NRC NEWS

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In my capacity as Chairman of the NRC I often speak to nuclear reactor designers, power plant operators, electrical and metallurgical specialists, so I am fairly accustomed to addressing my fellow engineers. This morning, I have the opportunity—for which I am very grateful—to speak to health professionals such as all of you: physicians, medical chemists and physicists, and nuclear pharmacists.

Medical professionals and engineers often operate on a different plane, and speak a different language. Yet these two very different fields represent, in a sense, the twin oversight responsibilities of the Nuclear Regulatory Commission: civilian nuclear reactors and nuclear materials used for research, medical applications, and other purposes.

When you mention the NRC, most members of the general public know that our agency helps ensure the safe and secure operation of America's commercial nuclear power plants. These plants currently supply about 20 percent of all the electricity generated in the U.S., and according to what industry tells us, we may be receiving license applications for as many as 27 new plants over the next few years.

The importance of ensuring the safety and security of these plants is so obvious that I don't think it requires further elaboration—even to an audience of non-engineers! But while these plants generate a lot of power, they also tend to soak up a lot of publicity. So the other part of what we—and what all of <u>you</u> do—doesn't always get much attention. That's unfortunate for several reasons, one of which is that if more people understood the nature of radiation, and the important role it plays in our everyday lives, they might be less afflicted by what you might call "radiation phobia."

I am gratified, then, by this opportunity to talk a bit about how nuclear materials used in medical applications—in fields ranging from cardiology, to neurology, oncology, radiology and many more "ologies" I probably don't even know about—are helping people all over the world live better, longer, healthier, and more comfortable lives.

At the NRC, we are very proud of the work we are doing to help ensure the safe and secure use of nuclear materials for medicine. It also has a personal meaning for many of us. Some of you may know that my fellow Commissioner Ed McGaffigan has been battling melanoma for over seven years. I cannot make a medical evaluation of Ed's condition. But from what he tells me, and from what I

have seen myself, his treatment protocol – including Gamma Knife therapy – has had a remarkable effect on prolonging and improving the quality of his life to this point.

So, as I say, this topic has a personal meaning for many of us at NRC, and I want to thank all of you who have been involved in making these technologies possible

Now, as those of you in the medical community seek to push the frontiers of nuclear medicine even further, it is our job at the NRC to ensure that this happens in a way that protects everyone involved: you, the patient, the public, and the environment. Our mission is to provide a stable, predictable, and realistic regulatory framework for the use of medical isotopes and other nuclear materials. I cannot emphasize enough how important it is that the NRC and its licensees uphold robust standards of health and safety to manage radiation risks. As I constantly remind our licensees in the nuclear power sector, an accident or significant nuclear event anywhere would have lasting consequences for all of us. That is the kind of publicity we don't want to generate.

To help us do this, the NRC needs something from you: your continued participation, communication, and feedback. The full involvement of all stakeholders is essential to informing and improving the regulatory process… making our activities and decisions more effective and efficient… and reducing unnecessary regulatory burden. We need you to help us understand the unique and ever changing characteristics and needs of the medical community. It is especially important that we receive early input on new and unique medical applications of radioactive materials so that we can be better prepared for any resulting or required reviews and license applications.

Although regulating the diverse medical community is challenging, I can assure you that we seek to have a balanced approach—where all stakeholders have equal opportunity to participate and influence the process. Enabling the medical use of radioactive materials in a manner that protects public health and safety and the environment requires a collective effort of the NRC, the Agreement States, and the medical community.

This duty to protect public health and safety by ensuring the security of radioactive materials has, of course, taken on a new urgency and a new focus since 9/11, not only for regulators but for licensees as well. I want to take this opportunity, therefore, to tell of you how much the NRC appreciates the medical community's serious commitment to this goal.

From the responses to the recently issued Increased Controls requirements, it is clear that the nation's hospitals, universities and medical clinics have made this a priority. In fact, thanks to many of you in this room, the progress of America's medical community toward increasing the security of the radioactive materials it uses has in some cases gone beyond what the NRC has prescribed. So thank you, and congratulations.

I don't mean to suggest that our work is done. Certainly, the NRC still faces significant challenges in the areas of knowledge management, and the need to have appropriately trained staff as we look to our future regulatory obligations. As part of our efforts to enlarge our workforce in the face of significant additional responsibilities, we are looking to develop new staff in nuclear materials and to effectively transfer knowledge from senior staff. It won't be easy, but I believe we are making good progress, and we will continue to develop the mechanisms to meet these challenges.

Now, I know that later in the conference NRC technical staff will be giving presentations on several topics, including:

- "How an NRC Inspector Conducts a Risk-Informed, Performance Based Inspection"
- "Medical Events and Other Radiation Safety-Related Incidents in a Nuclear Medicine Department"
- "The Energy Policy Act of 2005 and the NARM Rulemaking

It seems to me, therefore, that you will have plenty of time and opportunity to get into more specific detail on various NRC processes and procedures over the next few days.

So instead, let me address something that I think would allow each of us to do our work better: that is, helping to give the public a better understanding of nuclear materials and radiation in a broad sense. By this I mean an understanding that includes all aspects of nuclear and radiological issues: the risks and the benefits.

According to the preliminary findings of a study by the National Council on Radiation Protection and Measurements, the average individual's radiation exposure from medicine in the United States has increased six fold from around 54 millirem in the 1980s to over 320 millirem in 2006. This is primarily due to the greatly increased use of CT and nuclear cardiology procedures.

There are very real issues and grave dangers involved with radiation, and it is incumbent on all of us to lay them out in detail. I think you would agree that the public deserves to know what not to be afraid of, as well. I would urge all of you to go back and review your public education programs, and strengthen them, especially in light of NCRP's plan to publish its update later this year.

Last year, I visited the Port of Seattle and toured the radiation detectors operated by U.S. Customs and Border Patrol at the Port. Their primary mission is to examine cargo entering the U.S. that may contain nuclear materials that could be used in weapons or dirty bombs. They have excellent equipment and well-trained and motivated agents. Part of that training is to understand what is a real threat versus a naturally occurring source. They need to make decisions—at this one facility, they average 1600 hits per month. In fact, while I was there one cargo container triggered the alarms. It was a shipment of Chinese fireworks and isotopic analysis showed the culprit was potassium 40.

The Customs agents told me about one particular port that receives nothing but bananas – and virtually every shipment sets off the detectors. That struck a chord with me, because some of my fellow Commissioners have joked about creating the "standard banana" as a harmless unit of radioactivity. Commissioner Ed McGaffigan has frequently pointed out that we're all in violation of standards.

Ed said once in an interview, "We're self-radiating ourselves at 40 millirems per year because of the potassium 40 we carry in our bodies. Double beds -- your spouse will radiate you to about two to three millirems per year. Those are doses at which we actually regulate. And I've always wondered, when people [demand] tighter regulation, why they're not demanding that double beds be regulated, or bananas, or brazil nuts."

It would be helpful for the public to know these facts when, for instance, there is debate about increasing security for smaller radiation sources. All of us need to work to see that the public deliberation over these matters proceeds in a reasonable and risk-informed manner.

Without such understanding, we will continue to receive pressure to increase health and safety as well as security requirements to reach a "zero" risk level. Paradoxically, this would likely have the opposite of the intended outcome. It could actually decrease the overall health and safety of the US

population by imposing such restrictive requirements that the medical community would essentially be denied access to radioactive materials for nuclear medicine, thus preventing patients from receiving the beneficial treatments you currently provide.

So let me conclude by leaving you with this challenge: I would like to see a genuinely coordinated and concerted by those of you in the medical and scientific communities to inform the public, the media, your elected officials, and other opinion leaders about the causes, effects, risks, and benefits of nuclear and radiological issues. Give them the facts regarding both natural, background radiation, as well as the many purposes that scientific and medical applications of nuclear materials serve in our society.

This would make your work easier, and it would make the work we do at the NRC easier. And frankly, improving the level of understanding in public opinion is a worthy goal in its own right. Abraham Lincoln, who didn't know much about nuclear science but knew a lot about democracy said, "In America, public opinion is everything. With it, nothing can fail. Without it, nothing can succeed."

With that, let me conclude by thanking you for the invitation to join you this morning and share some thoughts with you. And I do hope you will heed my challenge. Since I have four years left on the NRC, I will have ample opportunity to check on your progress!

Thank again for your attention. Now I would be happy to take some questions.

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