



# NRC NEWS

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## **“Building for the Future in a Time of Change”**

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Commissioner  
U.S. Nuclear Regulatory Commission

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This is the fifth time I’ve addressed the Regulatory Information Conference (RIC). The first time I addressed the RIC, I commented that with six weeks under my belt as a Commissioner, I was very much in a learning mode. I am happy to report that after more than four years with the Commission, I am still very much in a learning mode. While I’m familiar with agency procedures and practices, each year there has been an enormous amount of information generated by the nuclear communities both here in the United States and internationally. With each successive RIC, I’ve also become more aware and appreciative of the staff’s effort and time spent to provide a forum at which this information can be shared, contributing to our collective progress on nuclear safety. I truly appreciate all those who worked so hard to make this and previous RICs a success.

I have had the honor to serve with two Chairmen, Nils Diaz and Dale Klein, who brought important knowledge and perspectives to the Commission. Commissioners Ed McGaffigan and Jeff Merrifield, along with Nils, provided my earliest introduction to the operations of the Commission. In many cases, I learned together with Greg Jaczko, and I’ve appreciated the opportunity to work closely with him. More recently, I’ve valued the insights and perspectives Kristine Svinicki has provided. I’ve also worked with two executive directors of operations, Luis Reyes and Bill Borchardt, who are superb role models for the entire staff.

Several former Chairmen and Commissioners have generously helped me to understand my responsibilities as a Commissioner. Past Chairs Shirley Jackson, Dick Meserve, Greta Dicus, and John Ahearne provided me with important insights in that regard. Past Commissioners Gail de Planque, Ken Rogers, Jim Curtis, and James Asselstine further enhanced my education.

Many other leaders in the public and private domain provided additional insight. Members of Congress and their staff provided invaluable guidance. Leaders of non-governmental organizations (NGO) as well as industrial leaders have provided important perspectives. The Institute for Nuclear Power Operations (INPO) leaders, especially Jim Ellis, have helped me to better understand and appreciate the vital role their organization plays in site operations.

## **Introduction**

My presentation this afternoon is entitled, “Building for the Future in a Time of Change.” I chose this title because, as I prepared my remarks, I was struck by how much the Nuclear Regulatory Commission (NRC) has accomplished during the past four years – always placing the safety and security of operating plants, as well as nuclear materials uses, as its highest priority.

The NRC must be prepared, now and in the future, to provide for the adequate protection of public health and safety and our environment, while meeting whatever challenges lie ahead. Most importantly, this will require the agency to maintain a competent and dedicated workforce, which continues to enhance its technical capabilities while always ensuring, to the maximum extent possible, an open and transparent regulatory environment. Of course, knowledge management must play a crucial role in staff development. One “raison d’être” for knowledge management is the old adage: “There is only one thing more painful than learning from experience, and that is NOT learning from experience.”<sup>1</sup>

This afternoon, I would like to share with you some of my thoughts on the issues and activities in which the agency has been involved in the last several years, as well as to describe major challenges that I see for the NRC and the nation in the area of nuclear technologies.

## **Nuclear Reactor Safety**

I’d like to turn first to safety in the reactor arena.

The Reactor Oversight Process (ROP) continues to make a significant, positive difference in the way the NRC conducts and publicly communicates our assessments of operating reactor performance to our stakeholders. Lessons learned from the 2002 Davis-Besse head corrosion event encouraged us to further strengthen the ROP. The many insights it provided into the regulation of nuclear reactors have had a profound impact on the way that the NRC does business and the way that we expect our licensees to do business. Because of this event, safety culture has received an enormous amount of attention and benefited from many discussions with stakeholders. As a result of this effort, safety culture has now been incorporated into the ROP and is being considered for our new construction inspection program. Although the current approach is a good one, I recognize that it will benefit from continued reassessment and, perhaps, alternative approaches.

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<sup>1</sup> Laurence J. Peter, U.S. Educator and Writer (1919-1988).

Lessons learned from the Davis-Besse event also focused on the NRC's operational experience or OpE program, which the NRC has significantly strengthened after this event. I've had a number of opportunities to observe our current program and to discuss it with domestic and international groups. I've asked licensees about benefits from the OpE reports they receive, and I've been assured that these reports are important and taken seriously. I believe this program is now one of which the agency should be proud. I hope that the vital need for a strong OpE program will never again be questioned, and that no future events will be partially ascribed to a failed opportunity to learn from our experiences.

In addition to the issues that the Davis-Besse event raised, the agency and our licensees have also been challenged with material degradation issues. The cracks observed at Wolf Creek, which were the result of dissimilar metal welds, are a good example. This event, along with several other materials events like that of the St. Lucie pressurizer, highlights the importance of better non-destructive testing capabilities and has helped to encourage new generations of ultrasonic test capabilities.

To my surprise, emergency core cooling system (ECCS) issues, which I presumed would have been resolved decades ago, continued to raise questions. Voids in critical pipes represented one manifestation of such issues, such as those observed at Palo Verde, and several licensees discovered their own challenges in this area. While I'm surprised by the number of such findings, I'm glad that licensees have now looked more carefully and have hopefully found all the culprits.

Another ECCS issue, potential PWR sump blockage, has also now to safety improvements. All plants now have significantly larger sump screens, and some have taken additional actions, like changes in water chemistry or in composition of insulating materials. However, guidance still needs to be developed to ensure that the ongoing debris and chemical product tests cover a wide enough range of conditions to support review of in-vessel downstream effects.

Another major effort has been the finalization of Part 26, Fitness-for-Duty regulations. I believe that Part 26 is a significant improvement in plant safety. It represents, in my opinion, a good balance of differing points of view. I felt quite strongly about the importance of this rule, and in particular, about an ongoing effort that will provide greater recognition of the role played by quality assurance staff in evaluating the need for additional work-hour restrictions on some licensees' staff.

Fire protection is another area in which we've made significant advances in recent years, with a difficult path still ahead of us. The use of NFPA-805 will, I believe, be a step toward improved fire protection. The staff and licensees are working toward closure of outstanding issues that are generic to all licensees. In response to a request made by the Commission, the staff has developed a plan to further accelerate this closure. Nevertheless, as I've reviewed this area, I am convinced that the compensatory measures that the staff has accepted at many plants have preserved adequate safety.

Code validation has been a particular focus area for me. Experimental data are vital, and I believe we need to ensure that the few facilities that are still available to provide such data are maintained. I have also supported more emphasis on long-term research. Years ago, the balance between short- and long-term research provided greater emphasis to long-term research. In my view, the pendulum has now swung too far towards short-term research. Short-term,

programmatically driven, work is always important. However, we need to plan for the needs of the agency many years in advance, needs that may not have a program office sponsor today.

Over the last four years, two research-related areas have been of special personal interest. The State of the Art Reactor Consequence Analysis project utilizes modern knowledge to update the extremely conservative 1982 Sandia Siting Study, which yielded large estimates of potential fatalities from possible reactor accidents. This work has progressed much more slowly than I hoped, but I remain convinced that the agency can make better, more risk-informed decisions, and provide important information to stakeholders with a consequence assessment that has greater validity than the 1982 study.

The second area is Digital Instrumentation and Control or Digital I&C. Digital I&C systems offer real opportunities for improved safety with improved human-machine interfaces. Therefore, I have encouraged the agency to move more aggressively in crafting the standards applicable to the coming onslaught of this technology. But I also recognize, to some extent from personal experience with introducing digital systems at the Nevada Test Site many years ago, that digital systems introduce new, unexpected failure modes that must be understood and mitigated. Our basic fundamentals of diversity and defense-in-depth remain effective in this new regime and should continue to serve us well. We also must remain vigilant to ensure that cyber security is emphasized throughout this process. There can be no doubt that our Digital I&C systems will be exploited by those with malicious intent, if an opportunity is available.

Before I turn my comments to the security of nuclear reactors, I would be remiss if I did not mention the importance of international activities to the NRC. To varying degrees, all elements of our regulatory programs benefit from international interactions. I've been very impressed to see the extent to which our cooperation with other nations has helped them to develop stronger regulatory systems while also providing us with important insights.

## **Nuclear Reactor Security**

In response to the events of 9/11, the last several years have witnessed an increased focus on the security of nuclear reactors as well as the secure use of nuclear materials. Over the last four years, the force-on-force program has progressed well, as all the parties – from licensees, to the adversary force, to the NRC – have learned and improved their responses. The role played by active duty Special Operations Forces personnel has been vital in development of scenarios and evaluation of the adversary force. While I had great skepticism with the decision made before my arrival to have the Nuclear Energy Institute, or NEI, hire the Composite Adversary Force or CAF, my personal observations of the results of this arrangement have convinced me that the NRC, with the help of those extremely dedicated Special Operations Forces personnel, has complete control of the vital attributes of the exercises.

Thus, when the Commission considered alternatives to the NEI CAF contract, I felt comfortable continuing the previous arrangement, as opposed to bringing the CAF function into the agency. A large part of my decision was based on my recognition that the NRC really is not an ideal home for the CAF. As a practical matter, the NRC is not well positioned to rotate a licensee's personnel on and off the CAF. NEI, on the other hand, is able to work with licensees to rotate guards from various sites onto the CAF and then back to the sites. My decision was strongly influenced by the recognition that when personnel move from the CAF back to a site, they are returning with new knowledge and perspectives that further improve site security.

The NRC's Design Basis Threat, or DBT, also underwent several modifications during my tenure. I've noted before, that because we face an evolving threat, I don't believe the Commission can ever guarantee a constant DBT. However, we can and should assure that any proposed changes are studied in a careful and consistent process. To that end, the Commission supported a procedure that enables staff analysis of intelligence information to inform any potential changes to the DBT. The staff follows a rigorous examination of any new potential attribute, which includes evaluation of the extent to which an element of the integrated capabilities of our local, state, or federal authorities is already working to address a specific threat. In addition, if an attribute is added, we need to provide licensees with an appropriate time for implementation.

Over the last four years, increased cooperation among Federal, state, and local agencies has further enhanced the security of our nation's power plants. The comprehensive reviews conducted by the Department of Homeland Security are a prime example of this involvement by other agencies. In addition, we've initiated hazard-based drills that exercise a wide range of off-site response elements with particular stress on interoperability of communications. The agency and licensees are also conducting imminent threat drills. These drills utilize the real-time information exchange we've developed with the North American Aerospace Defense Command to identify any airborne threat, along with detailed modeling of all domestic plants to determine the steps necessary to place a plant into the safest possible configuration prior to any potential impact. In addition, we recently conducted a pilot of an Integrated Comprehensive Exercise at Limerick, which enabled federal, state, and local forces to work together. Taken together, the wide range of exercises that have been conducted demonstrates the incredibly robust security at domestic nuclear plants.

In addition to these safety measures, the agency has devoted more attention to mitigating effects of an aircraft impact. Regulations now require each nuclear plant to develop the capability to deal with large fires and explosions. In addition, through a rulemaking finalized by the Commission last month, new requirements are in place for all new plants to assure that they meet specific performance requirements after an impact.

## **New Reactors**

Turning to new reactors, I am proud of the preparations made by the staff as it became evident that we would receive a tremendous volume of applications for new reactor construction. Those preparations led to a range of actions and, indeed, the promised applications have arrived. Of course, any discussion of the possibility of new reactor plant construction in the United States must be prefaced by the statement that the safety of operating reactors remains paramount to the NRC. There is no question that the light of any "Nuclear Renaissance" will be quickly extinguished if we fail to constantly stress and demonstrate safe operations of the 104 operating reactors.

To that end, the Commission created the Office of New Reactors or NRO, separate from the existing Office of Nuclear Reactor Regulation or NRR. I believe that action was vital. It enabled NRR to focus solely on the safety of operating reactors. It also enabled NRO to staff towards the challenge it is now facing. Certainly staffing of NRO was not accomplished without some “growing” pains and concerns. After all, we have a finite number of experts in the relevant fields to staff both NRO and NRR. However, we also initiated a most impressive hiring process to offset some of this pain.

With the submittal of new reactor license applications, both the NRC and industry face many challenges:

- First is the challenge of building up the necessary quality workforce and the educational infrastructure to maintain it. Every facet of work related to the safety of a nuclear plant, from design to operation, must be accomplished by people who are qualified and who understand the importance of a commitment to safety. This is an enormous challenge that industry, the NRC, and academia must meet, because we all depend on a good supply of quality people to accomplish our work.
- Second, among these challenges is for industry to ensure that applications submitted to the NRC for design certifications and licenses for new plants are complete and of high quality. This should also help the predictability of our technical review schedules.
- Third, standardization of new plants, throughout design, licensing, construction, and operation, will bring improved regulatory consistency and effectiveness as well as life-cycle efficiencies for both the NRC and the licensees. This will be particularly true in technically complex areas such as digital systems.
- Fourth, research will continue to be needed to benchmark the validity of computer simulation codes used to demonstrate that our safety requirements are met. Such research is often expensive and benefits greatly from international collaboration and cost-sharing. In addition, the NRC should continue its collaborative efforts with regulatory counterparts in other countries, as multiple nations begin to license and construct globally standardized reactor plant designs.
- The last challenge I will mention is that licensees will have to ensure oversight of their contractors and of the supply chain of components for both new construction and currently operating plants.

### **Materials Safety and Security**

While the RIC focuses primarily on issues involving the safe and secure operation of nuclear power plants, the progress and challenges the agency faces in the materials arena are extremely important to the Commission and warrant discussion in this forum. I’d like to highlight a few of these.

On the “progress” side, I’m very pleased that the agency is moving ahead to strengthen the regulation of general licenses, which has been a weakness in our current licensing system. In proposed regulations currently being reviewed by the Commission, staff is recommending that the quantity of material that can be possessed under a general license be reduced. I believe that the proposed action would reinforce the primary focus of health and safety and facilitate continuation of the strong role the Agreement States have in the nation’s materials program.

Regarding the Agreement States, coordination and collaboration with them have continued to improve over the last few years, and additional states have joined their ranks. I have always emphasized the importance of stronger relationships with the Agreement States and see this as a very positive development.

On the “challenge” side, the well-publicized General Accountability Office (GAO) sting on NRC’s licensing of materials users highlighted the need to strengthen that area. With the help of the Independent External Review Board led by Thomas Hill, former Director of the State of Georgia’s Radiation Control Program, and with significant effort from NRC and Agreement State staff, we have made major improvements in this area.

Delays in implementing the National Source Tracking System have been a source of frustration for me, but I am pleased to report that the system has now been officially implemented. I am concerned with the slow pace of issuing credentials to access the system, but I have been told that training sessions for prospective users of the system are going well.

Another substantial challenge in the materials arena involves the use of cesium-137 chloride sources. These sources are used in almost every blood irradiator in this country and throughout the world. Such sources are absolutely vital to both patient care and medical research; however, in the wrong hands, they could be used to make “dirty bombs.” The challenges this creates were highlighted by a committee established by an NRC-chaired Interagency Task Force to study the CsCl issue. Both the National Research Council of the National Academy of Sciences and the Defense Science Board have issued reports that reinforce concerns over the continued use of CsCl sources. The academy’s report counseled caution in changes that would impact users of CsCl, but the Report also suggested a cessation of licensing of such sources. Concurrently, an excellent program is being conducted through the Department of Homeland Security and the National Nuclear Security Administration at Sandia National Laboratories to study hardening technologies for sources of concern.

The Commission is currently deliberating this issue. I support increased security measures for the irradiators, consistent with the current program and in conjunction with a research program at the Department of Energy’s national labs, to find alternative chemical forms of cesium that might present less risk. I do not support a move to stop the licensing of CsCl until we have confidence that credible alternatives exist. In addition, we need to work within the interagency process to explore the international aspects of this issue. A move away from CsCl here, if not accompanied by coordinated progress elsewhere in the world, would be short-sighted.

Now I would like to turn to a few areas involving nuclear technologies that, in my view, represent major challenges. Some of these areas are within the purview of the NRC; some rely on Congressional or industry action and are not part of the NRC's focus.

## **Public Education**

I'll start with education, defined very broadly to include both the education of the public and of the workforce required by the nuclear industry. Most of the nuclear power plants' public information centers in this country were closed after 9/11. This has created a serious problem because the public needs and deserves information. While I realize that security concerns have made it difficult to keep the existing centers open to the public, I also believe that industry should find other ways to provide the public with information. If a center is too close to an operating facility, it can be relocated, and I compliment the licensees that have done so. There is a cost involved, but I contend that there is a greater cost to industry from a failure to adequately educate the public on the risks and benefits of nuclear technologies. I've used a quote from Admiral Rickover in past speeches, which emphasizes this point:

*When specialized knowledge of professional people is incomprehensible to the average man, he is apt to flounder between frustrated suspicion and excessive awe, leading him either to interfere unduly with professional independence or to accept naively every claim made by anyone who calls himself a professional.*

In my travels representing the NRC, I've seen some outstanding public education centers; unfortunately, the best were in other countries. Probably the best I've seen is the center at the Hamaoka plant in Japan, where over 8.5 million visitors have seen a superb overview of the operation of a nuclear power plant, with a balanced treatment of the risks and benefits of nuclear energy. One notable example in the United States is the Duke Power World of Energy Center located at the Oconee Nuclear Station in South Carolina, visited by some 3.5 million visitors. Our nation would benefit from establishing more of these centers.

## **Workforce Education**

Workforce education is another area that is vital to government and industry alike. In many areas of the country, industry has undertaken joint programs with educational institutions to strengthen training in key areas. I've welcomed the opportunity to visit some of these joint programs, including Cape Fear Community College in North Carolina and Wharton County Junior College in Texas. I was impressed with the students I met at these colleges and am confident that these programs will increase the quality of the workforce. I also recognize and compliment NRC's expanding role and commitment to scientific programs in the historically black colleges and universities.

There is an important role for the government as well, and I support a strong government-sponsored program in workforce development. I expressed frustration with the DOE's management of its legislated mandate in this area. Concerns in Congress led to its transferring management of that educational program from the DOE to the NRC in Fiscal Year 2008. I believe the NRC fulfilled congressional expectations for this program, and I especially want to salute the efforts of all staff who made this program a success. Nevertheless, I should note that I am not convinced that the NRC is the appropriate long-term home for this program. I believe that this should be a role for DOE. Furthermore, university research reactors should be fully integrated with an effective national educational program, and the NRC cannot play such a role, since we regulate and license these reactors. Wherever Congress positions this educational program, all the interested parties must work together to assure it remains highly successful.

I would also like to highlight a theme I've used in many past speeches, namely that the nation's research reactors, with very few exceptions, are candidates for inclusion in the Smithsonian museums. I strongly believe that the DOE, with support from Congress, should function as the steward of our research reactors and assure that their capabilities and instrumentation serve as a magnet to new students, not as a barrier.

### **Small Reactors**

The next area on my list of challenges involves small reactors. We have been deluged with proposals for small reactors, of evolutionary and revolutionary design. I do not believe that the NRC, as the regulator and through the regulatory process, should choose the "market winners."

Currently, we do not have the staff or funding to undertake an evaluation of these designs, and the Commission has indicated that it will evaluate such reactor applications only when a domestic entity is applying to use the reactor in this country.

I'm not at all sure that this should be our answer, although I think it is the only answer we can give at present. I believe it is in the national interest to assure that a new generation of extremely safe and proliferation-resistant small reactors is available for use in isolated areas of the United States and in developing nations. The best way to assure that goal is to evaluate submitted designs and provide design certification for any that can pass our critical regulatory licensing review. At the same time, the agency cannot appropriately use funds derived from fees paid by current licensees to prepare for such work, and therefore, would need to seek a different source to fund such evaluations.

Unfortunately, because I don't see such reactors as having much application to our nation's grid, I think it may be a self-fulfilling prophecy to first demand a domestic customer and then say that there is none. In addition, developing nations, with very few exceptions, simply will not have the infrastructure to safely operate one of the large light water reactors of interest here in the United States; and even if they could use such a reactor safely, it makes no sense to put it on a small grid. Thus, in the interests of global nuclear safety, I believe it is appropriate for the NRC to certify designs for small reactors. I've testified to Congress that we need its encouragement, as well as funding off the fee base, for the NRC to undertake such certification. In addition, I submit that it should be DOE's job to evaluate alternative small reactor designs and select a few to move into the design certification phase.

In closing my remarks on small reactors, I don't mean to ignore the use of such reactors for process heat. That application may lead to domestic applications for these units and may provide domestic customers who then will require NRC licensing actions. The Next Generation Nuclear Plant (NGNP) program is an example of such an approach.

## **Spent Fuel Management**

The last area on which I'd like to share some views is that of spent fuel management, an area of immense concern and disagreement in many areas of our nation. I too have many concerns in this area; the first being that this debate has not been framed in a manner that promotes constructive discussion.

My comments do not alter my resolve that the NRC must evaluate the technical bases for Yucca Mountain as we review the license application. Congress mandated this review through enactment of the 1987 amendment to the Nuclear Waste Policy Act of 1982. Quite independent of this NRC review, however, I do not see the nation on a path towards national agreement on spent fuel management.

As a starting point, my greatest concern is that the rhetoric, both pro and con, on Yucca Mountain has reinforced the public's view that management of spent fuel represents a crisis, perhaps insolvable, for the nation. Nothing could be further from the truth. Spent fuel is safely stored today at reactor sites, whether it is in pools or dry casks. Licensees are effectively moving spent fuel into dry casks at many sites today. Additionally, because space in fuel pools is no longer available, the use of dry casks is the only other option available. If Congress wants to change that direction, it could enact legislation requiring and enabling other approaches. But from the perspective of the regulator, we can assure Congress and the American public of the adequate safety of the current approach. For those who have had the opportunity to see these casks, I think the experience should serve to reinforce confidence in the robustness of this mode of storage.

The debate over Yucca Mountain has spawned other side arguments, such as the safety of transportation of spent fuel. Transportation of spent fuel is done in casks that are built to exacting standards and subjected to NRC-mandated tests. Security of such transportation is carefully evaluated and enforced. The United States and many other nations have been transporting spent fuel, or other far more dangerous assemblies of nuclear material, for decades. There have been thousands of shipments without a significant incident involving release of radiation. My comments are not meant to undermine the sensitivity of such transport, but this, like many hazardous tasks that are a part of modern life, is an area that is very well understood. It must be done "by the book," and then it is a very safe activity.

If I had one plea for Congress in this area, it would be to work towards a sustainable national policy for spent fuel. To me, "sustainable" means that it has strong bipartisan support. I also believe that it must be removed from the political climate of a Cabinet agency whose politically-chosen leadership changes periodically. Thus, I strongly favor removing this responsibility from the Department of Energy and creating some entity, perhaps with bipartisan Congressional oversight, largely in the private sector, to evaluate solutions for spent fuel, develop community outreach and acceptance of the solution, and shepherd a program through to completion.

Other nations are moving toward sustainable spent fuel management policies, and we would be well advised to study their examples. Of these approaches, the Swedish system seems to be best positioned for sustainable implementation. Their system embodies many of the elements I've noted here. A private entity is responsible for developing candidate repository sites and for developing incentive packages to encourage interest from prospective sites.

Furthermore, their system gains credibility with the public over our system in that the final license is issued by a federal licensing authority to a private entity. To me, that is likely to be a significantly more credible approach with the public than our current approach in which a federal entity, the NRC, evaluates a license application from an applicant, the DOE, which is another arm of that same government. While I know that the NRC will discharge its review authorities to appropriate technical standards and will operate independently, I do not believe this type of review will ever engender the same level of public confidence as a model closer to that of Sweden.

Above all, as the nation develops a sustainable spent fuel management policy, there should be no pretense that there is a unique solution to the long-term management of spent fuel. There is a range of technologies, with different risks and benefits, which can contribute to a long-term solution. There is no one uniquely "correct" solution. Any sustainable solution will be a blend of adequate technologies, public acceptance, and political realities.

Before closing, I want to recognize the superb technical qualifications and dedication of the NRC staff, whose focus on the public health and safety is clear. The American people are very well served by this staff. The staff's recognition of its important contribution to the nation is a major factor in the "esprit de corps" that contributes to the staff's endorsement of the NRC as an outstanding place to work.

On a personal note, the staff in my office has consistently helped me to better understand issues and craft votes on complex issues. They have helped me understand the expertise and dedication of the rest of the NRC staff by their own actions; and I am very grateful to each of them. Josie Piccone and Vicki Ibarra greeted me in my office on my first day at the NRC! Others have joined our office, some for several years and others for short assignments. To each of them, I offer my sincere thanks.

Additionally, a special thanks to our NRC inspectors who are truly the eyes and ears of the agency and together with our other dedicated staff, assure the safe use of nuclear technologies. They have immense responsibilities to protect the American public!

When I reflect on the responsibilities of public service, one man stands out in my mind in a field of very distinguished people – Commissioner Ed McGaffigan. In his 31 years of public service, he was ever vigilant! Recently, the NRC Employee Welfare and Recreation Association started selling the "NRC Eagle" in its store. It seems fitting that the winning entry in a contest to name the eagle was "Ed the Eagle." I think Commissioner McGaffigan would have chuckled at the symbolism. In speaking of Ed, I'm very pleased that Bill Raymond, a dedicated inspector who has served on the "front lines" of this agency for many years, has been awarded the first Edward McGaffigan, Jr., Public Service Award.

In closing, I want to return to the Davis-Besse incident. A model of the corroded Davis-Besse cavity is here at the conference. I found it hard to visualize that cavity from the various photographs I'd seen, but the model helps me understand the gravity of that situation. It is my hope that, sometime during the RIC, you each take a few moments to reflect on what message that model conveys to you. That model reminds me of the importance of questioning, listening to, understanding, and unflinchingly exposing the truth, even when it hurts, and especially when we can learn from it – all key elements of a strong safety culture.

There is an old saying that “Nothing worth doing is completed in our lifetime.”<sup>2</sup> While we recognize that we have already faced many challenges, we also recognize that there remains much that will require our expertise and our vigilance. But if we, licensees and regulators alike, are consistently guided by a strong, internal ethic, including an equally strong commitment to safety, we can be confident of our ability to meet those challenges and build for the future in a time of change.

Thank you for your kind attention. I hope you have a very productive conference, and I look forward to any questions.

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<sup>2</sup> Reinhold Niebuhr, American Theologian (1892-1971).