NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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Prepared Remarks
by Chairman Dale Klein

at the
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Good afternoon. It is a great pleasure to be here attending my first IAEA General Conference, and to open the session at the Senior Regulators' meeting on the role of regulatory bodies in society. I look forward to fruitful discussions among our distinguished panelists from Germany, India, Japan, South Africa and the United Kingdom. Before I turn discussions over to the Panel Chairman, Luis Reyes, I would like to share with you some of the challenges I see facing the U.S. Nuclear Regulatory Commission in remaining a strong and credible regulator in today's society.

As you may know, I have been Chairman of the U.S. Nuclear Regulatory Commission for less than three months. But it is already apparent to me that I face a very different set of challenges than did some of my predecessors at the NRC. As I assume the NRC Chairmanship, we are hearing predictions that the U.S. could build 50 nuclear plants in the next 20 years. Half of the 104 nuclear plants in the U.S. have either had their operating licenses extended for 20 years, or applied for NRC approval. Most of the rest are expected to apply in the future. Instead of being a regulator to a declining industry, I am much more likely to spend my five-year term presiding over its revitalization.

The renaissance of nuclear power in the U.S. is a surprising turnaround. For decades, while commercial nuclear power was growing and flourishing in many other nations, it appeared to be dying in the U.S.

The Three Mile Island Accident in 1979 was a pivotal event in the regulatory sense, in that it led the NRC to require many backfits and to institute additional regulatory requirements both for nuclear plants in operation and under construction. That added to the expense of operating a nuclear plant, and it certainly was a disincentive to new plant orders. However, the central factor in the cessation of new plant orders in the U.S. was that the country simply did not need the electricity. The U.S. was overbuilt in every kind of generating capacity, not just nuclear.

Moreover, the U.S. nuclear fleet, each one custom-designed, was just not very efficient in terms of producing electricity during its early years. U.S. nuclear plants during the 1970s and '80s operated on average at about 60 percent of capacity. Given the overcapacity, and the cost, it was an easy choice for electric utility company managers to cancel planned nuclear plants.

Gradually, however, the situation changed. Through organizations such as INPO, nuclear plant operators who once jealously guarded operating information, began to exchange it more freely. Nuclear plant efficiency and safety metrics steadily improved all during the 1990s, and nuclear plants now operate on average at about 90 percent of capacity. The increased efficiency lowered the per-kilowatt production costs of nuclear electricity until it became competitive with other fuels.

More important, U.S. demand for electricity continued to increase year by year until it became apparent that new generating capacity would be needed. Demand for electricity in the U.S. is expected to grow by about 50 percent over the next 25 years. The uncertainty surrounding the price of fossil fuels, and continuing environmental questions, have led the U.S. electric power industry again to look in the direction of nuclear energy.

As we look to this future growth in nuclear power, we must ask what kind of regulator does the industry require? My vision is that first and foremost, NRC needs to be a strong, credible, and consistent regulator. In the uncertain atmosphere surrounding the rapid expansion of a technologically complex and capital-intensive industrial sector, the NRC must provide regulatory stability. We will articulate our requirements clearly, and we will hold our licensees accountable. We will be demanding and we will be responsive to their legitimate needs and concerns.

Both the NRC and the nuclear industry have a lot of work ahead of us in gearing up for the next generation of nuclear construction in the U.S. The NRC is working to complete or update the design certifications on such advanced reactor designs as the ESBWR and the AP1000 and we will expect many more applications for license extensions of current plants. Most important, the nuclear power industry has announced their intention to submit 19 applications for a combined operating license covering 27 new reactors and we know more are coming. In addition, there will be an enormous amount of work involved in reviewing the license application for the Yucca Mountain waste repository, and licensing applications for the MOX facility and American centrifuge facility.

In preparation, the NRC will be adding 600 new people and positions over the next three years. We also are reorganizing. We recently created an Office of New Reactors, separate from the Office of Nuclear Reactor Regulation, and since many of the announcements of new reactor activity have come from the Southeastern region of the U.S., we are adding a new construction office in Atlanta, Georgia.

We will also look at some possible procedural changes in the review process in the future. I would like to see the review time required for early site permits and combined operating licenses reduced, with no compromise in safety. That is not an unrealistic goal, if industry does its job at the beginning of the process.

I have already made my expectations very clear to the U.S. nuclear industry. In my first meeting with a group of industry leaders, I told them – and this is a direct quote – "It's a plain fact that a quality submission - COL, license renewal, design certification, or anything else - takes less time to review than a bad one. Show me quality and clarity and the NRC should show you timeliness."

I went on to express my concern to them about a potentially enormous problem facing the industry: where are we going to get the educated and skilled workers to run the nuclear plants of the future? What are their educational requirements? What is their training? As a regulator, the NRC has the responsibility of asking these questions, and of determining the adequacy of the answers.

The Nuclear Energy Institute estimates that 90,000 entry-level workers will be needed to support existing industry operations through 2011. If that estimate is correct – and I have no reason to question it – one may then ask, how many more workers will be needed to supply the materials for the new plants, and to build the plants themselves, if even half of the 27 expected new plant applications under discussion actually proceed to construction? And afterwards, how many additional workers will be needed to staff those new units?

The nuclear industry is working on many fronts to address this critical need – it has launched major programs to provide scholarships, training programs and recruitment drives, and so on. But I told the nuclear industry's executives that in my opinion this is an enormous challenge that must be addressed by the highest levels of the industry.

I suggested to them that a major industry effort is necessary, and that it must address every level of education in the country, starting with a commitment to fostering the interest in science and engineering of elementary and middle school children. Rather than competing for a small number of candidates, the industry must work to increase the talent pool to bring the supply of talented young scientists and engineers into equilibrium with the escalating demand. As I consider the challenges facing the U.S. nuclear industry in its period of renaissance, I can't help but think that some of the experiences are applicable beyond U.S. borders. I wonder if enough attention is being paid to workforce issues in countries with mature nuclear industries whose workforce, like that of the U.S., may be aging.

And there are other issues that we can extrapolate worldwide, I believe. The U.S. nuclear industry has restored itself by sharing knowledge to improve performance. Lessons learned from that experience can and should be applied internationally. Open cooperation in standardizing design and applying best practices will help to set new and higher standards of safety and operating efficiency for nuclear facilities worldwide.

My predecessor at NRC, Dr. Nils Diaz, was instrumental in developing the concept of the Multinational Design Approval Program. I strongly support the MDAP, and intend to continue to work toward its implementation. I believe it may be reasonable to consider expanding this concept of focused international cooperation to other parts of the fuel cycle, including some of the facilities and systems envisioned in the assured fuel supply discussed at the special session.

Unlike the previous generation of nuclear power plants, the majority of plants to be built around the world in the next five to 15 years will likely be limited to a small number of relatively standardized designs, purchased from a limited number of multinational corporations. This standardization creates an opportunity to leverage the resources and knowledge of the national regulatory authorities who will review these designs.

Our Stage One of the MDAP has begun, and is currently focused on the planned design reviews associated with the AREVA NP-EPR reactor. As you know, a reactor of this design is now being built

in Finland, has been proposed for construction in France and is undergoing pre-application reviews in the U.S. Several U.S. license applications over the next few years are expected to utilize the design. The level of cooperation achievable in Stage One will largely depend on the relative standardization of the reactor design among the three participating countries.

Our vision of Stage Two is more extensive, and will proceed in parallel with Stage One. I am encouraged that at a Stage Two preparatory meeting held in June at the Nuclear Energy Agency attendees strongly supported going forward. Terms of reference were drawn up and technical work should begin shortly. Parenthetically, let me note that NEA has been selected to serve as the secretariat for the project, with technical direction coming from the participating countries.

The primary objective of Stage Two will be to facilitate the licensing of the reactor designs, including those of the Generation IV program; however, we expect there to be significant near-term benefits as well. Interfaces between the NEA and the IAEA will be set up to ensure communication and alignment with IAEA activities in similar areas.

Stage Three of the MDAP, the implementation and expansion stage, would use the products of the Stage Two effort to review the advanced reactor designs of Generation IV (4). Stage Three should help to maximize the effectiveness of the regulatory design reviews of these advanced reactors.

I believe that the MDAP will initially encourage development of standardized reactor designs, which will allow for more meaningful exchanges of reactor operating experience. The MDAP should foster the safety of reactors in those countries with less experienced and extensive regulatory regimes, and enhance the safety of advanced reactor designs by encouraging a more comprehensive safety review. And eventually, international regulatory partners will become accustomed to sharing insights on licensing that will improve licensing processes in general around the world.

I thank you for the opportunity to address this organization. I believe the work we do is vital and I look forward to working with my international colleagues to ensure that high standards for safety and security are achieved in every nation of the world that develops peaceful uses of atomic energy.

Thank you.

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