UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

+ + + + +

34TH REGULATORY INFORMATION CONFERENCE (RIC)

+ + + + +

OPENING SESSION

+ + + + +

TUESDAY,

MARCH 8, 2022

+ + + + +

The Technical Session met via Video-Teleconference, at 8:30 a.m. EST, The Honorable Christopher T. Hanson, Chairman, NRC, presiding.

PRESENT:

CHRISTOPHER T. HANSON, Chairman, NRC

ANDREA VEIL, Director, Office of Nuclear Reactor Regulation, NRC

RAY FURSTENAU, Director, Office Nuclear Regulatory Research, NRC

P R O C E E D I N G S

8:31 a.m.

MS. VEIL: Good morning, afternoon, evening depending on where you are, and welcome to the 34th Regulatory Information Conference.

I am also happy to announce it's -- happy International Women's Day, so congratulations to all the women who make the world go round.

I'm Andrea Veil, Director of the Office of Nuclear Reactor Regulation, and it is a great honor to be here today, and to have this opportunity to welcome everyone on behalf of the U.S. Nuclear Regulatory Commission.

NRR co-sponsors to the RIC, with our partners in the Office of Nuclear Reactor, or excuse me, Nuclear Regulatory Research, led by Mr. Raymond Furstenau.

We partner with the entire agency, to bring to you an engaging conference that addresses how the agency is preparing for tomorrow.

Ray?

MR. FURSTENAU: Thanks, Andrea. It's an honor to be here, and to once again, co-sponsor the RIC with you, and your office.

As of this morning, we've got over 3,600 participants registered, and I know I'm really looking forward to the next two and a half days.

Next, I'd like to welcome Joseph Goodridge, from our Office of Nuclear Security and Instance Response, who will sing our National Anthem.

(Whereupon, the National Anthem was performed.)

MR. FURSTENAU: Thanks, to Joseph for his outstanding performance of the National Anthem.

And, thanks to all of you for taking the time out of your busy schedules to engage with us this week.

I also wanted to recognize former chairmen and commissioners that are joining us virtually, this week. That includes former Chairman Meserve, Macfarlane, and Burns, and former Commissioners Merrifield, Apostolakis, and Magwood.

We thank you for your prior service to the NRC, and your continued involvement in nuclear reactor regulation.

Andrea, back to you.

MS. VEIL: This year's program is comprised of two and a half days, which feature

morning keynote plenary sessions, followed by sets of concurrent technical sessions.

We open this year's RIC with an opportunity to hear from our Chairman, the Honorable Christopher Hanson.

The plenary sessions this morning will feature remarks from our commissioners, the Honorable Jeff Baran, and the Honorable David Wright.

Plenary sessions tomorrow will include the introduction of our new Executive Director for Operations, Mr. Dan Dorman, and remarks from special guest speaker, the Honorable Jennifer Granholm, Secretary of Energy.

Tomorrow, two plenary sessions will be focused on key topics. As this week marks the eleventh anniversary of the Fukushima accident, one of our special plenaries will provide an update on decommissioning efforts.

The other special plenary session tomorrow is titled, Women Belong in All Places Where Nuclear Safety Decisions are Being Made. Amen.

This session will be introduced by our Chairman Christopher Hanson, and will feature an interview with Ms. Rumina Velshi, President and Chief

Executive Officer, Canadian Nuclear Safety Commission.

The interview will be conducted by Ms. Brooke Clark, the NRC's next Secretary of the Commission, and congratulations to Brooke.

We have 30 technical sessions between the afternoons of today and tomorrow, and Thursday morning.

And, thanks to our virtual platform, you're free to move from session to session, should you desire.

In addition, all this year's sessions are being recorded, and will be made available for viewing on our website after the conference.

Some of those technical sessions will be chaired by our commissioners. For example, today at 1:00 o'clock Eastern, Chairman Hanson will chair the session on Pre-application Engagements for New and Advanced Reactors.

Today at 3:00 p.m. Eastern, Commissioner Wright will chair the session on Reimagining the Role of Nuclear Energy and the Electric Grid.

Tomorrow at 1:00 p.m. Eastern, Commissioner Baron will chair the regional session on

Reactor Inspection Program: Leaving Tomorrow Behind.

Also on this year's virtual conference platform, we have 13 very engaging digital exhibits, and a virtual tour of the NRC Incident Response Center.

I encourage everyone to check out the wide range of exhibit topics at your leisure, before or after our technical sessions.

Just like last year, you, the attendees, will be able to submit questions electronically to the session moderator, for consideration during the session's question and answer period.

Attendees will also have the opportunity to contribute to the discussion, by participating in live polling in some of our sessions.

Our digital exhibits will have contact information, should have questions or feedback for the staff.

Each year the planning and execution of a conference of this magnitude, would not happen without the hard work and dedication of so many, including our NRC staff, our contract and partners, and a wide array of panelists and speakers.

So, I want to take this first opportunity

to thank everyone involved in the RIC this year.

Now I have the distinct honor of introducing our Chairman. The Honorable Christopher T. Hanson, was designated Chairman of the U.S. Nuclear Regulatory Commission, by President Joe Biden, effective January 20, 2021.

He was sworn in as a Commissioner on June 8, 2020. Chairman Hanson has more than two decades of government and private sector experience, in the field of nuclear energy.

Prior to joining the NRC, he served in various roles, including staff member on the Senate Appropriations Committee, Senior Advisor in the Department of Energy's Office of Nuclear Energy, and the Office of the Chief Financial Officer, and consultant at Booz Allen Hamilton.

Chairman Hanson earned master's degrees from Yale Divinity School, and Yale School of Forestry Environmental Studies, where he focused on ethics and natural resource economics.

He earned a Bachelor of Arts degree in religious studies from Valparaiso University, in Valparaiso, Indiana.

Welcome, Chairman Hanson, we're looking

forward to your remarks.

CHAIRMAN HANSON: Thank you, Andrea, for that introduction. Thank you Joseph, for that beautiful rendition of our National Anthem. And, I'll start with a few more thank yous.

First, thank you all for attending the RIC virtually this year. Welcome to everyone who's tuning in from their homes, offices, coffee shops, public parks, across the U.S., and around the world.

I might have said this last year, but I really am optimistic that we'll get to do this in person, next year.

This is our second virtual RIC, and once again, I'm 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.

As Andrea mentioned, the RIC this year

again, 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, whose talents continue to make the NRC the gold standard around the world.

Tomorrow I'm 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'd also like to thank my colleagues on the Commission. We've accomplished a lot in the last year, even though we didn't always agree.

Having different perspectives while continuing to work together, is imperative to the health of our institution.

Finally, I'd like to say 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 this year, no small task, but also for their hard work over the past year. We've kept up a

remarkable pace, and they have not let up.

So, thank you to Kathleen Blake, and Patty Jimenez, Molly Marsh, Cinthya Roman, Tony Nakanishi, Olivia Mikula, Mandy Mauer, Lisa Dimmick, Hipo Gonzalez, Mike Clark, and Margaret Cervera, who I forgot to thank last year.

Like all of you, I've 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 Russians, about Russia's actions, and echo his call to refrain from any measures that could jeopardize the security of nuclear materials, or the safe operation of Ukraine's nuclear facilities.

I'd 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 the 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 we will stand in solidarity with our Ukrainian regulatory partners.

We will continue our longstanding support to Ukraine as it works to protect, sustain, and if necessary, restore the safe and secure operation of its nuclear facilities.

Last year, I spoke about my initial approach to my tenure at the NRC, and I painted a picture of the NRC as an institution with three related efforts in the form of a triangle. With risk-informed regulation, agency transformation, and diversity 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've heard many people, myself included, say that the NRC must not be an impediment to the safe use of nuclear power and materials, new or existing.

But what does that mean? And, what happens if the NRC doesn't get it right? I'm 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 general public, can successfully understand and navigate, tailored to the risk profiles associated with the reactors, and materials in question.

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're not building

or promoting it. Without a license from a credible, trusted regulator, society simply will not accept it.

As a federal agency, we are ultimately accountable to the American people.

I fully understand that we don't 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 understandably been very alarming to the general public.

And, to understand the public's concerns, we have to look at what information, mis-information, and dis-information is being received, and how that information, or mis-information, or dis-information, is being used by the public, 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 just having a hard time telling

truth from fiction.

Truth decay has also contributed to a decline in the trust of government.

I don't want to get sidetracked by talking about the pandemic, but I think it's 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 to keep this in mind when 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's 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 Chairman Dale Klein, whose advice I've greatly appreciated during my tenure at the agency.

In a speech in 2007, he said, and I quote, 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 a nuclear resurgence look more like a bubble, and bubbles have a tendency to pop, unquote.

The NRC has an obligation to remain independent of the excitement, and hold on to our objectivity, rather than let ourselves by pushed by the wave, or caught in a bubble.

We're independent, but not isolated. Independence is an imperative for a 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 power and materials.

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

One of the most important characteristics of an effective regulator is having a 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 the process, but hear me out.

I've said that nuclear safety is an epistemological question. 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 or safety, but importantly, at their methodology for reaching those conclusions.

The old adage applies here, too: show your work.

And finally, there's 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's rightly understood or 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.

All that process provides accountability. We're accountable to the public,

applicants and licensees, other federal agencies, states and tribes, and we're accountable to ourselves.

When done correctly, the process determines objectivity, and 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're warranted.

As President Biden says, when you mess up, fess up. And, I would add, fix it. That goes for the Commission, as well as the staff.

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're 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 be, must continue to be the oversight of existing reactors, and uses of materials.

For years, as the nuclear industry shrank, has been shrinking, the NRC was told to shrink, too. And, we did.

Since 2014, the number of operating nuclear power plants has shrunk by 10 percent, and

the NRC staff has shrunk by more than 20 percent.

Meanwhile, the excitement outside the NRC is on new reactors, and building them quickly. We've been changing course to be ready, and we're doing our best to have the necessary resources in place.

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, that they see in the private sector. That's not easy.

Transformation for me has never, repeat never, been about cutting regulations or staff. For me, it's 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'm willing to follow the data.

For many in the agency, transformation has been extra duty, which people have been largely willing to do. But it's not sustainable. Our people have been stretched thin by multiple demands, and the

Covid public health emergency.

Transformation, rather than being an exciting initiative, has in many cases, become a 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 Capitol Officer, Mary Lamary.

Annual attrition at the NRC is running about 7 percent, which means we need to hire roughly 200 people a year, just to stay at current staffing levels. A level by the way, that we know will not be sufficient to meet the challenges of the future.

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, potentially a wide 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, and fuels, and materials, we've 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. Thirty-nine to date, and we have two additional applications.

We must adjust to state agencies taking on more of the materials licensing and oversight roles, by taking a close look at our inspection procedures, our integrated materials performance evaluation program, and capacity building, 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's a dynamic situation, to put it mildly, and I didn't even talk about fusion.

I don't know which future will come to pass, but I do know that any future will require a flexible, efficient, transparent regulatory framework, implemented by experts dedicated to continuous learning and improvement.

My view is that we've 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's taken an innovative approach to development of this rule, by engaging stakeholders early and often, in the process.

We've received feedback, sometimes, even oftentimes, 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 a wide range of both technologies, and technological maturity levels, in the advanced reactor community.

I've 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've been pleased with the approach and the progress the staff is making.

Work is ongoing. But they're 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 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.

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 industry.

And, I've 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 don't create instability in the institution, that 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 principles of good regulation, independence, openness, efficiency, clarity, and reliability.

Second, we need to continue to risk inform our regulations so we're 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, we need 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's all it is. That's 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.

MS. VEIL: Thank you, Chairman, for number one, laying out so many themes in such an eloquent way, in such a short period of time.

And, this is a reminder to those on the platform, if you have questions, you can select the Q&A tab in the upper right-hand box, and type your questions in.

So, whenever you're ready, Chairman, I have the first question ready for you.

CHAIRMAN HANSON: Go for it.

MS. VEIL: Okay, the first question is, you discuss the NRC not being a hurdle for new and advanced reactor technology. The NRC has yet to fully approve new reactor technology. How can the NRC ensure that its processes are not causing new and advanced reactor technology, to wither on the vine?

CHAIRMAN HANSON: Great question. I think one of the main things we can do is really, and I'm

going to have a session on this, this just this afternoon, so I appreciate kind of the tee-up on this, is really pre-application activities.

And, as much pre-application activity as applicants are ready for. And, on specific technical topics. So, that, the staff is already familiar with the technology that comes in. It's already familiar with the fuel types, and the materials, and the other technical aspects that we might receive.

I really, part of the discussion this afternoon will be about lessons learned from GE, and TerraPower, and Kairos, on this front. And, things that I'm sure the NRC can be doing better in this space, too.

So, we're really leaning into these engagements, this interaction, and we'll continue to do that.

MS. VEIL: Right, next question. Do you expect acceleration in applications for new nuclear power plants, as a result of high energy prices?

CHAIRMAN HANSON: That's a great question. I mean, the issue I think, is probably going to be natural gas prices. There isn't a lot of oil fueled power plants in the country.

And, so sometimes natural gas and oil prices move together, and sometimes they don't. And, we'll just have to see.

I think one of the interesting things about some of these newer designs, is the idea that they can be built and deployed, more quickly. And, that potentially changes the economics, in terms of response to energy prices going forward. So, we'll have to kind of see on that.

At least in the public announcements that we've seen out in the world, that I think everybody's seen out in the world, is much more about decarbonizing power production for, you know, at least from some of the major utilities in this country.

And, so I think carbon is a major issue, but certainly energy prices could be a factor, as well.

MS. VEIL: This next question has to do with transformation, and it first thanks you for your statement on transformation.

You mention transformation versus just shifting responsibilities. This is a large undertaking and as you said, we have decreased the

size of staff, putting us at a disadvantage in having sufficient resources to conduct change, while ensuring our mission.

How do we best carve out time and resources, to really transform, and what risk appetite does the commission and senior managers have for real transformation?

CHAIRMAN HANSON: Wow, that's a great question, and there are a lot of questions in there. So, I think I'll probably start with the last one and kind of move up.

I have a lot of appetite for transformation. I was having this discussion with my staff on a trip a few weeks ago, and I said, boy, you know, I'd like to see, I'd like to understand more about both what's going on in the agency, and I've done that some.

And, at one point, they kind of threw up their hands and they said, well, what do you want on transformation? I said, I want more.

So, I think particularly on the business side. I look at it as one of the strategic imperatives I think, of transformation, is, is really around exactly what this person is asking, right?

Whereas the agency shrunk, but the mission, in a lot of ways, the scope has kind of stayed the same, right?

The operating reactors has changed somewhat, but we still have a lot of licensing actions, we've got a lot of interest on advanced reactors, and so on and so forth.

And, yet like a lot of government agencies, we've got demographic pressures on us. And, so how do we use transformation to focus on the most important activities, right, that we have?

And, I want to say, this is a little inside of the agency, but I know a lot of that line staff have felt that burden of, of transformation.

And, so I think that augmenting our staff in some ways, you know, pushing ahead with this hiring initiative that Dan and Mary have going, is really critical in order to provide some relief.

There's kind of that adage you have to spend money to make money. This is kind of the same thing, right? You need a few extra people around to actually drive change in the organization because, so that everybody has a little bit more bandwidth to do that. That's really the idea there.

MS. VEIL: All right, this next question has to do with software digitalization, which is a mouthful to say for me.

What are your views on software digitalization, and how we make our fleet safer and more cost effective?

CHAIRMAN HANSON: So, I assume this is a digital instrumentation and control question, which is also a mouthful.

MS. VEIL: Uh huh.

CHAIRMAN HANSON: Look, this is something that I've been very interested in since I came to the agency, about how we get, again, that, people have heard me talk about having a regulatory line of sight on some of these things, and getting clarity on that.

Revisiting where necessary, was it the 1993 policy on common cause failure, and getting some, getting some regulatory transparency, clarity, certainty, whatever you want to call it on that issue for licensees.

All while we're making sure that we've got appropriate redundancy where necessary, we've got the firewalls in place where necessary, hardware, as well as software, to protect these systems.

Look, I mean I'm very interested in this issue both on the technical side of this, but also on the human factor side, which I think is another, which is another thing we can and should, be interacting with light applicants and licensees on.

So, I think it's important, each utility will make their own business decision about whether or not to invest in that. It's not an insignificant cost to them, I understand that.

But I'm committed to having at least for the NRC's part, again a predictable and clear process for addressing digital INC.

MS. VEIL: Okay, toward the end of your remarks, you mentioned fusion. So, this question has to do with fusion.

What might the role of the NRC be in the use of nuclear fusion?

CHAIRMAN HANSON: That's a great question. I think we're trying to figure that out, right?

Because in some cases, it depends on the fusion technology itself. In some cases, it might be perfectly appropriate because it falls under Part 30, that our Agreement State partners are going to be involved in that.

So, it's not just a matter for us. I mean, there are kind of key regulatory issues about activation products, and tritium, and some other things that I think the staff is still learning about. And, thinking about where that fits.

Also, this issue of having a burning plasma, and what the risk significance of that is, and what the safety systems are.

So, I wasn't trying to neglect fusion. I'm actually really interested in this topic. But we're still kind of, we're still figuring that out. I think we're in learning mode.

We're hearing from stakeholders both individually and collectively, with the Fusion Industries Association. We're hearing from our state, Agreement State partners on this as well.

And, we're starting to kind of piece this together.

MS. VEIL: Next question. Internationally, there's a great interest in globally accepted licenses. How is the view of NRC? Will you accept design approvals from other regulators? Are there any activities in this direction?

CHAIRMAN HANSON: I'll acknowledge that

there are a lot of, there is interest in this, you know, what's kind of called harmonization.

But I'll echo my colleague in the U.K. We had a, he and I, and President Velshi from the Canadian Nuclear Safety Commission, were in a discussion with Director General Grossi.

And, my British counterpart, Mark Foy, we were talking about harmonization, and this was something that the Director General is very interested in.

And, Mark had a thing that was kind of like, yes, yes, yes, but sovereignty. And, sovereignty is really important.

Because I'm not accountable to the British people, I'm accountable to the American people. And, the American people look to us, look to the NRC for us to make our own determinations.

And, in a way, to reflect the risk tolerance, and the kind of, the policy environment that we're in.

Now, having said that, right, the laws, and the theories, and principles of physics, work in the United States the same way they do in Canada, and Britain, and Poland, and other places, right?

So, is there room to collaborate on the technical aspects of advanced reactors? Absolutely, and we have a memorandum of cooperation with Canada doing exactly that. Where we're sharing information and approaches.

Now, is that a universal license? No, but at the same time, and I don't think it should be, frankly. But at the same time, does that mean that every applicant has to come up with an entirely new set of information or data? Well, I think that's probably where there's some work that can be done.

MS. VEIL: Okay, next question. How has the COVID-19 pandemic affected your risk-informed decision making, and how has the NRC addressed the challenges?

CHAIRMAN HANSON: Oh boy, that's a great question. I've been so proud of the NRC staff and the way we've adapted.

I mean, and some of this was just some, some really great foresight by our Chief Information Officer, Dave Nelson, who, we moved from desktops to laptops probably six months before the pandemic. And, boy aren't we glad we did.

And, he had made a number of other

investments internally. So, when the pandemic hit, I think other agencies were getting, you know, supplemental and emergency appropriations for hundreds, tens and millions of dollars, hundreds of millions of dollars, to kind of upgrade their infrastructure.

I think the NRC, we got $3 million, and it was to improve, kind of the bandwidth into the building, and really help people do VPN. And, a couple of other minor things. I'm just so impressed and proud.

And, we've adapted in all kinds of other ways.

I do think though, that and I've said this at commission meetings, right, the nuclear safety and security, is, it's a contact sport, right? It's boots on the ground.

There's nothing quite like having NRC people around with our NRC badges, and our NRC hard hats, in facilities and checking things out.

And, so while we were able to do some things like remote inspections, or some materials inspections remotely, and some other things, those were really important in the pandemic, right? People

didn't want us going into hospitals. People didn't want to go into hospitals.

That was kind of sufficient temporarily, but not something that we necessarily want to do in the long-term.

On the other hand, you know, you look at our resident inspectors and, you know, very quickly, our licensees provided them with remote access into their systems, either by providing with laptops or a VPN, or whatever.

So, there were things that they could do remotely. Review documents, and other things, without having to be onsite for some of those direct sampling.

So, I think we're working on the lessons learned in the agency, that's been kind of an ongoing process. And, I know we're going to share the results of that publicly, when we kind of crystalize some of those lessons.

MS. VEIL: Okay, this next question is long, and it's multi-faceted so I'm going to speak slowly.

CHAIRMAN HANSON: Let me get out my pen.

MS. VEIL: All right, get ready.

CHAIRMAN HANSON: Okay.

MS. VEIL: NRC regulatory processes within nuclear reactor regulation, benefit from a clear set of procedures that were first developed in the mid-1990s, to clarify the myriad of regulatory guidance, and to clear standards for regulation.

Processes in other area, for example, decommissioning, new reactor designs, et cetera, rely on regulatory guidance, rather than clear rules. Clear rules in these other areas are definitely needed.

Since these diverse areas cannot be addressed simultaneously, where and how, would you prioritize rule making in select areas?

CHAIRMAN HANSON: That's a great question. I mean, this gets to the heart of a lot of our efforts on Part 53 and advanced reactors, right?

It's along that spectrum between predictability and flexibility. And, where should we be in that, right?

Where do we have rules on the flexibility part, and where do we have guidance? We got a lot of feedback on that question, right? Our staff, and not all of it entirely, entirely consistent.

And, I'll be honest, I'm not exactly sure where we should be on that continuum. Because I think in different issues, we're going to be in different places.

I think having that option for having clear rules, or having guidance, lets us evaluate each one of these things kind of individually.

Now, we have to learn, we have to be cognizant, that there's some consistency in there, right. We can't kind of do this, we can't, you know, pick one end of the spectrum or the other, at random.

But I do agree that having a set of procedures is important. We've got a couple of papers in front of the Commission on this.

50.46(c), I think is an example of that where we're, you know, that paper I think the staff proposes to be more on the procedure end of, and the predictability end, of things.

Likewise, a rulemaking plan for a higher enrichment, higher burn up fuel, which is another paper in front of the Commission, right. Again, having rulemaking around those things, rather than guidance.

There are going to be other things

though, that are more appropriate on the other end of the spectrum.

MS. VEIL: All right, now you used this word in your speech and I remember trying to pronounce it out, and so here it comes in a question again.

Your framing of regulations as epistemological work, now did I get that right?

CHAIRMAN HANSON: Yes.

MS. VEIL: Seems insightful and suited to the time we're living in. Can you say more about the, what the NRC can do to safeguard its interactions with stakeholders in an era of truth-challenged public discourse, and which you talked about truth decay?

CHAIRMAN HANSON: That's a great question. I was having a conversation with our Office of Public Affairs staff, who I think, who feel this challenge particularly acutely in the agency. But I think everybody does.

And, I think that one of the key things we can do is just be as open, and as transparent as possible. And, the NRC has done remarkable job of that over the years.

People complain about ADAMS, our online

document management system, but literally everything is out there.

We have public dockets, we have, you know, with the exception of some business sensitive information, security information, we really do make everything available.

I think, and sometimes the NRC can do a better job of the translation function, and, but translation function isn't easy. And, there are some concepts that don't always lend themselves to translation.

But I had this, I was doing an emergency planning exercise recently. And, I honestly, oh, it was for Limerick. And, we do these things every couple of years, and we work with FEMA, and state and local.

And, I was over in the Operations Center, and I was playing my role as Chairman, and we were, had everything staffed up, and the screens going, and lots of activity.

And, one of the managers that we had in our nuclear security incident response group said okay, this is the part where I take you into this backroom, and I brief you.

And, so I said okay, great. And, we went in, and we sat down, and he gave me the spiel about what was happening at the plant under this exercise scenario. And, I said, fantastic. Now say it again in English.

Because, right, I mean everybody, you know, I'm not necessarily a technical person. But I also knew that I was, in my role in this incident, I was going to have to go explain what was going on.

If this was a real situation, I was going to have to go explain what was going on to National Security Council, to the Secretary of Homeland, to the Secretary of Energy, et cetera, right. And, I needed that in plain English.

And, he kind of caught up a little bit, and he went, he kind of took a breath, and he said, okay. And, then we did it again, and it was great.

And, it's that kind of, you know, we're a technical agency. We're a technical regulator. We're really good at that.

But sometimes, you know, there's what's this cliche, right, I have to go home and explain it to my mom, or to my sister, or whatever, who aren't in the agency. I think there's some more we could

do there.

MS. VEIL: Okay, next question.

Given the variety of advanced nuclear technologies, do you think NRC should move away from prescriptive regulation?

CHAIRMAN HANSON: Well, I see that kind of like the situation a couple of questions ago, right, where there is this kind of more prescriptive end that is, that's predicable.

And, there is the, and then there's the flexibility.

And, I did talk, I think in my speech, quite a bit about the need for flexibility. And, for performance based approaches, right, where we're focused on the outcome, and less on prescribing specific methodologies for getting to that outcome.

Now, that doesn't mean that any methodology is okay, right? It's the show your work. We get to validate whether those methodologies for assessing, or for meeting the requirements of those performance based criteria, are adequate.

Because again, if they're not, or if we think that they don't work in some way, it calls into question the conclusions. Which is ultimately what

we're about. We're about safety conclusions.

So, it's going to depend. It depends.

MS. VEIL: And, we have time for one more question. You mentioned data in your speech. Can you talk more about, you're very busy, so can you talk more about how you and your staff use your data, or data analytics, to make your job easier, or how you use it in your day-to-day interactions?

CHAIRMAN HANSON: Yes, great question. I mean, certainly in a couple of key areas. I mean, one is certainly on the budget and internal processes, right?

I've worked in CFO offices, and so I'm like, give me all the information. And, the CIO has really done a great job I think recently, of turning that data into information.

And, then I would say in other areas, it's in a lot of the papers, I use it quite a bit just, just in papers.

I mean, medical technologies, right, where we have a lot of data about the use of radioactive materials, and what issues might arise with those.

We see it in some of the fuel papers we've

seen, and some of the other nuclear papers we've seen. Whether that's the ISI-IST inspections, or other kinds of things, right.

So, what does the data tell us, and how can we use that to kind of inform moving forward. So, I'm really constantly asking staff about okay, well let's gather the data on this.

And, let's see what that says, and then let's kind of, kind of move forward.

And, I have to say, I mean we've used on a number of occasions, too, the tools that we've got out there that are Mapex, and, you know, other kind of performance data on the plants, so.

MS. VEIL: Well, Chairman, thank you so much for breaking the ice and opening our second virtual, a little bit in person, RIC, your expert remarks, and for fielding the questions.

And, with that, I close the session. Thank you so much.

CHAIRMAN HANSON: Thank you, Andrea, thank you, Ray.

(Whereupon, the above-entitled matter went off the record at 9:27 a.m.)