



UNITED STATES NUCLEAR REGULATORY COMMISSION

Washington, DC. 20555-0001
www.nrc.gov



No.: S-22-001

March 8, 2022

Contact: [Office of Public Affairs](#), 301-415-8200

**U.S. Nuclear Regulatory Commission
34th Annual Regulatory Information Conference
Chairman Christopher T. Hanson
(As Prepared)**

Thank you, Andrea, for that introduction. And I will start with a few more thank-yous. First, thank you all for attending the RIC virtually this year. Welcome to everyone who is tuning in from their homes and offices across the U.S. and around the world. I might have said this last year, but I really am optimistic that we will be able to do this in person next year.

This is our second virtual RIC, and once again, I am incredibly impressed by the dedication of the NRC staff in putting on what will be an interesting and informative three days of panel discussions, speeches, and other virtual events. I hope you all take advantage of the virtual platform to learn new things and join conversations. To Andrea, Ray, their teams, the clever CIO crew, and the many others who make the RIC possible, a heartfelt thank you.

Again this year, the RIC begins on International Women's Day. This year we have two sessions dedicated to highlighting the incredible contributions that women continue to make to nuclear regulation and global policy. I particularly want to thank the women at the NRC whose talents continue to make the NRC the gold standard. Tomorrow, I am looking forward to a discussion with President Rumina Velshi of the Canadian Nuclear Safety Commission, where you will hear me reaffirm my commitment to gender equity and an inclusive NRC.

I would also like to thank my colleagues on the Commission. We have accomplished a lot in the past year even though we did not always agree. Having different perspectives while continuing to work together is imperative to the health of our institution.

Finally, I would like to say a special thank you to my staff—both my permanent staff and those who joined me on rotation—not only for their efforts to prepare me for the RIC, but also for all their hard work over the past year. We have kept a remarkable pace and they have not let up. Thank you to Kathleen Blake, Patty Jimenez, Molly Marsh, Cinthya Román, Tony Nakanishi, Olivia Mikula, Mandy Mauer, Lisa Dimmick, Hipo Gonzalez, Mike Clark, and Margaret Cervera.

Ukraine

Like all of you, I have been monitoring the situation in Ukraine with grave concern. My heart goes out to the people of Ukraine in this desperate time. The Russian Federation's violation of Ukraine's sovereignty, independence, and territorial integrity is a tragedy with wide-ranging impacts. The unprecedented nature of Russia's actions on Ukrainian nuclear safety, security, and safeguards hits especially close to home for the NRC.

At the NRC, and across the U.S. Government, we share IAEA Director General Grossi's concerns about Russia's actions and echo his call to refrain from any measures that could jeopardize the security of nuclear material or the safe operation of Ukraine's nuclear facilities. I would like to commend our partners at the State Nuclear Regulatory Inspectorate of Ukraine for their continuous updates to the IAEA and the international community despite obvious challenges they are facing. I also want to highlight the bravery and dedication of Ukrainian regulatory and operational staff in carrying out their essential duties in the face of extraordinarily trying and dangerous circumstances.

The NRC will continue to remain engaged with its U.S. Government colleagues to monitor the situation and will stand in solidarity with our Ukrainian regulatory partners. We will continue our long-standing support to Ukraine as it works to protect, sustain, and—if needed—restore the safe and secure operation of its nuclear facilities.

Introduction

Last year I spoke about my initial approach to my tenure at the NRC. I painted a picture of the NRC as an institution, with three inter-related efforts in the form of a triangle, with risk-informed regulation, agency transformation, and diversity and inclusion at each vertex. Undergirding that triangle are three pillars: regulatory independence, data, and the people who form the agency.

This year I want to build on that foundation and talk about the NRC's role as an effective, trusted regulator by highlighting three concepts: process, accountability, and legitimacy.

You have heard many people, including myself, say that the NRC must not be an impediment to safe use of nuclear power and materials—new or existing. But what does that mean? And what happens if the NRC does not get it right? I am talking about this from two perspectives. First, what is most often talked about—having a regulatory framework that applicants and licensees, as well as the public, can successfully understand and navigate, tailored to the risk profiles associated with reactors and material licensees. And second, licensing and oversight that does not miss any safety-significant issues, thus calling into question our framework.

As I see it, the NRC is an integral part of deploying new nuclear, even if we are not building or promoting it. Without a license from a credible, trusted regulator, society will not accept it. As a federal agency, we are ultimately accountable to the American people. I fully understand that we do not regulate to assuage the public's fears, but we must acknowledge that there are fears around nuclear and consider how those fears affect deployment. This is particularly relevant considering the recent seizure of nuclear facilities in Ukraine resulting in an attack and fire at the largest nuclear power plant in Europe. Such recent events have been understandably very alarming to the public.

To understand the public's concerns, we have to look at what information, disinformation, and misinformation, is being received, and how that information can be used to assess risk. Domestically, we find ourselves in a time of what the Rand Corporation cleverly calls, "truth decay," and what the writer Jonathan Rauch has called an "epistemic crisis." Folks are having a hard time telling truth from fiction. Truth decay has also contributed to a decline of trust in government.

I do not want to get sidetracked by talking about the pandemic, but I think it has really highlighted individuals' ability to sift through information and assess risk. And it has shown the wide spectrum of risk tolerance among individuals and the general distrust of government. I try keep this in mind as I shape my decisions.

In the past few years, as climate change and energy security have come to the fore as existential threats, many have rallied around nuclear as the solution for clean power—including many you would not expect. There is a wave of excitement around getting new reactors online quickly, and the NRC is necessarily caught up in that wave.

But a note of caution. Let me quote former NRC Chair Dale Klein, whose advice I have greatly appreciated during my tenure at the agency. In a speech in 2007, he said: "If the nuclear power business is treated with less than the seriousness it deserves—and people begin to think that anyone can just jump on the nuclear bandwagon—it opens up the very real danger of making the 'wave' of the nuclear resurgence look more like a 'bubble.' And bubbles have a tendency to pop."

The NRC has an obligation to remain independent of the excitement and hold onto our objectivity, rather than let ourselves be pushed by the wave or caught in a bubble. We are independent, but not isolated. Independence is an imperative for effectiveness and public trust. Yet, we must also transform how we work so we can meet new demands while never losing sight of our core responsibilities overseeing existing uses of nuclear.

Everyone, industry and the public, benefits from a trusted, independent regulator.

Process

One of the most important characteristics of an effective regulator is having clear and transparent processes in place to ensure objective decision-making. Licensing a nuclear reactor is necessarily a meticulous process. And while flexibility will be important for new designs, the process and guardrails must be sufficiently predictable for applicants, and transparent and understandable for the public.

Some people will roll their eyes and say, "Leave it to a government bureaucrat to give a speech defending 'process.'" But hear me out. I have said that nuclear safety is an epistemological problem—what do we know, how do we know it, and what difference does it make? The HOW is just as important as the other pieces of that formulation.

As we further risk-inform our approaches to implementing our regulations, and even as we further develop more performance-based approaches, process oftentimes gains greater importance. Novel concepts continue to emerge, and the agency must meet these challenges with flexibility. However, maintaining process as an integral part of our regulatory framework is one way we can continue to ensure adequate protection in all that we do.

We ask our kids to “show their work” in math class so they, and we, can see the process from point A to point B. If the answer is wrong, then we can help them go back through and find the error. Similarly, when applicants come to us with new reactor designs, we look not only at their claims of performance of safety, but importantly at their methodology for reaching their conclusions. The old adage applies here too: show your work.

And finally, there is the National Environmental Policy Act, or NEPA, a law often misunderstood and frequently maligned by both supporters and detractors. What does NEPA require? It requires the evaluation of environmental impacts of a federal action (or decision) and it allows the public to review and comment on that evaluation. It is rightly often thought of as a “process law.” People understandably look to NEPA to give them a voice in government decision-making.

In short, process matters. And this brings us to the next two concepts I want to highlight: accountability and legitimacy.

Accountability

All that process provides accountability. We are accountable to the public, applicants and licensees, other federal agencies, states, and tribes; and we are accountable to ourselves. When done correctly, the process demonstrates objectivity in the outcome. Outside parties can look at our processes and validate whether we did what we said we were going to do.

We expect the same of our licensees; indeed, some of our most significant enforcement actions involve falsification of documentation, that is, a violation of the process. Which is significant because it calls into question conclusions about safety or security. It undermines the “how we know what we know.”

A big part of accountability is maintaining a safety culture where everyone in the organization is willing to raise concerns and in turn make corrections if they are warranted. As President Biden says, “When you mess up, ‘fess up.” I would add: “And fix it.” That goes for the Commission as well as the staff.

Legitimacy

Finally, process confers legitimacy and credibility on our decisions. Ordinary individuals are not likely to understand the technical details of some of our reviews. But they are much more likely to understand our process, at least in general terms. First, we looked at X, then we independently reviewed Y, then we analyzed Z, and so on. Process is the way the public knows they can trust us when we reach a safety conclusion.

Legitimacy and credibility must be earned and fervently upheld and protected. At the foundation of our legitimacy is the core technical competence of the NRC staff, in which I have full faith. But we must continue to invest in the people who make up the agency and bring in new talent both with their own expertise and the ability to learn from our existing staff.

There are a lot of competing demands on the NRC staff. Our top priority must continue to be oversight of existing reactors and uses of materials. For years, as the nuclear industry has been

shrinking, the NRC was told to shrink too, and we did. Since 2014, the number of nuclear power plants has shrunk by 10 percent and NRC staff has shrunk by more than 20 percent. Meanwhile, the excitement outside the NRC is on new reactors and building them quickly. We have been changing course to be ready and we are doing our best to have the necessary resources in place.

Transformation

A key indicator of our legitimacy going forward is our ability to continue to transform our inward-facing and outward-facing processes. Ideally, citizens, applicants, and licensees will see modernization of government at the same pace and scale they see in the private sector. That is not easy.

Transformation for me has never been about cutting regulations or staff. For me it is about making better regulatory decisions by bringing our data and the full expertise of the agency to bear on an issue. Sometimes that results in greater focus in some areas and less in others, depending on risk significance. I am willing to follow the data.

For many in the agency, transformation has been extra duty, which people have largely been willing to do. But it is not sustainable—our people were already stretched thin by multiple demands and the COVID public health emergency. Transformation, rather than being an exciting initiative, has become in many cases another burden. And sometimes what we call transformation is really just internally shifting responsibilities, rather than truly rethinking what needs to be done, why, and which parts of the organization are best suited to the task.

For me, our transformation efforts are inextricably linked to the hiring initiative spearheaded by our EDO Dan Dorman and our Chief Human Capital Officer, Mary Lamary. Annual attrition at the NRC is running about 7 percent, which means that we need to hire roughly 200 people per year just to stay at our current staffing levels. A level, by the way, that we know will not be sufficient to address future challenges. Not when 24 percent of our people are over the age of 60 and 55 percent are over the age of 50—all of them looking forward to a very well-earned retirement. And we need to expand our perspective about how, who, and where we are recruiting. Building the diverse workforce of the future and agency transformation go hand-in-hand.

Equally important, transformation is about preparing the agency for a range of possible futures. With regard to nuclear reactors, we have an existing fleet, some of which are decommissioning and some of which are continuing to optimize their operations and seeking to extend their licenses out to 80 years. We have to get our house in order on NEPA and continue to efficiently review applications for subsequent license renewal.

Then we have new light water reactor designs with a lot of technological adjacency with the existing fleet poised for near-term deployment. And we have advanced reactors, which build off decades of research and development in fuels and materials, that have the potential to greatly expand the economic-use cases for nuclear power.

With developments in fuels and materials, we have seen increased engagement on uranium enrichment, fuel fabrication, and transportation—therefore, our forecasts and preparations for the future must address all segments of the nuclear fuel cycle.

Also in the materials area, we have a growing number of Agreement States—39, and we have two additional applications. We must adjust to State agencies taking on more of the materials licensing and oversight by taking a close look at inspection procedures, our Integrated Materials Performance Evaluation Program, and capacity building efforts among new Agreement States.

There are advances in nuclear medicine, with an expanding array of radioisotopes and treatment modalities—patients and their families should be able to continue to count on us to efficiently evaluate new technologies and oversee the safe and secure use of these materials.

Finally, the security and incident response situation is constantly shifting, especially with regard to cyber security, international events, and domestic political polarization. Our partnerships across government—federal, state, tribal, local—are crucial to our security awareness and posture, emergency preparedness, and incident response.

It is a dynamic environment to put it mildly—and I did not even mention fusion. I do not know which future will come to pass. But I do know that any future will require a flexible, efficient, and transparent regulatory framework implemented by experts dedicated to continuous learning and improvement. My view is that we have made significant progress over the last couple of years.

By way of example, I want to spend a minute or two talking about the development of our risk-informed, performance-based regulatory framework for advanced reactors, also known by its proposed place in the Code of Federal Regulations—Part 53. The staff has taken an innovative approach to development of this rule by engaging substantively with stakeholders early and often in the process. We have received feedback, sometimes conflicting, from many stakeholders addressing key issues, such as the use of probabilistic risk assessment and risk information more generally, appropriate criteria for a performance-based approach, and how to accommodate the wide array of both technologies and technological maturity levels in the advanced reactor community.

I have been substantially involved in this effort, receiving regular updates from the staff as well as hearing directly from stakeholders. And let me say this: I have been pleased with the approach and the progress the staff is making. Work is ongoing, but staff is being thoughtful and deliberate, taking care to maintain some adjacency to existing frameworks, while being creative where needed to craft a balanced and protective rule. I have every confidence that the staff will produce a rule that adequately protects people and the environment while allowing for a range of technologies and licensing approaches in the timeframe set out by the Commission.

While the agency develops the new framework, the staff is working commendably within our existing regulations to review reactor applications and topical reports that are ready now.

Conclusion

I started this speech talking about the importance of process—its importance for objectively determining reasonable assurance of adequate protection, for accountability, and for public trust and legitimacy not just for the NRC but for the entire nuclear industry.

And I have talked a lot about change. One of the key themes of my speech last year was change in the context of an institution. Adapting is essential, but in doing so, we must preserve and further the goals of the institution—adequately protecting people and the environment and overseeing the safe and

secure use of nuclear power and materials. To be an effective regulator we must be careful we do not create instability in the institution; it could throw things off balance and undermine our legitimacy. It is a challenge to which we must rise, and I know we will.

So, we need to do several things at once. First, we need to uphold our institutional values, stay true to our principals of good regulation—Independence, Openness, Efficiency, Clarity, and Reliability. Second, we need to continue to risk-inform our regulations, so we are focused on the most safety- and security- significant issues by leveraging data and training our people. We need to apply modern technology to yield safety and security insights, to communicate more clearly, and to streamline and modernize our business processes. In other words, continue to drive change in the context of our overall mission and values.

And finally, and perhaps most crucially, we need to recognize each other as the future of nuclear safety and security and as the bearers of the sacred trust of the American people. The NRC is just people. That is all it is. That is all any organization is. Honest, smart, and talented, yet fallible. Dedicated and engaged, yet weary after two years of a pandemic. Creative and eager, yet unsure about the future. Together we will honor the work of those who came before us and we will sustain the institution as we advance.

Thank you for listening and for attending this year's RIC. Andrea, back to you for questions from the audience.