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"Ensuring Safety in Dynamic Times: A Regulatory Perspective"
Prepared Remarks of NRC Chairman Allison M. Macfarlane
Institute for Nuclear Power Operations (INPO) CEO Conference
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Good afternoon. It's a pleasure to be with you again at the annual INPO CEO Conference. Last year when I was here, I was only able to reflect on a few months in the job. The past year has brought many rewarding experiences, challenges, and a lot of hard work at the NRC. Admiral Willard started his job just two months before I did, and I'm grateful for the excellent working relationship we've established as we both have settled into our respective roles. Before I begin, I'd like to recognize my fellow Commissioners, who are also here today: Kristine Svinicki, George Apostolakis, Bill Magwood, and Bill Ostendorff.

Today, I'd like to reflect on plant performance, review some of the policy priorities before the Commission, address some uncertainties we're collectively facing, and consider some of the economic constraints and challenges that we must confront head-on.

Let me say at the outset that although you'll hear me use the word "uncertainty" in more than one context today, safety and security must never be uncertain. Regardless of external circumstances beyond our control, the NRC is committed to ensuring that its licensed facilities operate safely and securely, and we make all of our decisions with this in mind. We're committed to ensuring continued success in this area, whatever circumstances we face – including government shutdowns, which I'll discuss more in a minute.

I know this is an objective that INPO shares with all of the utility CEOs – the concept of "excellence by choice" recognizes an approach that bases management investment and decision-making on what's right and necessary to ensure safety and security.

As you know, the NRC monitors plant performance closely. We're pleased to see that the majority of operating plants continue to perform well, and that the facilities that have identified challenges are working to address them. While most plants are in the highest performance category, we have over time identified some positive performance trends along with some downward trends.

As part of our oversight, the NRC analyzes performance trends that give an indication of how the industry is performing over time. We have several formal mechanisms for doing so, including our Industry Trends Program and Accident Sequence Precursor Program. The Industry Trends Program

monitors industry-level indicators for adverse trends for safety significance. The NRC responds, as necessary, to any identified safety issues, including adjustments to the inspection and licensing programs. As part of this program, we submit an annual report to Congress on the number of statistically significant adverse industry trends in safety performance. The Industry Trends Program also uses precursor events identified by the Accident Sequence Precursor (ASP) program to assess industry performance. The staff analyzes the occurrence rate of accident precursors to determine if an adverse trend exists.

The most recent Accident Sequence Precursor program results showed a statistically significant increase in "important precursors," such as complicated reactor trips or scrams and component failures, with a conditional core damage probability of greater than or equal to 10^{-4}. There were seven important precursors in the 2010-2012 time period, after no events had met this threshold in the previous six years. Equipment failures and human errors compounded many of the most significant events. For example, six of these were caused by electrical failures. In addition, weaknesses in licensee corrective action programs were a contributing factor in all seven important precursors.

There are a few additional trends of concern. We must keep collective focus on significant system issues that could lead to more significant events. Certainly, in recent years, aging equipment and inadequate maintenance practices have caused plant issues. Also, for some of the most significant performance problems, we've noted that the root cause is often an insufficiently detailed understanding of the plant's design and licensing basis. This lack of a detailed, working understanding, in turn, produces second-order deficiencies in how problems are addressed.

Given the frequent linkage between this root cause and significant performance decline, each licensee should be asking: How well do we understand our plant's design and licensing basis? Are our change processes anchored in well-documented regulatory positions? And, are we convinced that our corrective action program is screening issues against the right bases, so that we're finding and fixing problems before they become larger problems that impact plant safety and security?

The problems that led licensees to performance problems five to 10 years ago are not necessarily the same ones that cause problems today. We must collectively strike the right balance between solving today's problems and preparing for tomorrow's challenges. Both the NRC and the industry must remain agile and open to addressing emergent issues – we can't wait for the issues to find us.

In upholding our agency's important mission, the NRC remains committed to continuing this kind of careful analysis, and to communicating transparently with our licensees and with the public about plant performance data. In turn, licensees must work swiftly to address any issues of concern at their facilities. I appreciate INPO's emphasis on striving for performance excellence. We must collectively demonstrate that our safety and security focus, objectives, and actions are consistent.

Let me now mention some of the NRC's high-priority work. This is a dynamic moment in the nuclear industry – we're seeing plants under construction and plants shutting down. Our construction oversight continues, and I had the opportunity to see the impressive work underway at Vogtle last summer. And we anticipate, and are ready to process, the first design certification applications for small modular reactors in the second half of 2014. As we consider the completion of new reactors in the United States, and the possibility that more may be added in the future, I want to emphasize the

critical role that licensees play with respect to vendor oversight. The NRC is closely monitoring domestic and international concerns about counterfeit and fraudulent parts, and it's important that we maintain a shared commitment to vigilant vendor inspections.

On the other side of the spectrum, the NRC is providing oversight of plants that have ceased commercial operation, including the five reactors have shut down or announced their intention to shut down during the past year. We also recognize that there's a lot of public interest in decommissioning, both with the process itself and with how long waste may remain on site. We conduct public information meetings as part of our routine decommissioning process, to help the public understand our role and emphasize that our oversight will continue after a facility ceases operations.

Since our regulations afford licensees some flexibility in deciding what type of decommissioning plan works best for their sites, I strongly encourage all operators in this situation to engage with the public and be transparent about decision-making. I note that several sites have had positive experiences convening community advisory boards for this purpose. These groups facilitate periodic engagement with the public in an organized, cost-effective manner, under terms of mutual agreement. In my view, this allows for more effective public participation that helps ensure that all interested parties feel they are being heard without slowing down the process. In fact, advisory boards have played a positive role in the successful decommissioning of DOE and DoD facilities.

Of course, though I'm mentioning public engagement in the decommissioning context, I believe it's beneficial for all sites to have positive relationships with their local communities. In my visits to nuclear power plants, both operating and under construction, I've found several sites particularly impressive in their transparency and engagement. Their management meets regularly with local officials, gets involved in education, and talks with public interest groups – not just the local chamber of commerce. The result is that the public is more willing to engage on issues of interest because they know they have a receptive audience. Unfortunately, I don't believe this is consistent across the industry. In general, I think licensees should be more proactive in engaging interested parties in their communities.

I think there's a clear linkage between continued, productive dialogue and the establishment of mutual trust in a particular community. Strong, effective plant management has a lot to do with this. The importance of good plant leadership extends far beyond public engagement, however, and I commend INPO for its ongoing focus on the relationship between leadership and plant performance. I believe plant management plays a critical role in promoting a strong safety culture on site. This includes maintaining a positive working relationship with all employees, creating an environment where the staff is vigilant in monitoring a plant's safety performance and can report any concerns without fear of reprisal. Good leadership is also essential in the event of an emergency. I was pleased to note that, in reporting on the outcome of the recent U.S. industry visit to Fukushima, NEI specifically addressed plant leadership as an essential component of safe operation.

The NRC is also continuing its active coordination with licensees in a number of other important areas. Regarding security, we have good progress to report on several fronts. Our agency works both independently and in collaboration with other government agencies to monitor evolving threats. I'm sure you've seen increased media attention on cyber security in the past year, and the

industry has begun implementing our interim cyber milestones at operating power reactors. The 16 inspections we've conducted thus far have shown some low-significance issues, but in general, the industry is making good progress toward implementation of cyber requirements.

Over the past few years, we've worked closely with industry and federal, state, and local law enforcement agencies on an integrated response program for nuclear power plants. In the past year in particular, closer cooperation between industry and the various government entities has yielded good results and the program is advancing. In the event of an incident, individual facilities will benefit greatly from close working relationships with local law enforcement agencies. Some reactor sites are demonstrating these relationships well.

We're continuing our work on Waste Confidence. We've now conducted nine out of 13 scheduled public meetings, which have given us valuable input from a range of perspectives to help inform our final rule and environmental impact statement. And, of course, we've restarted our Yucca Mountain licensing activities. Yesterday, the Commission issued an order directing the NRC staff to complete the safety evaluation report for DOE's construction authorization application, among other things.

We continue to make collective progress on implementing lessons learned from the Fukushima accident. I'd like to express my appreciation to INPO, and to our licensees, for industry's dedicated and ongoing efforts to implement safety enhancements at nuclear power plants. The insights you've shared with us to inform our processes have been invaluable – and even though we don't always agree on the path forward, our shared commitment to enhancing safety at U.S. facilities and protecting the public is clear.

I've had the opportunity to observe industry efforts to make lasting, positive changes after Fukushima in a variety of settings. I've seen the backup equipment that facilities have purchased and placed on site. I've reviewed the important contributions INPO has made to U.S. national reporting for the Convention on Nuclear Safety, and look forward to INPO's continued support at the Convention review meeting this coming spring. And I appreciate the time and effort on the part of senior industry management to fully understand the situation in Japan by making first-hand visits to the Fukushima site. I know from my own experience that it's impossible to appreciate the magnitude of what happened until you're standing there.

I also commend U.S. industry efforts to collaborate with your counterparts around the world. Through these activities, you can make important contributions to strengthening nuclear safety and security on a global level. In my visits to other countries, I always emphasize the importance of cooperation among regulators. But this type of cooperation cannot be effective if industry is not also collaborating in this way. Even before Fukushima, the nuclear industry had become global, and the accident has made international engagement even more critical for exchanging lessons learned and working together to prevent future incidents.

The NRC works hard to serve as an example of regulatory excellence, and I believe INPO and WANO are doing likewise in their ongoing outreach to industry abroad. There's more work to be done, and I look forward to continuing to exchange ideas and feedback with you.

Our agency is also looking toward the future. Senior NRC management is examining where the agency needs to be in the next five years, and beyond, in order to be as successful as possible. We're also focused on the need for flexibility – recognizing that we can't always predict what lies ahead, we want to ensure that the NRC is able to respond to changing priorities and challenges. One critical aspect of this discussion is ensuring that the agency continues to attract the talented, capable experts to our staff. To that end, our staff is engaged in efforts to discuss careers in science, technical, engineering, and mathematics (STEM) disciplines with local students in the Washington area and in our regions. We're also focused on enhancing diversity, particularly for our future managers. I strongly encourage the industry to share this priority. I believe it will be easier for both of us to achieve greater diversity if it's seen as a tangible commitment throughout the nuclear field.

Let me now discuss the economic climate in which we're all conducting our work, and share my views on our collective obligation to maintain safety and security as our highest priorities in spite of the uncertainties we face. First, I'll note that the recent government shutdown due to a lapse of appropriations had significant effects on our agency. Our Chief Financial Officer and senior management team worked around the clock to keep us open for as long as possible. As a result of their efforts, the NRC was able to operate for more than a week after the initial appropriations lapse. Further, we took the necessary steps to ensure that we'd continue to be able to perform our critical safety and security functions. Nonetheless, we'll be continuing to address the shutdown's detrimental impact in the coming months.

Our preliminary assessment indicates that the shutdown cost the agency over $10 million in productivity. It also created a backlog of non-emergency licensing work and forced us to delay progress of a number of important projects, including our Waste Confidence work and post-Fukushima actions. For an agency that prides itself on careful, yet timely analysis and responsiveness to our licensees and members of the public, this was troubling.

I recognize that you're probably also frustrated by the impacts that these delays may have had on your operations. I'm aware, for example, that potential delays to complete our Waste Confidence work means longer waits for anticipated licensing decisions. We're focused on achieving an appropriate balance to best position the NRC to fulfill its obligations to the American people. We're doing a careful assessment of how we performed before, during, and after the shutdown because, unfortunately, we may find ourselves in the same position in January. And as funding has continued to shrink, our workload has not.

While the recent lapse in federal appropriations is the most recent and most problematic external financial challenge we've faced, it's not the only one. For the past year, we've had to readjust our work in response to required sequestration cuts and unabated continuing resolutions. We're now facing the possibility of another year of sequestration reductions at even more austere funding levels.

Regardless of our financial situation, the NRC's top priority will never change – we will always uphold our commitment to ensure the safety and security of operating facilities. But the combination of well-grounded immediate priorities and constrained and unpredictable annual budgeting means that important longer-term work simply isn't going to get done. In some cases, it could mean additional delays – in others, it means certain activities may be temporarily suspended. And I know that this will continue to have impacts across the industry. The Commission recognizes this, and we're working to ensure that we continue to have the ability to do as much as we can with the resources we have.

I recognize that the industry also has other financial considerations that directly affect your work. The low price of natural gas continues to make it an attractive alternative in the energy marketplace that can impact the nuclear industry's bottom line. The economic downturn continues to affect large portions of this country. And the demographic shifts that have been occurring over the past decade also have an impact on electricity demand. For some facilities, these economic pressures are heavy. I appreciate that some of you must weigh these concerns on a daily basis.

Clearly, these are demanding economic times for all of us. But in the face of uncertainty, we must continue to demonstrate together that plant safety and security aren't, and never will be, in jeopardy.

By keeping the lines of communication open, continuing to collaborate domestically and internationally, and maintaining a productive dialogue with those affected by our work, we'll reinforce the fact that nothing will cause us to back down from our most important objectives. It's not easy, but I think the reward is enhanced public trust.

Admiral Willard, I commend you and your team for the work INPO is doing here and overseas under your leadership. We appreciate your continued commitment to safety, which is evident in your everyday work, your ongoing post-Fukushima activities, and your international outreach. We continue to benefit from our productive working relationship and information exchange.

In the coming year, as we face continued uncertainties, let's continue our good work. Let's strive to effectively demonstrate that safety and security are not uncertain – that no matter what's happening around us, we're committed to the same objective of protecting the public and keeping them informed of our efforts.

Thank you for giving me the opportunity to speak to you, and hear from you, at this important conference. I would be happy to take your questions.