IAEA Scientific Forum

Remarks on "Next Generation Safeguards Initiative"

William Tobey, Deputy Administrator for Defense Nuclear Non-proliferation

October 1, 2008

Introduction:

Thank you very much for the introduction. I'm pleased to have the opportunity to address this distinguished group on a topic I consider critical: that is, the role of international safeguards in preventing nuclear proliferation.

History and origin of safeguards:

The concept of safeguards - and even the name - has been with us since the beginning of the nuclear era. The very first decision of the United Nations (UN) General Assembly, in January 1946, was to establish a UN Atomic Energy Commission. And one element of the charter for this Commission was to consider, "effective safeguards by way of inspections and other means to protect complying States against the hazards of violations and evasions."

This original concept was broader than the current International Atomic Energy Agency (IAEA) safeguards system, and it is noteworthy that, even then, inspections were seen as a means to protect or distinguish among, states that comply with peaceful use commitments from those that do not.

It was another decade before "safeguards" were defined in the IAEA Statute, and it was still another decade before IAEA safeguards were made the "gold standard" for international verification of the Non-Proliferation Treaty (NPT).

However, verification during this period was applied narrowly, focusing on declared materials and locations. This is in contrast to the broad scope of Article 11 of the NPT prohibiting non-weapon states from pursuing nuclear weapons, which one must assume would be a clandestine activity, or even the IAEA Statute, which gives the IAEA the right and responsibility to assure that nuclear materials and facilities are not used to "further any military purpose."

The prevailing view of "adequate safeguards" was turned on its head in the early 1990s as UN and IAEA inspectors uncovered Iraq's clandestine nuclear weapons program and its associated procurement ring. This demonstrated the need to give IAEA inspectors stronger tools for detecting and investigating undeclared nuclear activities, a practice in line with the earlier, original concept of safeguards. The result was a strengthened safeguards system, built around the Additional Protocol.

More recently, we have learned of clandestine nuclear programs in Iran and Libya, and of clandestine procurement networks that supported those programs, demonstrating the continuing need for robust and effective international safeguards, to protect compliant states from the "hazards of violations and evasions."

The U.S. international safeguards program got its start forty years ago at Los Alamos National Laboratory. Ten years later, Congress created the Program of Technical Assistance

to Safeguards as a mechanism to provide safeguards technology to the IAEA. This established the U.S. Support Program as the first, and still the largest, of nearly' 20 Member State Support Programs to IAEA safeguards.

There was a time when significantly more U.S. resources went to safeguards technology development, especially in the 1980s. Much of that was shared with other programs, particularly those designed to provide domestic safeguards and security for U.S. nuclear activities.

Even though it draws on the technical expertise of [ten] U.S. National Laboratories, the U.S. Support program in recent decades has spent relatively little money on developing new safeguards technology and approaches. Rather, it has emphasized the deployment of existing technology and personnel to meet immediate IAEA needs.

Without new investment in international safeguards, we are concerned that the U.S. safeguards technology base-and our ability to support IAEA safeguards-is thinning and may soon be at risk.

That is why we have launched the Next Generation Safeguards Initiative, or NGSI. This initiative is designed to revitalize the U.S. safeguards technical base, as well as invest in human resources, and to mobilize our primary asset - the U.S. National Laboratories - as well as industry and academia to restore our capabilities.

While NGSI is a U.S. effort, its underlying purpose is international; and it cannot succeed as a purely domestic effort. Rather, it is intended to serve as a catalyst for a much broader commitment to international safeguards in partnership with the IAEA and other countries. We know that only by combining U.S. technical and scientific assets with the resources of our international partners will we keep pace with the demands and emerging safeguards challenges.

Importance of safeguards:

Among those challenges is the resurgence of interest in nuclear power as a safe and secure, climate-friendly energy technology.

According to IAEA estimates, some 34 new power reactors are under construction in 11 countries, with up to 60 additional reactors to be built in the next 15 years. Some projections envision global electricity generation from nuclear power plants increasing by somewhere between 25 and 95 percent by 2030. And if nuclear power is to play a major role in sustainable development, growth will have to accelerate after that.

A question for the international community is whether our non-proliferation responses can keep pace with the demand for nuclear power. I think our track record in this regard is strong-as evidenced by the series of initiatives adopted over the last several years, such as the Proliferation Security Initiative, UN Security Council Resolution 1540, the Global Initiative to Combat Nuclear Terrorism, and initiatives of the G-8 and NSG to discourage the spread of enrichment and reprocessing. I could also [refer to] the recent action by the U.S. Senate to provide its advice and consent to ratification of the Convention on the Physical Protection of Nuclear Material and the Convention on Nuclear Terrorism.

NGSI augments this agenda by providing a means to strengthen the technical and political underpinnings of IAEA safeguards. The alternative is unacceptable. If states lack confidence in the ability of the IAEA to verify peaceful activities or detect clandestine programs, then

they may seek civil nuclear capabilities as a strategic hedge against an uncertain future. This is a recipe for nuclear proliferation on a scale not seen before, and it is for this reason that in our view IAEA safeguards - the vanguard of the NPT and peaceful use commitments - must succeed.

Safeguards Review and Challenges to current safeguards system:

To provide a bit of background on the initiative, one year ago, my office completed a top-to-bottom review of international safeguards. The main recommendation was that the United States launch the Next Generation Safeguards Initiative. A summary of this report, entitled "International Safeguards: Challenges and Opportunities for the 21st Century," is available on our website.

This review noted that IAEA safeguards are under more strain that at any time in history due to the combination of relatively flat funding, expanding IAEA responsibilities, and high-profile investigations. Further, over the past quarter century, the number of safeguarded facilities has grown by half and the amount of highly enriched uranium and separated plutonium under safeguards has increased by a factor of ten.

The shift from a safeguards system based on material accounting to state-level evaluations is also having a significant impact, with the Agency's responsibilities for collecting, analyzing, and archiving information having gone up exponentially. The volume of data from environmental samples, commercial satellite imagery, open sources, and the Additional Protocol's reporting requirements is expanding fast, further increasing the IAEA's workload.

In terms of resources, the IAEA has complained of a chronic deficit in capital investment and an over-reliance in many areas on extra-budgetary contributions from individual countries, as well as an insufficient number of safeguards experts prepared to fill in behind senior inspectors and managers who face retirement in the coming years.

Our safeguards report identifies similar trends in the United States, and notes that our domestic nuclear establishment, a foundation for much of the U.S. technical support to the IAEA, can no longer be taken for granted. The number of safeguards specialists at our National Laboratories, for example, has been declining due to retirements or the lure of budgets in other programs.

Exacerbating this has been the tendency to fund international safeguards in response to ad hoc or specific requests from the IAEA.

Clearly, a more strategic approach is needed if we are, as President Bush said in 2004, to ensure that "the IAEA has the tools it needs to fulfil its essential mandate." NGSI is a major part of our effort to meet this need.

NGSI Elements:

Let me turn to our priorities and envisioned activities under NGSI. Many of the points I will make reflect discussion at a recent international NGSI working meeting that my office hosted in Washington. The meeting brought together experts from eleven countries and the IAEA to address safeguards challenges and opportunities for the 21st century, with a particular emphasis on reaching a common understanding of the problem and coordinating programs and plans.

First, with respect to IAEA safeguards authorities and approaches, we will work with the IAEA and others to promote universal adoption of safeguards agreements and the Additional Protocol. We believe that the IAEA has adequate authorities to meet its safeguards mission, but this assumes that states have adopted and implemented the safeguards instruments that provide those authorities. For our part, as Secretary Bodman said on Monday, the United States is planning for entry into force of our Additional Protocol this year.

Through NGSI, we will also assess safeguards enhancements, including, for example, opportunities for greater information sharing between member states and the IAEA, investigation of weaponization and procurement activities, and options to strengthen the state-level approach to safeguards.

Second, NGSI anticipates the deployment of new types of reactors and fuel cycle facilities, as well as the need to use limited safeguards resources effectively and efficiently, especially in plants that pose the largest burden specifically complex, bulk-handling facilities.

As an early step, NGSI will seek to institutionalize "Safeguards by Design," as a new international standard that incorporates safeguards into new nuclear facility designs from the outset, avoiding costly and time-consuming retrofits.To advance this process, we plan to work with the IAEA and others to convene an international working group to establish criteria, best practices, and design guidelines.

Updating the so-called Hexapartite Safeguards approach to the application of safeguards at centrifuge enrichment plants is another priority.

Third, NGSI will encourage a generational improvement in current safeguards technologies, many of which are outdated and were developed or deployed 20 or 30 years ago. Our aim is to field new safeguards technologies to prevent and deter diversion at declared facilities and to aid in the investigation of suspect or undeclared activities. This includes technologies that:

(A) improve the precision and speed of nuclear measurements;

(B) perform real-time process monitoring and surveillance in unattended mode;

(C) enable in-field, pre-screening and analysis of nuclear and environmental samples; and

(D) collect, integrate, analyze and archive safeguards-relevant information from all available sources.

Fourth, NGSI will address human capital management. Many safeguards professionals are nearing retirement age, meaning we need programs now to transfer critical knowledge and experience to a new generation of experts. NGSI launched a pilot program this year that brought together universities offering nuclear engineering and political science degrees with our National Labs. This brought 40 new internships into the field.

We hope to build on this success next year, encouraging new graduates to pursue challenging research on across a range of safeguards-relevant disciplines, while gaining exposure to the political context in which safeguards operate and the special skills required of inspectors.

At our recent NGSI meeting in Washington, participants agreed that varying levels of technical sophistication across states pose a challenge in developing a common approach. Training and education, and in particular regional programs and exchanges of experts, practitioners, and students, can therefore play an important role in building safeguards

expertise. We should also encourage regional "safeguards leaders" to serve as clearinghouses for information, training materials, and cooperation.

Fifth, NGSI will work with the IAEA and international partners to develop a safeguards-conscious nuclear infrastructure, especially among states with limited nuclear power programs or those expressing interest in such programs. The IAEA milestones process will help advance such a culture, as will linking safeguards with safety and security, as set forth in the 38's concept introduced by Japan and endorsed recently by the G-8. Recognizing this we support the just announced World Institute for Nuclear Security.

At our NGSI meeting, participants emphasized the need for coordination among states that provide assistance, as well as those that receive it, to ensure consistency of message and goals and to avoid duplication of effort. Suggested actions included a resource survey in coordination with the IAEA to determine needs; development of standardized guidance for national legislation and training materials; and organizing assistance on a regional basis. One such regional effort has already started under Australia's leadership.

In summary, just as the nuclear industry has developed a "culture of safety" after Chernobyl, we will to develop a "culture of safeguards." Through NGSI, we will work with our international partners and industry to demonstrate that nuclear safeguards are not a burden to endure, but a public good. One that's good for international security, for industry, and for economic development and the environment.

Conclusion:

We view the NGSI conference as only a small first step in a broader campaign. We hope we're on the right track and can continue the momentum that has been started. I'm happy to report that NGSI is expected to receive a significant boost in funding this year, which will allow us to move forward with further meetings and more important action.

I've said it several times, but it bears repeating that the test of NGSI's success will be our ability to attract partners and promote collaboration. We should share facilities to test safeguards technologies and techniques; share research and field trials; engage our industries and technical communities; promote exchanges of information exchanges and best practices; and work together to ensure safeguards authorities are used to their fullest.

To move this process forward, we will soon complete a 5-year program plan for NGSI, outlining projects and goals so that we can move to practical implementation. We will also soon finalize a survey of safeguards-relevant technology development, and coordinate with the IAEA and member states on training and outreach, on current programs to build safeguards experts, and on the best means to improve communication between the R&D community and the customer - that is, the IAEA inspectorate.

Just one final thought: though the safeguards challenges looming before us are large, the rewards to be gained through cooperation, effort, and understanding are even greater. Through NGSI, we can help ensure that a "culture of safeguards" takes hold, not as a burden but as a benefit that protects nations against the "hazards of violations and evasions" and ultimately makes possible a future of more nuclear energy with less proliferation.

Thank you.