



# HEALTH PHYSICS SOCIETY

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*Specialists in Radiation Safety*

**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**

**presented by**

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**at the hearing entitled**

**A Review of U.S. International Efforts to Secure Radiological Materials**

**held in Room 342  
of the Dirksen Senate Office Building**

**on**

**March 13, 2007**

Good afternoon. My name is Brian Dodd. I work as a consultant under BDCConsulting and am also the President of the Health Physics Society. I want to thank the Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia for holding this hearing and for providing me with the opportunity to testify on behalf of the members of the Health Physics Society as well as a person with experience in the subject area<sup>1</sup>.

### **Introduction**

For those not familiar with the Health Physics Society<sup>2</sup> (HPS) it is an independent scientific organization whose members are professionals in the field of radiation safety. The Society's mission is excellence in the science and practice of radiation safety. HPS activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information.

Between September 1998 and February 2004, I worked at the International Atomic Energy Agency (IAEA) in Vienna. During the last three years I was head of the IAEA's Radiation Source Safety and Security Unit and was responsible for developing the revised Code of Conduct on the Safety and Security of Radioactive Sources<sup>3</sup>, the revised Categorization of Radioactive Sources<sup>4</sup>, the IAEA's Security of Radioactive Sources<sup>5</sup> interim guidance as well as documents on illicit trafficking<sup>6,7,8</sup> and regaining control over orphan radioactive sources<sup>9</sup>. My unit was also responsible for the Tripartite (IAEA - Russian Federation ROSATOM - USDOE) Initiative on the Securing and Managing of Radioactive Sources.

Since retiring from the IAEA, I have retained an interest in the subject and under BDCConsulting I have worked with the National Nuclear Security Administration's International Radiological Threat Reduction Program, drafting Model Regulations for the Security of Radioactive Sources for potential use by IAEA Member States as well as revising the protocol used by the IAEA for Radiation Safety, and Security of Radioactive Sources, Infrastructure Appraisals (RaSSIA). I chaired an IAEA Technical Meeting on Investigation of Radioactive Source Designs to Minimize the Consequences of Malicious Use and have provided input on the IAEA's revision to the Security of Radioactive Sources guidance document. I have written several articles about radioactive source safety and security particularly as they relate to radiological terrorism<sup>10,11,12,13</sup>.

Before going further, I wish to clarify that I cannot speak for the IAEA, and that I am still bound by my confidentiality agreement with them.

### **Status Appraisal**

Having been involved in the field of radioactive source safety and security before, during, and after September 11, 2001, I first have to state that I think we have achieved a great deal in the years since. In addition, as Americans I believe that we can be proud of our involvement in helping to secure dangerous radioactive sources around the world. I have no doubt that we are safer and securer now than we were then. However, having said that, there is still much to be done.

The IAEA's specific work with radioactive sources, particularly orphan sources, started in earnest with the recommendations from its Dijon Conference on the Safety and Security of Radioactive Sources in 1998<sup>14</sup>. It took on new direction and impetus following 9/11. The basic structure of the effort was to a) remediate past problems, and b) prevent future problems.

Remediating past problems had three main aspects: 1) collecting and disposing of known disused sources; 2) securing vulnerable sources, especially high-risk sources; and, 3) searching for, recovering and disposing of orphan or vulnerable sources. Preventing future problems focused on: 1) improving the legal and regulatory infrastructure; 2) revising and implementing the Code of Conduct; 3) increasing import/export controls on high-risk sources; 4) strengthening source control with the development of national strategies; 5) increasing the security of sources as needed; and 6) involving manufacturers and distributors with issues such as source redesign, and return of sources.

There were many specific actions taken in each of these areas both by the IAEA, and by other countries such as the United States. There are success stories in each area too, and the IAEA and others can give data relating to the hundreds of sources and the hundreds of thousands of curies that have now been collected, disposed of, and secured as well as the number of missions to countries to help them in the preventive aspects such as self-appraisals and increased regulatory control. Naturally, the initial efforts have been focused on the highest activity and most vulnerable sources. There are relatively few high-risk sources (Category 1 and 2 in the IAEA Categorization of Radioactive Sources) but as these are dealt with and we begin to address the sources with lower risk, that is, IAEA Category 3 and lesser sources, the problems grow because the number of sources increases by orders of magnitude.

So, as I said, we have much to be proud of, but much left to do. As many have identified, including the most recent Government Accountability Office (GAO) report, we are now moving from the initial, high priority phase where the biggest problems are identified and fixed, to a phase where the issue of more routine, on-going sustainability is important. The first phase has largely been characterized by short-term 'outside' assistance to address the high-risk sources. We now need to transition to the phase where local, internal controls can continue to work on the lower priority sources over a much longer time (as well as maintain the high-risk source controls). One can say that the big fire has been put out, but now the other buildings need to have sprinklers installed, the burnable trash removed and have routine fire safety inspections.

### **Sustainability**

The issue of sustainability is continuously discussed at the IAEA and is always their goal. It does not want to be the Santa Claus handing out goodies or a guardian angel protecting people, but would much rather help Member States learn how to take care of the problem themselves. Certainly some of the programs, such as those in the IAEA and the International Radiological Threat Reduction Program, that help countries develop their laws and regulations can contribute significantly in this regard. However, there are some fundamental difficulties that are often overlooked that I wish to highlight today.

First, with many countries there is the issue of priority. Bluntly, they do not see themselves as targets of terrorist activity using radioactive sources and have much more basic human needs to focus on. Should the government of a poor country spend its limited resources on radioactive source problems or provide running water and sanitation to a village? The basic needs of nutrition, health and housing appropriately take priority. It is not that they don't care about radiological dispersal devices (RDDs), but it is pretty far down the list. To a certain extent, what we, the United States, are trying to do is to impose our priorities and values on other countries. Sometimes we have some success because of our carrots or sticks, but in reality it is more externally imposed conformance rather than internally inherent.

Second, there is the problem of personnel. The IAEA has for many years provided good training courses for Member States, including train-the-trainer courses in an attempt to grow national expertise as part of the sustainability effort. However, it seems that it is taking much longer than anyone would have predicted to achieve a steady state of national competence. One of the major reasons is that as soon as a person becomes trained, educated and well qualified, he or she then leaves for a 'better' position – often in another country where salaries and living conditions are more desirable. It requires a high degree of self-actualization for a highly qualified person to continue to work in appalling conditions with little official government support (because of the priority issue discussed earlier). One of the reasons why we at the IAEA wanted to make the Code of Conduct a legally binding document was to give radiation safety regulators and managers the leverage to force their government to support their efforts.

I see these two issues of priority and personnel as the major impediment to building the national infrastructure and sustainability necessary to achieve the ongoing level of safety and security that we desire. However, I don't believe that we, or the IAEA, should stop trying.

### **The Health Physics Society's Role**

In fact, one of the efforts that the Health Physics Society has been engaged in for several years, and that I am attempting to revitalize and refocus during my Presidency, is our Radiation Safety Without Borders (RSWB) program. The HPS is a society of *professionals* and I think the best thing we can do to help build infrastructure and sustainability is to help our peer professionals in developing countries in a person-to-person, relationship based way. In the revitalized RSWB program, an HPS chapter will link itself to a country 'for life' ...much like the sister city approach. The chapter members over a number of years would get to know the professional health physicists (HPs) in that country, as well as their culture and their regulations, and how to best support them in their work.

The countries we are choosing to pair with are those without a professional radiation safety society. The ultimate objective would be to help the people in the country eventually develop their own professional society that would become affiliated with the International Radiation Protection Association (IRPA). A stepping stone to getting to that point would be for the domestic HPS chapter to help them form a foreign HPS chapter, which over time (years probably) and with support from their U.S. colleagues, could grow to become an independent national society. They would then formally disaffiliate with the HPS (but maintain personal ties), then apply for IRPA Associate Society status.

I should note that the RSWB program has the full support of the IAEA and IRPA and we have kept the U.S. Department of State fully informed of our efforts.

I also have to be clear that the RSWB is not a big brother program. There is absolutely no intention of the HPS wanting to take over, or control other countries, but rather it is a desire to help fellow HPs get the same sort of support that we receive from belonging to a high-quality professional organization. We are helping and supporting each other for mutual benefit, much as we do within the Society now. We are just removing the borders of the HPS family network.

It would be remiss of me not to mention the fact that the HPS has a history of calling for greater source security since before 9/11 and early last year revised its Position Paper entitled "Continued Federal and State Action is Needed for Better Control of Radioactive Sources"<sup>15</sup>. In particular, I would like to point out our position about sufficient funding (Recommendation 8) and making it an administration mission to recover sources abroad (Recommendation 16) instead of having it be an ad-hoc process.

I hope that you find these remarks helpful, and once again, I thank you for the opportunity to provide them in this hearing. I shall be pleased to answer any questions.

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<sup>1</sup> <http://www.BDodd.com/>

<sup>2</sup> <http://www.hps.org/>

<sup>3</sup> International Atomic Energy Agency. The Code of Conduct on the Safety and Security of Radioactive Sources. Vienna: IAEA; IAEA/CODEOC/2001

<sup>4</sup> International Atomic Energy Agency. Categorization of radioactive sources, IAEA-TECDOC-1344, IAEA, Vienna (2003)

<sup>5</sup> International Atomic Energy Agency. Security of radioactive sources: Interim guidance for comment, IAEA-TECDOC-1355, IAEA, Vienna (2003)

<sup>6</sup> International Atomic Energy Agency. Prevention of the inadvertent movement and illicit trafficking of radioactive materials, IAEA-TECDOC-1311, IAEA, Vienna (2002)

<sup>7</sup> International Atomic Energy Agency. Detection of radioactive materials at borders, IAEA-TECDOC-1312, IAEA, Vienna (2002)

<sup>8</sup> International Atomic Energy Agency. Response to events involving inadvertent movement or illicit trafficking of radioactive materials, IAEA-TECDOC-1313, IAEA, Vienna (2002)

<sup>9</sup> International Atomic Energy Agency. Strengthening control over radioactive sources in authorized use and regaining control over orphan sources: National strategies, IAEA-TECDOC-1388, IAEA, Vienna (2004)

<sup>10</sup> B. Dodd, The International Atomic Energy Agency's Response to the Radiological Terrorism Threat, *Österreichische Militärische Zeitschrift (Austrian Military Periodical)*, Nuclear Material Protection, Special Edition, 93-96 (2003)

<sup>11</sup> B. Dodd, Safety and Security of Radioactive Sources: Conflicts, Commonalities and Control, *Current Trends in Radiation Protection*, (H. Métivier, L. Arranz, E. Gallego, A. Sugier Eds), EDP Sciences, Les Ulis Cedex A, 165-176, (2004)

<sup>12</sup> B. Dodd, International Efforts in Countering Radiological Terrorism, *Health Physics*, 89, 556-565, (2005)

<sup>13</sup> B. Dodd, Mustard to Wine...Aspects of the IAEA's Recent Work on the Control of Radioactive Sources, *Operational Radiation Safety*, Supplement to *Health Physics*, 90, No. 2, S12-S17, (2006)

<sup>14</sup> International Atomic Energy Agency. Proceedings of an International Conference on the Safety of Radiation Sources and Security of Radioactive Materials. Vienna: IAEA; STI/PUB/1042; 1999

<sup>15</sup> [http://hps.org/documents/sourcecontrol\\_ps021-0.pdf](http://hps.org/documents/sourcecontrol_ps021-0.pdf)