



# NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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## **Fifty Years On: Golden Anniversaries, Golden Opportunities**

**Remarks of Nils J. Diaz  
Chairman, U.S. Nuclear Regulatory Commission  
before the  
American Nuclear Society**

**Pittsburgh, Pennsylvania  
June 14, 2004**

President Foulke, distinguished participants in this special plenary panel, ladies and gentlemen: it is a pleasure and an honor to take part in this landmark meeting of the American Nuclear Society. The past few months, as we are all aware, have been a time of anniversaries, remembering milestones in war and peace. Dwight Eisenhower, whose place in wartime history is forever associated with the D-Day landings of 60 years ago, changed the course of peacetime history a decade later with his visionary "Atoms for Peace" speech. This past week, we mourned the passing yet celebrated the achievements of another peace-time visionary, President Ronald Reagan. We at the NRC frequently quote and use one of President Reagan's phrases, "Trust but Verify." This year marks the 50th anniversary of the Atomic Energy Act, in which Congress, after deep study of the practical, legal, and economic factors involved, laid the groundwork for the civilian use of nuclear energy, under civilian control.

It was also in 1954 that the pioneers in nuclear engineering and related fields recognized the need for a nuclear organization through which knowledge would be shared and the public and decisionmakers educated.

This too was a visionary step. One is reminded of the famous coded telegram announcing Enrico Fermi's success in achieving fission beneath Stagg Field at the University of Chicago: "The Italian navigator has landed in the New World." Half a century ago, the nuclear field was still very much a new world, and these pioneers of the American Nuclear Society had the imagination, the foresight, and the wisdom to anticipate future needs, like settlers laying out the design and governance of cities that had yet to be built. I have been privileged to know a few of them and every one of them left a definite impression in my life.

It was said of Sir Christopher Wren, the architect of so many London churches, "If you seek his monument, look around you." The 103 U.S. operating nuclear plants we have today, the nuclear medicine departments in our hospitals, the nuclear power sources in the sea and above, the innumerable uses of radiation in industry -- these are the monuments to these pioneers, and we and the nation owe them a debt of gratitude today.

I would add that the relationship between the Nuclear Regulatory Commission and the ANS has long been close and fruitful. One illustration of this is that the roster of presidents of the ANS includes one former NRC chairman, Joseph Hendrie, and another, the late Nunzio J. Palladino, who led the NRC later in his career. Distinguished chairmen both, they are remembered warmly at the NRC both for their leadership and their human qualities. Nor do I wish to leave out former Commissioner Gail de Planque, who served with distinction at NRC and was the first woman to lead this organization.

Fifty years of achievement in the nuclear field are an impressive beginning. But as the motto engraved on the National Archives says, "What is past is prologue." The accomplishment of the past half century will be only partial, and ultimately disappointing, if it does not serve as prologue to another half century just as fruitful and successful in serving the needs of the American people. Today I would like to talk about what the NRC is doing to prepare the way for that next half century.

## **Operational Safety**

Operational safety is, of course, the alpha and omega of nuclear power plants. It requires constant, unremitting vigilance on the part of licensees and of the NRC. In recent years, we have seen the nuclear industry performing, in general, at an extremely high level of safety, with corresponding economic benefits. Indeed, one of my principal concerns this last year has been to reinforce awareness that the fine safety record we have seen to date is not to be taken for granted, and not a reason for laxity of any kind. Not long ago, we had a reminder, at Davis-Besse, that neither licensees nor regulators can afford to take safety for granted. It should be a wake-up call to everyone connected with nuclear power plants that if we want to maintain the industry's safety record, we need to recognize complacency as perhaps our greatest enemy. Every so often, an unnecessary event seems to raise unwarranted questions about the technology. These preventable events are detrimental to our nation. There can be no slackening of our commitment to the highest standards, and no departure from a permanently questioning and problem solving attitude.

At this point in our history, public acceptance of nuclear power is at a high level, and rightly so; but it is not unconditional, and it is certainly not irrevocable. Public acceptance has to go on being earned.

I've made the comment in the past that even the Three Mile Island accident, the worst crisis in the history of commercial nuclear power in this country, did at least provide some enlightenment. For industry, it reinforced the realization of how interconnected this country's utilities are -- that every nuclear plant major activity or event could be a reflection on every other nuclear plant, for better and for worse. After TMI, we saw the industry, through the creation of the Institute for Nuclear Power Operations, taking an increasingly forward role in ensuring that weaker performers were brought up to a high standard of performance, in the recognition that in the public mind, a problem at any plant casts a shadow over all the others. I think that is something that all of us connected with nuclear power need to bear in mind. The responsibility of every licensee is not only to the public in the vicinity of the

plant; not only to the utility's shareholders; but also to the entire industry, to all those associated with it, and to the American public as a whole. The reality is that today America depends upon safe and reliable electricity from nuclear reactors and on the many benefits from uses of radioisotopes to maintain or even enhance our quality of life.

## **Planning for the Future**

At the NRC, we have made a number of changes with a view to enhancing the safety of our operating nuclear plants, including the move in the direction of risk-informed and performance-based regulation, which I strongly believe is a necessity. (Those of you who have attended the NRC's Regulatory Information Conferences have been hearing me beat the drum for risk-informed regulation since 1998.) The old system of prescriptive regulation served the nation's nuclear power plants well in their formative decades, but we have gone too far and learned too much to continue in that mold indefinitely. We now have a wealth of operating experience, as well as the benefit of increasingly sophisticated risk analyses that allow us to focus on the key safety issues. We would be neglecting our duty if we did not take advantage of that vastly increased information base and those invaluable analytical tools to modernize our regulatory apparatus.

In other fora, I have recently described two major regulatory steps in that direction, dealing with Special Treatment requirements and Emergency Core Cooling Systems and the Large Break LOCA, and will not repeat that discussion here. (Anyone interested in the details can find them on the NRC website.) Briefly, they are designed to focus where safety counts the most, while allowing flexibility on areas of lesser safety significance. These changes are not, as some have charged, a diminution of safety margins, but rather an optimization of resources that are to be focused on safety, something that all who are concerned about nuclear safety should welcome.

The question is whether these and other steps in the direction of risk-informed and performance-based regulations represent the end of our efforts in this area or a beginning. I personally believe that they should be a good start, and that we need to revise all the NRC's reactor regulations accordingly. Just last month, the Nuclear Energy Institute, which initially was somewhat wary of so major a change in NRC's regulatory approach, endorsed the idea of risk-informing the NRC's regulations in their entirety. I welcome this support.

It may be asked, why do we need to risk-inform the NRC's reactor regulations? Are the current regulations not good enough? Isn't there something to be said for sticking with the tried and true?

I would answer that by saying that they are certainly good enough for the regulation and oversight of currently operating reactors, and even for the evolutionary and advanced reactor designs that NRC has reviewed. But "good enough" should not be our standard, when we have the capacity to be far better than that. We have the know-how and the tools to create regulations that will allow us to incrementally incorporate the best scientific and technical information, and the best methods and approaches, not only for the benefit of existing reactors, but also for future generations of reactors. These regulations can help integrate and make more effective and efficient our approach to reactor safety, security, and emergency preparedness. In the objective statement that the Commission is now

using in our Strategic Plan, our regulations exist to enable the use and management of radioactive materials and nuclear fuels for beneficial civilian purposes that protects public health and safety and the environment, promotes the security of the nation and provides for regulatory actions that are open, effective, efficient, realistic and timely.

Water reactors have served this country well during the past decades, and will continue to do so in the near future. I believe, however, that the long-term future of power reactors belongs to very high temperature reactors. Fusion power is much further in the future. It therefore makes sense to prepare the way now with regulations that are risk-informed and technology-neutral, providing consistency in our approach to the key regulatory issues. I believe we need to work on an Advanced Notice of Proposed Rulemaking (ANPR) for risk-informing of all the reactor regulations. This ANPR should present in clear and concrete terms the Commission's vision and commitment to this safety initiative. It should encompass what we know and what we should develop in preparing a comprehensive process to provide a path forward.

By doing so, we will also substantially increase our ability to address safety and security matters in an international context. The concept of "international certification," which has been discussed so much in recent years, can be brought closer to realization through a technology-neutral set of risk-informed and performance-based safety requirements.

## **Conclusion**

The future of the nuclear option in this country, and all the promise that it holds for this nation's security in so many senses of the word, depends on a complex of factors. Technological developments, business judgments, and regulatory actions will all play a role. More fundamentally, however, it depends on people. Machines are no better than the men and women who design them, operate them, and regulate them.

For the past five decades, the nuclear option in this country has had the benefit of the expertise, creativity, idealism, and passion of the generation of pioneers who committed themselves to careers in this field when it was young. That first generation, the generation that was present when the American Nuclear Society was created 50 years ago, is now aging; all too many of its members are no longer with us. At the NRC, one of the pressing problems we face is that so many of the experts with decades of experience under their belts are now in retirement or approaching it. Filling their shoes will not be easy. I know that this is an issue of concern throughout the nuclear industry.

That brings us back to the American Nuclear Society. Your work, which has done so much over half a century to inform and enlighten our nation about nuclear energy, is never more needed than today. By instruction and by their example -- a shining example -- the members of this Society can help ensure that in the coming half century, as in the 50 years just past, our country will have the kind of men and women it needs in the nuclear field: people of expertise, dedication, and commitment. The fulfillment of the promise of nuclear energy depends on the success of that effort.

Thank you.

