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NUCLEAR NONPROLIFERATION

National Nuclear Security Administration Has Improved the Security of Reactors in its Global Research Reactor Program, but Action Is Needed to Address Remaining Concerns

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Highlights

Highlights of GAO-09-949, a report to the Chairman, Subcommittee on National Security and Foreign Affairs, Committee on Oversight and Government Reform, House of Representatives

Why GAO Did This Study

Worldwide, about 165 research reactors use highly enriched uranium (HEU) fuel. Because HEU can also be used in nuclear weapons, the National Nuclear Security Administration (NNSA) established the Global Research Reactor Security (GRRS) program to make security upgrades at foreign research reactors whose security did not meet guidelines established by the International Atomic Energy Agency (IAEA). GAO was asked to assess (1) the status of NNSA's efforts to secure foreign research reactors, (2) the extent to which selected foreign research reactors with NNSA security upgrades meet IAEA's security guidelines, and (3) the extent to which NNSA coordinates the GRRS program with other countries and the IAEA. GAO reviewed NNSA and IAEA documents and visited five of the 22 research reactors in the GRRS program, which were selected on the basis of when upgrades had been completed and because the reactors still possess HEU.

What GAO Recommends

GAO is making recommendations to help NNSA improve security procedures and encourage the development of national security laws and regulations in countries with HEU-fueled research reactors.

In commenting on this report, NNSA agreed with the findings and outlined the actions that it plans to take to address the report's recommendations.

View GAO-09-949 or key components.
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What GAO Found

As of August 2009, NNSA reports that it had upgraded the security at 18 of the 22 foreign research reactors in the GRRS program at a total cost of approximately $8 million. NNSA plans to complete physical security upgrades at the remaining reactors by 2010 at an additional cost of $6 million. Security upgrades that GAO observed during its site visits include heavily reinforced vaults to store HEU fuel, motion detector sensors and security cameras to detect unauthorized access, and fortified central alarm stations that allow on-site guards the ability to monitor alarms and security cameras and communicate with response forces.

Foreign research reactors that have received NNSA upgrades where GAO conducted site visits generally meet IAEA security guidelines; however, in some cases, critical security weaknesses remain. At four of the five reactors visited, GAO identified security conditions that did not meet IAEA guidelines. For example, (1) at two reactors, no emergency response exercises had been conducted between the on-site guard force and off-site emergency response force, and one of these reactors lacked any formal response plans for emergencies involving attempts to steal HEU fuel; and (2) personnel at one research reactor did not search visitors or their belongings before granting them access to restricted areas where nuclear material is present. Furthermore, the government agency charged with regulating the operation of one research reactor has neither developed safety and security regulations nor has the country enacted laws ensuring the safe and secure operation of nuclear facilities. NNSA and Sandia National Laboratories officials responsible for making security upgrades at these reactors acknowledged that these continued vulnerabilities potentially compromise security at these reactors. Although the officials stressed the importance of NNSA continuing to work with these countries, there are no specific plans to do so after security upgrades at the remaining reactors are completed in 2010.

NNSA officials coordinate with foreign government research reactor operators to design, install, and sustain security upgrades. Because the GRRS program is a voluntary and cooperative program, in some cases, NNSA faces challenges obtaining foreign governments' commitment to complete security upgrades in a timely manner. For example, progress to secure a research reactor in one country GAO visited has been delayed by as many as 4 years due to foreign government reluctance in accepting NNSA assistance and delays approving the designed security upgrades. Recently, NNSA has begun working with IAEA's Office of Nuclear Security to establish a sustainability program to help ensure the continued effectiveness of NNSA-funded security upgrades and to help research reactor operators implement security procedures. IAEA plans to conduct pilot programs at three research reactors in 2009 and then expand the program. NNSA will continue to support sustainability efforts through the IAEA after the completion of security upgrades at the remaining reactors in 2010.