



# NRC NEWS

**U.S. NUCLEAR REGULATORY COMMISSION**

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## **“Nuclear Materials: Current and Future Regulatory Challenges”**

**Prepared Remarks for  
The Honorable Gregory B. Jaczko  
Chairman  
U.S. Nuclear Regulatory Commission  
at the  
Institute of Nuclear Materials Management  
Baltimore, Maryland  
July 12, 2010**

Thank you for the introduction. I am honored to be here today at the Institute of Nuclear Materials Management’s 51<sup>st</sup> Annual Meeting to share my thoughts on some of the important regulatory issues before the Nuclear Regulatory Commission (NRC). For over half a century, the Institute has been dedicated to advancing safe and secure management practices and promoting professional excellence among materials management professionals. You can justifiably take great pride in the Institute’s past accomplishments. I was pleased to read in the message from your Vice-President - Scott Vance – about this organization’s commitment not to rest on its laurels – to achieve even more in the next fifty years than it did in its first half century. That is exactly the kind of approach that everyone in the nuclear field – regulators, licensees, and stakeholders – should maintain as we seek to advance our shared safety and security objectives.

Since the 9/11 attacks, the NRC and its licensees have made tremendous progress in strengthening our regulatory framework for security. The NRC created a separate new office to focus on security, incident response, and emergency planning issues; significantly increased the budget for security issues; and implemented a large number of physical security upgrades, cyber initiatives, and enhanced materials control and accounting measures. To support this work, the NRC also has coordinated with federal, state, and local agencies, as well as received support from the intelligence and law enforcement communities.

Over the past decade, all of the policy changes and increased coordination have contributed significantly to the enhanced security framework that we have today. Those changes would not have been possible without the commitment by the NRC to stay attuned to the dynamic threat environment and to implement the necessary regulatory programs in response. Despite the considerable progress that has been made towards greater security, it remains as vital as ever that both the NRC and its licensees not become complacent and maintain a pro-active approach in the future.

With that in mind, this morning I will discuss a number of important initiatives underway that reflect the Commission's continuing focus on guarding against security threats and our intention to maintain that strong focus in the future. I'll first discuss the traditional focus of our security work – safeguarding special nuclear material – and then discuss source security, an area of growing focus for the agency during the past decade.

The NRC's domestic safeguards program has two primary aims: 1) ensuring that special nuclear material within the United States is not stolen or otherwise diverted from civilian facilities for nefarious purposes; and 2) limiting the possible risk of radiological sabotage of a facility or transport. Through the agency's licensing reviews and oversight programs, the NRC is responsible for ensuring that licensees have the technical and administrative capabilities necessary to implement our security and safeguards requirements. The NRC also has important responsibilities in reviewing export and import licenses for nuclear material and equipment. In consultation with the Executive Branch, the Commission must consider whether the importing country has the technical and administrative capability, as well as the resources and regulatory structures in place, to manage the material and equipment in a safe and secure manner.

In terms of our domestic licensees, the NRC's requirements primarily take two forms – physical protection measures and material control and accounting programs. The NRC's physical protection requirements for reactors, fuel cycle facilities, and spent fuel storage facilities are based on the type of the facility, the quantity of the material, and the overall level of risk. In order to determine the adequate level of physical protection, the NRC monitors intelligence information through its threat assessment program to stay alert to the capabilities of – and threats posed – by potential adversaries. This information helps us establish the design basis threats – the threats and adversaries that these facilities are required to protect against – and determine the adequate level of physical protection.

The second pillar of the NRC's domestic safeguards programs is material control and accounting for special nuclear material. The NRC and DOE have worked together effectively to deploy a national accounting system for special nuclear materials aimed at preventing or detecting their potential loss. This database – the Nuclear Materials Management and Safeguards System – contains current and historical data on the possession, use, and shipment of this material within the United States, as well as all exports and imports of such material. These control and accounting measures help us verify that these materials have not been stolen or diverted to unauthorized users.

That is a very general view of the two main security strategies that the NRC employs to safeguard nuclear facilities and material. The specific rules and requirements that we put in place, however, have to remain responsive to the dynamic threat environment. The NRC has to ensure that its security framework remains effective as new issues emerge for existing facilities and as potential new facilities raise different challenges. The NRC remains focused as ever on the safety and security of the existing reactors and facilities, but at the same time, we also are working to ensure that we have the staff, expertise, and regulatory framework we need to assure the safety and security of potential new facilities. In the coming years, it is quite possible that the NRC will be responsible for regulating a larger number of reactors and fuel cycle facilities employing a broader range of technologies than at any point in the agency's history.

The potential for new reactor construction receives the lion's share of attention among much of the public and many of our stakeholders. It might surprise some to learn that new fuel cycle facilities, however, are at a far more advanced stage of development at this point. While it will be several more years before the first potential new reactor is constructed and enters operation, the NRC just last month gave its final approval to one licensee to begin operation of a new gas centrifuge enrichment facility. Additionally, two other gas centrifuge facilities, a mixed oxide facility, and a laser enrichment facility also are at various stages of development. The security concerns posed by these facilities – including the potential dual-use nature of the enrichment technologies – makes it imperative that the NRC maintain a strong focus in this area and develop the necessary resources for overseeing these new facilities.

Under the current regulatory framework, the required level of physical protection for fuel cycle facilities depends on the facility type, as well as the type and quantity of special nuclear material at the facility. This framework is based on the agency's categorization scheme for special nuclear material, which has been in place for nearly 30 years. The agency has to continually reevaluate and ensure that our approach remains effective in light of the dynamic threat environment for existing facilities and the potential expansion in the number and type of facilities. Toward that end, the Commission recently approved the development of the technical basis for a proposed rule to revise the categorization scheme. The revised approach – a material attractiveness approach – would consider additional factors in determining the risks that special nuclear material might be diverted for a nefarious purpose.

Also, just in the past year, some have raised potential proliferation concerns about the planned construction of a new laser enrichment facility. Specifically, the smaller footprint and lower energy needs of the laser enrichment technology have been the cause of concern. The proposed civilian facility is the first of its kind in the United States, and makes it distinct from anything the NRC has licensed in the past. As the agency moves forward with the licensing review of the proposed facility, the agency will proceed carefully to ensure that it is taking the right approach to not only assuring the protection of the material but also preventing the theft or diversion of information about the facility.

The potential security concerns related to special nuclear material have long been at the forefront of our security initiatives. It is safe to say, however, that in the years since September 11<sup>th</sup>, we have developed a better appreciation of the potential security concerns posed by radioactive sources. The sheer number of materials licensees – approximately 3,000 NRC licensees and approximately 19,500 Agreement State licensees – creates challenges in securing these sources, as does the fact that these sources are geographically dispersed across the country, and are used for a wide variety of purposes – from treating millions of medical patients each year to the industrial functions they serve in the energy and construction industries.

The NRC chairs an interagency Radiation Source Protection and Security Task Force that evaluates and provides recommendations related to the security of radiation sources, including protection from potential terrorist threats. The interagency group is finalizing the 2010 Report to the President and Congress and looks forward to reporting on the substantial progress that we have made since our 2006 Report.

Among the key accomplishments that I expect the report to highlight is the launching last year of the National Source Tracking System (NSTS) by the NRC. The NSTS is a secure, Web-based national registry that tracks radioactive sources from the time they are manufactured or imported through the time of their disposal, decay, or export. Prior to the development of this system, there was no single U.S. source of information to verify the licensed uses, locations, quantities, and movements of these materials. Separate NRC and Agreement State systems contained information on licensees and the maximum amount of materials they were authorized to possess, but these systems did not record actual sources or their movements. By tracking more than 70,000 risk-significant sources, the NSTS system enhances our ability to detect and act upon inventory anomalies, respond to emergencies, and verify the legitimate use and transfer of sources. The greater accountability for these high-risk sources helps strengthen our national security framework. As is to be expected with any new and complicated system with thousands of users, there have been challenges along the way with day-to-day implementation. The staff right now is focused on ensuring that this system is fully and successfully implemented. Once that work is done, the Commission will be in the position to assess whether this system meets our security objectives or whether further enhancements to the system are necessary. As I visit countries around the world for international meetings, I see that we are a leader in this area, and we should remain so.

A national source tracking system provides greater source accountability, which should foster increased control by licensees. It cannot, however, ensure the physical protection of sources, which is why that also has been an area of continuing focus for the Commission. Prior to September 11<sup>th</sup>, the NRC's protection requirements for sources focused on safety and preventing inadvertent or accidental exposure of these materials to workers and the public. These requirements also indirectly provided security for the material. The events of September 11<sup>th</sup>, however, made the NRC take a broader look at its requirements and reevaluate what a terrorist might do to attain these materials. Through a series of orders, the Commission implemented significant enhancements to the physical protection of these materials. Last month, the Commission approved a proposed rule to codify many of these orders. This is just the latest rulemaking in a multi-year effort by the Commission to codify the post-9/11 orders. Like the past rulemakings, this one also provides the Commission an opportunity to strengthen the rules based on the lessons learned in implementing these orders, as well as to incorporate public and stakeholder input as we consider potential changes.

One material - cesium chloride – has garnered particular attention because of its use in a wide range of medical, industrial, and research applications. Approximately 550 licensees in the United States possess about 1,100 cesium chloride irradiators that contain at least a Category 2 quantity of radioactive materials. The categorization scheme for determining the risk significance of certain sources is modeled on the International Atomic Energy Agency's Code of Conduct on the Safety and Security of Radioactive Sources. In recognition of the potential security concerns posed by cesium chloride, the NRC imposes increased security controls on these sources. The Commission recently approved a draft policy statement that recognizes that the security of these risk-significant sources is an essential part of our mission and demonstrates the Commission's commitment to issuing additional security requirements if the threat environment calls for it. Through the byproduct rule that I discussed earlier, the Commission is also moving forward with a proposal to institute additional background checks and require comprehensive security programs to limit unauthorized access to Category 1 and 2 sources, including cesium chloride.

Before I close, I would like to stress – in light of the movement that we have seen both domestically and internationally towards an increased focus on security – how critical it is to integrate the consideration and evaluation of security and safety activities. Many safety activities can have beneficial security impacts, and vice versa. There are instances in which the safety and security measures can complement and reinforce each other.

But the NRC has also seen instances in which safety and security measures do come into conflict, and can compromise the performance of the safety or security functions. The agency has seen cases in which there was a lack of communication among staff at licensed facilities that could have potentially compromised safety or security. Some examples include the placement of security barriers that diminished access to fire suppression equipment, the placement of scaffolding during maintenance activities that affected security lines of fire, and the staging of temporary equipment within security isolation zones.

It is important that regulators and licensees take an integrated approach to identifying potential conflicts and to ensuring that they do not adversely impact either safety or security. The NRC has done some good work in this area. In completing a reactor security rule last year, the Commission included a provision to require licensees to take an integrative approach to identifying possible issues and implementing the appropriate mitigative or compensatory measures.

The agency has also engaged some of these issues in the course of drafting a safety culture policy statement. Among the chief goals of this effort has been to make clear that the Commission considers security to be an important component of a positive safety culture. But we have seen disagreements about whether the importance of a security culture can be best be addressed through a single joint policy statement or separate policy statements. Safety and security cultures may have some differences, such as in the role of information sharing, but it important to remember that there are also many key similarities, including a questioning attitude and a commitment to continuous improvement.

These issues do not necessarily have easy solutions. It will certainly require the hard work and sustained focus of both regulators and licensees. But I believe that it is an issue that warrants such attention to ensure that we attain the maximum safety and security gains possible from the regulations we develop. This has become more and more important in light of heightened security concerns and the increased focus on security in recent years. And as you well know, our security work is by no means complete. In addition to the important substantive issues that you will be delving into throughout this conference, I encourage you to think hard about the safety-security interface issue. We will achieve the greatest security gains if we work through discrete security issues and also consider how our proposed solutions fit within the broader regulatory framework.