

United States Nuclear Regulatory Commission
Office of Public Affairs
Washington, DC 20555
Phone 301-415-8200 Fax 301-415-2234
Internet:opa@nrc.gov

No. S-97-14
June 13, 1997

NUCLEAR POWER AND THE 21st CENTURY: ESTABLISHING A REGULATORY
FRAMEWORK FOR A MATURE INDUSTRY

Remarks of Commissioner Nils J. Diaz
U. S. Nuclear Regulatory Commission

Before the Nuclear Energy Institute, Washington, D.C.
May 30, 1997

Good morning. I am very pleased to have the opportunity to address the Nuclear Energy Institute's conference on Nuclear Energy's Transition to the 21st Century. Recently, I made some observations regarding the common ground and differences between "safety" and "compliance", as understood by nuclear practitioners. In a recent letter, Chairman Jackson, with the full support of the Commission, further clarified the issue by stating "the staff determined that continued operation...(decisions)...are not based on a substantial compliance standard. Rather, such decisions are made on a determination as to whether operation of the facility poses an undue risk to public health and safety". I believe this clearly establishes the key difference between compliance and safety issues, and their relationship to operational safety and operability. I will not dwell on this area. Rather, it is opportune to take a forward look.

This conference comes at a particularly opportune time, when issues of regulatory methods and their implementation have become a subject of thoughtful, and I trust, ultimately fruitful discussion and debate within both the U.S. Nuclear Regulatory Commission and the nuclear industry. I believe that establishing a firm, consistent, efficient, safety-based and risk-informed regulatory framework is one of the keys to the safety enhancement, and therefore, the economic viability of the nuclear power industry as it makes the transition to the 21st century. The reason for this belief is that most major issues and milestones that confronted this industry and seriously affected its economics in the late 70's and 80's are gone; high interest

rates, high inflation, long construction times, major technological fixes (i.e., TMI lessons learned), the tragedy of Chernobyl, etc. Three issues remain: (1) the establishment of a state-of-the-art regulatory structure, with efficient NRC and licensee interfaces and interactions, (2) the closing of the fuel cycle, and (3) clearly addressing public concerns about the technology. The first two can be solved independently, e.g., resolving the nuclear waste issue. The third one regarding public concerns about the technology, its safety and its economics, can and should be pursued continuously, and can only be significantly addressed when the first two are resolved.

This morning I would like to address mainly the issue of the regulatory framework we - the regulators and the regulated - need to develop to ensure this energy technology is well prepared to enter the 21st century. I will only briefly touch on addressing public concerns.

My opinion, in a nutshell, is that it is appropriate and currently feasible to change key elements of the existing event-driven, "establish-and-then-patch" NRC regulatory framework, into a consistent set of regulations that are sharply focused on safety issues. This can be done by using present know-how and available risk information technology.

It is appropriate because the present regulatory system, although adequate from the viewpoint of protecting the workers and the public from actual radiological risks, is not satisfactory nor does it serve the industry well, the NRC, or most importantly, the American public. Licensees see the present framework as intrusive; the NRC has to work with its gaps and inconsistencies and with the too easily polarized labels of an obtrusive regulator and a regulator partial to industry, both not factual. And the American public ultimately has to bear the burden of cumbersome and costly activities.

Some might say the present discontent with the regulatory framework is natural; I say most of it is now unnecessary. It can be remedied by a more transparent and consistent process that brings state-of-the-art regulatory processes, information technology and risk assessment together, to overcome inertia and lack of trust. The reality is that the regulatory system has grown too much, uncertainties have remained in the process and new ones have been added. We are applying 30, 25, 20, 15 year old regulations, inspections and assessment modules to a complex and changed industry. Many were created by isolated events and continue to exist for events that do not re-occur. In many areas, the processes are too prescriptive, or too intrusive, and lack the efficiency and safety enhancement that I believe is achievable by today's methods and technology. Safety can and

should be enhanced, while costs can and should be decreased. This is feasible because we have better knowledge now, and we have the tools for change. Better safety performance and economics will be the payoff.

Slowly and painfully, yet systematically, we have learned from many "lessons-learned", and I believe, ladies and gentlemen, that it is time to "graduate" to a consistent risk-informed regulatory framework. The tools to deal with the operation, maintenance and regulation of nuclear power technology have improved steadily through the recent years. This is no longer a young industry, but a mature veteran with in-depth experience learned through operational "hard knocks" and many other "knocks". It is feasible now and the tools are here. I know, the questions are predictable: how much, how long, how good, how bad, what is the risk? If I knew all the answers to the above I probably would not be an NRC Commissioner ... but I do know that a safety based risk-informed regulatory framework is needed for the 21st century and can be done. So, with this as an introduction, a few facts should be placed in perspective....

First, it is indispensable to recognize and accept that the Nuclear Regulatory Commission strictly regulates the nuclear power industry. Furthermore, it will continue to do so, unless Congress decides otherwise. Our mandate is unchanged; it is our duty, however, to protect and utilize the resources of the American people as efficiently as possible.

Second, the Commission and the NRC staff as a whole have been dedicated to the mandate of ensuring adequate protection of the public, and when we erred it has been consistently on the conservative side. The proof is in the pudding: zero fatalities and no discernible health impact from radiation exposure after almost 40 years of commercial reactor operation.

Third, the essence of what I am stating has been debated and formulated by many Commissions and individual Commissioners. They have strived, by different means and paths, to arrive at a framework that would enhance safety and reduce burden. In fact, the present Commission is on record as fully supporting this direction: to enhance safety and reduce burdens. In particular, Chairman Shirley Jackson should be credited with the vision and the determination to bring risk-information into the regulatory process by requiring closure almost 2 years ago on how PRA results can be used in the regulatory framework. This was recently accomplished through the PRA Standard Review Plan and Regulatory Guides, completed by the staff and praised by the Commission; it will soon be out for public comments. My personal contribution has been minor; I have worked with my fellow Commissioners just a few months, but I can see the fruits of many

years of labor. I am just presenting results in my own way and pressing for action that I know will result in acceptable improvements. Before I tackle the main message I would like to transmit, allow me to focus on the word now. It is an important word especially when a sense of urgency exists. It means now, not a little later.

I believe that we are now, and have been for many years, in the midst of a pause in the licensing needs of the industry and the NRC. The decreases in licensing activities and in, some instances, personnel at NRC, have resulted in an increase of focus on operational safety, and recently in a preoccupation with design basis compliance. This in turn has had at least two effects, one positive and one I consider negative: on the positive side, we have learned much about operational safety. Unfortunately, on the negative side, we have become, in my view, too closely coupled to the industry, and too involved in overseeing the day-to-day running of nuclear plants. As I said before, new technologies -- risk information, computer advances, and informatics -- provide the tools for a new way of doing business, in which, largely because of our greater understanding of safety issues, the NRC and the industry can decouple to a substantial degree while enhancing safety performance. Decoupling is directly propositional to definition of issue and responses. I am convinced that the free market, in the midst of this era of instant information and analysis, provides the best guarantee of increasing the quality of life of the people of this country. Thus, an effective regulatory body should only implement the necessary checks and balances, as well as the preventive measures, that would both obviate risks and optimize assurances of protection of the public's health and safety, while minimizing costs.

Creating a new regulatory paradigm for the 21st century means that both regulators and the regulated must take the calculated risk of accountable decision-making to transform the established rules into a coherent and effective set of state-of-the-art regulatory modules. For the Commission, this means deciding now to implement a risk-informed regulatory system in which safety is primary across the entire regulatory structure; in which more responsibility is placed on the industry; and in which accountability to the American people for the safety focus of the regulatory framework rests with the NRC. Requirements that lack a true nexus to safety would then be systematically deleted.

How can this be achieved? It is apparent that the Commission of 1997 is not looking at any of the key regulatory issues -- for example, 50.59, design basis, PRAs or SARs -- in isolation. Rather, we are looking at them holistically, in conjunction with resolution of other issues. All these connected issues should be

expressed and resolved more and more in risk terms, so that both deterministically known and probabilistically estimated risks are integrated in the development of better and simpler rules. Eventually, this combination of factors will lead to achieving the goal that we have talked about for many years; namely, risk-informed, performance-based regulation. That is the long term plan and it is a good one. But, let us learn to walk, steady, before we run. The path to performance-based regulation passes through one key phase, an intermediate step, which we are now taking.

In fact, I think the Commission is viewing the achievement of its final regulatory goal as a two-step process: proceeding now to make the changes that we know can improve the existing regulatory structure with risk information and then establishing risk-informed, performance-based design regulation. We realize that further actions will be needed in order to fully achieve the goal of risk-informed, performance-based, less-prescriptive regulation. I believe the industry is initiating a pilot program for whole plant application of PRA leading to risk-informed performance based regulation. The Commission will look at the proposal with great interest and determine how it can be integrated with our programs.

The time is ripe, indeed, it is past due. It would not be sensible or prudent to try to maintain a stagnant regulatory regime for an industry that has matured as this one has during the past 25 years. I am reminded of something Edmund Burke once wrote: "Nothing in progression can rest on its original plan. We may as well think of rocking a grown man in the cradle of an infant."

There is a window of opportunity both for the Commission and the industry. I believe the Commission has accepted the challenge. The industry should study our current regulatory pattern and propose new initiatives towards the safety-based risk-informed regulatory framework I have mentioned. Let me suggest that the initial industry commitment be to a Level 1 PRA, a state-of-the-art, ready for evaluation and implementation PRA. At this point, we have a period of stability in which we can focus on what is sound policy, without being driven by the need to react to specific events. Given the randomness with which events occur, we could all too easily become driven and distracted again with the resolution of such events. Remember, windows open and windows close. An acceptable Level 1 PRA is tied to the oversight issue: a safety-based, risk-informed rule should have direct impact on inspection and assessment and will lead to a better frequency of, and a more objective SMM.

It is my belief the NRC is doing its part, taking a fresh look at

its "modus operandi". The industry needs to look within itself for solutions and not seek them from the NRC or look to blame others for the industry's various difficulties. The NRC needs to look within itself, apply QA to its organization and processes and share in the responsibility. All too often, the reality is as Shakespeare has Cassius say, "The fault is not in our stars, but in ourselves." Or as a fellow Floridian, Jeb Bush, recently commented, "By blaming others, we fail to find the real solutions to our problems and we do not carry out our own responsibilities." And in the process, let us be conscious of our responsibilities to the American people, especially the manner in which the industry and the NRC provide public information: clarity and specificity, full disclosure without speculation that generates unwarranted fear and distrust.

If our mandate to the American people is to be realized, a new paradigm of regulation indeed needs to be created for the 21st century. The industry and the NRC will need to move in parallel tracks, each drawing on its knowledge and experience to the utmost, being candid with the American public and with ourselves. We can achieve meaningful changes that both increase safety and reduce regulatory burdens, and make the benefits of nuclear generation a reality... its reliability, environmental cleanliness, costs...without the fear of long gone ghosts. It is time, now.

Thank you for giving me the opportunity to participate on this panel.