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CONTACT: Office of Public Affairs, 301-415-8200

The NRC's Post-Fukushima Actions as a Case Study for Regulatory Decision-Making
Remarks of NRC Commissioner William C. Ostendorff
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INTRODUCTION

Good morning. It is always a privilege to appear before this assembly of distinguished colleagues from the global nuclear community. Before I begin my remarks, I would like to thank the NRC staff who worked hard to put together this year's RIC. I would also like to personally thank the entire NRC staff for your professionalism and dedication over the past year. It is a privilege to work with you all. I'd also like to take a minute to acknowledge and thank my colleagues on the Commission. It's a pleasure working with each of you every day. Thank you Steve, Kristine, and Jeff.

Finally, I would like to welcome Vic McCree to his first RIC as the agency's Executive Director for Operations. Vic has demonstrated his engaged, thoughtful leadership from day one.

In preparing my remarks, I took a look back at my last five RIC speeches. I need to correct one message from my first RIC speech, delivered March 8, 2011. In that address, I stated that serving on an independent regulatory commission is not like being skipper of a nuclear attack submarine. I was wrong with regard to one central principle. I believe this correction to be important—so let me explain. Please bear with me while I lay the foundation for this correction by returning to my naval service.

In 1952, the US Navy destroyer Hobson collided with an aircraft carrier during night flight operations. There was extensive damage to the ships and heavy loss of life. The Wall Street Journal, in a frequently quoted discussion of the disaster, concluded the following:

“On the sea there is a tradition older than the traditions of the country itself—it is the tradition that with responsibility goes authority and with them both goes accountability. It is cruel, this accountability of good and well intentioned men. But the choice is this or an end to responsibility.... For men will not long trust leaders who feel themselves beyond accountability for what they do.”

That message was loud and clear to me as an Ensign on my first submarine after I was commissioned in 1976. And it was reinforced and amplified as I assumed positions of greater responsibility on the six submarines on which I served. I was privileged to serve as Commanding Officer of USS NORFOLK for three years and three days, driving that submarine over 100,000 miles from 1992 to 1995. That principle of accountability was in the forefront of my mind and actions as I led my wardroom and crew. After that tour, I worked hard as a Prospective Commanding Officer instructor

and Submarine Squadron Commander to affirm and assert the vital importance of accountability to my submarine commanding officers.

So what is the correction I need to make to my 2011 RIC speech? Simple. That key principle of accountability is not limited to the Navy or military. Rather, it is alive and well here at the NRC. I see it firsthand every day in the accountability individual Commissioners demonstrate for their own decision-making. By design, we are an independent regulatory commission.

The Commission does not always agree. But, even in the face of disagreement, it has been my direct observation that all of my colleagues have acted with a sense of accountability for their decision-making. That is a very important observation. While my primary experience for the past six years has been with Commission decision-making, I would also observe that this sense of accountability is clearly present among the NRC staff and the industry we regulate. So I am quite pleased that I need to correct my 2011 remarks to reflect my observations on accountability here at the NRC. And to add to the Chairman's discussion of maintaining trust, I urge you to remember that quote—men will not trust leaders who do not hold themselves accountable for their actions. Having corrected the record, enough said!

Remarks

This is my sixth opportunity to address you at the RIC. Now I use the word “opportunity” intentionally. To me, the RIC is a unique forum to consider how we can learn from our experience with an eye toward the future. I will jump right into that message.

This month marks the fifth anniversary of the earthquake and tsunami that devastated the Fukushima Da’ichi nuclear power plant in Japan. In the past, I’ve spoken numerous times about the agency’s progress as we moved along in a somewhat step-by-step fashion. Now, all of the key regulatory decisions have been made, and implementation by the industry is well underway. So, I am going to reflect on our response over the past five years by looking at the big picture. Today is my opportunity to use the NRC’s post-Fukushima actions as a case study to highlight the strength of the NRC’s decision-making framework and our Principles of Good Regulation. Why? Because not only do I think that we’ve gotten to a good place, but I’m proud of how we got here.

Let me see a show of hands from all of the people—NRC, industry, and others—who have been involved in some aspect of Fukushima follow-up. That’s a lot of hands. But the NRC’s decision-making on these matters not only affected all of you, it impacted the lives of every person who could be affected by an accident at a nuclear plant. I say that to stress the importance of our getting it right the first time.

Along with Commissioner Svinicki, I was here in March 2011. We both have been involved in all of the Commission’s post-Fukushima decision-making. In 2012, I visited Japan and toured Fukushima Da’ichi with fellow Commissioner Bill Magwood. I had a follow-up visit to Japan in 2014. I have a fairly solid understanding of what took place there and why. We have thoroughly studied the circumstances that led up to the accident, and the lessons we have learned guided the regulatory actions we have taken. And now, in my opinion, the way the NRC handled its post-Fukushima decision-making should serve as a guide in the future for regulatory decision-making.

I am going to cover three specific areas that are my most significant “takeaways” from how the NRC has fulfilled its responsibilities as a regulator reviewing the post-Fukushima experience. Others could be listed but I will cover just three.

- First—The importance of establishing clear priorities;
- Second—The importance of integrated decision-making under
- our existing regulatory framework;
- And Third—the importance of regulating in the “Open.”

I. PRIORITIZATION

Let us first turn to prioritization of post-Fukushima actions. The Tier 1, 2, and 3 risk-informed approach recommended by the staff and approved by the Commission placed those regulatory actions with the greatest potential for safety improvement at the top of the list. Prioritization was absolutely essential. That’s because—as the saying goes—if everything is important, nothing is.

The Tier 1 actions, the most important safety enhancements, are already being realized today. I have visited 48 reactor sites (encompassing 77 of the 99 currently operating units) across the United States during my time as a Commissioner. I am struck by the significant plant modifications underway or in place. This has not just been an exercise on paper—we aren’t just writing reports. Each site has invested tens of millions of dollars into post-Fukushima upgrades. These upgrades have resulted in tangible enhancements to plant safety. Licensees have seen significant reductions in the estimated core damage frequency for their plants as a result of these post-Fukushima upgrades. There is an obvious pride in the work that has been done by licensees and the NRC staff and the resulting safety improvements. The regulated industry has played a substantial role in the development of enhanced safety requirements. At the NRC’s celebration of the twenty-fifth anniversary of the Principles of Good Regulation in January of this year, former Commissioner Ken Rogers reminded me that while the NRC is the regulator, the industry must retain its sense of accountability for safety. I think that is happening here.

We can see the light at the end of the tunnel for less safety significant Tier 2 and 3 recommendations. On February 8, the Commission approved a plan to close out those actions. I don’t mean to imply that we are trying to hurry and close out these things so we can cross them off our list. Rather, it’s important that we systematically work through our process and disposition these actions professionally. Once we have the information we need, we must be a reliable regulator and promptly and decisively take action. We could have analyzed the Fukushima Da’ichi accident for years before taking action, but that would not have been responsible regulation.

I am personally gratified to confirm that the NRC captured the key lessons from the accident through our initial assessment by the Near Term Task Force as supplemented by additional analysis by our Japan Lessons Learned Directorate and Fukushima Steering Committee. I have not seen information from further studies that calls into question the actions we’ve taken in the United States. Even so, we continue to focus inspection resources on seismic and flooding evaluations to verify that we got it right.

II. COMPREHENSIVE, INTEGRATED DECISION-MAKING USING OUR EXISTING REGULATORY FRAMEWORK AND PRINCIPLES OF GOOD REGULATION

Let us now turn to the second key lesson: the importance of integrated decision-making under our existing regulatory framework. I will offer a few examples to illustrate how we used smart decision-making within our existing regulatory framework to disposition post-Fukushima actions.

Before I do that, I want to give you a quick refresher on the standard the Commission uses when it determines “how safe is safe enough?” That standard comes from the Atomic Energy Act. We are required to ensure that our licensees provide adequate protection of the public health and safety. If we determine that something is needed to ensure adequate protection, we will impose a requirement without regard to cost. On the other hand, if we determine that a requirement is not necessary for adequate protection but that it would provide a substantial increase in safety, then we only impose that requirement if it passes a cost benefit analysis. We’ve codified that requirement in the “Backfit Rule.”

One example of those concepts is illustrated by the topic of reliable hardened vents. In 2012, the Commission issued an order for reliable hardened vents at boiling water reactors with Mark I and Mark II containments as a matter of adequate protection. The NRC staff subsequently evaluated whether we should require such vents to also be severe-accident capable. Accounting for uncertainties regarding the frequency of a severe accident, the staff determined that severe accident capability would provide a substantial safety benefit that was cost-justified. The Commission agreed with the staff’s assessment and in 2013 rescinded the original order and issued another, which required reliable and severe accident capable vents.

That’s one area where a safety improvement passed the cost-benefit backfit test. There have been others that haven’t. The fact that some of the proposed improvements didn’t get adopted should not be seen as a problem. Rather, they highlight how robust the defense-in-depth already is at nuclear power plants and how much margin is already built in.

A. Mitigation-of-Beyond-Design-Basis-Events Rulemaking

Another highly visible example is our ongoing Mitigation-of- Beyond-Design-Basis-Events rulemaking. In 2012, within a year of the accident in Japan, we issued our initial orders. We were then able to step back and take a deep breath. We realized that we, the industry, and the public would be better served if we integrated a number of task force recommendations into a rulemaking to address the whole spectrum of beyond-design-basis events. Because of this, we will have a better level of protection not just for the specific scenarios identified at Fukushima, but also against a wider spectrum of extreme external events.

The Mitigation-of-Beyond-Design-Basis-Events rulemaking provides us with that comprehensive, integrated suite of safety enhancements. It integrates six of the Near-Term Task Force’s recommendations, including enhanced mitigation capability for station blackout events, spent fuel pool instrumentation, onsite emergency response capabilities, and emergency preparedness.

The rulemaking represents a major step forward. The consolidation was an efficient strategy given the interdependent and interrelated safety issues involved. Initially, a number of the key safety enhancements were realized through licensee implementation of the NRC’s orders issued in 2012. Several facilities are already in compliance with the orders, and the rest are scheduled to be in

compliance by the end of this year. The Mitigation-of-Beyond-Design-Basis-Events rulemaking codifies those requirements and makes them generically applicable to current and future licensees. I approved publication of the proposed rule with one exception I will now address.

I disapproved the staff's proposal to impose requirements for Severe Accident Management Guidelines, or "SAMGs," in this rule. The staff's regulatory analysis found that SAMGs would have a small safety benefit. The staff cited what we call "defense in depth" that would be gained from requiring SAMGs, but was unable to quantify a benefit that would outweigh the cost of requiring SAMGs. The Commission concluded that requiring SAMGs was not cost justified.

This rulemaking serves as an example of how the NRC's regulatory framework provided stability and reliability through the decision-making process. The concepts of adequate protection of public health and safety as well as our Backfit Rule are vitally important regulatory principles.

B. Containment Protection and Release Reduction Rulemaking

I have one final example to share concerning integrated decision-making under our existing regulatory framework. In keeping with the NRC's principle of efficiency, "regulatory activities should be consistent with the degree of risk reduction they achieve." This principle goes on to state: "Where several effective alternatives are available, the option that minimizes the use of resources should be adopted."

Last summer, the staff asked for Commission approval to publish a draft regulatory basis for a Containment Protection and Release Reduction rulemaking. I voted not to approve the staff's proposal. In that case, the proposed rule would have codified orders that are already in place. The orders have the same legal and enforcement effect as a new rule would. Also, there will be no new applicants for the Mark I and II containment design that would call for a generic requirement. So there would be no safety benefit to offset the cost of the rulemaking. Furthermore, the Commission had previously directed enhanced public outreach when it developed those orders, so a rulemaking would likely not have provided information that would justify a change to the existing requirements.

III. OPENNESS IN COMMISSION DECISION-MAKING

I will now turn to the final significant regulatory lesson learned from the post-Fukushima experience: the importance of regulating in the Open (and this ties into the concept of accountability that I started off with).

Early on in the process, the Commission directed the staff to "engage a diversity of external stakeholders throughout the development of the technical bases and rulemaking." As such, there has been a high level of stakeholder engagement throughout the staff's process of developing recommendations for the Commission. To date (including meetings with the Advisory Committee on Reactor Safeguards) there have been about 300 public meetings convened by the NRC on post-Fukushima regulatory actions. We've maintained openness because nuclear regulation is the public's business, and it must be conducted publicly and candidly.

The Commission's decisions have also been open and transparent. I'd like to spend a little time discussing how the Commission itself—the five-person (or four-person) Commission—makes decisions. Sometimes looking at the parts doesn't give you the full picture.

For the Fukushima actions, we relied on the Task Force and Directorate to provide us with recommendations. There have been recommendations for orders, proposed rules, and to stop action on some early recommendations after more complete analysis by the staff. Those staff recommendations came to the Commission in formal papers that are publicly available. Most of the time, the staff's recommendations are public as soon as they come to the Commission. We don't wait until the Commission has made a decision to release them. So you can see what the staff recommends and, later, whether the Commission approves or disapproves the recommendation in whole or in part. The Commission reviews the staff's recommendations and holds public meetings when they're appropriate. Each Commissioner often seeks briefings from the staff experts who worked on the recommendations.

We use a process called notation voting in which each Commissioner writes a vote that not only records whether he or she approves the recommendation but also explains why. In those votes, we might also include additional direction to the staff on particular items. After all of the Commissioners have voted, the NRC's office of the Secretary goes through the votes, tallies them up, and puts together what we call a draft Staff Requirements Memorandum. That document captures the elements of the staff's recommendation that were approved or not approved by each Commissioner and also includes each Commissioner's additional comments. The Commissioners then vote on the draft Staff Requirements Memorandum; it takes a majority of the Commission to include each additional direction or to change a policy. We may go through a few rounds of voting before the final product has a majority. Our voting process also gives the staff an opportunity to comment on the Commission's direction and to raise any concerns they might have.

I find this formal, structured, open voting process to be a real strength of the NRC. You don't have to wonder how a Commissioner weighed in on different issues. There is a clear, public record of the basis for all of my votes, including the post-Fukushima actions. By my count, on Fukushima-related actions alone, I have cast twenty-five votes. That's how you can hold me accountable for my decisions. Those votes are posted on our website. I am proud that this is how the NRC regulates.

Closing

Before I close, I want to thank my personal staff for their hard work and dedication. They are a tremendous group of people who take their work seriously but don't take themselves too seriously. They truly take care of each other. We enjoy an open and collaborative work environment even though our professional football allegiances are widely divergent—2 Steelers fans, 2 Patriot Fans, 2 agnostics, and one devoted Dallas Cowboys fan (that would be me). So Team WCO, I thank you all. First, my current team: Eric Benner, Tammy Bloomer, Amy Cubbage, and Molly Marsh. Because this is my last RIC, I'd like to also thank the staff who have worked for me since 2010: Ho Nieh, Jason Zorn, Mike Franovich, Andrea Koch, John Tappert, Kimberly Sexton, Cathy Kanatas, Greg Warnick, and Jeannette Quesenberry. And last but not least, Linda Herr and Sunny Bozin who've been with me since my first day. I am most grateful for your support and friendship.

Finally, I'd like to end on a personal note. I've had a few titles (I've been called a lot of things) over the course of my life and career—Captain, dad, Counsel, Administrator, Director, Commissioner, "Hey You," Gramp "O" (by my two-year-old granddaughter Dylan)—and now I'll be adding another. My term ends in June, and I've accepted a position at the Naval Academy as a Distinguished Visiting Professor of National Security, starting in the fall. I look forward to returning to my alma mater and sharing my experience with a new generation of Naval officers. I've thoroughly enjoyed my time with

the Commission—it has been a most rewarding experience for me professionally and personally. The NRC does good and important work and I have been proud to stand beside you for the past six years. But, I'm not done yet. We still have several months together, and I expect to accomplish a lot in that time.

It has been a pleasure to work with you all. Thank you.