirty bomb could result in a limited number of deaths, it could, however, have severe economic consequences. Depending on the type, amount, and form, the dispersed radiological material could cause radiation sickness for people nearby and produce serious economic, psychological and social disruption associated with the evacuation and subsequent cleanup of the contaminated area. Although no dirty bombs have been detonated, in the mid-1990s, Chechen separatists placed a canister containing cesium-137 in a Moscow park. While the device was not detonated and no radiological material was dispersed, the incident demonstrated that terrorists have the capability and willingness to use radiological sources as weapons of terror.

A 2004 study by the National Defense University noted that the economic impact on a major populated area from a successful dirty bomb attack is likely to equal and perhaps exceed that of the September 11, 2001, attacks on New York City and Washington, D.C. According to another study, the economic consequences of detonating a series of dirty bombs at U.S. ports, for example, would result in an estimated $58 billion in losses to the U.S. economy. The potential impacts of a dirty bomb attack could also produce significant health consequences. In 2002, the Federation of American Scientists concluded that an americium radiological source combined with one pound of explosives would result in medical supervision and monitoring required for the entire population of an area 10 times larger than the initial blast.

DOE Has Installed Physical Security Upgrades at Hundreds of Sites Worldwide, but Many Dangerous Radiological Sources Have Not Been Secured

As of September 30, 2006, DOE had secured 368 sites that contained radiological sources in more than 40 countries. The agency's efforts included the removal of cobalt-60 and cesium-137 sources from a poorly protected nuclear waste repository in Chechnya; construction of storage facilities in Uzbekistan, Moldova, Tajikistan, and Georgia in order to consolidate sources and strengthen their long-term protection; and the installation of physical security upgrades at 21 sites containing radiological sources in Greece prior to the 2004 Olympics. However, despite these achievements, a majority of sites secured do not represent the highest-risk or the most vulnerable sources, and many of the most dangerous sources remain unsecured, particularly in Russia.

In 2003, when DOE decided to broaden the program beyond the former Soviet Union, it expanded the types of sites that required security upgrades to include medical facilities that contained lower priority sources. For example, of the total sites completed, 256—or about 70 percent—were hospitals and oncology clinics operating teletherapy machines which generally contain a single cobalt-60 source ranging from about 1,000 to 10,000 curies. In contrast, only 4 of 20 waste storage sites across Russia and Ukraine have been secured. According to DOE, these waste storage facilities are the most vulnerable in the world and pose a significant risk, because of the large quantities of radioactive sources currently housed at each site.

Officials from three of the four recipient countries we visited raised concerns about DOE's focus on securing so many medical facilities and Russian officials told us that radiological sources in hospitals did not pose a risk comparable to that of RTGs or lost or abandoned sources. In addition, several national laboratory officials and security specialists responsible for implementing DOE's program told us that although progress had been made in securing radiological sources, the agency had focused too much attention on securing medical facilities at the expense of other higher-priority sites, such as waste storage facilities and RTGs. In their view, DOE installed security upgrades at so many of these facilities primarily because the upgrades were relatively modest in scope and cost. For example, a typical suite of security upgrades at a medical facility costs between $10,000 and $20,000, depending on the size of the site, whereas the average cost to remove and replace an RTG in the Far East region of Russia is about $72,000 in 2006 dollars.

To track program progress, DOE has relied upon an indicator that uses as its primary metric, the number of sites that have been upgraded, or "sites secured." Although DOE has compiled and tracked accomplishments such

as the amount of curies secured, the number of countries to receive regulatory assistance, and the number of orphan sources recovered, multiple national laboratory officials and security specialists told us that completing upgrades at medical facilities served to demonstrate rapid program progress because the upgrades are completed relatively quickly. DOE's program director said that the number of sites completed demonstrated conclusively that work has been done and represented the best available measurement. However, Pacific Northwest National Laboratory and Sandia National Laboratory officials told us that this particular measurement did not demonstrate how the program is reducing threats posed to U.S. national security interests. In their view, this measurement is one-dimensional and does not adequately distinguish lower-priority sites from higher-priority sites.

Furthermore, although numerous medical facilities have been secured, more than 700 RTGs remain operational or abandoned in Russia, representing several million curies of unsecured radioactive material. Almost 100 of these are located along the Baltic coastal line and, according to Russian officials, should be removed as soon as possible because of their accessibility and proximity to large population centers. As of September 30, 2006, DOE had funded the removal of about 13 percent of all RTGs located in Russia's inventory.

According to DOE and Russian officials, RTG removal is complex and DOE has faced a number of challenges. First, no comprehensive inventory of RTGs exists, and, as a result, the actual number of these devices is unknown. Second, RTGs contain sources with high levels of radioactivity, and their removal requires specialized containers for their transport and facilities with adequate storage capacity. Finally, future RTG removal efforts will depend on finding a viable, alternative energy source to replace power supplied by radiological sources contained in RTGs. DOE has equipped a select number of RTGs with alarm systems that are remotely monitored as an interim measure to help reduce the risk posed by RTGs that have not yet been removed.

Additionally, although IAEA officials told us that transportation of high-risk radiological sources is the most vulnerable part of the nuclear and radiological supply chain, DOE determined that source transport is generally outside the scope of the program and did not pursue transportation security-related projects with the majority of countries participating in the IRTR program. However, in every country we visited, host country officials identified the transportation of sources as a critical vulnerability and a priority for security upgrades.

DOE also experienced numerous challenges that impeded program implementation, specifically problems with foreign contractor performance and inadequate physical infrastructure. Some examples we found of poor contactor performance included

- steel security doors to a room containing radiological sources installed with the hinges on the outside,
- security manuals and procedures for newly installed equipment provided in English instead of the native language, and
- hospital staff that had not been trained by the contractor on operation of the alarm systems.

In terms of physical infrastructure, some countries lacked reliable electricity, a backup power source, or telecommunications at sites containing radiological sources. As a result, frequent power outages diminished the detection capability of security alarms installed, and backup sources of power were unavailable to operate the security alarms and security lighting. DOE officials said that various combinations of these and other impediments resulted in delays implementing security upgrades in about 75 percent of all countries participating in the program.

Finally, we were especially concerned to find that DOE had not developed a plan to ensure that countries receiving security upgrades will be able to sustain them over the long term, particularly in light of the number of problems with the maintenance of DOE-funded security equipment and storage facilities we identified during our site visits. For example, we visited an oncology clinic and observed that the security cable used to secure a teletherapy machine's cobalt-60 source had been broken for almost a month. This cable, according to a DOE physical protection specialist, was the most important security feature because it triggered an alarm directly connected to the teletherapy machine's "head," which contains the radiological source. We also observed a storage facility containing RTGs and a seed irradiator— which has thousands of curies of a cesium-137 source—with several large openings in the roof and a broken motion detection device at a research facility containing a 22,000 curie irradiator. According to the foreign contractor, because of the high level of radioactivity present, the device had been disabled at least three times since the equipment was installed about a year earlier.

DOE's current sustainability plan consists of a 3-year warranty on newly installed security equipment and preventative maintenance contracts, as

well as providing training on newly installed equipment for operational staff at the sites. However, DOE has not formulated a long-term plan that identifies, among other things, how host countries will financially continue maintenance of upgrades following DOE warranty expiration. DOE officials responsible for program implementation said that they were uncertain that security upgrades installed would be sustained by countries once DOE assistance was no longer available. In fact, our analysis showed that these officials had confidence that the security upgrades would be sustained in only 25 percent of the countries.

DOE Has Spent about $108 Million to Secure Radiological Sources Worldwide, but Future Program Funding Is Uncertain

As of August 31, 2006, DOE had spent about $108 million to implement the IRTR program. The majority of program expenditures—$68 million—was spent to (1) physically secure sites containing radiological sources; (2) locate, recover, and dispose of lost or abandoned sources; and (3) help countries draft laws and regulations to increase security and accounting of sources. DOE also provided $13.5 million to IAEA to support activities to strengthen controls over radiological sources in IAEA member states. However, one-fourth of the total budget—about $26.5 million—was spent on program planning activities not directly attributed to a specific country. DOE also carried over almost $23 million in unspent or unobligated funds for the IRTR program from previous years. Moreover, the program consistently carried over a substantial uncosted balance each fiscal year throughout the life of the program. Specifically, for fiscal years 2003 through 2005, the program carried over uncosted funds totaling $27.4 million, $34.1 million, and $22.4 million, respectively.

Physical security upgrades accounted for DOE's largest program expenditure—almost $43 million. The majority of these upgrades were installed at hospitals and oncology clinics. DOE also funded upgrades at other types of facilities that utilize or store radiological sources and materials, including waste storage facilities, commercial and industrial facilities, and other research institutes. The types of upgrades installed varied, but standard equipment packages consisted mostly of hardened windows and doors; motion sensors and alarms; access control systems, such as coded keypads or swipe card entry; security cameras; and video monitoring. Costs of physical security upgrades also included 3-year warranty contracts that covered maintenance costs, such as the cost of remote monitoring and spare parts.

DOE also spent $23 million to provide countries with radiation detection equipment and training to locate and recover lost or abandoned radiological sources and secure them in interim or permanent storage

facilities. More than 80 percent of these expenditures were spent in Russia—about $19 million. These funds were spent primarily to provide countries with (1) standard packages of equipment, such as hand-held radiation detection monitors and characterization instruments to properly identify recovered sources; (2) training workshops on the appropriate use of the equipment; and (3) physical security upgrades at some facilities storing recovered or disposed sources.

While DOE assistance was spread among 49 countries, Russia received the largest amount, $33 million, nearly one-third of total program expenditures. The 13 other former Soviet Union countries received a total of about $11 million. By comparison, DOE spent significantly less outside the former Soviet Union, and expenditures in these countries were both modest by comparison and disproportionately spent in the United States by DOE's national laboratories for labor, travel, equipment and overhead costs.[5] For example, the 35 non-FSU countries participating in DOE's program received a total of about $17 million, or just 28 percent of total country-specific expenditures.[6] Furthermore, two-thirds of funds allocated for activities in these countries were spent in the United States.

Since 2003, DOE has significantly decreased IRTR program funding and according to a senior DOE official, future funding will be redirected to, among other things, securing special nuclear material, such as plutonium and highly enriched uranium. Future anticipated reductions in funding for the IRTR program will have significant implications for the amount of sources that can be secured in other countries and may jeopardize DOE's ability to meet outstanding contractual commitments for the more than $40 million in security upgrades already installed. Additionally, according to DOE officials, the agency plans to seek international contributions to secure radiological sources in other countries to offset anticipated shortfalls in funding.

[5]DOE noted that some of the FSU countries that received DOE assistance had comparatively larger infrastructure problems than that of several non-FSU countries and, in some cases, higher labor rates; and therefore, project implementation costs in the FSU countries were proportionally higher.

[6]Of the $107.7 million in total program expenditures, $61.7 million could be traced to specific country-related expenditures.

Coordination with State and NRC Has Improved, but Coordination Problems Worldwide Have Impacted DOE's Ability to Target the Most Vulnerable Sites for Security Improvements

In recent years, DOE has improved coordination with State and NRC to secure radiological sources worldwide, involved State and NRC in its international radiological threat reduction activities more often, and increased information-sharing with the agencies. For example, these agencies worked together successfully to implement a State-led effort to create the Iraq Radiological Source Regulatory Authority. This effort included providing equipment, training, technical assistance, and funding to help the new agency assume increased responsibility for establishing radiological source regulations and procedures consistent with international standards.[7]

However, DOE has not always integrated its efforts efficiently, and coordinated efforts among the agencies have been inconsistent. In particular, DOE, State, and NRC have differed on funding and implementation of regulatory infrastructure development activities in other countries. For example, in May 2003, NRC's Office of International Programs sought $5 million in appropriated funds to assist its regulatory counterparts in countries of the Former Soviet Union and central and eastern Europe to, among other things, enhance existing laws, rules, and regulations governing the use of radiological sources. NRC officials noted they made the request in part because the biggest challenge the agency has faced has been identifying adequate, reliable, and predictable funding to support international assistance activities. In July 2003, the Senate Appropriations Committee directed DOE to make $5 million out of certain amounts appropriated to NNSA available to NRC for bilateral and international efforts to strengthen regulatory controls over radioactive sources that are at the greatest risk of being used in a dirty bomb attack. However, DOE did not do so because, according to DOE officials, the provision directing them to transfer the funds did not appear in the final conference report and was not included in the appropriation legislation.

In addition, within the agency, DOE has not adequately coordinated the activities of multiple programs responsible for securing radiological and nuclear materials in other countries, which, at times, has resulted in conflicting or overlapping efforts. Specifically, we found

[7]For more information on U.S. efforts to secure radiological sources in Iraq, see *Radiological Sources in Iraq: DOD Should Evaluate Its Source Recovery Efforts and Apply Lessons Learned to Future Recovery Missions*, GAO-05-672 (Washington, D.C.: Sept. 7, 2005).

- a lack of effective integration between different programs addressing multiple threat reduction activities at the same sites,
- confusion among host country officials because of multiple visits to the same country by different components of the same program, and
- limited information-sharing between international source security and recovery of U.S.-origin sources in order to better leverage DOE resources.

With respect to international organizations, DOE has improved coordination with IAEA to strengthen controls over other countries' radiological sources and has developed bilateral and multilateral partnerships with IAEA member states to improve their regulatory infrastructures. However, significant gaps in information-sharing between DOE and IAEA have impacted DOE's ability to target the most vulnerable sites for security improvements. For example, IAEA has not shared with DOE the countries that IAEA considers the most in need of security assistance. In addition, although DOE funds IAEA appraisal missions to assess the weaknesses in radioactive source security in IAEA member states, IAEA does not provide DOE with the findings of these missions because member state information is considered country-sensitive and confidential.

Finally, we found that little coordination exists between DOE and the European Commission. Although, the Commission has coordinated with IAEA to provide assistance to selected European countries to improve control over radiological sources, Commission officials told us that no formal communication exists with the United States on matters related to radioactive source security assistance. As a result, each the United States and the Commission are largely unaware of the specific sites and locations the other is securing, and whether recipient countries are receiving too little or too much assistance.

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

GAO Contact and Staff Acknowledgments

For further information about this testimony, please contact me at (202) 512-3841 or at aloisee@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Erika D. Carter, Nancy Crothers, Glen Levis, Mehrunisa Qayyum, and Jim Shafer also made key contributions to this statement.

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