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Remarks by  
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before the  
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*The Future of Reactor Regulation*

Good morning. I am pleased to be here today to take part in the seventh Regulatory Information Conference. This conference continues to provide a unique forum for the NRC and all its reactor licensees to exchange views on regulatory issues. We value this opportunity for open communication as a key to our common successes. At the end of my presentation I would be happy to address any questions you may have.

I would like to share with you my view of the future of nuclear reactor regulation and the industry's key role in shaping this future, in light of four factors which shape it: first, a shift in the NRC's regulatory activities; second, government-wide initiatives toward agency efficiency and streamlining regulations; third, the shift from prescriptive regulations to performance-based regulations; and, fourth, the industry's role in this changing environment.

**CHANGES IN LICENSING ACTIVITIES**

Let me start by discussing the future of NRC licensing activities. When I appeared before this audience two years ago, I said we could see the light at the end of the tunnel for advanced reactor design certification. Now I believe we are about to exit that tunnel. Years of NRC effort are coming to an end with the final design approval and initiation of the design certification rulemaking process for the CE System 80+ and GE Advanced BWR evolutionary reactor designs. Design certification efforts for more revolutionary reactors have experienced delays, and exotic reactor designs are no longer being considered. At the same time, Watts Bar 1 is likely to be the last reactor to commence operation in this decade. This fact reflects today's

economic reality of competition in electricity generation, which discourages all long-range capital projects, such as completion of deferred reactors or new reactor construction.

As a result of these factors the NRC will soon find itself without significant resources committed to reactor design review, construction inspection, or initial plant licensing. Instead, licensing activities will be driven by issues of aging of operating reactors, licensing basis improvements, license renewal, and decommissioning.

I anticipate that both old and new aging issues will continue to require significant regulatory attention. Recent experiences at Maine Yankee have taught us that even a well understood aging issue such as steam generator tube cracking can continue to require significant NRC and industry attention. At the same time, new aging issues, such as BWR internals cracking, will surface and require evaluation and corrective actions to support continued operation. It is clear to me that we and the industry must improve our cooperation in order to anticipate and resolve such emerging aging issues.

We also will continue to respond to licensing issues arising in operating reactors. I believe our Cost-Beneficial Licensing Action program is a major success, and one which industry should continue to support and utilize. Additionally, we continue to work with industry to provide generic guidance for licensee commitment management and to provide specific relief from commitments which have no safety benefit.

A top priority in licensing will continue to be Standard Technical Specifications. We encourage licensees to take advantage of this program which offers enormous cost savings and other standardization benefits. I believe licensees frequently underestimate the benefits of this option because their analysis is too narrowly focused on implementation costs. Adopting Standard Technical Specifications is not only a question of direct financial benefits to on-site organizations -- they also allow NRC project management resources to be reduced, resulting in savings that are passed on to licensees in the form of reduced license fees. Additionally, Standard Technical Specifications will permit many facility changes to be accomplished under 10 CFR 50.59 without prior NRC approval and without the need for license amendments. Finally, Standard Technical Specifications offer the NRC the possibility of a more consistent approach to inspection and compliance. When all these factors are considered, I believe adopting Standard Technical Specifications becomes an excellent licensing decision, and I urge more licensees to take advantage of this opportunity.

One of our most significant accomplishments in the last two years has been the license renewal rule. I believe that the NRC has succeeded in clarifying the rule and making license renewal a

workable alternative for the industry. We now stand ready to work with interested licensees toward implementation. The devil is in the details, but I believe that we have managed to define the scope of the details clearly enough to make license renewal a viable option. I hope that those who have been discussing renewal efforts with us will now come forward and seriously consider filing an application for license renewal. The revised rule allows the nation to reap the full benefit of existing nuclear power plants where the economics are favorable, with due regard to public health and safety.

## **GOVERNMENT-WIDE INITIATIVES**

Certainly, the last two years have brought major changes in the federal government, and along with them, a drive for regulatory efficiency. The NRC was working with industry to streamline regulations before streamlining became fashionable, and the staff has done an excellent job in identifying and implementing improvements. However, though our progress on site-specific measures has been significant, many opportunities remain available to make generic improvements in the way we regulate reactors.

Today, we find ourselves being encouraged by our country's leadership to overcome past obstacles and move rapidly forward. Congressional initiatives to change the legislative basis for regulatory actions have been numerous and potentially far-reaching. If these legislative proposals are enacted, the NRC may have to change significantly the way we conduct business. Meanwhile, the Clinton Administration has continued its own reform initiatives in the form of the National Performance Review, Phase 2. The focus of this review is twofold: first to reduce unnecessary regulations, and second, to improve relationships between the regulators and regulated entities.

The NRC, committed to full participation in these initiatives, has established a steering committee to guide the staff in implementing the President's directives. The first part of this effort, a review of existing regulations, is nearly complete; the results will be presented shortly to the Commission. Other parts to follow include functional and efficiency studies. In connection with NPR Phase 2, the President has specifically asked Federal regulators to meet with those affected by their regulations. We hope that this conference will be one of many sources of ideas on how the NRC can be a more efficient regulator. The NRC is serious about embracing these efforts and moving to make substantial progress in streamlining regulations and improving our relationship with industry. We need to deliver on promises already made, as well as looking for new ways to reduce the cost and burden of unnecessary regulations.

But moves to reform regulations are driven by efficiency efforts, not by safety concerns. Our current regulations, prescriptive though they may be, have proved effective in protecting public health and safety, and would continue to do so without reform. Therefore, although there is a benefit in these reforms, it is not a health and safety imperative, and the NRC does not have the authority to impose them on its own. Furthermore, as we pursue regulatory reform, we will insist that it be accomplished without compromising our past successes in operating reactor safety.

## **PERFORMANCE-BASED REGULATION**

Today, NRC has two types of regulatory initiatives: new issues originating from operating experience or aging, and the rewriting of existing regulations for improved industry or NRC efficiency. In both cases I see the thrust of reform initiatives as focusing regulations on issues important to safety. The whole range of programs such as PRAs, IPEs, and performance-based regulations have that same core goal. Our future direction and challenge lie in ensuring that both new and old regulations have this safety focus.

In revising existing regulations, the industry must keep in mind that these changes are not a backfit of regulations to meet safety needs. Rather, they are an effort to improve efficiency and economy, and, more broadly, to simplify the licensees' job -- therefore they rely on industry leadership and cooperation for success. When we discuss performance-based regulations in this context, we admit that we have learned that it is inefficient to define safety standards via detailed, prescriptive rules, because that approach often leads to plant-specific requirements that are not important to safety. To be efficient the industry and the NRC must instead use our knowledge of what is important to safety in order to develop rules which set the desired safety goals. Then we can work together to define acceptable ways to meet these goals while allowing licensees the freedom to define specific methods for achieving them.

The maintenance rule is an excellent example of new rulemaking using this performance-based regulatory approach. Recognizing that our regulation of plant maintenance was deficient, we developed a simple rule requiring licensees to set goals and to establish programs for maintaining safety system reliability. Then we proceeded to work with industry to define acceptable ways to meet these goals published in the form of a Regulatory Guide. We are now seeing that licensees with good maintenance programs can satisfy the new requirements with only minor changes. I believe the rule will achieve its goal to ensure that effective maintenance programs are in place to protect public health and safety without being overly prescriptive as to the nature of those programs.

A more recent example is our performance-based containment leak rate testing rule, which has been published for public comment. In drafting this rule the NRC sought to avoid being overly prescriptive by allowing licensees relief from specific testing requirements which did not add to plant safety.

Many of you, I am sure, would like to jump in to state that the proposed shutdown rule was inconsistent with this philosophy. I would agree that the originally proposed rule was too prescriptive and not properly focused. But the weaknesses in the original proposal do not mean that no rule is needed. Repeated industry operational events demonstrate clearly that this is an important safety issue warranting regulatory attention. In sum, the need for a rule is clear; its form will be appropriately addressed. I assure you that we will work with industry to revise the previously proposed rule to ensure that any new requirements emphasize safety and are not inappropriately burdensome.

I expect that we will continue to pursue performance-based approaches to regulations. We are in the early stages of revising our fire protection requirements to make them performance-based. The industry has initiated action in this area through a Nuclear Energy Institute petition for a new performance-based fire protection rule. Although we have some concerns about the NEI proposal, we welcome the initiative and encourage communication on this issue from industry. In response to the petition the staff has shown a willingness to broaden their activity to include the possibility of placing both the current Appendix R and new performance-based guidelines into Regulatory Guides. This would leave in the regulations only the original fire protection rule with its high-level programmatic requirements.

Along with these individual regulatory initiatives, we have addressed the regulatory process. We have moved to improve the way new regulations are generated internally, to ensure that rulemaking proposals and their expected safety benefit and costs are identified early to senior managers and to the Commission. This will help ensure that the NRC's limited resources are expended on rules that have the most safety benefit, and that staff resources are not wasted developing rules that the Commission will not approve.

These are the areas that represent the future of reactor regulation in an efficiency-oriented environment. But they do not represent the limit of what we can do in reforming regulations. I urge you to work with us to implement these existing initiatives and to identify additional areas for regulatory reform.

At the same time our inspection activities also have to evolve to ensure that we are focused on issues important to

reactor safety. We now have several new initiatives underway to improve the focus of inspection activities on items important to reactor safety. First, we are completing a broad review of our enforcement policy and are taking into account comments from the public in general, including many from industry. This review has identified some areas where our attention has not been sufficiently focused on safety. I anticipate that we will be changing and clarifying how we handle compliance issues which are of low safety significance. Additionally, we are looking to simplify the use of escalation and mitigation factors in enforcement to ensure that appropriate credit is given for licensee identification and correction. I anticipate Commission approval for a trial implementation beginning this summer of a revised enforcement policy.

Performance at operating reactors is, by and large, excellent; we wish to keep it that way. To this end the NRC is working in parallel to sharpen its tools for early warning of declining performance at individual plants. We have identified a need for better integration of our separate inspection findings, for early identification of safety concerns. We can help licensees to correct them before serious performance problems develop. In support of this objective, senior managers are working to strengthen the process by which we review plant performance periodically and plan future inspections. Additionally, the agency has initiated a new inspection activity: the Integrated Performance Assessment Process. This process is planned to provide an infrequent but detailed review of all aspects of a licensee's performance. Facility operational reports and data, inspection results, and self-assessments will all be used to formulate an accurate picture of performance. Then, the results of the IPAP will be used to revise long-range inspection plans. This process should help ensure that inspections are focused on safety-significant activities and on areas where attention may be required to avoid future programmatic problems.

These new initiatives for early identification of declining performance are also important in light of the changing economic environment. We have a legitimate concern that competitive economic pressures may drive utility management -- individually, not across the board -- to cut corners or not make financial investments necessary to maintain equipment and organizations in top shape. These new assessment tools will allow us to spot incipient problems and will give us more lead time to focus on troubled plants before performance deterioration threatens public safety.

## **THE INDUSTRY'S ROLE**

Now I want to turn to the industry's important role in the future of reactor regulation. I am confident that everyone here recognizes that industry has been an essential partner with the

NRC in protecting public health and safety. The industry has done many things extremely well, and this performance record should be continued. For example, looking at performance indicators, I cannot help but be impressed with all that industry has accomplished, such as reducing plant scrams and transients, man-rem reduction, and radioactive effluents and waste.

In the future, the success of a performance based approach to regulation will depend a great deal on active industry participation. Unfortunately, I have recently become concerned about what I perceive to be a lack of industry leadership or coherent response to some of our regulatory initiatives. Recently, on several issues where the NRC had a legitimate safety concern, industry's reflexive reaction appeared to be an attempt to stop or delay any NRC action without seriously examining the validity of the concerns.

Although I earlier alluded to the NRC's false start in developing the shutdown rule, industry's role in this area was also deficient. Industry leadership has insisted that new requirements were unnecessary and that voluntary industry initiatives were adequate, in the face of continually occurring shutdown events that have provided stark evidence to the contrary. Had industry accepted the existence of a problem and worked with the NRC to develop a performance-based regulatory approach, successful resolution of this issue would have been much easier to achieve and would likely now be behind us.

Severe accident management provides another example of an area where a lack of strong industry leadership has contributed to unnecessary delay. Since the late 1980s, the NRC has attempted to work with industry to ensure that severe accident guidelines are developed and exercised at plants. Industry representatives have consistently argued that this should be an industry-initiated effort, and we have accepted such an approach. However, nearly a decade later, we still do not have definitive severe accident guidelines in place, due in part to industry's reluctance to acknowledge the legitimate need for the NRC's involvement with regards to inspections.

By contrast, the maintenance rule again is an example of what can be accomplished if industry works with the NRC to develop a performance-based approach to implementing a new rule. One key to success was early acknowledgement from industry that they benefited from cooperating in defining how the rule could be implemented. The license renewal rule is another example of a significant improvement in the regulations that was accomplished when both the industry and the NRC recognized the need and worked together to accomplish changes.

As I suggested earlier, a related area in which the industry must do better is in anticipating generic problems and in solving them early. This need will become more acute as the universe of

regulated reactors gets older and new generic aging issues emerge. Motor-operated valve issues were initially poorly handled by the industry and stand as an example of how we should not deal with emerging issues. When confronted with the problem, the industry's response was to deny its existence without investigation, forcing the NRC to spend much time and resources to prove the problem's existence. We were often limited in our ability to scope the problem accurately without industry cooperation. Later, when the NRC was able to prove that its concern was valid, both of us found ourselves in a position where a safety issue had been known for several years, but corrective action had not yet been taken. A similar pattern has sometimes been seen in the way the industry has handled steam generator tube issues and BWR level instrument problems. When generic problems such as these are not promptly and fully addressed, both the NRC and the industry find themselves under justifiable criticism. Additionally, unnecessary financial and organizational resources are often required to deal effectively with such long-festering problems.

On the other hand, the problem of cracking of BWR internals stands as a positive example of industry and NRC cooperation in a generic problem. I believe the BWR Owners' Group was appropriately aggressive in reviewing the issue, defining the problem, planning corrective actions, and implementing repairs. As a result, this safety issue is being addressed effectively by licensees working together through owner's groups and with us as regulators. Both the NRC and the industry must continue this approach on future generic issues: anticipate the problem, determine its scope without delay, and provide quick and effective solutions.

In closing, I want to emphasize that since I last spoke with you two years ago, the NRC and the industry have both accomplished a great deal in focusing the reactor regulatory environment on issues that are truly important to safety. I believe the NRC staff deserves credit for its hard work and substantial progress in improving the way the agency does business. Also, I would like to commend you, the reactor industry, for your efforts to assist us in identifying certain problems and proposing solutions.

But, as I have said here today, the changing licensing environment and the external political environment are both impelling us toward further regulatory reforms. Most of these reforms will take the form of performance-based regulations which are needed, not for safety but for efficiency. The success of these initiatives in establishing a clear, safety-oriented regulatory environment will depend in a large part upon industry support. Industry leaders must work more closely with us to reform existing regulations and must improve in early recognition of emerging generic problems and in prompt generation of solutions to those problems.



Conferences such as this one can contribute much to further progress in these areas. I would like to encourage industry representatives here to be candid in your discussions and innovative in your suggestions, and I would like to challenge the NRC staff here to listen carefully and be receptive to change. I wish you all a productive and effective next two days.

I would now like to use the remainder of my time to answer any questions you may have.