

**Remarks to the 46<sup>th</sup> Annual  
Japan Atomic Industrial Forum Conference  
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It is a pleasure to address you this morning and to offer to you my personal perspective as a Commissioner of the U.S. Nuclear Regulatory Commission on some of the issues that will no doubt dominate the discussions this week. First, I provide my sincere appreciation to the organizers of the 46<sup>th</sup> annual JAIF conference for your invitation to speak to you today.

I wish that I could be with you in person, but it is a very busy week for the NRC, including a public meeting to discuss the lessons learned from the Fukushima disaster and the responses to those events that the NRC has taken over the last two years. In the United States, interest in these matters—from Congress, from our licensees, and from the general public—remains very high.

Interest around the world also remains very high. The NRC meets often with nuclear safety regulators from many countries, and the global response to Fukushima continues to dominate those discussions. We have found that many of our colleagues around the world have taken actions very similar to what we have done in the United States. The understanding about Fukushima and the responses necessary has been very consistent across the globe. This is very encouraging.

It's very difficult to believe that it's already been two years since the Fukushima disaster. A lot of work has been done across the globe on this issue. In the United States, we have worked very hard to understand the accident and to devise a set of responses to assure public health and safety.

The NRC divided its activities into a variety of tiers, the most important being Tier One activities that need to be implemented very soon. For example, the Commission has ordered the reevaluation of all external hazards for each nuclear power plant. The agency has also devised a new rulemaking to enhance our station blackout rules. Further, the Commission has ordered mitigating strategies for each nuclear power plant to respond to beyond-design basis events and

has required the installation of reliable hardened vents on BWR reactors with Mark I and Mark II containments.

The Commission also required new spent fuel pool instrumentation and the coordination of emergency procedures. Finally, we've required that each plant be able to have the staffing and communications infrastructure necessary to respond to multi-unit events.

These are all based on the lessons of Fukushima. Because we concluded that these actions are necessary for safety, we expect that they will be implemented relatively soon, generally over the next two refueling cycles. However, there will be some activities that will take a bit longer.

While all these activities are important, I only have time to highlight two. First, let me talk about the reevaluation of external hazards. I think this is the most important aspect of the Fukushima lessons learned. If your plant is not prepared for the external hazards facing it, you always run the risk of not being able to recover from a severe accident. Based on the location of the plant, it must be ready for the natural hazards presented by its site—including tsunamis, earthquakes, floods, and a wide range of other events.

In the United States, seismic and flooding present the most significant external hazards for many of our plants. Therefore, the NRC has focused on those hazards first. Our licensees have already completed walkdowns to assure that their plants comply with existing requirements, and any shortfalls identified are being corrected. Licensees are also reevaluating seismic and flooding hazards facing their sites based on the latest scientific information. They will submit reports to NRC over the next year.

Other evaluations will follow. Extreme storm events will be at the top of the list of upcoming evaluations, with temperature excursions and other natural hazards to follow. All these evaluations will be done over time. Because these are beyond-design basis incidents, the agency has allowed more time for licensees to complete the evaluations.

Another area I'd like to highlight is the mitigating strategies for beyond-design basis events. The NRC's strategy with this modifies our "B.5.b" requirements to assure that on-site portable equipment is available to respond to a large site-wide disaster that disables installed equipment. Many people have asked: "Would B.5.b equipment have protected the Fukushima plant?" In my view, it might have. But one important follow-on question is "Would the B.5.b equipment have survived the tsunami?"

So as result of the lessons of Fukushima, the NRC is requiring that B.5.b-style equipment be deployed on site in sufficient numbers to respond to multi-unit events, and that it be either protected or distributed on-site so as to survive a site-wide disaster. This equipment—which is primarily comprised of generators, pumps and supporting equipment—must be deployed at all of U.S. plants.

While we have made this requirement as specific as we thought was necessary, we were careful to make these requirements performance-based, which means we were not so prescriptive that licensees' hands were tied. As a result, licensees at each plant site had the flexibility to come up with their own approach.

The industry has developed an approach known as the “FLEX” initiative. The FLEX initiative goes beyond the NRC requirements. FLEX not only provides for on-site equipment, such as the portable pumps and generators I've described, but also provides that equipment from across the country, located at each nuclear power plant site, will be able to be relocated and provided to any other plant within 24 hours of an emergency. FLEX also provides that additional equipment will be located in two regional centers: one in Memphis, Tennessee, the other in Phoenix, Arizona.

Already, over 300 pieces of safety equipment has been purchased and deployed at U.S. nuclear power plants. This equipment uses standardized fittings so that equipment located at one plant or at one regional center can be used at any of our plants in the United States. With proceduralized use of onsite equipment and offsite resources, this approach establishes a layered defense in depth strategy that provides a greater level of protection than had been anticipated by the NRC requirements.

This, I think, shows the value of performance-based regulation. Using a performance-based approach, the NRC has been able to design a process that allows licensees to develop strategies that best fit each site and allows industry to apply its creativity and understanding of the situation at each plant to best respond to our requirements.

This performance-based approach requires a great deal of conversation between the regulator and its licensees. When the NRC first issued the requirements, the staff sat down with licensees and discussed what safety enhancements were necessary. Licensees gained a clear understanding about NRC's expectations and then proceeded to develop the FLEX initiative, and then presented it to the NRC as an option. Staff then engaged with industry in public meetings and many other

discussions to understand and improve on the industry option before approving the FLEX approach.

This requires a great deal of dialogue. Such dialogue is a vital aspect of how we do business. NRC Commissioners, such as myself, for example, meet regularly with licensee management. I also visit nuclear power plants quite regularly. I visited 15 plants just in the last year and a half. Visiting plants gives me, as an NRC Commissioner, a greater understanding of the challenges being faced by the industry and how our requirements are being applied.

NRC staff also talk continuously with our licensees. NRC staff meets both in public and, when necessary, in private with NRC licensees, and when in private they discuss technical details that are proprietary in nature to ensure licensees understand how to meet NRC requirements. Staff understands that if a private discussion becomes substantive, a written record of that discussion must be produced and made available to the public to ensure the public may participate in the regulatory process.

This provides for a great deal of communication between licensee and regulator. This doesn't mean that our rules are being written in secret; it simply means that we sometimes exchange information that is not publicly available to enhance the understanding of both sides. This process has been very important to assist us in developing regulatory requirements related to both security and nuclear safety.

Now, people often ask us about the situation in Japan. First, let me say that I think it's very important to emphasize that the Fukushima accident happened in Japan. Because the accident was a very traumatic experience for the Japanese people, it's no surprise that the Japanese regulator would take a very aggressive approach to improve safety.

I think the situation is very analogous to what happened in the United States after 9/11. After 9/11, the NRC required security to be enhanced at nuclear power plant sites to make them, essentially, armed camps. This goes beyond what most countries require, but it's a response to an event that happened in the United States.

Also, for many of you who travel to the United States, you know that you still have to take your shoes off when you go to a U.S. airport. That's not something that's required in most countries, but it is required in the U.S. because the 9/11 terrorist attack happened here.

Similarly, Fukushima happened in Japan, so it's no surprise the NRA—the new Japanese regulator—is taking a very aggressive approach to safety. I don't think it's inappropriate for them to be conservative. I think that Chairman Tanaka and his colleagues are working very hard to provide appropriate safety rules to enhance Japanese nuclear safety. The Commissioners of the NRA understand that having a strong, credible regulator is a prerequisite to having a safe and successful nuclear power industry in Japan.

Over time, I believe the NRA will develop the types of practices and procedures that are similar to what we have in the United States. In particular, I think they will develop the ability to engage more directly with their licensees to discuss complex issues. I think this will be very important for successful and effective regulation.

Let me emphasize that engagement does not mean that regulators must compromise on nuclear safety issues. It simply means that the regulators are willing to listen, willing to understand, and willing to communicate with industry before making regulatory decisions. The FLEX initiative shows what can result from that kind of engagement: safety is enhanced.

I also think that the success of nuclear safety in Japan will require the industry to learn and fully absorb the lessons of Fukushima. In the U.S., after the Three Mile Island accident, industry learned the importance of pursuing excellence in operations and devoted itself to achieving that excellence. As a part of that, they created the Institute of Nuclear Power Operations (INPO), which has been a tremendous success in helping U.S. nuclear power plants achieve a high level of operational excellence.

I hope that the new JANSI organization in Japan proves to be equally successful. JANSI is working today to set Japan's nuclear operators on a course toward improved safety culture. The success of this effort is absolutely essential if there is to be a future for nuclear energy in Japan. With a strong regulator that's willing to listen and an industry with an improved safety culture, I believe that Japan can have a successful nuclear power industry.

Earlier this month, I visited the Hamaoka Nuclear Plant, for which I thank the staff and management of Chubu Electric Power. At that facility, I saw first-hand how committed Japan's nuclear operators are to responding to the challenges presented by the Fukushima disaster.

I think this is a very promising example. While I know there's considerable debate about many issues, I don't believe that the goals of industry and regulators in Japan are as far apart as some

people believe. Dialogue and trust will resolve many issues and provide for the best safety and the best future for the people of Japan.

I thank you for your attention today, and I wish you a very successful 46th annual JAIF Conference.