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**U.S. Nuclear Regulatory Commission
34th Annual Regulatory Information Conference
“Perspectives from Commissioner Baran”
Commissioner Jeff Baran
(As Delivered)**

Thanks, Ray. Good morning. It’s great to be here at another RIC. I know we were all hoping to see each other in person. But this virtual conference is a great opportunity to share what’s happening at the agency and discuss current technical and policy issues.

I admit I had been looking forward to a return to RIC humor. But, as we all know, this isn’t a time for jokes. It is a time of grave concern. And it is a time to stand in solidarity with the Ukrainian people and our colleagues at the State Nuclear Regulatory Inspectorate of Ukraine. We honor their resolute commitment to nuclear safety under incredibly perilous and stressful conditions.

As we monitor the situation in Ukraine, three priorities remain at the forefront of NRC’s domestic work: climate change, the response to the Covid-19 pandemic, and the pursuit of environmental justice.

There’s a growing consensus among policymakers that meeting ambitious climate goals will involve nuclear power. NRC’s focus is on ensuring the safety and security of whatever amount of nuclear power is used. When it comes to tackling climate change, I see NRC having a role in two main areas: the current operating fleet and new reactors.

For the operation of existing nuclear power plants now and into the future, NRC’s job is to provide strong safety and security standards and rigorous independent oversight. This goes to the very core of the agency’s mission. I want to highlight a couple important issues related to the operating fleet this morning.

The first is subsequent license renewal, which allows nuclear power plants to operate for up to 80 years. I want to emphasize that the review of subsequent license renewal applications has been – and continues to be – a high priority for NRC. To comply with the National Environmental Policy Act and ensure that subsequent license renewal decisions rest on a firm legal foundation, it is essential that we update the Generic Environmental Impact Statement to examine the 60–80-year subsequent license renewal period. The license renewal regulation also needs to be revised so that the updated Generic Environmental Impact Statement findings can then apply to subsequent license renewal applications. In my view, these issues should have been addressed two years ago. That didn’t happen. Now is the time to fix this problem so that NRC can move forward expeditiously with these important licensing

reviews. Waiting to correct the clear deficiencies in the agency's environmental analysis would only cause further delay.

New fuel technologies are also a major focus for the agency. Vendors and licensees are developing higher enrichment fuels that, with higher burnup, could allow additional pressurized-water reactors in the fleet to move to a 24-month refueling cycle. They are also continuing to look at fuels that can better withstand higher accident temperatures and provide longer coping periods during station blackout conditions.

I look forward to finalizing the 50.46(c) rulemaking, which will help the agency get ready for new fuel technologies. Here's why this rule is important. Currently, NRC's regulations recognize only two types of fuel cladding for a full core: Zircaloy and Zirlo. The regulations also recognize only one type of fuel pellet made of uranium oxide. But vendors are looking at other cladding and pellet materials. Because these new materials are not addressed by our regulations, licensees would need to seek regulatory exemptions to use them. That's not efficient. And it makes it harder to innovate in ways that could improve safety.

The 50.46(c) rule will move the agency to a technology-neutral, performance-based approach that applies to all cladding materials and fuel designs. So applicants will no longer need to seek regulatory exemptions from the existing requirements.

There is also an important safety component to the rulemaking. Findings from an extensive research program called into question the technical basis of the existing regulation. The science shows that the combination of temperature and oxidation limits established in the current regulation are not stringent enough to prevent embrittlement of the fuel cladding. And the existing regulation does not address degradation mechanisms revealed by the research, such as breakaway oxidation.

Finalizing the rule will represent significant progress on the framework for new fuel technologies. It will address this safety issue and adopt a technology-neutral approach that lifts a current barrier to innovative fuel designs.

I agree with the NRC staff that it also makes sense to initiate a separate rulemaking to consider changing the regulations that make it difficult for an applicant to pursue a fuel design with greater than 5% enrichment. A rulemaking will allow the agency to evaluate the technical basis of the current 5% limit and how increasing enrichment would affect criticality safety. In addition, the rulemaking process will give stakeholders the opportunity to weigh in on the pros and cons of changing existing requirements.

The licensing and oversight of new reactors is NRC's other main climate-related role. New reactor designs have the potential to be safer than existing designs. Our goal is to establish the right regulatory framework for the review and safe operation of new technologies, such as advanced reactors. This is the Part 53 effort.

In my opinion, the NRC staff working on this rule are doing an incredible job. It isn't easy to create a risk-informed, performance-based, technology-neutral framework that can work for molten salt reactors and high-temperature gas cooled reactors, micro-reactors and reactors of several hundred megawatts. The staff is also trying to shape the rule to accommodate applications in which probabilistic risk assessment would play a leading role as well as applications where PRA would not be as central to

the safety case. It's challenging, but the staff is making good progress. And I think it makes sense for them to take the additional time to develop a deterministic pathway option. It's good to allow for different types of safety cases. Yet we need a rule that includes enough detail so that we avoid the problem of evaluating custom safety cases in a way that results in uncertainty about what NRC will find acceptable.

As the staff crafts the regulatory text, they are rightly focused on ensuring that Part 53 results in at least the same level of safety as the existing Part 50 and Part 52 frameworks. Adequate protection is the minimum NRC is charged with doing under the Atomic Energy Act, not the maximum. Adequate protection isn't the ceiling for NRC safety standards. It's the floor. The agency has required many important safety measures over the years that went beyond adequate protection. These include cost-beneficial substantial safety enhancements that provide valuable defense-in-depth. It's important that the essence of these kinds of key safety enhancements be carried into Part 53. Not every requirement is going to be retained in the exact same way in Part 53 because we're talking about different technologies. But the essence of the safety enhancement needs to be preserved. Otherwise, we could end up with a Part 53 regulation that is less protective of public health and safety than the current regulations. Obviously, there is a lot to consider. This is an exciting effort, and I am confident that NRC can strike the right balance. As the agency moves forward with the rule, the Commission will also address significant related policy issues, such as emergency preparedness, siting, security, and the generic environmental impact statement for advanced reactors. There's a lot of work to be done, and I look forward to hearing a broad range of stakeholder views on the issues.

Responding to the Covid-19 pandemic remains another major priority for the agency. This challenge is obviously not unique to NRC or our licensees. The agency has been largely operating virtually for the past two years. We've had the IT in place to carry on effectively.

Going forward, we are sure to see many employees teleworking a few days a week. We're also in the midst of a return to normal in-person inspections. Resident inspectors are now back on site, and NRC's regional offices are getting back to in-person team safety and security inspections.

During the pandemic, some inspections were performed remotely out of necessity. I see that as a temporary measure that made sense during an extremely unusual and challenging public health emergency. As we move forward, there is broad agreement on the value of – and need for – in-person safety and security inspections. Our inspectors have found that on-site inspection with direct observation of licensee activities is far superior to remote inspections. They point to numerous examples of issues that would not have been detected remotely. They describe the clear difference between direct observation of what the licensee is actually doing and looking at a blurry camera view or just relying on paperwork. If our goal is performing a quality inspection – and, of course, that is the goal – there's just no substitute for having independent NRC inspectors onsite. NRC is embracing technologies that allow inspectors to monitor plant conditions remotely as a valuable tool but not as a substitute for in-person inspection.

Due to the unique health risks of conducting full force-on-force inspections at nuclear power plants during the pandemic, the agency relied on limited-scope physical security exercises for several months. Then, as conditions improved, force-on-force inspections re-started with just one triennial exercise at each plant. It's a positive development that, at most plants, we are now able to safely return to the normal complement of two force-on-force exercises.

Like many other federal agencies, NRC is increasingly focused on environmental justice. Last year, President Biden issued an Executive Order on Advancing Racial Equity. He also issued an Executive Order on Tackling the Climate Crisis, which directed federal agencies to “make achieving environmental justice part of their missions.” A White House Environmental Justice Advisory Council was established. And agencies started taking action.

I continue to believe that NRC must meet the moment. We must be ambitious. We should be asking tough questions about the way the agency has traditionally operated.

And the agency is energized. In April, the Commission unanimously tasked the staff with performing a systematic review of NRC’s programs, policies, and activities. The staff team is engaging a broad range of stakeholders and developing recommendations to improve how the agency pursues environmental justice.

I appreciate the staff’s outreach to stakeholders and disadvantaged communities that may not have historically engaged with NRC. The staff invited written comments, has held public meetings – both virtual and in-person, convened a listening session and panel discussion, and initiated consultations with interested Tribal governments.

The staff environmental justice team has several issues to look at. They are considering the practices of other federal, state, and tribal agencies. They are evaluating whether NRC should go beyond the National Environmental Policy Act in incorporating environmental justice into the agency’s decision-making. And the team is considering whether establishing formal mechanisms to gather external stakeholder input, such as an advisory committee, would benefit future environmental justice efforts.

The team is also reviewing the adequacy of the Commission’s existing Environmental Justice Policy Statement, which was issued in 2004. Even at that time, some stakeholders thought the approach announced by the Policy Statement was too narrow. For example, the Bush Administration EPA was critical of what NRC was doing.

The staff team is evaluating NRC’s adjudicatory procedures as part of its review. This is an aspect of NRC’s work that requires a close look. Our adjudicatory procedures are called “strict by design,” and I worry that, over the years, NRC has erected a series of complex procedural hurdles that make it very hard for interested stakeholders, including disadvantaged communities, to have their concerns addressed in a hearing. There may be ways to make the adjudicatory process less onerous, more efficient, and fairer for everyone involved. We should explore that potential sweet spot.

I’m eager to see the staff team’s evaluation of each of these critical issues, its analysis of all of the stakeholder feedback, and the different options for moving forward. I don’t pretend to have all the answers about where the agency should head. But I’m convinced that we need to pursue environmental justice with determination and an openness to the voices of communities that haven’t always had a seat at the table. I want to see NRC achieve significant, tangible results on environmental justice.

As we take on these three major priorities, NRC is focused on its workforce. We’re facing a significant hiring challenge. We have a large number of employees who are eligible for retirement, and we’re seeing attrition each year of about 6-8%. That means we need to hire about 200 people from outside the agency every year to sustain our workforce. It’s more like 300 this year. Compared to the

last several years, that is a lot of hiring. And that hiring is necessary for the agency to be ready for the work ahead of us. It's a bit daunting but very exciting. It presents a huge opportunity to boost our inclusion efforts by reaching a diverse pool of applicants and then bring people into the agency who really represent a cross-section of America. As part of the effort to foster a diverse future workforce for NRC, I fully agree with Chairman Hanson that NRC should reinvigorate our terrific Minority Serving Institutions program.

There are opportunities to make progress on other important issues this year. I'm looking forward to NRC issuing a proposed rule to establish binding cybersecurity standards for fuel cycle facilities. Given the dynamic cyber threat environment, this step is long overdue. Enforceable, performance-based cybersecurity standards, like those already in place for nuclear power plants, are essential.

NRC is also moving forward with a vital rulemaking on radioactive source accountability. Unlike for Category 1 and 2 sources, there is currently no regulatory requirement for a vendor to verify the authenticity of a license for Category 3 sources before selling them. The Government Accountability Office highlighted this regulatory gap in 2016, when it found that a fictitious company established by GAO could produce counterfeit Category 3 possession licenses and obtain commitments from vendors to sell it a sufficient amount of material to reach Category 2 levels. To solve this problem, NRC will propose requiring vendors that sell radioactive materials to verify Category 3 possession licenses through the License Verification System or the appropriate regulatory authority. License verification is a targeted solution to closing the regulatory gap highlighted by GAO. Because real-time verification occurs prior to the transfer of a source, it can stop an illegal transfer. This would meaningfully address the problem identified by GAO by preventing unauthorized entities from using counterfeit or altered licenses to obtain radioactive materials. In response to concerns about the lack of routine oversight and accountability of generally licensed Category 3 sources, NRC is also re-evaluating whether general licenses for Category 3 sources are appropriate.

NRC needs to be open to new ways of accomplishing our mission. We need to encourage and embrace innovation, while recognizing the value of regulatory approaches that have proven effective over time. I think the Commission's recent decisions on the regulation of medical uses of radioactive materials highlight this approach. We should keep what's working and change what needs changing.

Under NRC's regulations, to administer radiopharmaceuticals, a physician must be an "authorized user" approved by NRC or an Agreement State. There are two pathways for a physician to satisfy NRC's training and experience requirements and become an authorized user: certification by one of the medical specialty boards recognized in the regulation; or the "alternate pathway" of completing 700 hours of training and supervised work experience.

Over the past several years, NRC has been assessing how well this framework is working. After reading the extensive public comments, holding Commission meetings addressing this topic, and talking with numerous knowledgeable stakeholders, including physicians, patient advocates, radiopharmaceutical developers, and state officials, the Commission concluded that NRC should maintain its existing training and experience requirements.

We heard persuasive arguments that the current training and experience framework is working effectively to ensure radiological safety and is not resulting in a shortage of authorized users to

administer radiopharmaceuticals. Many stakeholders were concerned that a change or reduction in the training and experience requirements could compromise radiological safety.

At the same time, the Commission understood the stakeholder interest in having a regulatory framework that is well-suited to innovative radiopharmaceuticals. So we supported the NRC staff's separate proposal to update Part 35 to establish generally applicable, performance-based requirements for emerging medical technologies to ensure radiation safety for workers, patients, and the general public. Performance-based standards should eliminate the need to prepare case-by-case guidance documents for every new model, vendor, or use. They can also do a better job than the existing regulation of addressing both well-established and new medical technologies.

As you can tell, we have a lot of work ahead of us. It's an exciting time of progress. There's an openness to new ideas and new approaches with a strong focus on our core mission of protecting public health, safety, and the environment.

After the past two years, I'm enthusiastic about getting back to more face-to-face conversations to hear your thoughts and feedback. I've had the chance to visit several plants in recent months. Those visits are always worthwhile because I get to see facilities and equipment first-hand, check in with NRC's resident inspectors, and talk with licensees and workers about their concerns and areas of focus. So I want to thank those of you who have hosted me at your sites. I look forward to getting out to additional sites during the coming months. With that, I'm happy to answer your questions. Thank you.