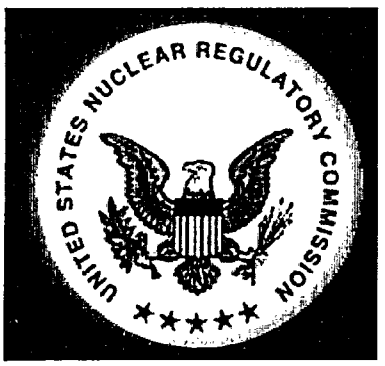


HEALTH PHYSICS SOCIETY DROP-IN VISIT TO THE COMMISSION

September 11-12, 2006

Drop-in by Health Physics Society

CONTENTS

Drop-In Visit Agenda

September 11-12, 2006

ITINERARY

September 11, 2006			
TIME	**PERSON VISITED**	**CONTACT PERSON**	**EXTENSION**
4:15 pm	Commissioner Lyons	Vicki Ibarra	301-415-8420
4:45 pm	Chairman Klein	Roger Davis	301-415-1750
September 12, 2006			
TIME	**PERSON VISITED**	**CONTACT PERSON**	**EXTENSION**
8:30 am	Commissioner Merrifield	Lorna Kipfer	301-415-1855
11:30 am	Commissioner McGaffigan	Jeff Sharkey	301-415-1810

VISITORS REPRESENTING THE HEALTH PHYSICS SOCIETY

- Brian Dodd, Ph.D., President
- Keith H. Dinger, CHP, Government Relations Liaison
- Richard J. Burk, Jr., Executive Secretary

TOPICS OF DISCUSSION

- Rulemaking: Expansion of Byproduct Material Definition
- Low-Level Waste Management Strategies and Priorities
- National Source Tracking System
- Health Physics Human Capital Crisis
- United States vs. International Standards and Regulations

Current Issues

A. EXPECTED DISCUSSION TOPICS

Rulemaking: Expansion of Byproduct Material Definition *(See Attachment 1)*

The document "Compatibility in Radiation-Safety Regulations" calls for "a single, independent U.S. Federal agency" to have "responsibility and authority to establish all ionizing radiation-safety standards for all controllable sources of occupational and public exposures." The document appears to describe an agency that is substantially equivalent to NRC. However, it would appear to combine the role of the Environmental Protection Agency with the NRC's role of setting standards for radionuclides. The approach proposed in this document, if adopted, could also result in a diminished role of the States by limiting the delegation from the Federal authority to only include enforcement authority. Regulatory radiation safety standards would remain with the Federal authority.

Congressional Action is Needed to Ensure Uniform Safety and Security Regulations for Certain Radioactive Materials *(See Attachment 2)*

The Joint HPS/Organization of Agreement States (OAS) document "Congressional Action is Needed to Ensure Uniform Safety and Security Regulations for Certain Radioactive Materials," calls for an expansion of NRC's regulatory authority to cover technically-enhanced, naturally occurring radioactive material (TENORM). The document states that this was the HPS/OAS position prior to the passage of the Energy Policy Act of 2005 (EPAct). HPS and OAS are calling for legislation which would require TENORM to be regulated in the same way that the EPAct required Naturally Occurring Radioactive Material (NARM) to be regulated. If such legislation were passed, NRC would need to amend its regulations to cover TENORM.

HPS Comments at public meeting on Aug 22, 2006 on Expansion of Byproduct Material Definition Expansion *(See Attachment 3)*

HPS President Dr. Brian Dodd presented these comments at a noticed NRC public meeting which was held to hear stakeholder comments on the proposed NARM rule. Therefore, it is appropriate for these comments to be addressed as part of the rulemaking process. The disposition of the comments will be included in the *Federal Register* notice that accompanies the final NARM rule.

Low-Level Waste Management Strategies and Priorities *(See Attachment 4, 4a)*

In September 2005, the Heath Physics Society issued a Position Statement, "Low-Level Waste Management Needs a Complete and Coordinated Overhaul," calling for major changes in the way that LLW is managed, disposed of and regulated in the U.S., including changes in legislation governing both radioactive and non-radioactive hazardous waste. In general, the HPS advocated increased competition, which would result from legislative changes to facilitate new disposal sites; a more risk-based, rather than origin-based system for disposal of all types of radioactive waste and hazardous

waste; and taking additional steps to facilitate disposal of wastes (rather than storage), particularly for those wastes without a disposal option. On August 23, 2006, the HPS submitted its comments to NRC on the Low-Level Radioactive Waste Program, in response to an NRC Federal Register Notice dated July 7, 2006. The HPS comments were based on their September 2005 Position Statement. NRC's Federal Register notice stated that the staff was conducting a strategic assessment of its LLW regulatory program, with the objective of identifying and prioritizing activities that the staff can undertake to ensure a stable, reliable and adaptable regulatory framework for effective LLW management, while also considering future needs and changes that may occur in the nation's commercial LLW management.

NRC staff views on each of the HPS positions and recommendations are provided in the attached table (see Attachment 4a). While NRC has supported more risk-informed disposal of waste, disposal of LLW over interim storage, and the development of new sites, NRC's actions have been limited to those within its existing regulatory purview.

NRC staff will consider the HPS comments in developing its Commission paper on the strategic assessment of the LLW program. This assessment will identify and prioritize specific staff actions that could be taken, based on their contribution to NRC's strategic goals, the benefits that will result to the national LLW program, the resources required, and stakeholder views. This paper is expected to be sent to the Commission later this year.

National Source Tracking System *(See Attachment 5)*

In comments on the proposed rule (9/20/05 letter), the HPS fully endorsed the establishment of a National Source Tracking System (NSTS). They also stated their belief that such a system should be designed to enhance public health and safety, as well as national security. In a letter to Senator Clinton (1/10/06), HPS stated that they do not have a position on the basis of the rule as the regulatory basis change "is a matter of resource allocation and improved licensee knowledge of the regulator for inspection of the compliance of licensees with the NSTS and not a matter of fundamental requirements or structure of the NSTS." HPS supports the inclusion of radium-226 and Category 3 sources in the NSTS, unless it can be shown that to do so is unreasonably burdensome.

The Commission approved the final rule for NSTS under a basis of public health and safety. The basis change was published for public comment on June 13, 2006. The comment period ended on July 28, 2006. The NRC received 14 comments on the basis change. Because substantive comments were received on the basis change, the Commission will readdress the issue in a revised final rule. The staff is preparing the final rule for Commission re-approval. Regarding the inclusion of Category 3 sources in the NSTS, the Commission has directed the staff (6/9/06 SRM) to conduct a survey of Category 3.5 sources (0.1 of Category 3) and to provide a proposed rule that would include Category 3 data in the NSTS.

Note: HPS supports inclusion of Category 3 Sources and will speak to this issue at the drop-in vist.

Health Physics Human Capital Crisis *(See Attachment 6)*

The NRC continues to be challenged by an aging workforce complicated by substantial increase in new work at a time when senior experts are increasingly eligible to retire. To mitigate the impact of this challenge, the Agency has developed human capital strategies to find, attract, and retain critical-skill staff. Furthermore, the Agency is being assisted in this effort by the EPAct, which authorized NRC to fund scholarships, fellowships, and support grants to universities to partially support nuclear engineering and science programs that contribute to the availability of highly skilled graduates. The NRC plans to offer scholarships/fellowships to undergraduate/graduate students in critical skills areas, such as Health Physics. The NRC is currently working on the infrastructure to support this program and expects to begin offerings in FY 2007

United States vs. International Standards and Regulations *(See Attachment 7)*

At the August 28-29, 2006, meeting in Rockville, Maryland, the HPS representative noted that HPS will provide a number of written comments to the International Commission on Radiological Protection on the draft recommendations. The HPS representative outlined several points, which were, in general, very similar to positions NRC is taking in our general comments that were approved by the Commission the week of August 21.

NRC Approach to IAEA Safety Standards Review and Prospect for International Harmonization *(See Attachment 8)*

The NRC actively participates in the IAEA Safety Standards development process, by participating in key document development at each stage of the IAEA consultancy meetings and technical meetings. NRC represents the U. S. Government in all of the standards committees. [1] NRC senior management represents the U.S. Government in the Commission on Safety Standards, the senior level group reporting to the IAEA Deputy Director General. NRC staff and management coordinate closely with fellow Federal Agency partners, to present consistent messages and comments in all of the committees.

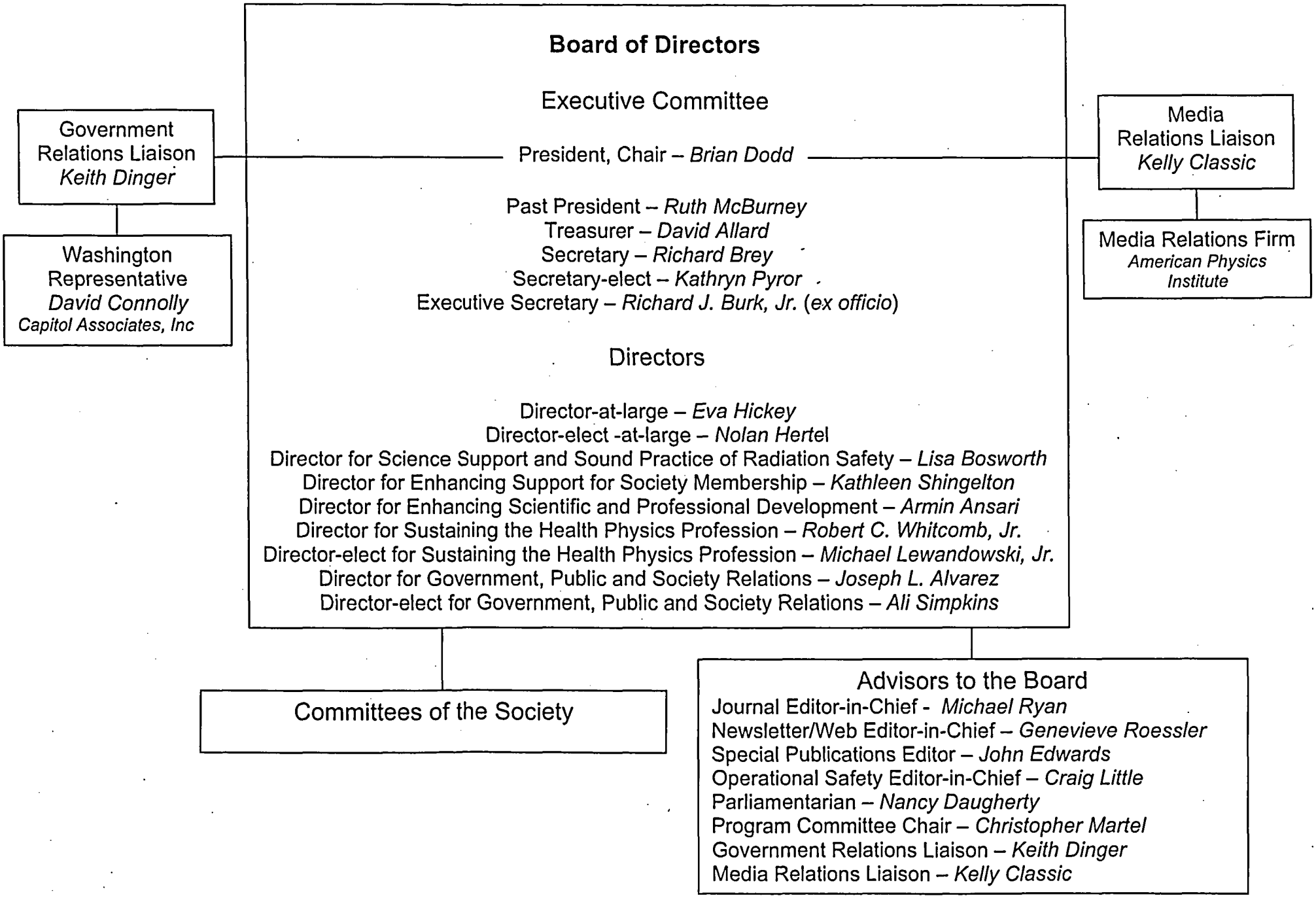
The NRC considers the IAEA safety standards as a point of reference for international use in developing consistent and harmonized programs. While NRC recognizes that the IAEA safety standards are obligatory for those member states that receive support from the IAEA, the staff also notes that the United States has specific requirements for public participation and rulemaking which may result in requirements and guidance that may not be identical to IAEA.

B. OTHER TOPICS OF INTEREST

None.

[1] Radiation Safety Standards Committee, Waste Safety Standards Committee, Nuclear Safety Standards Committee, and Transportation Safety Standards Committee

Health Physics Society Organization – July 2006 – July 2007



Keith H. Dinger, MS, CHP

Keith Dinger attended college at Miami University, Oxford, Ohio, where he received a bachelor's degree in physics in 1967 and was commissioned as an officer in the US Navy. After serving four and one-half years as a Qualified Submarine Officer in the Navy Nuclear Propulsion Program, he became a Health Physicist with the Department of Navy at the Portsmouth Naval Shipyard, Portsmouth, New Hampshire. At Portsmouth Mr. Dinger served three years as the Shipyard Radiation Instrumentation Program Manager and eighteen years as the Director of Radiation Health. During this time he also earned his Master's Degree in radiological health from the Harvard School of Public Health.

As Director of Radiation Health, Mr. Dinger directed the occupational and environmental radiation health program for the Shipyard, which overhauled and repaired nuclear powered submarines. In addition, he performed a number of special projects and assignments as a health physics expert for the Naval Nuclear Propulsion Program. This included assistance in the oversight and conduct of epidemiological studies of the Portsmouth Naval Shipyard workers by NIOSH and the study of all nuclear naval shipyard workers by the Johns Hopkins University.

Following his retirement from the Department of the Navy in 1993, Mr. Dinger received an appointment at the Harvard School of Public Health as Instructor, Environmental Science and Engineering, which he held until 2004. At the School he directed several courses related to radiation protection and nuclear technology through the Center for Continuing Professional Education. He also served as a technical expert for the National Institute of Standards and Technology in the area of personnel dosimetry, performing On-site Assessments of dosimeter processors as part of the National Voluntary Laboratory Accreditation Program. He also served as a consultant to the nuclear power and radioactive materials industry. Most recently he served in the Independent Oversight Group for the decommissioning of the Maine Yankee atomic power plant.

Mr. Dinger now serves as the Health Physics Society Congressional and Federal Agency Liaison coordinating the Society's outreach activities with Congress and federal agencies and organizations. He also serves as an Associate Editor of the Health Physics Society's Web site.

Mr. Dinger has held a Comprehensive Certification by the American Board of Health Physics since 1979. He is a Fellow of the Health Physics Society and has served as a Director, as the Treasurer, and as President of the Society.

Résumé - Brian Dodd

Brian Dodd

BDConsulting, Las Vegas, NV

Ph.D., Nuclear Engineering, Univ. of London, 1973
B.Sc. (Eng), Nuclear Engineering, Univ. of London, 1969

For more details see: http://bdodd.com/
Email: BDConsulting@BDodd.com

PROFESSIONAL EXPERIENCE

2004-Present: BDConsulting, Las Vegas, NV. Consultant to DOE-NNSA, IAEA, EPA and others.

2001-2004: Head, Radiation Source Safety and Security Unit, International Atomic Energy Agency, Vienna. Responsible for the IAEA's programmes on safety and security of radiation sources, including orphan source and radiological terrorism issues.

1998-2001: Research Reactor Specialist, IAEA, Vienna. Responsible for the planning and implementation of the Agency's programme on research reactor utilization.

1989-2002: Professor, Radiation Health Physics and Nuclear Engineering, Oregon State University.

1994-1998: Director, OSU Radiation Center. Managing the nuclear and health physics teaching and research facility, housing 90 researchers and staff, a 1.1 MW TRIGA reactor, and a ^{60}Co irradiator.

Previous: Asst. Professor, Assoc. Professor, Health Physicist, Asst. Reactor Administrator and Reactor Administrator at Oregon State University. Senior Lecturer and Health Physicist, Royal Naval College, Greenwich, London. Post-Doctoral Research Fellow, Imperial College, University of London.

PROFESSIONAL ACTIVITIES

Health Physics Society: Chair, Ad-Hoc Committee on Restructuring 2004-5; Treasurer-Elect/Treasurer, Executive Committee 1999-2002; Board of Directors, Finance Committee 1994-1997; Fellow 2002-present; Delegate to IRPA9, IRPA10 & IRPA11;

Chair, Annual Meeting Professional Enrichment Program 1992-1993; Continuing and General Education Committee 1990-1993; Publications Committee 1985-1988; Member since 1978. **Cascade Chapter:** President 1984-1985; President-Elect 1983-1984; Member 1978-2004; Lake Mead Chapter: Member 2004-present.

International Radiation Protection Association: Executive Council 2004-present; Treasurer 2004-present; Member 1976-present.

Environmental Protection Agency: Science Advisory Board, Radiation Advisory Committee 2003-present.

PUBLICATIONS

Published 19 papers in refereed technical journals, 57 papers in conference proceedings, and 47 other reports; Responsible officer for 17 IAEA publications, including documents on Categorization of Radioactive Sources (TECDOC-1344), Security of Radioactive Sources (TECDOC-1355), Strengthening Control over Radioactive Sources: National Strategies (TECDOC-1388).

PERSONAL

Born 1947; U.S. Citizen 1993; Married 36 years to Jennie; two married sons; four grandchildren.

HEALTH PHYSICS SOCIETY

COMPATIBILITY IN RADIATION-SAFETY REGULATIONS

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY*

Adopted: January 1992
Revised: August 2000
Reaffirmed: March 2001

Contact: Richard J. Burk, Jr.
Executive Secretary
Health Physics Society
Telephone: 703-790-1745
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http://www.hps.org

The Health Physics Society believes the current regulatory framework for establishing and enforcing regulatory radiation-safety standards results in inconsistent, inefficient, and unnecessarily expensive public health protection policies regarding radiation safety. Therefore, the Society advocates the establishment of a regulatory framework with the following requirements:

1. A single, independent U. S. Federal agency (herein called the Agency) shall have the responsibility and authority to establish all ionizing radiation-safety standards for all controllable sources[1] of occupational and public exposures.

2. The Agency shall have the responsibility and authority to oversee enforcement of all radiation-safety programs implementing these radiation-safety standards.

3. Provisions shall be made for the Agency to delegate enforcement authority to other governmental entities or agencies similar to the current provisions for Agreement State Programs under the Atomic Energy Act of 1954 as amended.

4. Delegation of authority under the previous provision shall be for enforcement responsibilities only. The regulatory radiation-safety standards for these lower tiered programs would be those established by the Agency.

5. Radiation-safety standards shall be consistent with the recommendations of the International Commission on Radiological Protection (ICRP), the National Council of Radiation Protection and Measurements (NCRP), and scientific consensus standards.

Footnotes

[1] A controllable source is any source of radiation exposure for which reasonable actions can be taken to limit radiation exposure without resulting in adverse effects on individuals. Examples of controllable sources include:

- Any source of man-made radiation exposure in the workplace (i.e., occupational exposure).
- Any facility or other operation that results in releases of man-made or technologically enhanced, naturally occurring radionuclides to the environment.
- Exposures from radiation-producing machines.
- Any localized areas of environmental contamination resulting from planned or accidental releases of radioactive material or disposal of radioactive waste.
- Technologically enhanced, naturally occurring radioactive material.
- Medical exposures to individuals who are not the subject of the medical procedure resulting in the exposure.
- Indoor radon

Examples of sources that are not controllable include:

- Natural terrestrial background radiation.
- Cosmic radiation.
- Naturally occurring radioactive material present inside the body.
- Medical exposures to individuals who are the subject of the medical procedure resulting in the exposure.
- Global fallout of radionuclides from atmospheric testing of nuclear weapons.
- Regional or global radioactive contamination from accidental releases of radioactive material.

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* The Health Physics Society is a non profit scientific professional organization whose mission is to promote the practice of radiation safety. Since its formation in 1956, the Society has grown to approximately 6,000 scientists, physicians, engineers, lawyers, and other professionals representing academia, industry, government, national laboratories, the department of defense, and other organizations. Society activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. Society members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits. Official position statements are prepared and adopted in accordance with standard policies and procedures of the Society. The Society may be contacted at: 1313 Dolley Madison Blvd,. Suite 402, McLean, VA 22101; phone: 703-790-1745; FAX: 703-790-2672; email: HPS@BurkInc.com.

Organization of Agreement States

CONGRESSIONAL ACTION IS NEEDED TO ENSURE UNIFORM SAFETY AND SECURITY REGULATIONS FOR CERTAIN RADIOACTIVE MATERIALS

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY AND ORGANIZATION OF AGREEMENT STATES *

The Health Physics Society (HPS) and the Organization of Agreement States (OAS), which represent radiation safety professionals and regulatory agency stakeholders, believe congressional action is needed to ensure the uniform regulation of all discrete sources of radioactive material to provide appropriate radiation safety standards to protect the public from these sources, including protection from malevolent uses of such sources by terrorists.

Currently, naturally occurring radioactive materials, especially radium, and radioactive materials produced by nuclear particle accelerators (accelerator-produced radioactive material) are not comprehensively regulated in the United States. These sources are not defined in the Atomic Energy Act of 1954, as amended (AEA), which has the effect of excluding these sources from regulation by the independent federal agency charged with regulation of other radioactive materials, i.e., the United States Nuclear Regulatory Commission (NRC). As a result of their omission in the AEA, the regulation of these sources rests with various federal agencies and each individual state. Our organizations believe that this fragmented regulatory framework allows for inconsistent standards for the possession, use, and disposal of these sources, which can potentially have a negative impact on public health and safety and on national common defense and security.

Therefore, we recommend congressional action to ensure not only the security of such sources, but also the uniformity of standards regarding their possession, use, and disposal.

The HPS and OAS jointly recommend enactment of federal legislation to regulate these sources according to the following principles:

1. Discrete sources of technologically enhanced naturally occurring radioactive material (TENORM)[1] and accelerator-produced radioactive material should be uniformly regulated throughout the United States. The most effective way to ensure uniformity in regulation is to include such sources in the definition of byproduct material in the AEA.

2. The NRC should be the sole agency authorized to promulgate federal regulations establishing requirements for controlling the acquisition, possession, transfer, use, and disposal of such sources to protect the public health and safety and the national security of the United States, except for those sources regulated by the United States Department of Energy.

3. The NRC shall, in consultation with the states and other stakeholders, develop a regulatory definition of the term "discrete," as applied to sources of TENORM and accelerator-produced radioactive materials. This definition should include both an activity limit and a concentration limit on any such source, such that the radiological hazards are controlled in a manner consistent with other sources of radioactive material posing the same radiological hazard.

4. Disposal of such sources should be allowed at facilities licensed by the NRC, by states that have entered into agreements with the NRC pursuant to the AEA, or in facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA) when such disposal is appropriate and authorized by the regulatory agency (or agencies) having jurisdiction.

5. Placing such sources under the NRC's jurisdiction should be done in such a manner that (a) does not change the definition of low-level radioactive waste in the Low-Level Radioactive Waste Policy Amendments Act of 1985 and (b) does not adversely affect the implementation of congressionally approved Compacts pursuant to the Low-Level Radioactive Waste Policy Act of 1980 as amended, thus preventing such sources from becoming "orphaned" from disposal.

6. In fulfilling its new responsibilities, the NRC shall consult with state radiation control agencies that have established regulations for controlling the safe use, security, and disposal of these sources.

7. The NRC is encouraged to consult with other federal agencies as it develops regulations for controlling the safe use, security, and disposal of these sources.

Footnote

[1] TENORM is naturally occurring radioactive material that has been removed from the natural environment and has been concentrated to levels greater than that found in the natural environment due to human activities. (Indoor radon, because it is not technologically enhanced, should be specifically exempt from this provision for discrete sources.)

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* The Health Physics Society is a nonprofit scientific professional organization whose mission is to promote the practice of radiation safety. The Organization of Agreement States is a nonprofit society of staff members from those states that have established programs under section 274 of the AEA to assume a portion of NRC regulatory authority.

HEALTH PHYSICS SOCIETY

Specialists in Radiation Safety

Health Physics Society Preliminary Comments on the

Nuclear Regulatory Commission's
Proposed Rulemaking on Requirements for Expanded Definition of Byproduct Material

presented by

Brian Dodd, Ph.D
President

at the public meeting held at the

William Olstead High-Level Waste Hearing Facility
Las Vegas, Nevada

on

August 22, 2006

Offices of the Executive Secretary, 1313 Dolley Madison Blvd., Suite 402, McLean, VA, 22101

Phone: (703) 790-1745 Fax: (703) 790-2672 Email: hps@burkinc.com Home Page: www.hps.org

Good morning. I am Brian Dodd, President of the Health Physics Society. I want to thank the Nuclear Regulatory Commission for holding this public meeting and for providing me with the opportunity to make some preliminary comments on behalf of the members of the Health Physics Society. As the former head of the International Atomic Energy Agency's unit responsible for developing the revised Code of Conduct, the revised Categorization of Radioactive Sources, the IAEA's Security of Radioactive Sources interim guidance and documents on regaining control over orphan radioactive sources, it is also personally interesting to see the national implementation of work started internationally over 5 years ago.

For those not familiar with the Health Physics Society, or 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.

Today I have three fundamental comments on the NRC's proposed rule on the Requirements for Expanded Definition of Byproduct Material. The HPS also intends to submit written comments prior to the public comment deadline, which we expect will include a few additional comments but which will not be extensive or fundamental to the proposed rule. We feel we need to do some additional research and discussion on some details before formulating them into formal comments.

By way of background on my comments today and on the HPS's active interest in the subject of the proposed rule, I would like to quickly review the Society's activities in this area of including naturally occurring and accelerator produced radioactive materials in the same regulatory framework as Atomic Energy Act, or AEA, radioactive materials.

The HPS has a relatively long history of advocating for a more uniform and compatible regulatory framework for the responsible regulation of radiation and radioactive materials. Over fourteen years ago, in January 1992, the HPS issued a position statement "Compatibility in Radiation Protection Regulations." This position statement was driven by the HPS's concern over the differences in radiation regulations that existed between individual state's in their regulation of non-Atomic Energy Act radiation sources and radioactive material and over the differences between these state regulations and the NRC regulations for Atomic Energy Act radiation sources and radioactive material. Our concern for the non-uniform regulation of similar radiation risks grew as the basis for radiation protection standards evolved, both nationally and internationally, and as more and more federal agencies exercised legislative authority over other sources of radiation and radioactive materials. Finally, in August 2000, the HPS revised its "Compatibility" position, now titled "Compatibility in Radiation-Safety Regulations," to call for a single, independent federal agency to have the responsibility and authority to establish all ionizing radiation-safety standards for all controllable sources of occupational and public exposures. This revision was driven by the HPS belief that the current regulatory framework for establishing and enforcing regulatory radiation-safety standards results in inconsistent, inefficient, and unnecessarily expensive public health protection policies regarding radiation safety. This position, and all other position statements of the HPS are available on our Web site at hps.org.

It is important to note for the context of my specific comments on the proposed rule that this call for a single regulatory agency is for the purpose of providing a uniform and centralized regulation of radiation and radioactive materials for the **protection of public health and safety.**

Following the events of September 2001, there became a heightened, and appropriate, concern for increased uniform and centralized regulatory controls on some radioactive materials for the purpose of **common defense and security** of the nation. That concern evolved through a number of legislative proposals for "dirty bomb prevention" and "nuclear infrastructure security." Eventually the concerns were addressed legislatively in the Energy Policy Act of 2005, including the provision requiring expansion of the definition of by-product material in the AEA to include certain discrete sources of radium-226 and other naturally occurring radioactive materials, and certain radioactive materials produced by an accelerator.

Throughout the legislative and federal agency work to respond to this need for increased controls on sources of radiation and radioactive materials for the purpose of **common defense and security,** the HPS provided it's input to congressional and the federal agency staff on the issues of safeguarding radioactive materials. This input continued to stress that one of the fundamental reasons for invoking some of these increased controls, that is, creating a uniform and centralized control in a federal agency, was also applicable to regulation for the purpose of **public health and safety.**

Specific to the current proposed rulemaking for expansion of the definition of by-product material, when it became clear that there would be legislation addressing this issue, the HPS formed a working group with the Organization of Agreement States, or OAS, to study the draft legislation for the purpose of taking a joint position on the draft legislation. In January, 2005, the HPS and OAS issued the joint position statement "Congressional Action is Needed to Ensure Uniform Safety and Security Regulations for Certain Radioactive Materials," which contained seven specific principles that should be accomplished by the legislation. The HPS and OAS also jointly developed proposed draft legislation that would meet the seven principles in the position statement. These principles included the two very important provisions that (1) the definition of a "discrete source" be accomplished by rulemaking and not by legislation and, (2) that the proposed rule be developed in close cooperation with state radiation control agencies. The fundamental position that formed the basis for the seven principles was stated as follows: Our organizations believe that [a] fragmented regulatory framework allows for inconsistent standards for the possession, use, and disposal of these sources, which can potentially have a negative impact on **public health and safety** and on **national common defense and security.**

Section 651(e) of the Energy Policy Act enacted all seven principles of the HPS-OAS position statement. However, it did not support the fundamental position that **ALL** radioactive materials subject to the expanded definition needed to be included. Rather, it qualifies the materials as being those that "have been produced, extracted, or converted after extraction for use for a commercial, medical, or research activity." That is, it only requires application of the expanded definition to sources created for the purpose of using their radioactive properties, which excluded sources of the same exact

radioactive materials that were produced, extracted, or converted after extraction **incidentally** to some other process or activity. This leaves the large category of naturally occurring radioactivity known as "diffuse NORM" as not being controlled under a uniform centralized regulatory framework.

With that background, I would now like to present my specific comments.

Specific Comment 1: The HPS would like to congratulate the Nuclear Regulatory Commission and it's staff and the staffs of the State Radiation Control Agencies for engaging in an outstanding rule making process and for developing an outstanding proposed rule. The proposed rule adequately and appropriately implements the seven principles contained in the HPS-OAS position statement to the extend required by the Energy Policy Act. Our review to date has not identified any fundamental radiation safety concerns. We recognize that many details of implementing the proposed rule may be subject to comment, input, and criticism by those responsible for their implementation. Our finding of no fundamental radiation safety concerns does not imply there are not valid comments, criticisms, or concerns about some details regarding the implementation of the rule. In fact, the HPS may have some comments about specific details in the rule in our written submittal.

Specific Comment 2: While we find that the NRC has adequately met the requirements of the Energy Policy Act in regards to the extent of what materials must be included in the expanded definition of by-product materials, we point out that the Act does require considerations of **both** public health and safety and common defense and security. The Act restricts the extent to which the subject materials need to be included in the expanded definition by restricting its intended use, but not by restricting the activity or quantity of the material. However, the background discussion in the section "Other Naturally Occurring Radioactive Material With Similar Risk as Radium-226" offers three reasons not to include polonium-210 in the expanded definition. One of those reasons is "polonium-210 is very unlikely to be commercially used in individual radioactive sources with activity levels that would place them within IAEA Code of Conduct Category 1 or 2." Within the USA, IAEA categories 1 and 2 have been associated with 'high-risk' sources and activities of concern to common defense and security. The requirement to evaluate other naturally occurring radioactive materials for inclusion in the expanded definition is to evaluate those that pose a similar risk as radium-226 to the public health and safety as well as the common defense and security. Using IAEA category 1 and 2 as the benchmark for the risk of radium-226 does not meet the requirement to include risk to public health and safety. In fact, since the IAEA regards uncontrolled category 1, 2 and 3 sources as potentially 'dangerous' to human health, the HPS would argue that IAEA category 3 is also a threat and the analysis is deficient by at least not including category 3.

Having made this comment, the HPS does not disagree with the NRC conclusion that polonium-210 does not need to be included in the expanded definition under the category of naturally occurring radioactive materials posing a similar risk as radium because of the more persuasive argument that the production of polonium-210 discrete sources for commercial, medical, or research use is by activation in a reactor so it is already regulated as by-product material.

Specific Comment 3: In Section G of the proposed rulemaking, the NRC requested comments on a number of specific issues including (G.(4)) the adequacy of the applicable default ALIs and DACs in Appendix B to 10 CFR 20 for oxygen-15 and nitrogen-13, and whether staff

should develop larger specific values for these radionuclides. It has been brought to the Society's notice by members that the default values could be two to three orders of magnitude less than specifically calculated values and use of the default values would require air monitoring and ventilation systems to be significantly greater than necessary. Because of this possibility, it would seem appropriate for the NRC to develop specific values for these radionuclides.

Finally, on the subject of the extent of materials included under NRC jurisdiction, the HPS does believe this regulatory action will provide a step forward by forming an excellent foundation for having uniform regulations for all materials that need control for public health and safety. The HPS will continue to hold the position that sometime in the future, when resources and priorities are appropriate, all radioactive materials that need to be controlled for public health and safety, regardless of their reason for production, should be controlled under a single regulatory framework.

That concludes my comments for today. Once again, thank you for the opportunity to provide them in this forum.

LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT NEEDS A COMPLETE AND COORDINATED OVERHAUL

POSITION STATEMENT OF THE
HEALTH PHYSICS SOCIETY*

HEALTH PHYSICS SOCIETY

Adopted: October 1993
Revised: May 1995
Updated: July 1998
Revised: July 1999
Revised: September 2005

Contact: Richard J. Burk, Jr.
Executive Secretary
Health Physics Society
Telephone: 703-790-1745
Fax: 703-790-2672
Email: HPS@BurkInc.com
http://www.hps.org

Low-level radioactive waste (LLRW) is an inevitable byproduct of beneficial uses of radioactive materials in the United States. It arises from medical research, diagnosis and treatment of diseases, industrial processes, national defense, and electric power generation—all vital to our national interests. LLRW will continue to be generated, requiring the availability of disposal methods and sites so that society can continue to enjoy the full benefits of the use of radioactive materials. Safe and effective methods and standards for processing, transport, and disposal of LLRW are well established.

The 1980 LLRW Policy Act, as amended in 1985, established a framework for the states to provide for safe disposal of LLRW and encouraged the creation of regional compacts to develop an appropriate network of disposal sites. The deadlines established for the development of new sites have passed, with no new sites being opened. Political, judicial, and administrative obstacles have blocked the development of sites and have limited the disposal options for higher-activity classes of waste within existing sites. Disposal options for the highest-activity classes of waste are limited and may no longer exist for a majority of the states after 2008. In addition, the current regulatory framework results in excessive and overly restrictive requirements for disposal of the lowest-activity class of waste. The effect of these obstacles and restrictions is to interfere with optimal use of radioactive materials in medicine, research, energy production, and technology. The use

of all available options, including private, commercial, and federal facilities, can facilitate the orderly, safe, and efficient disposal of radioactive waste.

The current state of affairs for LLRW disposal has led the Health Physics Society to take the following **positions.**

1. **The goal of managing LLRW is to ensure the safety of workers and the public and to protect the environment. To achieve this goal, disposal, not long-term storage, is the best and safest long-term approach.**

2. **The Health Physics Society believes that lack of competition in LLRW disposal options results in excessively high costs to waste generators, which impede the use of nuclear technologies that provide significant benefits to society.**

3. **The Health Physics Society believes that the regulatory framework for management and disposal of LLRW needs a complete and coordinated overhaul.**

   The **fundamental changes** needed to LLRW management include the following:

   a. **Waste classification and disposal requirements for any type of radioactive waste should be based on its potential risk to public health and safety, not on its origin or legislative stature.**

   b. **Risk-informed waste-disposal requirements for radioactive materials should be consistent and integrated with waste disposal for nonradioactive hazardous waste.**

   c. **The LLRW Policy Act should be amended or replaced to:**

      i. **allow non-Department of Energy (DOE) waste generators access to all existing licensed and permitted disposal facilities.**

      ii. **allow non-DOE waste generators access to disposal facilities owned and operated by the DOE.**

      iii. **provide a new waste-disposal capacity for all LLRW at a facility currently operated by DOE or by private industry on land owned by the federal government.**

Based on these positions, the Health Physics Society makes the following **recommendations.** Although some of these recommendations are available with no significant change in the regulatory framework, they are all consistent with the regulatory framework changes given above.

1. Based on Positions 3.a and 3.b, we endorse the approach for a waste-disposal classification system proposed by the National Council on Radiation Protection and Measurements (NCRP 2002).

2. Based on Position 3.b, we strongly support the Environmental Protection Agency efforts to move forward with a rulemaking to promulgate regulations allowing disposal of low-activity radioactive waste (LARW) and low-activity mixed waste (LAMW) at Resource Conservation and Recovery Act (RCRA) Subtitle C sites.

3. Based on Position 3.b, we support the use of uranium mill-tailings sites regulated under the Uranium Mill Tailings Radiation Control Act (UMTRCA) for disposal of radioactive materials that are appropriate for these sites. Examples of potentially appropriate materials are certain non-11e.(2) byproduct material such as the LARW and LAMW noted in 2 above; technologically enhanced naturally occurring radioactive materials (TENORM); high-volume, low-activity waste from reactor decommissioning; and certain low-activity resins from operating reactors.

4. Based on Position 3.c, we strongly support DOE efforts to prepare an Environmental Impact Statement under the National Environmental Policy Act to evaluate additional alternatives for disposal of greater-than-Class C wastes. These include deep geological disposal facilities, existing LLRW disposal facilities (both commercial and federal), and new facilities (both commercial and federal) at federal sites or on private land.

5. Based on Position 3.c, we urge Congress to direct federal action to ensure that disposal options and capacity for Class B and Class C waste will exist for all states in the future. This can be achieved by use of commercial or private facilities on federal or private lands to mitigate significant adverse consequences to generators of these wastes.

Reference:

National Council on Radiation Protection and Measurements. Report 139, Risk-Based Classification of Radioactive and Hazardous Chemical Wastes, Bethesda, Maryland. Issued 31 December 2002.

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* The Health Physics Society is a nonprofit scientific professional organization whose mission is to promote the practice of radiation safety. Since its formation in 1956, the Society has grown to approximately 6,000 scientists, physicians, engineers, lawyers, and other professionals representing academia, industry, government, national laboratories, the Department of Defense, and other organizations. Society activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. Society members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits. Official position statements are prepared and adopted in accordance with standard policies and procedures of the Society. The Society may be contacted at 1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101; phone: 703-790-1745; fax: 703-790-2672; email: HPS@BurkInc.com.

Staff Views on the Health Physics Society's Comments On the NRC's Low-Level Radioactive Waste Program

Background:

On August 23, 2006, the Health Physics Society (HPS) submitted comments to NRC on the Low-Level Radioactive Waste Program, in response to an NRC Federal Register Notice of July 7, 2006. That notice stated that the NRC staff was conducting a strategic assessment of its low-level radioactive waste (LLW) regulatory program, with the objective of identifying and prioritizing activities that the staff can undertake to ensure a stable, reliable and adaptable regulatory framework for effective LLW management, while also considering future needs and changes that may occur in the nation's commercial LLW management system. The Federal Register Notice also stated that, as part of the assessment, NRC staff was soliciting public comment on what changes, if any, should be made to the current LLW program regulatory framework, as well as specific actions that the staff might undertake to facilitate such changes. Nine questions were presented for commenters to consider in developing their comments and recommendations.

The HPS' August 23, 2006, submittal contained the following parts:

1. A cover letter with their views on the highest priority actions for NRC's LLW program
2. Comments on the NRC staff's' July 7, 2006, Federal Register Notice
3. A September 2005 HPS Position Statement: "Low-Level Radioactive Waste Management Needs a Complete and Coordinated Overhaul"
4. Background Information on the LLW Position Statement, September 2005
5. A March 2001 HPS Position Statement on Clearance of Materials Having Surface or Internal Radioactivity.

In this document, the staff provides its views on the HPS positions and recommendations. The staff has extracted individual positions and recommendations in the August 23, 2006 letter (1) and the Position Statement (3), and provided the staff's view and its basis in the attached table. The staff views usually reflect previous Commission decisions or previously documented staff positions. In some cases, the HPS recommends actions that are well beyond the scope of NRC's legal authority and which the NRC has not previously addressed. In its comments on the NRC's Federal Register Notice (2), the HPS refers extensively to its Position Statement, and therefore staff's views on these HPS comments are the same as the staff views on the Position Statement provided in the attached table.

The staff is developing a Commission paper that will provide the results of its assessment of the LLW program. This assessment will identify and prioritize specific staff actions that could be taken, based on their contribution to NRC's strategic goals, the benefits that will result to the national LLW program, the resources required, and stakeholder views. The HPS comments and those of other stakeholders will be factored into this paper.

HPS Comments	Staff Views
From the HPS letter of August 23, 2006	
The HPS considers the highest priority of the low-level radioactive waste program is to provide for the permanent disposal of all radioactive waste for all generators in all states in a manner (1) that is protective of workers, the public, and the environment, (2) is reliable, predictable, adaptable, and economical, and (3) that does not harm generators, states or facilities that are currently operating in a manner consistent with (1) and (2).	The staff agrees with the positions stated. The staff notes that the HPS is referring here to the national LLW program, not the NRC LLW program. NRC's influence on the national program is important, but limited to our regulatory authority regarding health and safety and environmental protection.
The HPS considers the highest priority actions to improve the low-level radioactive waste program are to (1) change the waste classification system to a risk-based system that does not depend on source of origin or legislative statute, particularly for low-activity waste, and that is harmonized with other waste disposal systems. . . .	The staff agrees that the current system is not fully risk-based, which results in certain inefficiencies and precludes some safe disposal options. At the same time, the current system is established in a number of different laws which would have to be changed in order to implement a risk-based system. The staff believes that the likelihood of achieving such large changes in legislation is small. Nevertheless, there are a number of incremental steps NRC can take, within its purview, to make the waste classification system more risk-based and facilitate risk-informed disposal of LLW (e.g., develop guidance for use of alternate classification provisions in 10 CFR 61.58 and facilitate requests for alternate disposal of low activity waste per 10 CFR 20.2002). These and other activities are being evaluated and prioritized as part of the staff's strategic assessment.
The HPS considers the highest priority actions to improve the low-level radioactive waste program are to . . . (2) ensure disposal facilities exist for all Class B and C waste, particularly sealed sources	The staff agrees that ensuring disposal of B/C waste is a priority, but one which NRC has limited control over, since states, LLW compacts, and private companies provide for disposal. NRC does support states in their efforts to license new and existing sites. NRC would also comment on any legislation that was designed to expand disposal options. Absent disposal for these wastes, NRC and Agreement State regulatory programs ensure that these wastes can be stored safely and securely.
The HPS considers the highest priority actions to improve the low-level radioactive waste program are to . . . (3) make a generalized provision for very low-level material to exist the regulatory system	The Commission's position on this issue is stated in the Staff Requirements Memo for SECY-05-0054 - PROPOSED RULE: RADIOLOGICAL CRITERIA FOR CONTROLLING THE DISPOSITION OF SOLID MATERIALS, issued on June 1, 2005. The Commission disapproved publication of this proposed rule at that time. The Commission's decision was based on the fact that the Agency is currently faced with several high priority and complex tasks, that the current approach to review specific cases on an individual basis is fully protective of public health and safety, and that the immediate need for this rule had changed

	due to the shift in timing for reactor decommissioning. As such, the Commission deferred the rulemaking.
The HPS considers the highest priority actions to improve the low-level radioactive waste program are to . . . (4) open existing radioactive and hazardous waste facilities to waste materials that pose similar risks for which the design of the facility is protective of the public and the environment.	The staff agrees with this comment, to the extent that NRC can effect these changes. Later in their letter, HPS recommends opening DOE sites to commercial LLW disposal, which would require changes in existing legislation, such as the LLRWPAA. NRC has taken no position on such a proposal. HPS also recommends the use of mill tailings impoundments for disposal of non-mill tailings waste. NRC's position on these disposals is contained in a November 2000 Regulatory Issue Summary, "Recent Changes to Uranium Recovery Policy" (http://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/2000/ri00023.html). That RIS was developed based on Commission direction in an SRM for SECY-99-012. The HPS recommends changes to this position on disposal of other radioactive wastes in mill tailings impoundments, such as the development of generic waste acceptance criteria, e.g. The HPS recommendations on this issue will be evaluated as part of the staff's LLW strategic assessment and the results reported to the Commission later this year. These recommendations may require legislative changes to make such expanded disposals practical and implementable. With respect to opening hazardous waste facilities, NRC has supported the EPA's efforts to establish criteria for disposal of low-activity waste in RCRA hazardous waste landfills. EPA has put that effort on hold, however. In the meantime, the staff continues to authorize disposals of low-activity waste (LAW) in RCRA waste facilities using the provisions of 10 CFR 20.2002, and is taking steps to improve the efficiency of the 10 CFR 20.2002 approval process and make it more transparent.
Positions and Recommendations in the HPS Position Statement of September 2005	
The goal of managing LLRW is to ensure safety of workers and the public and to protect the environment. To achieve this goal, disposal, not long term-storage, is the best and safest long-term approach.	The staff agrees.

The Health Physics Society believes that lack of competition in LLRW disposal options results in excessively high costs to waste generators, which impede the use of nuclear technologies that provide significant benefits to society.	The staff agrees. NRC's strategic outcome for its effectiveness goal is that there are "no significant licensing or regulatory impediments to the safe and beneficial uses of radioactive materials." Some NRC actions in its LLW program can positively impact disposal options and costs for licensees, such as authorizations for alternate disposals under 10 CFR 20.2002, and NRC gives priority to them based on their contribution to meeting the Agency's strategic goals.
The Health Physics Society believes that the regulatory framework for management and disposal of LLRW needs a complete and coordinated overhaul.	While an ideal framework for LLRW management and disposal would be risk-based, NRC has not taken a position on the need for a complete overhaul of the system. The staff, however, in a May 25, 2004, letter to GAO, stated that with respect to the current system established by the LLRWPAA, it is in the national interest to begin exploring alternatives to the LLRWPAA that would potentially provide a better legal and policy framework for new disposal options for commercial generators of LLRW. The staff recommended that GAO explore these alternatives and report on them to Congress. With respect to NRC's LLRW regulation in 10 CFR Part 61, the staff agrees with the ACNW's conclusion in its August 16, 2006, letter to the Chairman that "there is no need to revise NRC's LLW regulations found in 10 CFR Part 61 at this time." ACNW identified other ways of effecting needed changes without a rulemaking, and the staff will consider these in its strategic assessment.
Waste classification and disposal requirements for any type of radioactive waste should be based on its potential risk to public health and safety, not its origin or legislative stature. .	The staff agrees in principle with this comment, but NRC has to date not advocated such large-scale changes. The National Research Council in its March 2006 report, "Improving the Regulation and Management of Low-Activity Radioactive Wastes," concluded that there was neither a likelihood or need for Congress to develop sweeping new legislation, but that there are instances where specific targeted legislative actions would be helpful. The National Defense Authorization Act of FY 2005, which specifies criteria for determining that certain waste incidental to reprocessing at DOE sites need not be managed as high-level waste, is one example of such targeted legislation. At the same time, the staff is able to effect changes through guidance and practice that provide for more risk informed disposals, such as licensees" use of the 10 CFR 20.2002 provision. The staff is identifying specific, practical, and implementable changes that better risk-inform LLW disposal in its strategic assessment.
Risk-informed waste disposal requirements for radioactive materials should be consistent and integrated with waste disposal for non-radioactive waste.	NRC has not taken a position on this broad issue. NRC has supported EPA's efforts to develop a rule which would permit some LAW to be disposed of in hazardous waste landfills, and NRC authorizes such disposals currently using 10 CFR 20.2002.
The LLRW Policy Act should be amended or replaced to:	NRC has not taken a position on these recommendations. As noted above, in a

I. allow non-Department of Energy (DOE) waste generators access to all existing licensed and permitted disposal facilities, ii. Allow non-DOE waste generators access to disposal facilities owned and operated by the DOE, iii. Provide a new waste disposal capacity for all LLRW at a facility currently operated by DOE or by private industry on land owned by the federal government.	May 25, 2004, letter to GAO, NRC stated that with respect to the current system established by the LLRWPAA, it is in the national interest to begin exploring alternatives to the LLRWPAA that would potentially provide a better legal and policy framework for new disposal options for commercial generators of LLRW. The staff recommended that GAO explore these alternatives and report on them to Congress. The staff is staying abreast of the dialogue on this topic, and participated, for example in a May 22, 2006, roundtable discussion on the use of Federal land for commercial LLW disposal sites, sponsored by the Southeast LLW Compact Commission.
We endorse the approach for a waste disposal system proposed by the National Council on Radiation Protection and Measurements [NCRP's Report 139, "Risk-Based Classification of Radioactive and Hazardous Chemical Wastes"]	NRC has not taken a formal position on the large-scale changes such as those proposed in NCRP's Report 139, "Risk-Based Classification of Radioactive and Hazardous Chemical Wastes" that would apply to all radioactive and hazardous wastes. However, the NCRP classes of exempt (landfill disposal), low-hazard (near-surface disposal), and high-hazard (geologic disposal) are generally consistent with current waste disposal in the U.S. What is different is that, under the NCRP 139 approach, a variety of near surface disposal facilities could be suitable for different types of waste (for example, some LLW could be safely disposed of in mill tailings impoundments). Such alternative disposals are often precluded or made difficult under the existing regulatory framework.
We strongly support the Environmental Protection Agency efforts to move forward with a rulemaking to promulgate regulations allowing disposal of low-activity waste (LARW) and low-activity mixed waste (LAMW) at Resource Conservation and Recovery Act (RCRA) Subtitle C facilities.	NRC has also supported EPA's effort and jointly developed the Advance Notice of Proposed Rulemaking that EPA published in November 2003. Since that time, however, EPA has put the rulemaking on hold while it addresses revisions to its Yucca Mountain standard. NRC continues to authorize, on a case-by-case basis, LAW disposals in RCRA hazardous waste facilities using 10 CFR 20.2002.
We support the use of uranium mill-tailings sites regulated under the Uranium Mill Tailings Radiation Control Act (UMTRCA) for disposal of radioactive materials that are appropriate for these sites. [In an attachment, HPS refers to a National Mining Association and Fuel Cycle Facility Forum recommendation that NRC develop generic waste acceptance criteria for non-11e.(2) material disposal in mill tailings impoundments]	NRC's current position on disposal of non-11e.(2) material in mill tailings impoundments is contained in a November 2000 Regulatory Issue Summary, "Recent Changes to Uranium Recovery Policy" (http://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/2000/ri00023.html). That RIS was developed based on Commission direction in an SRM for SECY-99-012. The HPS recommends changes to NRC's policy on disposal of other radioactive wastes in mill tailings impoundments, such as the development of generic waste acceptance criteria, e.g. Their recommendations on this issue will be evaluated as part of the staff's LLW strategic assessment and the results reported to the Commission later this year. These recommendations may require legislative changes to make such expanded disposals practical and implementable.
We strongly support DOE efforts to prepare an Environmental Impact Statement	NRC will be supporting DOE efforts as well, as a commenting agency on their

under NEPA to evaluate additional alternatives for disposal of GTCC wastes.	EIS for GTCC disposal. NRC staff is also is evaluating actions needed for NRC to prepare to license a GTCC facility. DOE will consider disposal alternatives for which there are no licensing criteria (deep boreholes, e.g.), and staff needs to position itself to provide such criteria to DOE if it selects an alternative other than a geologic repository. DOE provided a report to Congress on GTCC disposal on July 31, 2006, that identifies their current plans.
We urge Congress to direct federal action to ensure that disposal options and capacity for Class B and Class C waste will exist for all States in the future. This can be achieved by use of commercial or private facilities on federal or private lands to mitigate significant adverse consequences to generators of these wastes.	NRC has not taken a position on this proposal. In general, NRC supports disposal of all LLW, rather than the storage of Class B and C LLW that is anticipated beginning in mid-2008 when the Barnwell facility closes to out-of-compact generators.

HEALTH PHYSICS SOCIETY

"Specialists in Radiation Safety"

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September 20, 2005

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
ATTN: Rulemakings and Adjudications Staff

SUBJECT: RIN 3150-AH48: Public Comments on the Proposed Rule for a National Source Tracking of Sealed Sources Presented at a Public Hearing on September 20, 2005, in Houston, Texas

Dear Sirs:

As President of the Health Physics Society, I am pleased to be given the opportunity to provide comments on the proposed rulemaking by the Nuclear Regulatory Commission (NRC) to implement a National Source Tracking System for certain sealed sources.

The Health Physics Society is an independent scientific organization of professionals in radiation safety. The Society has a history of providing its volunteer resources to assist legislative and regulatory entities in making responsible laws and regulations that provide security, safety, and protection for the general public while being able to receive the benefits from the use of radioactive materials in medicine, homeland security, defense, academia, and industry.

On the issue of security of radioactive sources, the Society issued a position statement in April 2002 titled "*State and Federal Action is Needed for Better Control of Orphan Sources*," which was accompanied by a document that provided background information on the position statement. More recently, a Working Group of experts was chartered by the Society President to prepare a report on the current state of radioactive source security for use by Society leadership as they consider whether Society position statements need updating in light of the extensive actions that have occurred over last few years. The background report and assessment titled "*Actions Needed to Better Control of Vulnerable Radioactive Sources: A Contemporary Report*" includes a section on the National Source Tracking System. These documents are available on the Society Web site at hps.org. Although these comments do not constitute official positions of the Society, they are based on these documents.

The Society's 2002 position statement on orphan source control recommends, among other things,

> "that actions be taken by Federal and State regulatory agencies to prevent existing radioactive sources from becoming orphaned as well as to correct the problem with vulnerable sources."

One of the specific actions recommended by the Society was,

> "Developing a confidential national tracking system for licensed sources."

Therefore, the Health Physics Society fully endorses the establishment of a National Source Tracking system, as it has for the past three years. I would like to commend the extensive effort made by the NRC and the Department of Energy (DOE) to get to this point of formalizing the proposed rule for such a system.

Although the referenced Society position statement was issued after the events of September 11, 2001, the majority of the work in drafting the statement had been completed before that tragic day. Because it was essentially written before 9-11, the position statement was written from a perspective of addressing a concern for a public health and safety issue and not from a perspective of addressing a national security issue. The proposed National Source Tracking system has arisen from a national security concern. **However, I would like to emphasis that the Society believes that a source tracking system is also needed to address a public health and safety issue. Therefore, I believe that the final system should meet the needs for enhancing public health and safety as well as national security.** I believe that a system designed to provide an adequate degree of protection for public health and safety will provide for national security.

The Federal Register Notice of the proposed rulemaking invites public comments on seven specific items. One of these items involves the inclusion of radium-226 and Category 3 sources in the tracking system, which are issues related to the fundamental protectiveness of the tracking system. The other issues are related to the details of implementation and impact. While implementation and impact issues are very important they are most appropriately addressed by the individuals, agencies, and organizations directly affected by implementing the rule. I strongly encourage Society members that are directly affected by the proposed rule to provide public comments. However, my comments will only address the first issue, which is related to the fundamental protectiveness of the tracking system.

Regarding the issue of inclusion of radium-226 in the tracking system, the Federal Register Notice cites that the NRC does not have authority, under the Atomic Energy Act, as amended, for control of radium-226, and, therefore, proposes that the inclusion of radium-226 be on a voluntary basis, even though it is recognized that this would not provide for assured tracking of these sources. The Federal Register notice was published one day before the United States Congress passed the *Energy Act of 2005* and a little more than one week before *the Energy Act* was signed into law by the President. One of the provisions of *the Energy Act*, which was added at the last minute during conference on the bill, is to classify "discrete sources" of radium-226 as a type of by-product material in the Atomic Energy Act, which gives the NRC authority and responsibility for its control. Although "discrete sources" of radium-226 still needs to be defined by the NRC, the Society is confident it will include sources of radium-226 that are of a strength to be in a category that is covered by the tracking system. **Therefore, I understand the issue of inclusion of radium-226 in the tracking system has been resolved by the *Energy Act of 2005*.**

There is also an issue as to the extent to which radioactive sources are required to be included in the tracking system. The proposed rule requires Category 1 and 2 sources to be included in the system. The Federal Register Notice defines and explains these categories, which are established by the International Atomic Energy Agency (IAEA). The NRC justifies inclusion of Category 1 and 2 sources by citing that the recommendation from the IAEA *Code of Conduct* is for inclusion of these isotopes and thresholds in a national source registry and the NRC has chosen these categories to "allow alignment between domestic and international efforts to increase the safety and security of radioactive sources."

However, the NRC further states that they may consider including Category 3 sources (sources at $1/10^{th}$ of the Category 2 threshold) in the future because a licensee possessing a large number of Category 3 sources could present a security concern. The Notice points out that an item tracking system, like the proposed system, cannot include aggregation of sources because the sources may move in and out of the tracking system with changes in ownership. The NRC then specifically invites comment on the inclusion of Category 3 sources in the National Source Tracking System.

The definition of Category 3 sources clearly indicates that they should be included in the National Source Tracking System, unless it can be shown that to do so is unreasonably burdensome.

The NRC is correct that an aggregation of Category 3 sources could be a security concern. However, by definition, individual Category 3 sources are also "dangerous." IAEA Safety Guide RS-G-1.9, "Categorization of Radioactive Sources," Appendix II Table 3 describes a Category 3 source as follows:

> "**Dangerous to the person:** This source, if not safely managed or securely protected, could cause permanent injury to a person who handled it or who was otherwise in contact with it for some hours."

In addition to the ability to cause permanent injury, individual Category 3 sources can have a serious social and economic impact if not managed or securely protected. As reported in the previously cited "*Actions Needed for Better Control of Vulnerable Radioactive Sources: A Contemporary Report,*" in an RDD attack radiation injuries and deaths will be relatively small compared to psychosocial and economic damage. Significant psychosocial effects were observed in the aftermath of the Goiania, Brazil radioactive contamination accident. With respect to economic damage, the cost for a contaminated steel mill to shut down and clean up after accidentally melting a radioactive source has been as high as $23 million and has averaged $12 million per event, even though the contamination is confined to specific pathways within mill property. Further, only one of the 22 accidents of this type in the United States involved a source exceeding IAEA Category 2 thresholds. The economic consequences of radioactive contamination caused by similar radioactive sources dispersed by an RDD into a public area would be far greater.

This same report also details that in developing the *Code of Conduct* provision for a source tracking system, the IAEA concluded that Category 3 sources carried a potential risk of harm *that warrants inclusion in a tracking system.* However, participating Member States did not want to make inclusion of Category 3 sources in the national registry a requirement because the large number of such sources and the economic cost for tracking them could be overly burdensome.

A source tracking system does not prevent the loss, theft, or mis-management of a radioactive source. However, it can be an important part of the overall security and control system for sources.

Because of the potential for unacceptable personal injury, economic, or social consequences from a mis-managed or poorly secured individual Category 3 source, the NRC should be consistent with the approach of the IAEA and consider that Category 3 sources warrant inclusion in the tracking system, unless they can demonstrate that the large number of such sources and the economic cost for tracking them would be overly burdensome.

The current mindset of the NRC towards Category 3 sources is that they not to be included at this time but they may be included in the future based on a security risk. Public health and safety concerns, as well as security concerns, support a mind set that Category 3 sources should be included at this time, unless an appropriate study and analysis demonstrates it would be overly burdensome.

Regarding the performance of a study and analysis, the NRC indicated in the Federal Register notice three specific items of information they are interested in to "enable the NRC to make a more informed decision on the inclusion of Category 3 sources." The three items listed are certainly important to the analysis of the impact of including Category 3 sources. However, a study that is performed to inform a decision on exclusion, rather a decision on inclusion would likely include other items of interest and would require focused data gathering rather than a general solicitation of information.

The data gathering for an analysis of exclusion, rather than inclusion, should be done by a proactive search for the information rather than a "passive" general request for information. The later approach does not give any assurance of the representativeness of the data. A focused study could also look at alternatives other than an "all or nothing" approach. For example, an analysis of the numbers of different types of sources, types of licensees, and other security requirements associated with the different types of sources might identify some types of Category 3 sources that could be excluded while others should appropriately be included in the tracking system.

An important issue related to the suggested study of Category 3 sources is that the suggested study and analysis of Category 3 sources should be done in such a way that it does not disrupt the current implementation schedule for Category 1 and 2 sources. The current implementation schedule set out by the proposed rule is appropriately aggressive with tracking of Category 1 sources implemented by December 31, 2006 and Category 2 sources implemented by March 31, 2007. It seems that a study and decision regarding Category 3 sources could be completed to support implementation of Category 3 sources, if required, by the end of 2007.

In closing, I want to reiterate my commendation of the NRC and DOE for getting this far along with the implementation of a National Source Tracking System and I thank you for the opportunity to provide these comments on the proposed rule. I hope you find them useful as you continue to work to protect the public health and safety, as well as increase the national security, of beneficial radioactive sources.

Sincerely,

Ruth E. McBurney, CHP

HUMAN CAPITAL CRISIS IN RADIATION SAFETY

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY*

HEALTH PHYSICS SOCIETY

Adopted: August 2001
Revised: June 2005

Contact: Richard J. Burk, Jr.
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Radiation is used for many beneficial purposes to support this country's energy, medical, and security needs. Radiation protection (health physics) is one of the science and engineering disciplines in which a shortfall in sufficiently trained and educated individuals is projected in this country over the next 5 to 10 years. In 2002 the Health Physics Society (HPS) established a task force to review the current and future needs for radiation protection professionals working in the energy, health, and security sectors. Results of the Task Force Report are available on the HPS Web site (HPS 2004), have been published in the HPS newsletter *Health Physics News* (Nelson 2004), and have been used to develop this Position Statement.

The Health Physics Society recommends that significant financial commitment by the Congress and federal agencies be made to support education of scientists and engineers, science teachers, educators in math and science, research associated with these programs (including health physics), equipment and supplies for science teaching in secondary schools, and scholarships and financial support to colleges and universities in science and technology. This is necessary to ensure an adequate supply of qualified scientists and engineers, including radiation safety professionals.

The National Science Foundation (NSF 2001) indicated that the number of US citizens enrolling in science and technology graduate degree programs declined more than 15% from 1993 through 1999, with the greatest declines seen in mathematics (25%), engineering (23%), and the physical sciences (15%). In health physics the number of students graduating with either a bachelor's, master's, or PhD degree declined 55% from

270 students in 1995 to 122 in 2002. In addition, the number of health physics programs graduating at least 5 students annually decreased from 20 programs in 1995 to 7 programs in 2002. Zumeta and Raveling (Zumeta and Raveling 2003) identified "very modest compensation for graduate students and postdoctoral appointees" as one reason that science and technology careers are considered less attractive. Support for research and teaching has historically come from the federal government, but recently this support has dwindled. Federal support is needed because scientific and engineering education is in the national interest and promotes the common good and national security.

The human capital crisis continues to deepen; while needed enrollments and focused academic and training programs shrink, the need for well-educated and trained graduates is intensifying. In the federal government alone human capital issues were felt in all agencies according to a recent Government Accountability Office report (Walker 2001). It was anticipated that 35% of the fiscal year 1998 federal workforce will be eligible for regular retirement by 2006. Well-educated people in science and technology are needed to meet growing needs in industry, government (NRC, EPA, DOE, etc.), medicine, and homeland defense and in order for the United States to continue to be a world leader in science and technology.

Strong, healthy academic programs are needed to continue to provide a meaningful succession of scientists and engineers and this includes radiation protection professionals working in the energy, regulatory/security, and health sectors of our nation. A report published by the Nuclear Engineering Department Heads Organization (NEDHO 2000) stated that enrollment in nuclear engineering programs has been declining since 1992. Recently, demand for nuclear scientists has outstripped supply.

Furthermore, with expanding uses of radiation in diagnostic and therapeutic medical applications and the potential expansion of nuclear technology to meet the nation's future energy needs, it is clear to the radiation safety community that the current imbalance between supply and demand will significantly worsen in the near term, after which it will soon become untenable. The shortage of qualified radiation safety professionals will compromise the rigorous oversight necessary for the continued safe use of radiation for the benefit of the citizens of the United States.

A conservative total of approximately 6,700 radiation protection professionals from all employment sectors combined has been identified in the Task Force Report. This value does not include, for example, part-time or consulting radiation protection professionals. Strong, healthy academic programs are necessary to ensure a continuing supply of radiation protection professionals working in these critical employment sectors.

Although the remaining health physics academic programs have the potential to expand and meet the current demand for graduates in health physics, this potential cannot be realized without rapid and substantial investment. The HPS has, for many years, provided support to students in health physics and encouraged standardization and accreditation in health physics education and training. Many members of the Society donate time and effort to health physics academic programs, in addition to their substantial effort in

providing radiation fundamentals training to science teachers. The HPS has also explored private sources of funding for health physics academic programs and actively encourages students to become interested in health physics programs. However, the critical human capital shortage in radiation safety is overwhelming the Society's efforts to help respond to this crisis.

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*The Health Physics Society is a nonprofit scientific professional organization whose mission is to promote the practice of radiation safety. Since its formation in 1956, the Society has grown to approximately 6,000 scientists, physicians, engineers, lawyers, and other professionals representing academia, industry, government, national laboratories, the Department of Defense, and other organizations. Society activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. Society members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits. Official position statements are prepared and adopted in accordance with standard policies and procedures of the Society. The Society may be contacted at 1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101; phone: 703-790-1745; fax: 703-790-2672; email: HPS@BurkInc.com.

United States vs. International Standards and Regulations

HPS Comments at ICRP hearing in DC on August 28-29: *Background information unavailable.*

HEALTH PHYSICS SOCIETY

"Specialists in Radiation Safety"

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July 10, 2006

The Honorable Hillary Rodham Clinton
U. S. Senate
476 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Clinton:

You may recall that the Health Physics Society (HPS) has been an active supporter of your efforts to enact legislation that will tighten controls and security of radioactive sources. HPS support for your efforts in this area has included: our issuance of a press release in June 2002 endorsing the need for legislation such as your "Dirty Bomb Prevention Act of 2002"; issuing two position statements ("*State and Federal Action is Needed for Better Control of Orphan Sources*" in June 2002 and "*Continued Federal and State Action is Needed for Better Control of Radioactive Sources*" in January 2006) calling for better control of radioactive sources; meeting with various congressional staff between 2002 and 2005 to support the inclusion of your "Dirty Bomb Prevention Act" provisions in the various comprehensive energy bills that resulted in the Energy Policy Act of 2005; and, calling on the Nuclear Regulatory Commission (NRC) to include Category 3 sources in the National Source Tracking System (NSTS), unless an appropriate analysis can demonstrate reasons for them not to be included.

As the former head of the IAEA's unit responsible for developing the revised Code of Conduct, the revised Categorization of Radioactive Sources, the IAEA's Security of Radioactive Sources interim guidance and documents on regaining control over orphan radioactive sources, and now as President of the Health Physics Society, I am a supporter of your efforts in legislating provisions for tighter controls of radioactive sources. In an effort to continue providing you support, I would like to offer you comments regarding the recent NRC proposal to change the regulatory basis for the NSTS from "common defense and security" to "public health and safety."

Since there will still be only one NSTS maintained by the NRC at the federal level under either regulatory basis system, the same level of security and tracking by that agency will be maintained. Accordingly, I do not believe that this tracking structure, were it to occur, would change the level of security

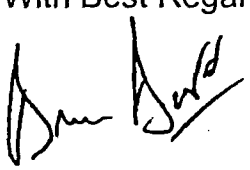
provided by the NSTS. The regulatory basis change proposed by the NRC is a matter of resource allocation and improved licensee knowledge of the regulator for inspection of the compliance of licensees with the NSTS and not a matter of fundamental requirements or structure of the NSTS.

Given that this proposal is not a matter of radiation safety or security, but rather a matter of agency resource allocation and licensee/regulator relationship, the HPS itself does not have a position on this aspect of the NRC proposal.

With regard to your observations and concerns in your letter relating to the GAO smuggling sources into the USA, the final point of the paragraph that it is important for the Customs and Boarder Patrol to have the ability "to confirm that shipments of *risk-significant* sources are legitimate" is well stated. However, I would like to help put the quantity of material that the GAO brougnt into the U.S. into perspective. My information is that the total radioactivity of the 15 sources brought across each of the borders is approximately 5/1000 of the upper value for a Category 5 source (the lowest IAEA risk category) and is, therefore, significantly below any radiological hazard with regard to a dirty bomb.

Once again, I would like to take this opportunity to thank you for your efforts in this field and to offer my personal services should you need them. In addition, the Health Physics Society continues to offer its expertise as an independent non-profit scientific organization of radiation safety professionals. Please do not hesitate to contact me on this, or any other radiation safety issue if you feel the HPS can be of further assistance.

With Best Regards,



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July 10, 2006

The Honorable Edward J. Markey
U. S. House of Representatives
2108 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Markey:

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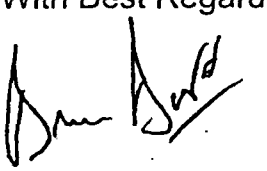

Brian Dodd, Ph.D.