



# NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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## An Overview of the Nuclear Industry

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U.S. Nuclear Regulatory Commission

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Good morning. I am very pleased to be able to join you again this year at this annual meeting of U.S. and international nuclear energy industry leaders.

Much has changed since last year's Nuclear Energy Assembly, both for the Nuclear Regulatory Commission and for you in the nuclear industry. Obviously, the most striking change has arisen as a result of the events of September 11. This event has affected us in many ways, and will continue to do so for the foreseeable future. The protection of nuclear facilities from potential threats from terrorists has become one of our chief concerns. However, it would be a serious overstatement to say that physical security has been an "overriding" concern or a "preoccupation." Although the issue of security still requires much attention from the NRC and our licensees, safety issues more generally never go away for either the NRC or the industry.

The 103 operating nuclear power plants that supply almost 20% of our electricity continue to require careful regulatory oversight, both on a routine basis and to deal with emergent safety issues, as we have recently seen at Davis Besse. Our nuclear plant licensees continue to apply to renew their operating licenses beyond the original 40-year term and to increase the power output of their facilities. There continues to be interest in the possibility of new construction. And after decades of technical studies and political debate, we may be on the threshold of a new era in dealing with the accumulation of spent fuel at our power reactor sites. I would like to address some of these issues briefly in order to give you a sense of the NRC's perspectives.

## Security

Last September's terrorist attacks brought home, in a horrific and graphic way, some of the vulnerabilities of our open society. The American people, and their representatives in Congress, have come to realize the damage that could be done to critical elements of our national infrastructure and they have asked for reassurance that public health and safety can be protected. My colleagues and I on the Commission believe that nuclear power plants are among the most hardened potential targets of terrorist attacks, but, in light of September 11, we have sought to reduce vulnerabilities. We recognize, however, that there are aspects of nuclear plant security and protection that must be within the purview of local, state or national government, and should not be the responsibility of licensees. In establishing interim compensatory measures for plant security and in our re-evaluation of the design basis threat, we are working to define where and how that line should be drawn. .

As you know, we have recently established a new Office of Nuclear Security and Incident Response. Our purpose was to pull together groups that were previously in our other offices to provide a single focused organization for security, safeguards, and emergency response. This office also serves as a central point of contact for coordination between the NRC and other government agencies in these areas. Nuclear plant security cannot be viewed in isolation, but must be an integral part of an overall strategy for the protection of critical infrastructure. As a result, we continue to work with the Office of Homeland Security, other Executive Branch agencies, and Congress to formulate and implement strategies to deal with the terrorist threat. This is obviously an area that will continue to be of great importance to both the NRC and to you in the industry for the foreseeable future.

## The Future of Nuclear Power

As I noted at the start of my remarks, security cannot be our preoccupation. Over the past decade, we have seen remarkable progress in the overall safety and economic performance of the nuclear power industry. As a result, we are seeing great interest from licensees in renewing their operating licenses beyond the original 40-year term. We also see continuing interest in the possibility of building a new generation of nuclear power plants. Let me address each of these areas briefly.

License renewal has been, from virtually every perspective, one of the NRC's most conspicuous success stories. We established the license renewal process to permit the staff to conduct a thorough and rigorous technical review to assure that a plant will be able to operate safely through the term of its extended license. The results of the license renewal program to date speak clearly of strong licensee interest.

To date, we have granted four renewals, covering 8 units. All of these reviews were carried out within the projected schedule: 25 months without a hearing, 30 months with one. Eight more plants, with 15 units, are currently under review. And the total number of plants that are formally in the renewal process – that is, either a renewal has issued, an application is under review, or the licensee has formally notified the NRC of its intent to submit an application – currently comprise roughly half of the U.S. operating fleet. We expect that almost all of the operating plants in the U.S. will ultimately apply to renew their licenses. As a result, we expect that nuclear power will continue to make a significant contribution to the Nation's electricity supply for at least the next several decades.

## Future Reactors

If nuclear power is to contribute substantially to our energy supply beyond the next two to three decades, new construction will eventually be necessary. As you are well aware, it is not the NRC's job to promote such new construction, but if and when it comes about, we must be prepared to perform to ensure public health and safety in such a way that we provide a predictable, efficient, and effective process with a minimum of unnecessary burden on applicants and licensees. The NRC has established a process for licensing new plants, in Part 52 of our regulations, and we have put in place the organization that will manage new plant reviews. We believe we have the necessary framework in place. Although many of you are already somewhat familiar with Part 52, let me review its elements and indicate where we are in their implementation.

Part 52 is designed to provide a more streamlined licensing process than was the case under our "old" licensing regime, based on 10 CFR Part 50. It is built on three distinct elements: design certification, early site permits, and combined construction permits and operating licenses. The design certification process begins with NRC review of a standardized plant design. If the staff finds that the design meets technical licensing requirements, the design can then be certified through a rulemaking. In a similar fashion, Part 52 allows for approval of a prospective site in advance of a specific application to build a plant there. The review for an early site permit is similar to the site review performed under the old Part 50 process, but can be undertaken long in advance of a decision to undertake construction. If the review finds the site to be acceptable, the site can then be "banked" for a future application. An important feature of both design certification and the early site permit process is that technical issues resolved at these early stages cannot be reopened in later proceedings.

The final element of the Part 52 process involves combined licenses, or C-O-Ls in the NRC's terminology. A COL application may reference a certified design, or an early site permit, or both – although it is not required to do so. If the application does, in fact, reference a certified design or an early site permit, the scope of the review and any associated hearings would be limited to issues that could not previously be resolved. If the application is granted, an applicant may proceed directly from construction to operation without a separate application for an operating license. The crucial factor in making this transition is the satisfactory completion of the inspections, tests, analyses and acceptance criteria–ITAAC–that demonstrate the constructed plant reflects the certified design.

We are currently reviewing Westinghouse's application for certification of its AP1000 design. If granted, this would be the fourth design certified by the NRC, after the ABWR, the System 80-plus, and the AP600. We expect to begin our first early site permit reviews in 2003 for Dominion's North Anna site, Entergy's Grand Gulf site, and an as-yet-unspecified Exelon site. And we are cognizant of the Department of Energy's 2010 initiative, which foresees the possible application for a COL perhaps as early as 2005. The NRC continues to prepare for these upcoming reviews, and to consider even more far-reaching changes to our licensing process to deal with non-light-water-reactor designs and to incorporate risk-insights. A technology-neutral, risk-informed regulatory approach is our ultimate goal.

You are all of course aware of the decision by Exelon to back away from the development of the pebble bed modular reactor. The PBMR has been very prominent in media reports discussing the construction of a potential new generation of nuclear plants and Exelon's decision may be seen by some to reflect a change in the attitudes toward new construction. The impact of Exelon's decision on the public has yet to be determined, but I do not detect any sweeping change in the overall industry interest

in new reactors. The NRC's work on issues related to future reactors will continue so that we are prepared to fulfill our responsibilities in an efficient manner.

## Yucca Mountain

Let me now move on to my final topic, the status of our national effort to dispose of spent fuel and high-level waste from civilian reactors.

As you know, just weeks ago, President Bush accepted the Secretary of Energy's recommendation that the Yucca Mountain site be developed as a potential repository for the disposal of high-level nuclear wastes and spent nuclear fuel. On April 8<sup>th</sup>, Governor Kenny Guinn of Nevada provided the Congress with the State's "Notice of Disapproval of the Proposed Yucca Mountain Project." The President's recommendation will become a final decision if, within 90 calendar days of continuous session, Congress approves a resolution of siting approval. Congress is currently holding hearings on the site recommendation and if it approves the President's recommendation, DOE is authorized to apply to the NRC for construction authorization.

We are preparing for the possibility of such an application. Specifically, as required under the Energy Policy Act of 1992, the NRC has promulgated the health and safety regulations to guide a licensing decision on Yucca Mountain. We are confident that any repository that can be shown by DOE to comply with these demanding regulations will protect the public today and in the future. In order to prepare for a potential license application review, the NRC staff recently published a draft of the Yucca Mountain Review Plan. Thus, NRC's regulatory framework for a review of a license application, should one be submitted, is largely in place.

If a license application is filed, I believe the litigation before the NRC will constitute one of the largest administrative proceedings in which any agency has ever engaged. To prepare for those proceedings, our Atomic Safety and Licensing Board Panel has begun work, including the exploration of possible arrangements for a hearing location and the development of automation tools necessary to facilitate a hearing. These activities include development of an electronic hearing docket and completion of the Licensing Support Network (LSN) that will provide access on the Internet to all the key documents. The NRC staff also is working to provide guidance to DOE on developing an electronic high level waste repository license application.

One issue that has been prominent in recent discussions of Yucca Mountain relates to the safety of the transportation of spent fuel. Federal regulation of spent fuel transportation safety is shared by the U.S. Department of Transportation (DOT) and the NRC. DOT regulates the transport of all hazardous materials, including spent fuel, and has established regulations for shippers and carriers regarding among other things, radiological controls, hazard communication, and training. For its part, NRC establishes design standards for the casks used to transport licensed spent fuel, and reviews and certifies cask designs prior to their use. NRC also conducts an inspection and enforcement program, and reviews and approves physical security plans for spent fuel shipments.

The safety record associated with the current regulatory system is exemplary – approximately 1,300 shipments of civilian fuel and 920,000 miles without an accidental radioactive release. Nonetheless, we continually examine the transportation safety program. Over two years ago, NRC began the Package Performance Study to study cask performance under severe impact and fire accident

conditions. The study plan calls for full-scale testing of a cask to confirm computer models of cask response to severe accident conditions. As a part of its evaluation, the NRC staff is analyzing appropriate national transportation accidents, such as the 2001 train accident in Baltimore, Maryland, to determine if lessons learned from that event should be included in our transportation requirements or analyses. Finally, NRC is sponsoring a study to update its evaluation of cask response to acts of sabotage. NRC plans to utilize the results of these studies as input into its comprehensive review of security. These studies will provide further confidence that our national system for the transportation of spent fuel is safe long before shipments to a possible repository at Yucca Mountain.

### Conclusion

I hope I have been able to provide a perspective on some of the challenges facing both the industry and the NRC in the coming years. There has been much that I have not had the time to cover: for example, our work on power uprates, continuing efforts to risk-inform our regulations, and progress with the reactor oversight process. We clearly have much on our plate. Nonetheless, speaking for myself, I believe the nuclear industry is in better shape, with more favorable prospects, than has been the case for more than 25 years. Speaking for the NRC, we look forward to fulfilling our appointed role: that of a tough but fair regulator that is fulfilling our primary mission of ensuring the health and safety of the public.

Thank you.