



NRC NEWS

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“20 Years Back, 20 Years Forward: Perspectives on Regulating Nuclear Safety”

Good morning, and welcome to the 20th annual Regulatory Information Conference.

On behalf of my fellow Commissioners, let me begin by thanking all the staff who put so much work into organizing this conference. It is a huge undertaking to successfully plan and execute an event like this, particularly since the RIC seems to grow every year. Let me also acknowledge Dr. Thomas Murley, the former NRR director who started the RIC 20 years ago.

Aside from Dr. Murley, I don't know if anyone here today attended the first Regulatory Information Conference in 1988, but I am told it was a fairly small-scale event. This year, we are expecting 2,500 participants from 26 nations. At this rate, we are slightly concerned about what the conference might look like in another 20 years... since the hotel doesn't have any bigger rooms! I am sure we will figure something out by then, however—and that leads me to the theme of my remarks today, which is “20 Years Back, 20 Years Forward: Perspectives on Regulating Nuclear Safety.”

Let me begin by mentioning just a few of the most dramatic changes we have seen over the last two decades. When this conference was held for the first time in 1988, public confidence in the nuclear industry was fairly low. The memories of Three Mile Island accident, which occurred in 1979, and the Chernobyl accident of 1986, were still fresh in the minds of the general public and governments worldwide.

At about the same time, the opening of the Shoreham nuclear power plant in New York was blocked, the plant was being decommissioned, and the \$6 billion cost was passed on to the ratepayers of Long Island.

But it was also around this time that the NRC was beginning to change its approach to licensing - I would say “improve” its approach to licensing. In 1989, our agency began establishing the new combined construction permit/operating license—or “COL”—application process, along with design certifications and early site permits. These changes provided a more effective and efficient approach to licensing, with no compromises on safety or security. I also believe that this approach has encouraged standardization of plant designs and increased attention to developing passive safety systems.

So around the time of the first RIC, many of the seeds of change were planted that have blossomed to bring us to where we are today. Now, we find ourselves in another period of significant transition—not the least of which involves the improved public sentiment towards nuclear energy. You all know about the global resurgence of interest in nuclear power, the plans for new power plants, and the corresponding increase in uranium mining and enrichment activities. So I don’t think I need to discuss that at length. I can assure you that the NRC has a lot on its plate right now, which you will hear about over the next few days. Let me take this opportunity, then, to look ahead 20 years, to the challenges we may face, and the need to develop the next generation of regulators.

I don’t know exactly what the challenges will be two decades from now, what the state of nuclear technology might be, or what public opinion in the United States and the world will be with regard to commercial nuclear power and new uses for radioactive materials. But I am confident that the current fleet will continue to operate safely, and will benefit from continued improvements in technology, new materials, and advanced digital instrumentation and controls. I believe these improvements could pave the way for a possible second round of license extensions. As many of you know, about half of the current fleet in the U.S. have either been granted a 20-year license renewal, or are in the process of applying for one. But whether life extensions beyond 60 years will be a viable option will depend on a variety of technical questions that we are currently in the process of determining.

By 2028, it is also possible that we might be looking at license applications for Generation IV nuclear power plants will be coming in. We may see a return to recycling of spent fuel in the U.S., and perhaps new concepts for nuclear reactor heat sources used in chemical production or hydrogen generation. It is even possible, in the not too distant future, that we might be setting up an Office of Fusion Reactors. So as an agency, the NRC needs to begin developing the next generation of regulators trained with new tools and new regulatory approaches to address these challenges.

In all likelihood, the young people we are hiring at the NRC today will be using far more sophisticated tools and methods, such as 3-D holographic imaging. And they will look back on today’s laptops and Blackberries with the same nostalgia some of us have for slide rules and electric typewriters. More importantly, I think the regulators of 2028 will need to have a very different set of *conceptual* tools and technical skills to do their jobs. And while we can’t fully anticipate what they will need to know, we can at least try to have the appropriate educational and training programs in place to make sure they can do their jobs adequately. This subject of future workforce development is a regular theme of mine; and I hope that by repeating it often enough, the NRC Chairman in 2028 will not have to talk about it!

You may be aware that the NRC has been charged by Congress with distributing \$15 million to support scholarships, fellowships, and faculty development at colleges, universities, and trade schools. The inclusion of trade schools is very important, because so many of the people that will be needed are technicians and skilled crafts people. Faculty development is also critical, because even when colleges and trade schools acquire the funds to create new programs, they often don't have qualified teachers. Let me mention that I am aware not everyone agrees with the decision to move this program from DOE to our agency, but the decision has been made by Congress, and the NRC is committed to running the program as well as possible, and making the most of this opportunity.

Of course, in addition to teachers, educational programs—especially in science and engineering—we need up-to-date equipment and facilities. So I personally believe that the nation's research reactors will have an important role to play—not only as technical resources for training, but as the “ambassadors” of nuclear technology to the public. How many people know that these research reactors contribute to basic science and practical problem-solving—from operating airplane turbines more efficiently, to understanding how human tissue reacts to cellular damage, to analyzing fluid dynamics in automotive fuel cells?

Yet in the past 20 years, I think America's competitive advantage in research reactors—and science and technology R&D in general—has slipped compared to other parts of the world. I am not suggesting that it is the nuclear industry's obligation to fund a systematic upgrade to the nation's research reactors. However, I would encourage your involvement and remind you that the more people who understand nuclear science, materials, and radiation, the more likely they are to make informed judgments about nuclear issues. Insofar as all of us have an interest in improving public awareness about nuclear safety, we should help find ways to ensure that these research facilities are maintained and strengthened.

Now, if research and test reactors can contribute to public confidence, power reactors can do so as well... perhaps to an even greater degree. On my visit to Japan last year, I was struck by how much effort the Japanese put into making their commercial nuclear power plants accessible to the public. I recognize that after 9/11, access to nuclear facilities in the U.S. was significantly reduced, and security remains an important concern today. But we also need to plan for the future. Today, only 13 plants provide tours, and only 12 have visitor centers open—and many of these are outdated, underused, or unfamiliar to local citizens. In other words, the majority of the plants do not have outreach programs to educate the public about nuclear safety. It doesn't take all that much ingenuity to allow people to view the turbines and other non-radiological parts of plants without putting on slippers and dosimeters. I would hope that arrangements for tours and visitor's centers, similar to those in Japan and other countries, could be designed into the new power plants that are now being planned by industry. I can tell you that my counterparts in other nations have found these efforts to be helpful to them as regulators. One of the aspects of being an independent regulator is to ensure public confidence. It is easier to ensure public confidence if the public has a basic understanding of commercial nuclear reactors.

Twenty years ago, putting plants out of the way and out of sight might have been the smart choice. But today, people are much more conscious of their environment... they care where their electricity comes from... and they have access to nearly unlimited amounts of information on the Internet. Those trends will become even more pronounced two decades from now. So it seems to make sense to regard future nuclear power plants not merely as suppliers of electricity, but also as centers of learning.

Outreach and public education programs are a choice—a choice, by the way that could help stimulate the interest and enthusiasm of future employees. What is not a choice, but a fact, is that any future plants will have to draw on an international nuclear supply chain. As you may know, the number of domestic companies supplying components and services to the nuclear industry has declined steadily over the years... from a high of over 1,350 several decades ago to about 700 today.

This raises the issue of how to ensure quality assurance in the manufacturing of nuclear components from so broad an international supply chain. I believe all nuclear regulators are aware of this challenge, and are taking steps to address it. But all of us need to be part of an international collaborative effort to reduce the risk of component failures, and ensure that adequate oversight exists before components are purchased for use in commercial nuclear power plant.

I know that some of you in industry are already engaged in sending people abroad to study and train, and to observe construction of major components. I saw an employee of PG&E on my trip to Spain last year, who was monitoring the quality of steam generators being fabricated there. I know that many of you have employees on extended foreign assignments. The NRC likewise sends our staff to other countries to review plant designs and construction techniques. We have been visiting Japan, Korea and other nations for a long time and, more recently, sites such as the EPR in France and the reactor at Olkiluoto, Finland. We are engaged in active cooperation with our counterparts in China to support their licensing efforts for the Westinghouse AP1000 reactors they have purchased. And there are other countries where we send NRC staff to perform inspections of components and materials.

I should mention that we also fully support regulators from other nations when they need to inspect U.S. vendors; and I hope that in 20 years, if America rebuilds its nuclear manufacturing base, there will be more inspectors coming to visit U.S. vendors than we send abroad. It may even be the case that, by 2028, Lynchburg, VA, and Huntsville, AL, will be as well known to nuclear inspectors as Bilbao Spain and Muroran, Japan.

In any event, I think that cooperation will continue to increase across international borders. Several national regulatory bodies are represented here today, and I believe they would all agree that the work of the International Nuclear Regulators Association—which will be meeting here in the U.S. in a few days—is critical to continued operation of these reactors. Yet, regulators cannot be everywhere all the time. Therefore, we also need to encourage the efforts of the U.S.-based Institute of Nuclear Power Operations and the World Association of Nuclear

Operators. Strengthening the work of these organizations, and improving international cooperation and communication between industry and regulators, is one of the challenges I would leave you with today.

On the subject of global cooperation and communication, let me mention an issue that some of you may already be aware of. Since late last week, the NRC has been looking into a potentially significant materials issue involving dissimilar welds. Because the NRC takes these matters very seriously, we have scheduled a public meeting on Thursday, while the RIC conference is still underway. We are doing this in order to both gather and share information, with industry and the public, as quickly as possible. You will hear more about this in the coming days. For now, let me say that NRC remains committed to transparency and openness; and I expect that in the future, whenever issues arise that affect multiple facilities, both here and abroad, the next generation of regulators will hold information-sharing meetings with real-time participation by a global audience.

Ladies and gentlemen, I have talked about the next generation of nuclear regulators—their training, the new skills they will need, and some of the challenges I think they will face. Based on my interactions with the young people we are hiring here at the NRC, I am very confident that our future leaders in 20 years will be highly motivated and technically competent. But in addition to their engineering and science talents, I also hope that the next generation of regulators will have a deep commitment to public service.

Let me therefore close with this announcement. The U.S. Nuclear Regulatory Commission is pleased to announce today the establishment of the Edward McGaffigan, Jr. Public Service Award, to honor the memory of the NRC's longest-serving Commissioner. The award is a one-time career tribute given to a man or woman who demonstrates an extraordinary commitment to public service and exemplifies the integrity, professional dedication and moral character that Ed exhibited.

Edward McGaffigan dedicated more than 31 years of his life to public service for his country. In his tireless pursuit of sound public policy, he personified what Robert F. Kennedy had called “moral courage.” Commissioner McGaffigan considered moral character to be a cornerstone of public service and essential for nuclear safety regulators. The award named for him seeks to recognize, encourage, and perpetuate this quality.

Ladies and gentlemen, thank you for your kind attention. I hope that I may see many of you at next year's conference; and perhaps some of us may even meet again at the 2028 RIC. Then we can see if any of my predictions came true! For now, please enjoy the rest of the conference.

Thank you.