



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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No. S-02-006

PERSPECTIVES ON THE PAST, CHALLENGES FOR THE FUTURE

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U.S. Nuclear Regulatory Commission

Presented at the 14th Annual NRC Regulatory Information Conference

March 5, 2002

Introduction

Good afternoon. I join Bill Travers and Sam Collins in welcoming you to the NRC's annual Regulatory Information Conference. I want to commend Sam and his staff for arranging a series of sessions that cover the wide range of technical and policy issues that face the NRC today. I would also like to thank all those present for participating. It is through your efforts that this conference continues to be an important forum for information exchange.

When I addressed this conference last year, I reflected on the past and provided a perspective on future challenges. I think it is safe to say that none of us had any inkling of the challenges that would arise during the year as a result of the events of September. The terrorist attacks and their aftermath have had, and will continue to have, a significant effect on both our licensees and the NRC. Nonetheless, our licensees' primary responsibility of ensuring the safe operation of their facilities, and the NRC's fundamental mission of protecting public health and safety, have not changed. Moreover, we have seen many developments bearing on civilian nuclear power. Although I will turn first to the issue I am sure is most on your minds -- physical security -- I would also like to step back and review our activities and accomplishments over the past year. I will again offer my views on what the future may hold.

Physical Security

As you know, licensees of nuclear power plants have a capability to protect against terrorist attacks that far exceeds that of most other civilian infrastructure. Nonetheless, the attacks of September 11 required us to reassess our assumptions about the nature of the threats with which our licensees might have to cope. Our immediate response was to advise licensees to proceed to the highest level of security -- a level we have maintained in the intervening months. Many state and local government officials also took steps to augment plant security forces with law enforcement personnel or National

Guard troops. And, for our part, the NRC has worked closely with the Office of Homeland Security, the FBI, and other government agencies to provide our licensees with timely information about potential security threats.

With the full support of my colleagues on the Commission, I also directed the NRC staff to conduct a comprehensive review of our safeguards and security regulations and policies. Although this effort is not complete, it became clear that the persistence of the generalized high-threat environment required that enhanced security measures be formally maintained within our regulatory framework. Consequently, we have issued orders to our licensees with specific requirements for licensee actions to maintain heightened levels of security. I want to make clear that issuance of the orders does not imply any laxity on the part of our licensees in responding to the earlier advisories.

The NRC continues to work closely with a variety of agencies, through the auspices of the Office of Homeland Security, in an effort to develop an integrated national strategy to deal with critical infrastructure. It is my view that the defense of nuclear facilities should not be viewed in isolation, but should be part of an overall national defensive scheme. This effort is in its early stages, but will become increasingly important. In many respects, the nuclear industry is the pathfinder because of the extensive capacities that it had in place before September 11.

Industry Performance

Although plant security has been in the forefront of our activities and those of our licensees, it has not totally dominated our attention. The Nation's nuclear power plants provide 20% of our supply of electricity. The safe and reliable operation of those plants is the primary responsibility of our licensees, and the NRC's obligation to protect public health and safety requires strong, safety-focused regulatory oversight. NRC data drawn from our performance indicators and inspection results and industry data on plant performance indicate a continuation of the trends that we have observed for the past decade: fewer safety-significant events, better plant reliability, and, as a result, increased capacity factors and cumulative power generation. The result is that the production cost for nuclear is less than that of natural gas and coal.

I know that we are all pleased to see these advances. It is no surprise that strong safety performance and strong economic performance should move in parallel. A safe plant is a reliable plant, and a reliable plant promises cost-efficient operations.

This does not mean, however, that we do not face challenges. We will continue to see new issues as the plants get older, such as reactor head nozzle cracking. We also recognize that, while overall industry performance continues to improve, there are still a few outliers that require more rigorous regulatory oversight. We must improve our ability to recognize the signals of declining performance and intervene appropriately to help reverse such trends.

With this as background, let me now move on to discuss our progress and plans in the areas of risk-informed regulation and the Reactor Oversight Process.

Risk-Informing NRC Regulations

As most of you are aware, the NRC undertook the initiative to risk-inform our regulations and regulatory processes in recognition of the fact that improvements in the tools for quantitative assessment of risk, combined with the accumulated operating experience, provide a foundation for the

critical examination of our regulations and processes. Where such examination reveals regulatory requirements that do not contribute to protection of public health and safety, we can modify or eliminate the requirements. Of course, we may also find areas in which requirements are insufficient to address the attendant risk, indicating a need to strengthen the regulatory framework. The consideration of risk provides a tool for continuing to refine and improve our regulatory system.

The NRC's efforts to implement risk-informed regulations and regulatory processes has begun to bear significant fruit. We have formalized the processes for reviewing license amendments and for the conduct of inservice inspection and testing. We are moving forward with implementation of risk-informed technical specifications to be incorporated into the Standard Tech Specs. And we continue to work with standards development organizations to establish consensus standards for probabilistic risk assessments addressing full-power conditions, shutdown, fire-protection, and external events, such as earthquakes.

We also continue to see progress in our efforts to risk-inform our so-called "special treatment" requirements and the technical bases that underlie the requirements in 10 CFR Part 50. The staff will forward to the Commission later this year its recommendations for a new rule – 10 CFR 50.69 – addressing special treatment requirements. This will refocus these requirements on the risk-significance of a system, structure, or component, rather than strictly on its safety classification. We also expect to see a proposed rule in the next month or so addressing risk-informed changes to the requirements for combustible gas control.

The Commission recognizes that the pace for risk-informing our regulations is not as rapid as we had hoped. We do consider risk-informed regulation to be a high-priority effort, and we continue to encourage the staff to engage constructively with all of our stakeholders to reach mutually acceptable solutions to the issues that arise. We should see this activity as a long-term effort. Nonetheless, I also believe that the benefits for both the NRC and our stakeholders are potentially substantial, and I ask for both your patience and your help as we pursue these benefits.

The Reactor Oversight Process

Another area related to risk-informed regulation in which I believe we have made great progress is in our Reactor Oversight Process (or "ROP"). We are approaching two years since the new oversight process was implemented on an industry-wide basis. Overall, the oversight process has continued to meet its goals of providing more objective and understandable assessments of plant performance while focusing on aspects of operation that are most safety-significant. The feedback that we receive both from licensees and from members of the public is overwhelmingly positive.

While the new oversight process has been remarkably successful, this does not mean it would not benefit from revision. We have received comments and recommendations on various elements from our licensees, other stakeholders, the Advisory Committee on Reactor Safeguards, and from the NRC staff. As a result, we recognize that improvements can be made in the way in which we assess performance indicators and in the indicators themselves. We also see a need for improvements in the risk-assessment tools and techniques that are employed in the significance determination process. We continue to seek feedback from all stakeholders in our efforts to build on our success to date.

Nuclear Power for the Future

So far, I have focused largely on the past and present. I would now like to turn to the subject of what the future may hold for nuclear power. The NRC's activities in this regard are concentrated in three major areas: power uprates for operating plants; license renewal; and preparation for the licensing and construction of new nuclear power plants, if and when new orders materialize. Let me first address uprates.

Power Uprates

Operating experience with the current generation of plants, along with more realistic techniques for analyzing plant performance during both normal and accident conditions have led licensees to conclude that it is possible to increase the power output of their plants while still maintaining adequate safety margins. The NRC has reviewed applications for modest uprates – up to around 5% – for several years and has approved a substantial number of these requests. Moreover, improvements in the measurement of flow rates, which reduce the uncertainty in power calculations that must be applied in certain accident analyses, have allowed licensees to increase power on the order of 1 to 1-1/2 %. The staff recently published guidelines for such flow-measurement based uprates, in order to improve the efficiency and effectiveness of the staff's reviews.

We are now beginning to receive applications for much larger power uprates – up to about 20% – as licensees seek to improve the economic performance of their plants. Feedback from the ACRS, which reviews the staff's evaluations of uprate applications, indicates that the staff's assessments are, overall, proceeding appropriately. In view of the large number of uprate applications that we expect to receive in the near future, the staff is looking at ways to improve the efficiency of the process, while maintaining the high technical quality of its reviews.

Power uprates and associated capital improvements in operating plants are being undertaken, in part, in anticipation of the prospect of renewing the operating licenses of the plants for an additional 20 years. Let me touch briefly on progress to date and future plans for license renewal reviews.

License Renewal

As you know, the NRC established regulations governing the license renewal process (Part 54) in anticipation of receiving applications from licensees to renew operating licenses beyond the 40-year term authorized by the Atomic Energy Act. The Commission established an ambitious schedule for license renewal reviews, recognizing the need for efficiency, but also for the staff to perform technically sound, high-quality assessments.

The results of the license renewal reviews have surpassed our expectations. The staff has met or bettered the target schedules for the four reviews completed to date, while maintaining the necessary technical rigor. Those reviews have aided – and have been aided by – the development of guidance documents, such as the Generic Aging Lessons Learned (or GALL) report. Those guidance documents will be modified and updated as new insights are gained in current and future reviews.

In addition to the four plants, with a total of eight reactors, whose licenses have been renewed, renewal applications for eight plants, comprising fifteen units, are currently under review, and four more applications are expected before the end of the current fiscal year. Overall, about half of the

operating plants have formally notified the NRC of their intent to seek renewal, and we still expect that virtually the entire operating fleet will ultimately apply.

We recognize the challenges presented by the need to conduct a large number of simultaneous reviews. However, the staff's performance to date gives me confidence that the NRC can meet those challenges.

New Plant Licensing and Construction

License renewal extends the period during which currently operating nuclear plants can continue to contribute to the Nation's electric power supply. However, as our Nation's use of electricity increases, those plants will provide a decreasing percentage of demand and eventually, of course, the current fleet must be decommissioned. If society decides that nuclear power should continue to play a significant role in the portfolio of electric generation technologies, it will eventually be necessary to build new nuclear power plants. The NRC's responsibilities in this regard are not promotional, but we must be prepared to perform our regulatory duties without inappropriate impediments to the use of nuclear technology. The Commission has therefore sought to ensure that the NRC is ready to carry out its responsibilities, if and when applications for new plants are submitted.

Regulations providing a more efficient licensing process for standard plant designs and for the consideration of early site permits are in place in Part 52. Three plant designs have been certified under its provisions, and an application for a fourth design, Westinghouse's AP1000, is expected within the next several weeks. The staff is also conducting preliminary reviews of two gas-cooled reactor designs, the pebble bed modular reactor and the gas turbine modular helium reactor. We are also prepared for a possible application for a combined construction permit and operating license (or "COL"). And we have been advised to expect applications for early site permits by one or more licensees, although the schedules are not certain at this juncture.

The Commission is working to meet the needs that new construction will present. We have established groups within the Offices of Nuclear Reactor Regulation and Nuclear Regulatory Research dedicated to advanced reactor issues. We have requested and obtained resources in our budget to support the projected workload for early site permit, design certification, and possible COL reviews. We have also begun a dialogue with potential applicants and other stakeholders on how current regulations apply to new reactor designs, and are examining possible changes to our overall regulatory framework to make it more risk-informed and technology-neutral. We are also moving to strengthen our regulatory research program to support advanced plant reviews. And we have also taken specific steps to address our technical skill requirements.

There will clearly be challenges that we must face in these areas, and there is still much uncertainty as to what we will need to review and when. Nonetheless, we will be ready to carry out our responsibilities when we are called upon to do so.

Human Capital Initiatives

An overarching issue is the need to maintain the NRC's technical skills at a time when a large number of NRC staff are approaching retirement. I mentioned last year that we had six times as many staff members over the age of 60 as under the age of 30. In the past year, we have sought to identify skill gaps, to hire new staff to fill those gaps, and to ensure that essential technical skills are maintained and strengthened. Initiatives in this area include hiring highly-qualified entry-level engineers and

scientists and seeking to retain current staff members whose critical skills might otherwise be lost. Our efforts to hire new, young technical staff have been particularly successful: in the last 12 months, over 80 entry-level offers have been accepted and 35 of those people are currently on board. By the end of this fiscal year, we expect to have about 100 new staff. The ratio of 6 to 1 to which I referred previously has been reduced to 4 to 1, and is continuing to decline.

I would also like to note that I have been hearing about increased interest in nuclear engineering and related technical areas among university students. Indeed, I understand that the University of South Carolina has recently decided to establish a nuclear engineering program in recognition of the resurgence of interest in nuclear power. This is clearly positive news for both us and the industry. We all draw from the same pool of academic talent, so this is a case of a rising tide that lifts all boats.

Public Confidence

The last topic I would like to address is one of great importance to the NRC: the need to conduct our business in a manner that instills public confidence in the agency. In my remarks at this conference last year, I emphasized the importance of public openness as a tool for building public confidence. Although my views have not changed, the events of September 11 have cast the issues of public openness and public confidence in a new light.

I am committed to maintain open communications with all of our stakeholders and to ensure their involvement in our regulatory processes to the fullest possible extent. Only in this way can we hope to gain and retain the public's confidence in our ability to protect their health and safety. Because public concerns about nuclear may have grown since September 11, we have an increased obligation to address issues openly and forthrightly. Unless our decisions are made in as open a forum as possible, the result may be a decline in public confidence in both the industry and the NRC. However, we also recognize that certain information that our licensees provide or that the NRC develops could be of substantial use to terrorists. We must therefore walk a fine line between the public's right to know and the need to protect information from terrorists. This is the difficult issue, but I am hopeful that the guidance being developed will achieve the appropriate balance.

Conclusion

Let me conclude by saying that the past year has been one of extraordinary changes and challenges. My goal, and that of my colleagues on the Commission, has been to ensure that the NRC is able to respond to those changes and challenges in a manner that is direct, technically defensible, and responsive to the concerns of all of our stakeholders, while fulfilling our obligation to protect public health and safety. I hope that I have left you with the assurance that we can meet that goal.

I appreciate the opportunity to address you and will be pleased to respond to questions. Thank you.