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Perspectives from Commissioner Baran
Remarks by NRC Commissioner Jeff Baran
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Thanks, Mike. Good morning. I hope everyone enjoyed the first day of the RIC and arrived rested and ready to go for Day Two.

Last year, I talked a little about all of the advice I was getting for my first RIC speech. And I think that all worked out fine. But here's the thing. I didn't get any advice at all for my second RIC speech. None. And so I've been grappling with big questions like: should I include a joke at the beginning of the speech. Here's what I decided to do. I decided to take a Project Aim approach to this question. I did a little re-baselining and determined that a joke was not vital to the core purpose of my remarks. I'm sorry. I know you're disappointed, but we all have to make tough choices in this Project Aim environment. And the joke was on the shed list. As I recently told one of our Congressional oversight committees at a hearing, some cuts just make sense.

That was my plan until this morning anyway. Then I saw that Darius Dixon from Politico came through for a second year in a row with a joke for me to deliver today. So I thought: well, that's efficient. And I decided to demonstrate a little agility by adapting to changing circumstances and throwing the joke into these remarks. So here it goes. Ready? A Higgs Boson particle walks into a church, but the preacher says "Get out of here! You call yourself the God Particle when there is only one true God!" The Higgs Boson replies, "Well, if I'm not here, how can you have mass?" If you liked that joke, thank you. If it wasn't your cup of tea, please take it up with Darius. He's probably around somewhere. I'm kidding, of course. As Commissioner Ostendorff reminded us, I'm accountable for the telling of this joke. And we appreciate that Darius is on the NRC beat. He does a great job. And I'm not just saying that because he's my trusted supplier of nerdy jokes.

I also want to note that I am wearing a pink tie today in solidarity with Commissioner Svinicki. I want to be clear that this tie is not fuchsia. Commissioner Ostendorff isn't the only one who struggles with the pronunciation of fuchsia. My daughter Mia pronounces it fazia. Now, she's four and she also names some of her my little ponies fazia, but that shouldn't distract from the point I'm trying to make, which is that you are not alone, Bill. You are not alone.

I really didn't intend for my remarks to be a Bill Ostendorff roast. But unfortunately the time for that is coming sooner than I would like, with his departure from the Commission at the end of June. Bill, I want to take this opportunity to say that I have really enjoyed our time working together. We

don't always agree, but we agree quite a bit. And even when we disagree, I appreciate that we always have good, respectful discussions of our views, often finding common ground on a constructive way forward. You are a person of principle and integrity, not to mention tremendous experience, and your departure will be a loss for the Commission. The Naval Academy will be lucky to have you back. But they'll have to wait for another few months while we continue to benefit from your insights.

During those next few months and beyond, the Commission will remained focused on post-Fukushima safety enhancements and lessons learned. Friday, of course, will mark five years since the nuclear accident at the Fukushima Daiichi plant in Japan. It is a sobering reminder of the need for renewed and constant vigilance by independent safety regulators and power plant operators. And it is a natural and appropriate time to take stock of where we are.

I will be traveling to Fukushima later this month. It will be my first trip to the site. And it will probably be the most important trip I have taken during my time as a commissioner. I've heard over and over again what a profound impact seeing the scene of the accident and the affected areas has on people. Fellow commissioners, NRC senior managers, licensee executives … they all leave Japan deeply affected by what they saw and heard … and motivated to ensure that it never happens again.

In the aftermath of the Fukushima accident, the Commission set a goal of completing NRC's response to the accident within five years. Now that we've arrived at the five year mark, I think it's clear that we've made significant progress but still have a lot of work left to do.

Licensees are implementing the NRC order on mitigating strategies. That order requires plants to have equipment onsite and offsite to respond to beyond-design-basis events. You can see that progress on the ground. I've been to Arkansas Nuclear One, Dresden, Catawba, North Anna, Watts Bar. And if you visit these plants you'll see a dome or other structure with equipment for responding to beyond-design-basis events and uniform connections for those generators, pumps, and hoses. This is new equipment since Fukushima. And I think there's broad agreement that it will enhance the ability of operators to respond to major natural disasters or other potential hazards. The efforts to comply with the mitigating strategies order should be complete at almost every plant by the end of this year. Every site should also have new spent fuel pool instrumentation in place by the end of the year so that operators will have reliable information on the water levels in their spent fuel pools.

Seismic and flooding hazard reevaluations are ongoing, and interim measures are being taken in some cases. But we need to acknowledge that licensees and the NRC staff both have quite a bit of work ahead of them to complete and review these seismic probabilistic risk assessments and flooding analyses. It's going to take a few more years to finish that analytical work and determine whether any additional site-specific steps need to be taken to better protect plants from earthquakes or floods.

The installation of severe-accident-capable hardened vents at BWR units with Mark 1 or Mark 2 containments requires substantial physical modifications to the plants and will not be complete until 2018 and 2019.

So that's where we stand on some of the most significant safety enhancements required by the Commission. That's not an exhaustive discussion of every step the agency has taken, but I think it highlights several key elements of the Commission's post-Fukushima activities.

During my time on the Commission, over the last year and a half, my colleagues and I voted on several Fukushima-related policy and rulemaking matters. We agreed on some of those issues. On others, I would have gone further.

One example is NRC's treatment of Severe Accident Management Guidelines, or SAMGs. Since they were introduced in the late 1990's, SAMGs have been voluntary. The Commission had to decide whether NRC should include a requirement for SAMGs in the proposed mitigating beyond-design-basis events rule. I strongly believe we should have done so.

In the wake of Fukushima, NRC inspectors evaluated the status of SAMGs. And their findings were troubling. Some plants had outdated SAMGs. Others had emergency responders without SAMG training. The Fukushima Near-Term Task Force therefore recommended making SAMGs mandatory. And the NRC staff agreed. They recommended requiring SAMGs so that they would be enforceable. The staff was not confident that SAMGs would be maintained and effective at every plant in the United States in the absence of such a requirement.

The staff's regulatory analysis showed that making SAMGs enforceable would provide a substantial safety benefit. And industry told the Commission that requiring SAMGs would have little or no additional cost. So making SAMGs an enforceable requirement would have increased safety without being burdensome. When I weighed the pros and cons, I concluded that the proposed rule should have included that requirement.

Including the requirement in the proposed rule wouldn't have represented a final agency decision on whether to impose the regulatory requirement. It would merely have allowed members of the public to share their views on such a proposal. After a strong, well-supported staff recommendation to propose a SAMGs requirement, I thought we owed it to the public to solicit a broad range of views on the merits of such a requirement.

I approached the Containment Protection and Release Reduction rulemaking the same way. This was commonly referred to as the filtered vents rulemaking. In this case, the staff had prepared a draft regulatory basis for the rulemaking. That's the step before a proposed rule. At that early stage in the rulemaking, the staff thought it made sense to require severe accident water addition and management, which licensees were already preparing to implement. But the staff planned to have the independent experts on the Advisory Committee on Reactor Safeguards review the draft regulatory basis and also get public comment on the document before presenting it to the Commission. The Commission decided to terminate the rulemaking prior to getting ACRS feedback and without public comment. Frankly, I think that was the wrong was to go. Stakeholders were expecting a rulemaking to consider a requirement for filtered vents. I think we should have followed through and given the public a chance to weigh in on that important question before making any decisions.

NRC required severe-accident-capable hardened vents back in 2013 because we learned from Fukushima that venting to reduce pressure in containment could be critical to safety in certain accident scenarios. If we expect plants to vent in these situations, it's reasonable to ask in a public comment period whether the vented radioactive gases should be filtered before being released into the environment. Seeking public comment is not a final regulatory decision. It's an opportunity for interested stakeholders to express their views and for the agency to consider those comments in its decision making.

Let me mention one other area where I think the agency should do more work than it has to date – and that's on several of the Tier 2 and Tier 3 action items. Fukushima lessons learned activities were placed on a longer-term track for completion -- in Tier 2 or Tier 3 – based on skill set availability or the need for more analysis, not because they aren't potentially significant safety issues. The NRC staff and the Commission assigned priority levels to these Near-Term Task Force recommendations in late 2011 because they reflect valuable lessons from the Fukushima accident that warranted additional attention. Most of the Tier 2 action items were ultimately incorporated into Tier 1 efforts, but several Tier 2 and Tier 3 items remain unresolved.

One example is an examination of the need for reliable hardened vents for containment designs other than BWR Mark 1 and 2s. The list of remaining items also includes reevaluating external hazards other than seismic and flooding hazards, such as drought and extreme temperatures.

My view is that NRC should do a thorough safety analysis of each outstanding item before deciding whether any additional actions need to be taken. The staff did this for some items, but I thought their recent analysis was insufficient for other items. We all share an interest in addressing the open post-Fukushima items in a timely way. But we need to ensure that they are resolved and closed after an open-minded examination of the safety issues based on the latest information. A full analysis would not necessarily result in additional regulatory requirements. But when someone asks me whether we fully examined all of the items identified as lessons from the Fukushima accident, I want to be able to respond with an unqualified yes. So I look forward to reviewing the staff's ongoing work on the remaining open items.

I'm very encouraged by the staff's commitment to ensure the proactive and routine evaluation of new external hazard information in a systematic manner. I think the staff is absolutely right that we need to actively seek out new scientific information that may deepen and refine our understanding of external hazards. Periodic or continuous reassessment of external hazards is crucial in light of the impacts of climate change on some hazards, such as flooding and drought. These climate-related hazards are expected to exceed historical levels in the future. We simply cannot assume that the frequency, intensity, and duration of these events will be static. Improving our processes to better account for this reality is an important Tier 3 effort that I will be closely following.

I want to touch on a separate issue that has implications for NRC's response to Fukushima. And that is the question of how our regulatory analysis should consider quantitative and qualitative factors. We've heard of lot of concern about the agency's consideration of so-called qualitative factors in its regulatory analysis. I think the term "qualitative factors" can be confusing, or at least imprecise. Qualitative factors are really just non-quantified benefits and costs.

In my view, we need to think about this in the context of what we're trying to accomplish with a regulatory analysis of a proposed regulatory action. A basic tenet of regulatory analysis is that it should examine all relevant costs and benefits, whether they can be quantified or not. If a benefit or cost can be adequately quantified, there is obviously no need to conduct further analysis of that benefit or cost. But if a benefit or cost cannot be adequately quantified, it is appropriate and necessary to conduct a qualitative analysis of that benefit or cost. The ability to adequately quantify one or two benefits clearly can't preclude consideration of other non-quantified benefits. Otherwise, the result would be an incomplete or inadequate examination of the true costs and benefits of a proposed regulatory action.

Let me put these general concepts in the context of NRC's response to Fukushima. If NRC had only considered the benefits that we can fully quantify when determining how to respond to the accident, we likely would have missed some important benefits and probably would not have taken the actions we needed to take. A Fukushima-type event is very low probability. So when you run the numbers, it is difficult for even commonsense steps to pass a cost-benefit test that looks exclusively at quantified benefits. In fact, it's not clear that any of NRC's major post-Fukushima requirements that had broad support would have passed such a test. The Commission required mitigation strategies and initially hardened vents as necessary for adequate protection of public health and safety, which is an exception to the backfit rule. Spent fuel pool instrumentation was required under an administrative exemption to the backfit rule. As a result, none of these safety enhancements were subject to a cost-benefit analysis. A narrow focus on quantified costs and benefits probably would have resulted in NRC taking no regulatory action at all after Fukushima. I don't think many people believe that would have been the right outcome.

There's nothing new or novel about including a qualitative discussion of unquantified benefits and costs in a regulatory analysis. Under executive orders and Office of Management and Budget guidance, it is well-established that "a complete regulatory analysis includes a discussion of non-quantified, as well as quantified benefits and costs."

And that has been the long-standing practice at NRC. Many of our security, emergency preparedness, and radiation protection requirements result in significant non-quantified benefits. Take security as an example. No one can accurately calculate the odds of a terrorist attack on a specific nuclear power plant. So the benefit of having security at that plant can't be precisely quantified. Does that mean there is no benefit from having security at nuclear power plants? Of course not. Disregarding those unquantified benefits isn't going to improve the rigor of a cost-benefit analysis. It will have precisely the opposite effect. Ignoring unquantified benefits would result in a skewed analysis that would almost certainly point to the wrong regulatory outcome.

I think we intuitively know this to be true. Not every regulatory decision boils down to its effect on core damage frequency. As Chairman Burns discussed yesterday, regulating is a craft. It's not a rigid formula. Defense in depth matters. Enforceability matters. Public confidence matters. Those benefits can't be quantified, but they must be factored into our decision-making.

Power plant decommissioning is another area where I believe we need to look beyond easily quantified risks. In the last few years, five U.S. reactors have permanently shut down and three more have announced plans to close in the near term. When a nuclear plant shuts down, it's a big deal for the company, for the employees, and for the community. It also changes the risk profile of the plant and the contours of NRC's regulatory oversight. But NRC does not currently have regulations specifically tailored for this transition from operations to decommissioning. As a result, licensees with reactors transitioning to decommissioning routinely seek exemptions from many of the regulations applicable to operating reactors.

I see two main purposes for the decommissioning rulemaking effort that is now underway, and both are important. First, it will allow NRC to move away from regulating by exemption in this area. The exemption approach isn't efficient for anyone and it provides no opportunity for public comment. And second, the rulemaking provides a chance for NRC and all of our stakeholders to take a fresh look at our decommissioning process and requirements. Stakeholders have strong views about important

questions like the appropriate role of state and local governments, whether NRC should approve a post-shutdown decommissioning activities report, and the appropriateness of the three general decommissioning options and the timeframes associated with those options. The rulemaking process gives us an opportunity to benefit from a range of stakeholder views. I don't know what the ultimate rule will look like at the end of this process. But I do know that we need to thoughtfully consider the ideas presented by stakeholders with an open mind.

Let me turn to an organizational issue that is a major focus for the Commission right now – Project Aim. The agency is implementing Project Aim to increase our efficiency and agility while remaining focused on our core mission of protecting public health and safety. The goal is to implement NRC's existing scope of work more efficiently, identify any outdated and unnecessary initiatives, and adjust to declining workloads in some areas. Project Aim is not about relaxing regulatory oversight of licensee performance and safety.

The NRC staff has done a tremendous amount of work to generate a list of 151 proposals that would reduce costs in the coming months. The Commission is reviewing those now. I think the vast majority of these items are going to make a lot of sense, but I'm going to take a hard look at these measures to make sure that none of them could compromise NRC's ability to carry out its safety mission. We'll also soon be considering additional options for streamlining our processes and procedures to allow the agency to do the same work with fewer resources. We appreciate all of the suggestions and feedback we've received from those who work at NRC and with NRC.

Before we turn to questions, I owe some of you a thanks for your hospitality. Since last year's RIC, I've had the pleasure of visiting a number of operating reactors, new reactor construction sites, a decommissioning site, a research and test reactor, a fuel cycle facility, a low-level waste facility, and materials licensees. And I'm planning additional visits this year. I get a lot out of every site visit -- seeing equipment and conditions first hand, and talking directly to our resident inspectors and the workers at the facilities.

So I look forward to reconnecting with many of you during this conference and meeting some of you for the first time, either here or in the field. With that, I'm happy to answer any questions you may have. Thank you.