



# NRC NEWS

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## STRENGTHENING LONG-TERM CONTROL OF RADIOACTIVE SOURCES

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on Security of Radioactive Sources**

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### Introduction

Good morning. I am pleased to welcome you to this Topical Session on Strengthening Long-Term Control of Radioactive Sources. I will try to set the stage for the series of presentations that are scheduled for this session.

The traditional focus of the regulation of radioactive sources is the protection of workers and the public from the misuse of sources and from accidents. Security measures were also a concern, but with the principal aim of preventing petty theft or accidental loss. The events of September 11, 2001, have changed the way in which we must think about sources. Our perspective must now encompass the possible malevolent use of sources as weapons of terror. And, as a result, past practices need to be modified to reflect new circumstances.

Our concern, of course, is that a high-risk radioactive source might be married with conventional explosives and used in a radiological dispersal device (or "RDD"). Although our analyses show that such a device is not an effective means to cause large numbers of fatalities -- RDDs are not part of the military arsenal of any country for the simple reason that they are not good weapons -- devices utilizing

high-risk sources might nonetheless meet a terrorist's objectives. The use of such a device could cause panic, could seriously disrupt normal activities in the affected area, and might cause serious economic harm because of the possible need for evacuation and expensive decontamination efforts. As a result, means must be found to protect the public from the use of high-risk radioactive sources in an RDD.

The task may appear daunting at first because of the widespread use of radioactive sources throughout the world. Such sources are in common use in medical practice, in academic research, and in numerous industrial applications, such as gamma irradiation, radiography, gauging, gas chromatography, and well logging. By way of example, there are about 150,000 licensees for radioactive materials in the United States and about 2 million sources are in use. Moreover, domestic and international commerce in these sources is extensive and existing controls on imports and exports, particularly for sources of low to moderate risk, are minimal.

Compounding the problem is that there also is a general lack of effective domestic controls on even high-risk radioactive sources. The IAEA has noted that more than 100 countries lack effective control over radiation sources because most do not have the required infrastructure.<sup>1</sup> The IAEA's Model Project is intended to aid Member States in developing the necessary infrastructure, but progress has been slow. And even in those countries that do have a regulatory infrastructure, authorities have not always been able to devote resources to the control of high-risk radiation sources. Certainly the IAEA's long-standing efforts to improve the regulation of sources throughout the globe deserves continuing support and attention independent of the new challenges presented by RDDs.

The focus of this conference, however, is not the general need for improved regulation, but rather the narrower objective of preventing the malevolent use of radioactive sources by terrorists. Fortunately, the challenge in dealing with RDDs is simpler in some respects than the general need for comprehensive regulatory reform. Only a very small fraction of the sources now in commercial use are of value as terrorist weapons because most commercial sources have too little activity, too short a half-life, or otherwise are not suitable for terrorist use. Moreover, many large sources may be difficult to use in an explosive device because even a suicidal terrorist might receive a lethal dose of radiation, absent the use of bulky shielding and specialized equipment, before an RDD employing the source could be deployed. Thus, in dealing with the RDD problem we can focus our efforts by establishing stringent controls on the small fraction of sources that present a high risk if used by a terrorist.

The U.S. Nuclear Regulatory Commission, like I suspect our counterparts in other countries, has found that modification of our regulatory program to account for the terrorist threat is necessary. Although our work on this problem is still underway, let me briefly outline some of the components that we believe are elements of an effective regulatory program to counteract the RDD threat. The aim is a program that achieves an appropriate balance of safety, security, public benefit, and economic feasibility.

1. Categorization. The starting point, of course, must be the definition of those high-risk sources that require enhanced protection. Categorization of sources was the focus of Topical Session 1, so I will not dwell on this topic. I must note, however that categorization will be the cornerstone for the entire international system of controls for high-risk sources, and that, as Dr. Paperiello has pointed out

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<sup>1</sup> Gonzalez, A.J., "Strengthening the Safety of Radiation Sources & the Security of Radioactive Materials: Timely Action," IAEA Bulletin no. 39:41 (1999).

in his talk in Session I, we must reach consensus. The U.S. stands prepared to discuss the methodology it has developed, and we will work with others to establish an appropriate categorization scheme.

2. Security measures. Strong domestic regulatory oversight to prevent ready access to high-risk sources by terrorists must obviously be the heart of the system. Elements of the regulatory system should include: verification of the legitimacy of applicants for licenses; requirements governing the security of high-risk sources while in transit, in storage, or in use; controls on access to prevent diversion by an insider; requirements for tracking and inventorying high-risk sources to ensure that the source has not been lost or stolen; more frequent inspections to verify the adequacy of the regulatory controls; and measures to ensure safe disposal. In short, we must strive to establish cradle-to-grave security for the relevant sources. Although the U.S. had some of these elements in place before September 11, we see the need for further changes. In the interim, we have instructed licensees to apply additional physical security measures that limit access to high-risk sources and to provide additional barriers to prevent possible theft or diversion.

3. Imports/Exports. Because of the international commerce in radioactive sources, each country has an interest in ensuring a harmonious international system for exports and imports of high-risk sources. Moreover, there is a corresponding need to enhance border and port security to seek to interdict the illicit transport of high-risk sources.

4. Disposal. Proper disposal of sources is a constant quandary because disposal facilities are limited and, in the past, there was little incentive for licensees to dispose of unused lower-risk, generally licensed sources properly. The NRC now requires all licensees to dispose of sources properly and will impose penalties for unauthorized disposal of at least three times the cost of proper disposal.

We also are examining options for providing additional disposal capacity. This is a challenge in the U.S. because there is no facility for disposal of those sources presenting the greatest risk and, as a result, all such discarded sources must be stored.

5. Orphan sources. Ensuring options for disposal only addresses sources that are still under control. Many sources have been lost, abandoned or otherwise misplaced. Although only a tiny fraction of these sources are in the high-risk category in the United States, orphan sources are a challenge that must be confronted around the world.

6. Emergency response. No regulatory system can be 100 percent effective. As a result, steps must be taken to ensure that proper emergency response procedures are in place to evaluate and respond to a terrorist event involving an RDD. Because any event involving an RDD is likely to cause significant concern, effective means to evaluate the potential consequences and disseminate accurate and timely information to the public is an essential element of any such planning.

## **Conclusion**

In summary, radiation sources and devices containing radioactive materials provide important benefits to individuals and to society when they are properly designed, safely used, and carefully secured. Effective national and international programs are needed to ensure these characteristics. Activities related to development of the Code of Conduct and the Action Plan for the Safety and Security of Radioactive Sources are first steps. But more is yet to be done, particularly because the

possible terrorist use of radioactive sources is a new element that was not a fundamental consideration in the establishment of existing regulatory programs.

It is also important that we, as national leaders, rededicate ourselves to providing accurate, unbiased, timely, and appropriate information to the public. A strong voice is vital in ensuring that the public is not inappropriately alarmed about the dangers associated with RDDs.

This session is intended to explore some of the attributes of an effective regulatory program to deal with RDDs. I have given only a brief summary of some of the elements of such a program. These elements, and no doubt others, will be pursued in greater depth by the speakers that follow.

Again, let me express my appreciation for the opportunity to be here today. We are working together on an important problem.