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THE FUTURE OF NRC REGULATION

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Nuclear Regulatory Commission

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(SLIDE 1)

Good morning. It is a pleasure to be here at the Westinghouse Operating Plant Symposium, and to have the opportunity to share some thoughts with you on the future of NRC regulation. Please bear in mind in predicting the future I do not possess any unusual qualifications. Events tend to unfold on their own terms, with little consideration of forecasts that have been made regarding their inevitability. Even so, it should be possible to look at the current state of affairs in the NRC, the nuclear industry, and the nation, and draw some logical inferences as to what is likely to happen next, or, possibly, what is unlikely to happen.

Before entering the uncertain territory of prediction, it would seem prudent to make some observations on our current situation. What are the factors shaping the future of NRC regulation? Where are we, what is happening now, and where are events likely to go? I should note that the NRC has, within its area of regulation, a broad range of endeavors. Given this audience and the subject of this meeting, I will direct my remarks to just the NRC activities that are relevant to nuclear generating stations.

My first observation is that, from the standpoint of nuclear safety regulation, we are dealing with a relatively stable group of licensees. NRC's activities for the past five years have been dominated by the regulation of about 100 operating reactors, and I think it is safe to expect that to be true for the next five to ten years. There will be some premature shutdowns, there will be

some applications for license renewal, and some new technical problems will arise as plants continue to age; but by and large, the operating reactor activity is not likely to change suddenly or drastically.

A second observation is that the resources allocated to the NRC by the Administration and the Congress to carry out its regulatory mission have been declining over the last few years, and I think it is reasonable to expect the decline to continue for the next few years. We will have fewer dollars to spend, and fewer people in the agency.

My third observation is that the regulatory processes are accomplishing their statutory purpose. There is no question in my mind that, in the broad sense, activities regulated by the NRC are carried out with adequate protection of the public health and safety. The performance indicators for safety and reliability clearly show that to be the case. There is an informal consensus that currently operating reactors, as a group, are indeed meeting the Commission's safety goals, and thus exceed the adequate protection standard. Obviously, not everyone would agree with that statement. Conversely, there are many who argue that the NRC imposes too many requirements in the name of safety. Nevertheless, I am confident that imbalances can be corrected, serious safety issues will be dealt with effectively if they occur, and that we need not contemplate a major overhaul of our regulatory system.

Strategic Issues

(SLIDE 2)

While a few elements in our environment are stable, many more things are changing. The electric power industry is struggling with restructuring and deregulation. The future of the high level waste program is being debated in Congress, and even the low level waste program is the subject of congressional attention. We are determined to understand how our environment, and yours, is changing, and to change our way of doing business accordingly. To this end, under Chairman Jackson's leadership, the NRC has undertaken a strategic planning process that will spell out in some detail the path the agency will take.

Out of a long list of important issues, I have chosen four that I think are at or near the top of any list of defining issues. They are the safe and efficient regulation of operating reactors, reactor decommissioning, waste disposal, and public confidence in the regulatory process.

Operating Reactors

(SLIDE 3)

The NRC devotes nearly one third of its resources directly to the regulation of operating reactors. It is our largest single activity. It is also the most visible to the public and to Congress, a point to which I will return later. Therefore, that we regulate operating reactors effectively and efficiently is particularly important.

For the last several years, the NRC, with encouragement from the industry, has been moving in the direction of risk informed regulation. This is consistent with our regulatory principle of efficiency, formally adopted by the Commission in 1991, which requires that regulatory activities be consistent with the degree of risk reduction they achieve. Probabilistic risk analysis has become the tool of choice for selecting the best of several alternatives.

Closely related to risk informed regulation is the development of performance based rules. Such rules focus on the end result to be achieved. They do not specify the process, but instead establish the goals to be reached and how the achievement of those goals is to be judged. The inspection and enforcement activities are based on whether or not the goals have been met.

The PRA policy statement issued in 1995 formalizes the Commission's commitment to risk informed regulation. It states, in part, "The use of PRA technology should be increased in all regulatory matters to the extent supported by the state of the art in PRA methods and data, and in a manner that complements the NRC's deterministic approach and supports the NRC's traditional defense in depth philosophy." I would like to point out that Chairman Jackson has drawn a distinction between "risk based" and "risk informed" regulation and through her efforts the Commission has begun to substitute the clearer term "risk informed" for "risk based" in its lexicon.

The success of risk informed regulation ultimately depends on having sufficient reliability data to allow quantification of regulatory alternatives in terms of relative risk. Similarly, the success of performance based rules depends on having sufficient performance data to provide assurance that goals have been achieved. The NRC is considering a new rule, now out for public comment, which would require power reactor licensees to collect and report to the NRC certain equipment reliability data. Although the industry appears to agree that reliability data are needed to move forward with risk informed regulation, it is opposed to a rule requiring data collection. It would prefer to rely on a voluntary program to produce the required data. Regardless of how this disagreement is finally resolved, there is

a clear need to collect, evaluate and disseminate relevant data throughout the nuclear community.

Perhaps the area of human reliability and organizational performance has the greatest potential for improvement in reactor safety. Our ability to model human performance is significantly less developed than our ability to model mechanical or electrical systems. Indeed, some experts argue that today's hardware is good enough, and that the greatest safety gains can be realized by improving our ability to predict, and modify, human performance. The NRC is currently supporting research in this area, as are other, international, groups. The problems of interest relate to both individual performance and organizational performance. More work needs to be done on how to model human performance in probabilistic analyses, and how to collect data on human performance so that the human performance contribution to core damage frequency can be quantified. At the organizational level, there is a need to characterize management practices that contribute to safe operation so that those practices can be communicated to other organizations. Most importantly, is there any way to identify early warning signs of changes in an organization that foretell a decline in operational safety? Developing reliable insights on human reliability and organizational performance is a formidable task, but one that should not be avoided.

The NRC Advisory Committee for Reactor Safeguards recently wrote to the Commission endorsing the continued move toward risk informed regulation, and identifying what it believed to be the next logical steps in the process. Among the most important issues identified in that letter is the need to restate the Commission's safety goals policy in a way that allows the goals to be used on a plant specific basis. The Committee cited the need for a methodology to determine performance-based criteria for regulatory action that are fully consistent with the top level safety goals. The ACRS also emphasized the importance of preserving the concept of defense in depth.

I share the ACRS concern that developing suitable metrics for performance based regulation will be especially difficult. Nevertheless, I expect the NRC's strategic plan to endorse the further development of risk informed, performance based regulation. The potential benefits to public health and safety and to our licensees are too great to do otherwise.

Industry Restructuring

While the NRC and the industry will continue to work together to implement risk informed regulation, industry is at the center of a restructuring and deregulation tumult, in which NRC plays only a marginal role.

From the Commission's point of view, industry restructuring is of interest because of its relationship to public health and safety. We need to know the organizational entity that is responsible for the safe operation of the plant, that adequate resources are available to assure safe operation, and that adequate funds are assured for decommissioning.

The Commission has met with representatives from government, industry and the financial community, including the Federal Energy Regulatory Commission and the National Association of Regulatory Utility Commissioners. During a meeting last December, they cautioned us against premature regulatory action that could cause the kind of unjustified economic stress we would like to avoid.

Nevertheless, the rapidly evolving deregulation of the power generating industry does raise questions concerning the availability of funds for safe operation and decommissioning. It is not inconceivable that restructuring could cause a nuclear plant licensee to lose its direct access to rate based cost recovery or other sources of funds. To address this situation, we are considering revisions to our financial assurance requirements, including requiring periodic reports detailing the progress of decommissioning fund collections. We are also considering allowing licensees the opportunity to take credit for earnings on their trust funds during an extended safe storage period. To obtain relevant information on this topic, in April we published an advance notice of proposed rulemaking in the Federal Register. I invite you to review this notice and to send us your comments.

I will defer any predictions on the future of NRC regulations in this area until the scope and character of the electrical industry restructuring become better defined.

License Renewal

One apparent effect of the prospect of economic deregulation has been to postpone utility applications for license renewal under 10 CFR Part 54. In 1995 we published a revision to the license renewal rule that the staff and the industry seem to think is workable. We believe we have properly focused the rule on maintaining the current licensing basis during the renewal period, and on managing the effects of age-related degradation. In a related action, we have just published a revision to 10 CFR Part 51, the environmental review for renewal of nuclear power plant operating licenses, as an interim final rule.

The Nuclear Energy Institute has submitted a guideline document for implementing the requirements of Part 54, and the staff is preparing a regulatory guide that will endorse the industry

guideline as an acceptable approach. It is my understanding that industry representatives and the NRC staff have been working together on this matter and have made excellent progress. The staff is reviewing preliminary material submitted by licensees and owners groups, and it is prepared to move forward on a formal application as soon as it is received.

Decommissioning

(SLIDE 4)

Decommissioning is an important future activity for the NRC for a number of reasons: it is inevitable for all currently licensed facilities; it will require the prudent management of activities on a national scale (tens of billions of dollars for power reactors alone); and it must achieve the desired long term protection of public health and safety without wasting resources on activities with little safety significance.

The Commission first published decommissioning regulations in 1988. These regulations addressed financial assurance issues for all types of licensed facilities and established a procedural framework for decommissioning nuclear reactors. The regulations were based on a number of expectations and assumptions, some of which have turned out to be wrong.

We expected licensed nuclear facilities to have a long economic life and to operate at least to the end of the term of their respective licenses. However, we have seen a number of facilities terminate their operations early. We expected power reactor decommissioning to involve many first-of-a-kind, high-risk activities. To the contrary, we have seen that many major activities that occur in power reactor decommissioning are conventional, not particularly risky, and similar to activities that licensees have conducted under 10 CFR Part 50.59. Finally, we expected power reactors to have an assured stream of cost-based revenue. As I noted a moment ago, cost based revenue may become a thing of the past.

We have had to correct for these disparities between expectations and experience. In 1995, we proposed a rule that would revise the procedural framework for decommissioning power reactors. Comments have been received and resolved, and the final rule is before the Commission for consideration.

The new rule is based on the concept of three distinct phases of decommissioning: cessation of operations, including early component removal; a possible safe storage period, which could last many years, even decades; and a decontamination period followed by termination of the license. The proposed final rule addresses three issues. First, lengthy and complicated staff

reviews of the planned decommissioning activities are not required. Dismantlement can be carried out under 50.59. Second, commitment of decommissioning funds is controlled to ensure their effective application. Finally, the public's need to be involved is satisfied by public meetings prior to beginning decommissioning and again during the final decontamination phase.

Waste Disposal

(SLIDE 5)

Mention of decommissioning leads inevitably to the issue of waste disposal. Plant decommissioning options will be influenced by whether or not fuel will remain on site, and the availability of low level waste sites.

Waste disposal is particularly vexing from the NRC's standpoint because we are ultimately responsible for the safety of waste disposal. It is vitally important to our licensees. Our role is essentially reactive unless the lack of adequate disposal creates unsafe conditions at facilities that we license. Progress on both high level and low level waste disposal has been, to say the least, disappointing.

The schedule slippage in the geologic repository program and the resultant need to provide for interim storage of discharged spent fuel, has attracted considerable interest in the U.S. Congress. No legislation has been enacted to date, but both DOE and NRC have absorbed large budget reductions, approximately 50%, in their high level waste activities. Reductions of this magnitude can be met only by making significant program changes and both agencies are doing exactly that.

Public Confidence

(SLIDE 6)

One of the things that makes the nuclear generation business different from virtually every other business is the variety of regulatory involvement that one has to deal with. At least for the near term, economic regulation is still the norm. Environmental regulation is a major consideration, and it affects virtually all power generation technologies. Finally, the operations of nuclear power plants are regulated by the Nuclear Regulatory Commission for safety. The requirement for federal regulation of nuclear power is imbedded in the same legislation that authorizes the use of nuclear power for commercial purposes. Regulation and utilization are inseparable. Most of the time, the nuclear utilities and the NRC think of the regulatory process only in terms of their relationship to each other. We tend to

forget that there are other interested parties; if we lose sight of them for too long we almost always find ourselves in a crisis that reminds us of their importance.

Regulation is essentially a political process. It can be successful, and in turn the regulated industry can succeed, only if the process and its results are accepted by the public and by their elected representatives. Public trust requires that the regulatory process be open and understandable. Too often, the process is neither simple nor easily understood.

Public perception of safety, or lack of it, can be as important as the reality of safety. A high visibility failure with little safety significance at a nuclear site may cause unacceptable damage to the credibility of the regulator and the industry. We should not forget that it was lack of public trust that caused the demise of the AEC as a regulator. Adequate resources must be allocated to issues that are of high public concern, even if technically we rate their safety significance as relatively low.

The events at several nuclear plants in New England and the resulting media attention have seriously set back the credibility of the industry and the credibility of the NRC. Neither of us can afford that. We would both like to achieve a more efficient, more rational regulatory process based on risk considerations and performance. That ideal is seriously threatened by any developments which lead Congress and the public to conclude that the industry is not complying with our regulations and that our oversight is ineffective. A resulting heavy emphasis on compliance is exactly the mode of regulation that we would both like to change.

One of the more disturbing facts to emerge from the increased inspection activities resulting from the New England reactors affairs is that some licensees appear to be going to great lengths to find legal justification for not reporting certain information to the NRC. That practice will inevitably lead to public relations disasters. Somehow, those of you operating nuclear power plants must convince yourselves that the best way to deal with the NRC is to be completely open. If you feel that you cannot do that, then we have a very basic problem to solve.

We must be able to have confidence in our licensees; you have the responsibility for safe operation of your plants. The public, in turn, needs to be able to trust the NRC. We must get to a point of mutual trust that will avoid the kind of publicity we saw in Time magazine. If we are not there, and apparently we are not in some cases, then we must work together to get there. The alternative is simply not workable in the long run. This industry is facing a very difficult future. Lack of public trust is too great a burden, and an unnecessary one.

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Public Confidence