

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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31st ANNUAL REGULATORY INFORMATION CONFERENCE

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OPENING SESSION

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TUESDAY,

MARCH 12, 2019

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ROCKVILLE, MARYLAND

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The Regulatory Information Conference
convened at the Bethesda North Marriott Hotel &
Conference Center, 5701 Marinelli Road, at 8:30 a.m.

PRESENT:

KRISTINE L. SVINICKI, Chairman, U.S. Nuclear
Regulatory Commission

MARGARET M. DOANE, Executive Director for Operations

HO K. NIEH, Director, Office of Nuclear Reactor
Regulation

RAYMOND FURSTENAU, Director, Office of Nuclear
Regulatory Research

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P R O C E E D I N G S

(7:59 a.m.)

MR. NIEH: Ladies and gentlemen, please rise for the presentation of colors and the singing of the national anthem.

Okay, ladies and gentlemen, please take your seats.

Good morning, my name is Ho Nieh, I'm the Director of the Office of Nuclear Reactor Regulation and along with my co-host, Ray Furstenau, the Director of the Office of Nuclear Regulatory Research, I'm very pleased to welcome you to the NRC's 31st annual Regulatory Information Conference, or what we lovingly refer to as the RIC.

I notice the displays this year and it seems like the people that take the artistic liberty in designing it are really keeping up with the times. Last year we had some mock-ups of accident tolerant fuels and this year it looks like columns of molten salt.

Each year the RIC attracts a very broad audience from all over the world and this year's no exception. We have around 2500 registered participants from 38 countries and to all of you who traveled great distances to be here with us today,

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thank you for making the trip and we really hope you have a great conference.

We also have some distinguished guests in the audience that I'd like to recognize. We have three former NRC Chairmen, Richard Meserve, Nils Diaz and Allison Macfarlane.

We also have four former NRC Commissioners, Jeffrey Merrifield, George Apostolakis, William Magwood, and William Ostendorff. Thank you all for your service on the Commission. We really appreciate your continued interest in the NRC and it's always good to have you back.

As you know, the RIC is the NRC's largest public annual conference and to pull off an event like this, it really takes a dedicated team of hard-working NRC staff, lots of volunteers from all of the NRC offices and contractors.

I do want to give a special shout-out to Lorna Kipfer. Lorna, I said I was going to do this. Lorna's been the life force of the RIC for the last decade so please join me in a hearty round of applause for Lorna and the dedicated staff that brought you this conference.

(Applause)

I have three very quick housekeeping

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reminders. First, please keep your name badge visible and on you at all times for your safety and security. Second, if you see something, say something, report any suspicious or unusual activity to a security officer or a hotel staff member.

And we do anticipate that several of our technical sessions will be at full capacity. If that's the case, please follow the instructions of the NRC volunteers and they'll tell you what to do.

So, as you know, the NRC has embarked on a journey of change and transformation, and with that in mind, we have taken steps to transform the RIC itself.

We've brought to you a wide-ranging program of technical sessions and you can find out about all those technical sessions in the new RIC mobile app, and you can find out more with the mobile app.

We're really, really excited about it so I'd like to tell you about what's new at the RIC. With the technical sessions, we've also included sessions this year on the nuclear fuel cycle, that's a new addition, and one of the things we're really excited about that I just mentioned is the new RIC mobile app.

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It's just fantastic and I want to tell you a lot more about it, and I know you're probably thinking that, hey, it's just an app, we live in a world where there seems to be an app born every minute.

But trust me, for the NRC to finally have a mobile app, it's a pretty big deal and it's a big accomplishment for us, so join us in basking in our glory. Using the app, you can quickly access the conference program, full speaker biographies, all the session presentation materials, the poster displays, participant contact information.

There's also networking features you might find interesting. And what's really cool about the app, we added a live polling feature to help us interact more with the audience, and we're going to be using live polls during the conversation with the NRC Chairman and the Executive Director for Operations. We'll also be doing some live polling of the audience during the advanced reactor session later today, Session T4, and the reactor oversight process session tomorrow morning, Session W15.

And if you know the NRC, we never really do anything new without a pilot test. So, I hope

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you've downloaded the app because I'd like you to pull out your mobile phones right now and I want you to tell us how we feel this morning. We're going to put a test poll question up.

So you go to the app and basically hit the live polling button and select the opening session test poll and tell us how you feel. I really hope this works, I'm a little nervous but we'll see.

So, let's move on and let's talk about what else is new at the RIC. So, this year we're delighted to have a special guest speaker on the agenda. We have Nathan Myhrvold, who will join us later this morning.

Nathan is the Founder and Chief Executive Officer of Intellectual Ventures. He's also the Vice Chairman of TerraPower and formerly the Chief Technology Officer at Microsoft.

And we're really looking forward to his remarks on innovation, transformation and regulating new nuclear technologies. And we hope that his remarks will help inspire us and also help us to stretch our imaginations.

Also new, to make things even more interesting and release more engaging, several NRC Commissioners will be chairing technical sessions

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during the week and you can find out which programs those are in the mobile app as well. I really like the mobile app, it's very functional.

We hope some of these new things that we've brought to the RIC really enhance the value of your experience at this conference. We know you've traveled a long way to spend your valuable time with us and we want your feedback, tell us what you think about these things.

And we always try to make each year's RIC better than the year before, so you guessed it, use the app to give us the feedback and if there's one thing I hope you take away from this year's RIC, it's that many things at NRC are no longer business as usual.

Before I do that, can we put the live poll results up and see how people are feeling? Great, wow, that just happened, that's fantastic.

I'm glad people are ready for spring too and I'm really glad that most of the people that polled are full of energy and I hope that represents the audience here. And believe me, I'm really glad I didn't put more of you to sleep because I do want to stop talking.

So in some ways I feel a little confused

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too because in some ways I think we all just did the largest group time-travel experience. It's like the NRC finally made it to the 21st century.

Okay, so now let's get to the point of the program where we're going to answer the question that's probably been in the back of your mind since the beginning of the program: why is there a living room set here on the center stage of the RIC?

So, new and different this year, the NRC Chairman and the EDO will be sharing their perspectives and views in a more conversational and fluid manner while they talk about three important issues facing the Agency.

The first issue is the changing workload, those things that we need to be working on. The second topic is the changing workforce, those great people at the NRC that are helping us get the mission done. And the third topic is the need for efficiency and innovation in how we get our work done.

And during each of the discussing topics, those three topics, there will be a live poll question. We want you to use your apps again, just like you did a moment ago, and look for the questions on the large screens to the left and right of this stage and tell us how you feel.

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We're going to bring those live poll results in to complement the conversation as well as the questions and answers. So, we're going to get the conversation started, I'll be facilitating the discussing topics.

Ray Furstenau will join us after that with the question and answer, so make sure you fill out your question-and-answer cards and hand them to an NRC volunteer. We're still old-school with the cards but that's okay, we can make that work well.

So without any further ado, I'd like to welcome the NRC Chairman, Kristine Svinicki, to the stage. She's no stranger to the RIC, this is her tenth appearance at this conference.

Many of you know the Honorable Kristine Svinicki. She's been the Chairman since January of 2017, she's been on the Commission since 2008 and is currently serving her third term. Good morning, Chairman.

CHAIRMAN SVINICKI: Good morning.

MR. NIEH: I've noted your perfect attendance at this conference and that is a noteworthy achievement for ten years. Thank you, Kristine Svinicki.

Next, I'd like to welcome our EDO, Margie

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Doane, to the stage. Good morning, Margie.

MS. DOANE: Good morning, Ho.

MR. NIEH: Margie has been the EDO since July of 2018 and this is her first RIC in her new capacity, but she's no stranger to the NRC.

She was formerly the General Counsel from 2012 to 2018, and prior to that, the Director of the Office of International Programs. And now that you're my boss I can't do anymore lawyer jokes but that's okay.

A round of applause.

MS. DOANE: I can do engineer jokes.

MR. NIEH: Okay, there's more of them.

CHAIRMAN SVINICKI: Good morning.

MR. NIEH: Okay, so this is new and different.

CHAIRMAN SVINICKI: It is new and different. Good morning, everyone, I just want to add my welcome to Ho's more complete welcome that he just gave everybody.

And it's just a tremendous turnout and the RIC is always such an enriching week to spend with colleagues and friends that we've worked with for so many years. So, again, welcome and thank you all for coming.

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MS. DOANE: Yes, and I'd also like to extend my welcome to all of you and to our international colleagues who traveled so far, and to also extend my gratitude to the NRC staff that have helped us put this together.

It really is ambitious for us. I know that you've seen armchair discussions in lots of different fora but this is very new for us.

CHAIRMAN SVINICKI: It is new but it's nuclear's version of spontaneous, which is that we had all kinds of -- we practiced how to walk on the stage yesterday and give that introduction.

MS. DOANE: You're going to give away all our secrets. So, I did want to welcome one person especially.

My husband's here, he came because it might be the only time he sees me this week since it's so busy, but I did want to extend a thank you to him. It's his first RIC as well.

MR. NIEH: Well, thank you. So, we're going to get the conversation started here and I want to go to the first topic on the changing workload, but I'm going to set the stage.

On one hand, we have the emergence of new technologies like accident tolerant fuels, advanced

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manufacturing methods, advanced non-light water reactors.

And on the other hand we have an operating reactor fleet that has growing interest in subsequent license renewals but at the same time, it's getting smaller due to premature shutdowns. That's also leading to new business models and decommissioning. So this changing regulatory landscape I think demands that the NRC needs to be strategic and flexible in adapting to the challenges. So I'd like to go with the Chairman first on this.

Chairman, you've been on the Commission for now over ten years and from your policy vantage point, can you tell us what's different and how that affects the Agency going forward?

CHAIRMAN SVINICKI: Well, we did rehearse walking on stage but I do want to clarify that this is unscripted here so we do know the topics but as I reflect on that question, Ho, what an amazing opportunity the window of the last ten years has been for me because it may be one of the brightest contrast points if you took a ten-year slice of NRC history.

When I joined this Commission in 2008, there were points where we were receiving not just one COL application a month but sometimes two. If

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we contrast the with today we have reactors that are ceasing operation early, we have a focus on decommissioning.

So if the world can change that much in ten years, it can change again in another ten years and what it taught me is to have a really deep humility about the ability to predict what that future's going to look like. And I think that's the strength of what NRC is focusing on right now.

What we're looking at, I know resiliency is talked about a lot, agility is another term that's used, but it is how can we structure and resource and organize our people and our work processes in a way that would allow us to be at least in the middle of the curve of adapting to whatever the future circumstances in the industry we regulate throws our way?

And so I think that we're looking at the things that have served us so well in the past and the NRC is and always has been a very high-performing organization.

But I think the truth is that we realize the things that have served us so well in the past are not necessarily the ways in which we should achieve this important mission going forward.

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And I think we've widened the aperture on that and that's the really exciting thing that we're involved in right now at NRC. I think it's a tremendous creative opportunity for all the current employees and we're also soliciting for a lot of external feedback and ideas.

MR. NIEH: If I may just follow up with that, you said the things that have served us in the past well may not be what we need to be doing today is what I heard.

Can you give us a sense of what type of things we need to be thinking about with this changing workload today that's different than before?

CHAIRMAN SVINICKI: To me, transformation allows us to look at the work we have now and kind of an over-the-horizon projection of the kind of work, both the amount and the subject area of work that we anticipate getting in the future.

And it isn't so much that the what is changing, I think that we need to step back to first principles and look at the how, of how we accomplish a lot of the things we do.

Because I think it's not an abandoning of a lot of what makes us strong, it's an opportunity to say I'm not the person I was ten years ago, I'm not

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the organization I was, I have an opportunity to look at what serves now and what works best.

MR. NIEH: And we'll get to the hows I think in the third topic. So, Margie, from General Counsel to the EDO, wow, that's a pretty big change I would say.

So you have a really unique set of experiences and perspectives to lead the NRC in this really dynamic environment.

Can you tell us about what you consider the NRC's operational strategies to adapt in this dynamically changing environment?

MS. DOANE: So I'll put a little bit of a finer point on what it's looked like this year.

We've completed some very important milestones and we issued our 94th license renewal, which was an extension of the licensing term for a plant, nuclear power-plant.

We're finishing up our mitigating strategy rule after Fukushima, and in materials we signed the agreement with Wyoming, transferring much of the uranium recovery work to Wyoming.

So this is completing a lot of very important multi-year effort work, but what we're seeing is a lot of on the horizon. So we have plenty

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of work to do because we have that large, the largest in the world, nuclear fleet and we also have new things on the horizon that you were mentioning, Ho, like new technology, advanced technology, fuels, all kinds of different things.

So, what I would say about the workload is that it is steady and we need strategies in place that are going to help us meet those challenges.

And one thing that we did is we did a futures assessment this year, and what that is, it helps us stretch our thinking, it's a scenario-based look at what nuclear might look like in the future.

It's not a prediction, it really is four separate scenarios and we're going to use that to make sure that we can adapt to our environment.

We're going to do things that no matter what scenario we see ourselves in, we're going to kind of inoculate ourselves so that we will be effective and we'll talk about that more later in the session, some of the strategies we're going to use in that regard.

But we need to work smarter and so some of the things that we're doing to work smarter is we have Centers of Expertise, we call them COEs. We have an acronym for everything so you're going to

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hear a lot of acronyms today.

Sorry, Chairman Macfarlane. She tried to get us away from that, former Chairman Macfarlane. So, we have put some strategies in place like Centers of expertise, and what that's doing is it's helping us bring all our experts to one place.

And by doing that we can share our thoughts much more quickly, we can move along and take an implement lessons learned more efficiently. It also helps us save resources because we're not running around the whole Agency finding all the experts. So, Centers of expertise.

We're merging the offices of NRR and NRO and that will bring us efficiencies and also bring together technical knowledge of the new reactor office and Ho's office, NRR.

And then finally we're using technology to help us use business insights to better track, plan, and organize our work. We're going to be looking at our data, mining our data for ways that we can better think about how we can approach problems, learning from other organizations.

And I think if we look at all of these issues, I think what might be most important for us is the way we will marry technology, not necessarily

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new but it will be new for us, like the mobile app.

But it's important that we harness that so we can look at the data that we already have. So those are some of the ideas, Ho.

MR. NIEH: Thanks, Margie. Now, I'm looking at the results of the live poll here and it's hard to see but what I saw was something similar to what the Chairman said.

We asked the audience what the biggest challenges are it looked like the audience selected, those that polled, that it's more of the how we do our work, the better use of risk information rather than sort of the what's, if you will.

At least that's what the polls show. Would either of you like to comment on the poll result?

CHAIRMAN SVINICKI: Well, I would note as a preview that Commissioner Caputo will be chairing a technical session on what is risk-informed decision-making?

So I think there's a lot of pre-registrants for that and now we know why based on that live poll result. It's clearly a focus area and I think the feedback we're getting is -- and it is interesting.

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That is a rich and complex topic so I think getting to the how of that will be an important part of that dialog in the technical session and I think a lot of side bar conversations here this week at the RIC.

MR. NIEH: Thank you for that. And if may add, just from the perspective of having returned to the Agency and just having been back for the last six months, I think the question I encounter very often is what does it mean to be risk-informed?

So I think the sessions we have here at the RIC will really maybe help us have a more unified understanding of the concept. Okay, so let's switch to the second topic now, which is the changing workforce.

So, in getting ready for the RIC, and I wrote some things down, they're not the answer cards, it's just to help me moderate this discussion here.

I wrote down some statistics from our Office of the Chief Human Capital and in February of this year, we have roughly 2900 Staff members on board at the NRC. And that's significantly less than the roughly 4000 we had in 2010, 4018 to be exact.

I looked at the retirement statistics: we have 24 percent of our staff eligible to retire now,

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38 percent eligible in three years, and 42 percent eligible in 4 years.

And I looked at the demographics of the workforce, we have 23 percent that are under 39 years old and only 2 percent that are under 30 years old.

By the way, 30 years old, I read this morning today's the 30th anniversary of the Internet, the Worldwide Web, for those of you that read the news.

Anyway, I digress, sorry.

MS. DOANE: Those people weren't born.

MR. NIEH: So I want to start with Margie first, if I may, Chairman. Margie, those statistics really must have your attention I would think.

And can you tell us what it means to you and what the NRC should be doing to prepare itself to build a sustainable workforce for continued success?

MS. DOANE: Yes, so those statistics certainly do have my attention and I want to say that it's going to sound cliché but our workforce is our greatest asset, it really is true.

They're committed to our mission of public health and safety, common defense and security protection of the environment, and they're getting the work done for today.

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But we really need to put in place strategies and we have strategies and we are continuing to work on this to make sure that we can retain and recruit new hires, and that we can also build the skills of our current workforce to have the workforce of the future.

So I can tell you a couple things that we're looking at, a couple strategies that we're using. For retention, we have something that's very ambitious. It's a strategic workforce planning process that is very ambitious.

It's a multi-step process where we start out with an environmental scan, and again we're going to use that futures assessment to make sure that we're thinking really broadly.

We do an environmental scan and then once we figure out exactly what we're going to -- not exactly but we figure out what we think will be necessary in the future, then it's a multi-step process where you finally end up figuring out where your skills are going to be adequate for the future but then also where there are gaps.

And then to address those gaps, we have some other strategies that we're using. We're using competency models to make sure we can really assess

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the skills and develop and train and look at our training programs and our qualification programs to make sure that they're going to work for the future for us.

And then finally, we have something where we call it skills transformation. And for that, we are looking at experiences that we can give our staff so that, like I was talking about, as work ceases we can move them to work, or complete, when we complete work, we can move them to new work and make sure that they have the skills that are necessary for them to be effective.

And we really think this is going to be good for our workforce because they can better plan their future too. So this is something that we think is going to be a great retention tool. These strategies are good for retention.

The new hires, that is the entry level, what I would discuss as that two percent. Ho, that really does have my attention. It's far below the Federal Government statistics for under 29.

So two percent is quite low so we are working on a strategy to have entry-level hiring very soon so if you're out in the audience and you're a student, look for us or if you have children, make

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sure you're looking out for the NRC because this is a great place to work and we're going to continue to make it a great place to work.

And then, finally, our leadership, the Chairman, has really spearheaded this effort where we are making sure that we are externally aware and that we're being strategic in our thinking.

MR. NIEH: Okay, thank you, Margie. Chairman, I've seen you nodding in agreement with some of what Margie's saying. Can you tell us what's going through your mind on this topic?

CHAIRMAN SVINICKI: Well, I think I would describe it very similar to what Margie's discussed. I'm kind of reacting a little bit to the poll results as well. It is, as I predicted, a fairly even spread.

I note that technical competence is edging out the other categories but I think all of the areas, I would interpret the poll result to mean all of these areas, are going to be important to us.

Leadership and entry level, those kind of bookend the two categories of someone's career but I think we're beginning with where we are and the people we have.

We have a tremendous resource in the human capital of the Agency and Margie's talked about

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the mechanics of strategic workforce planning.

And that's really what that's all about, is beginning with looking at where we have capacity, where we might have gaps either now or in the future, and that's done in comparison to workload.

And then we're also looking at opportunities to kind of -- they use the term rescaling, that's very fashionable right now.

But I look at it as investment in our current workforce in new opportunities, developmental opportunities, not just so that they can do their job today but how might we make them a double threat or a triple threat, or give them new capacity so that we can move people to work as it emerges in a more agile way.

I was here for the period when we went from 4000 to the under 3000 that we have today and when our work shifted a bit away from a heavy emphasis on new reactor work and was moving more to some of our post-Fukushima work, we found that we had extremely cumbersome internal processes for moving people and just basically reassigning them from something that was coded as a new reactor activity to something that was coded as an operating activity.

Those are obstacles that organizations

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put in their own way and part of transformation is the basics of looking for where we're not even serving our own processes well and how could we do better?

MR. NIEH: I do want to draw something out from the poll result that kind of caught my attention. It was the subject of external awareness.

And yesterday I was in a meeting with one of our Deputy Executive Directors, Dan Dorman, and he was talking about the external awareness factor in the futures assessment that we hadn't really been looking at the effect of natural gas prices on the industry we regulate.

So, I certainly sensed a focus on external awareness, particularly with the leadership at NRC coming from the top levels of the organization.

So I'd like to ask either of you if you'd care to share your views on what external awareness means to you when we talk about that?

CHAIRMAN SVINICKI: Well, I would note that it got 16 percent in the poll result, external awareness did, and it makes me intrigued.

Like many of us are very data-driven, I wonder what the split would be if it were only NRC employees who were responding on this. They might resonate more with the focus on external awareness.

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The way I view external awareness is the Agency as at times had a very singular focus on technical competence, and while that is obviously very important to the work we do, as we move people to broader and broader responsibilities, often that is a necessary but not sufficient component in grooming future project managers and leaders of the Agency.

So we have had a focus on that. I might toss this back at you, Ho, and say you have stepped away from NRC and come back not once, but twice, once to the International Atomic Energy Agency and once to the Nuclear Energy Agency under the OECD.

When you step away and come back, what have you seen in terms of the workforce and their focus?

MR. NIEH: Okay, well, I hadn't necessarily been anticipating getting questions but I suppose I should react to that.

I think what I've seen coming back, Chairman, in terms of the work focus and the work force, I really think there were things that really remain very steadfast, the workforce's commitment to the work of the Agency and wanting to do our work very, very well and wanting to really have high

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technical quality in the products we deliver in the licensing and oversight programs.

What I've also seen, which is actually very encouraging, and I know you've heard that the NRC, we've embarked on this journey of change and transformation.

And I really think that there are many staff that I've encountered in Headquarters in the region that really are embracing the special and are really looking at ways to do their jobs better.

They recognize that the state of the fleet is not what it was today as it was let's say 20 years ago. So I've seen a recognition of that and I think people are being more externally aware.

CHAIRMAN SVINICKI: And I would apologize for tossing a question to you but you know full well you can take the woman out of the Chairman's office but you can't take the Chairman's office out of the woman, right, Allison?

MS. DOANE: So, Ho, maybe I'll add, on external awareness, I think really for us it's taking the best ideas and the brightest ideas thinking big and creative and harnessing what we see out in other organizations, other Government Agencies.

There's so much for us to learn and we're

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very open. We do have a learning environment and so for external awareness for us, that's what we're doing.

We're benchmarking, we're looking at these other -- like I said, even international organizations, we're so appreciative of the willingness of our international partners to share their experiences with us.

So, when we say external, we mean the whole globe and I think with our next speaker we're going to see that.

CHAIRMAN SVINICKI: And I would just add to that by saying it's our vision, and I'm 100 percent confident, that NRC can give anybody a run for their money.

When I think about the talent and ingenuity that we have, I know that what could be the Federal Agency bringing examples that are showcased across the Government.

And I'm really excited, I think we're on the threshold of that kind of energy and excitement emerging on transformation. And I don't set any standard less than best in class for us, I know we've got what it takes and we could absolutely crush this thing.

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But it's like any change, it comes down to a choice and NRC, I've been here long enough so I have the blessing of being able to say this from my long observation, is capable of anything it puts its mind to.

But what will it choose? That's the question, and I think as leaders you can lead but the organization as a whole is going to have to embrace and invest itself in transformation and we'll see.

MR. NIEH: Okay, thank you. And I would say from the poll I was very encouraged to see technical competence as an area that people thought was important.

I would just share this weekend, I know Cathy Haney, the Region II Regional Administrator, and I were on a very early morning phone call at 1:00 a.m. Saturday morning dealing with an issue at a plant, an unusual event.

And I could say when we were listening to what was happening at the facility, it really underscored the importance of our technical competence and our sharp skills out in the region, to really understand what's happening at the facility so we can make the right response decision.

So I really appreciate the audience

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feedback on the technical competence. So we'll move to the third topic now. This is efficiency and innovation in how we do our work.

We are on this journey of change, we want to be a more risk-informed regulator to enable new technologies and we want to embrace innovation and creativity in how we do our work. And I think it's a really exciting time to be working at the Agency right now.

And along with this effort in trying to shift our mindset to embrace things like innovation and creativity, I would say the set up you see today right now is actually done in large part by the bright, young people that formed the Agency Innovation Forum.

So they helped us conceive this idea so I really think that's a really wonderful sign that we're trying to be more innovative and creative.

So, Chairman, for the last two years at the RIC I've heard you say and talk about whether the NRC can change to be more risk-informed, and last year you talked about the pace of change happening at the NRC.

And you mentioned that we were standing at the threshold of a step change with the

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transformation efforts. So were you prophetic last year? Where are we today?

CHAIRMAN SVINICKI: Prophetic, that's a big word, isn't it?

There would be a lot of hubris in claiming to live in uniquely changing times and but having said that, I'm going to stand by my observation of last year, which is that I think if you look at a lot of even technology development, there is a kind of plodding along.

There's a really deliberative pace. There's some failures and frustrations, there's things that are tried hypotheses that are tested that don't prove out, but then all of the sudden you can break beyond that and have a bit of a breakthrough.

And I think that NRC stands at the threshold of doing something like that. Again, all of these processes will involve hundreds and thousands of people at NRC that decide to take the transformation journey.

And so the outcome is not assured but I know that the capability is there and transformation is a really big word, if you were to think about it in your personal life or your family life or your professional life.

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And the truth of transformation for me is that it happens basically one outcome, one conversation, one action, and one decision at a time. And I think that is NRC's approach which makes the whole thing conquerable, even though it is such a tall objective.

MR. NIEH: Margie, I've heard you say that our products are our decisions. So could you please tell us what you see as the main focus areas for improving our innovation and efficiency to getting at our decisions?

MS. DOANE: So, I'm going to try to see if I can work in this analogy because it helps me think about these issues.

So probably by now everybody is familiar with Marie Kondo and her way of coming into a house and decluttering it, and the family has been surrounded by only things that spark joy. So it's a miraculous change that happens.

She comes in and she tells you to look at what's really good and sparks joy, and then others, you appreciate it, you respect what you had but you let it go because you know that the time is moving on.

And I really see our transformation as analogous to this because what we're trying to do is

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we -- one thing that you don't want to do, we've learned from other organizations, is you don't want to change what's really good about your organization and what's really good about us.

And my first focus area is our commitment to the mission. I did mention that before but it's absolutely imperative that as we change, for the American people we remain committed to our mission. So that's really the first area when I'm thinking about decision-making that we focused on.

The second thing that we're focusing on is we're looking far and wide for good ideas and this is what I was talking about thinking big.

And it might come from the newest person at the Agency or it might come from the most seasoned person at the Agency, or it might be external thinking. But we're thinking big, we're trying to get a lot of new ideas into our decision-making and be very inclusive in how we resolve those issues.

And then we are trying to take risk insights, and I see that what's come up on the screen is reducing the zero-risk mentality. And when I saw it I thought that's what's going to be picked, and I understand what this is.

This is really a signal and I agree with

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this that if you have a zero-risk mentality, you can't easily shift or change because you're so concerned about the risk that you're weighed down with it. And in this way, this is my decluttering idea.

In my mind we have to take away the processes and the things that were built really around mid-twentieth century technology. We've put a lot of processes in place and this is making it very difficult for us to twist and turn.

So it's those things that we need to really look at trying to address so that we can move forward in a more adaptive flexible way like the Chairman was talking about it, with more agility.

And then finally, once we make these better decisions we need to be able to communicate them well because we understand very well and we have decades of working with the community and with external communities and also internal within our organization and other Federal Agencies.

We understand that with change comes some uncomfortableness so to take care of that, we need to build trust and we'll do that by communicating our message well.

And I just want to say I'm excited to be on this journey and I know that we can change in a

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way that will make us even a better place to work than we are now, and I think we're going to do it one decision at a time.

CHAIRMAN SVINICKI: I thought we'd have at least one or two contrarians in the room that would vote for nothing, everything is just fine.

That zero kind of astonishes me because I know people have really strongly held views in the nuclear enterprise so that surprises me a little bit.

But I guess it reminds me a little bit, since I've been on our Commission for ten years, I've testified before a lot of Congressional Committees and Senator Carper on the Senate Environment and Public Works Committee, who has had a consistent interest in the Agency's success and wellbeing, which I appreciate very much.

He has a saying and it says if it's not perfect, you can make it better. So, I'll interpret that zero percent for everything is just fine is that no one's perfect so we can obviously make some things better.

But beyond that, again, I see a strong emphasis in the result on a lot of different areas so it tells me we're not going to have the luxury of a singular focus in transformation. It's going to be,

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like Margie said, we're going to have really cast a wide net.

But I think in that, there's a great opportunity. Every employee at NRC has some dimension of what they do that they might want to make a suggestion could be done better and differently.

So, everyone is welcome in this endeavor and I think that can be kind of exciting for us.

MR. NIEH: I want to react a little to the poll results also on the reducing the zero-risk mentality. It was interesting to see that's what the poll responders chose most for us to focus on.

And I would say that I've seen in the last six months a few examples that are interesting to me and I'd like to get your thoughts.

One example in having these all-hands discussions and meeting with the staff, I've heard the question, well, what if I'm wrong? And then I had another example recently, I was in Region IV meeting with Scott Morris' staff.

One of his inspectors stood up and gave a real good example of how he saw something at a power-plant, he brought in some risk information looking at how long the component was actually being

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used and applied some risk and judgment to get on the right path to disposition it with the right level of resources in the inspection program.

So, what would you say to the Staff members in terms of the zero-risk mentality? Our mission is reasonable assurance of adequate protection.

Do you have any thoughts you'd like to share with the audience, particularly those people at the NRC in terms of what moving away from the zero-risk mentality means to you?

CHAIRMAN SVINICKI: I'll start.

I used the term humility earlier and one of the things that I found that keeps me grounded is reading the votes of a lot of the former Members of our Commission, and we have some old records back to the early days of the Agency.

But I think there's humility in reflecting on the uncertainties that your predecessors faced, and again, it gets to this notion of thinking that you've got it so uniquely complex and challenging.

Well, people throughout time and people throughout the brief history of nuclear, which is not like other types of sciences, have really struggled

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with a lot less access to data and tools that we have today.

So I kind of pivot the question and say with the amount of analytical and computational tools that we can have today, with the thousands of years of reactor operating experience that we have today, which our predecessors decade ago did not have, can't we actually root our safety and security decisions in a greater confidence than our predecessors?

And have we become so consumed with the amount of decimal places that we can derive now that we've decided that that somehow correlates to overall assurance and certainty?

And I think we can lose sight of the fundamentals, that we are human beings making human decisions in a very cautious and careful and thorough way.

But it doesn't mean that we just fail to address and get our arms around an acceptable level of uncertainty.

MR. NIEH: Thank you, Chairman. Okay, well, let's have a round of applause for Chairman Svinicki and our EDO, Margie Doane.

(Applause)

And now we're going to get to the

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question and answer part of this conversation here, and I'd like to welcome Ray Furstenau, the Director of the Office of Nuclear Regulatory Research to the stage. And Ray's going to facilitate the Q&A with the Chairman and EDO.

MR. FURSTENAU: Well, thanks. We got a lot of good questions. As far as the polling goes, we've got about 500 people responding to the poll so that's a pretty good percentage. So thanks for everybody for doing that.

We had a lot of questions on innovation and I'll kind of combine a couple too because some of them were very similar.

With the new direction of the Agency with ROP transformation, et cetera, capitalizing on risk-informed decisions, what's the NRC doing to ensure leadership courage to change the culture of the NRC staff in order to meet these challenges?

And Chairman, would you like start with that?

CHAIRMAN SVINICKI: I think that Margie and touched on that a little bit and you notice that leadership was one of the focus areas in the live polling questions for Margie and I.

I know we're focused on leadership

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development and looking at how we've prepared leaders in the past and what are the attributes that will best contribute to the success of future leaders in the success of the Agency as a whole?

So, we have made some changes, speaking of Margie's point, about acronyms. We have the SESCDP, it's the Senior Executive Service Candidate Development Program.

And it's really the beginning of the feeder pipeline for future leaders, not only in the NRC but the concept is they could flow throughout the Government to other executive capacities and Federal Agencies.

But we began under Victor McCree, Margie's predecessor, to make some changes to the overall selection criteria and the weighting of factors and attributes.

And so we are trying to begin with a candidate pool that is more diverse in thought, in race, in gender, in all these aspects, but also educational backgrounds with a continued emphasis on technical competence.

But looking at the fact that you need executives that have things beyond technical competence and have we developed and has our pipeline

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been adequate from that standpoint?

So I think we have a lot of focus on it and we are a nuclear agency so after we've made these changes to the candidate pool for this class and then we will be assessing later on whether or not we achieved what we set out to achieve with those changes.

MR. FURSTENAU: Thanks, I guess to maybe add to that question a little bit for you, Margie, is along with that, what other things are you're doing since you've come on board as EDO to get full support of the Staff and the changes that are being made?

MS. DOANE: So I think I'll give a plug for something that we've put in place, and it was actually started while I wasn't an executive, a senior executive, as the General Counsel but now we are implementing it.

It's something we have coined the leadership model and Rob Lewis deserves a lot of credit because he's put a lot of thinking into this, if any of you know him.

And the leadership model is really a set of behaviors that it's common sense, it's things that we would all think about would be necessary when you're changing an Agency.

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But we put a lot of thought into it because it's helping us thinking about being more inclusive and taking risk insights into consideration. And so this leadership model recognizes that everybody at the NRC is a leader.

We all are going to do our part, we all have a role in this transformation and so that's one of the things that we're doing, and we're really carrying that through and trying to hold each other accountable for the ideals that are in this model.

So, that's the first thing. The second thing is the senior leadership team came together most recently, and we talked about our first-line supervisors, the ones that are really there on a day-to-day basis working with our staff, and how important it is to be supporting them in their journey to transform, and making sure that we are there for them because transformation is hard.

And they requested that of us, to make sure that we're there for them when they're making hard decisions, that we don't change those as they go up the line, that we have the courage to make those decisions as well.

And also as we bring these brighter ideas in and have new ways of thinking, we think about the

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processes that we were using before and be open to even using new processes. So those are some of the things that we're doing, Ray.

MR. FURSTENAU: You mentioned about transformation, Margie, and Chairman as well. What is the NRC transforming into?

MS. DOANE: Do you want to go first? I think of it like this Marie Kondo.

CHAIRMAN SVINICKI: We're back to holding a mixing bowl and --

(Simultaneous Speaking.)

MS. DOANE: And here's why. So I see us really changing in that we will look at what is very important to us and we will hold on to that.

But we will streamline our processes, we'll be able to move in a more adaptive and flexible way because we are going to look for new things, we can bring in new ideas.

And in the end, we will change so many different parts of our organization in a way that really helps us achieve our mission in a different way.

We like to think about innovation muscles, we talk about that, innovation muscles. Trying to build that muscle so that it won't be

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something that we think about as this big, large thing that we have to achieve, it'll be part of our everyday existence.

We'll be thinking about changes as we go along, we'll be able to readily see things and use new technology and have someone to bring that to and get those solutions quickly. So that's what we will transform into. I think we already have gone a long way towards that.

We have done things like the Reactor Oversight Process, which was a significant innovation at the time but now that's 20 years old and we don't want to do just one innovation here or one innovation there.

We really want to look at the whole Agency in our decision-making and transform that. So transformation will be one decision at a time. That's why we say that.

MR. FURSTENAU: Chairman, do you want to take a stab at that question?

CHAIRMAN SVINICKI: I agree with the description that Margie has given and I think that one of the things is that it isn't going to be a strongly top-down process, which is consistent with the way that she's described it.

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I don't think the Commission has an appetite or desire to come up with every dimension and idea and attribute of a transformed agency. Members of the Commission turnover over time and this needs to be something that the heart of the organization is really moving forward with.

And if done well, I agree that it becomes part of the culture and it becomes the atmosphere, and it isn't something that's a project off to the side, like for the next hour of my day I'm going to have innovative thinking.

It's just a way of thinking that is brought to everything that you do.

MR. FURSTENAU: We're going to switch gears a little bit, this is more of a specific question, and this is not to take away, Chairman, from your technical session but it might be related to that.

Do you think the nuclear profession is placing too much hope and emphasis on advanced reactors? Are advanced reactors really going to be a panacea or could it become an albatross?

CHAIRMAN SVINICKI: Oh, goodness, well, that is a good question to ask my extremely erudite panel that I will have this afternoon in the Advanced

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Reactor Technical Session.

But, Ray, when you read the question and said are we placing too much hope, I guess it depends on what you're hoping for. So in absence of a definition of that, I'm really not sure.

I don't like absolute statements, I guess I should have been a lawyer instead of an engineer, but I don't know that anything is a panacea. So I'm really not sure how to answer that question.

I think the energy policy of the U.S. has nuclear playing a role now and into the future and so for NRC what we're focused on is having a kind of regulatory framework that provides the absolutely necessary assurances of reasonable assurance of adequate protection, but also is not so aligned to large light water reactor technology that certain advanced reactor technologies are such a bad fit with that that we're just an absolute obstacle on the path.

MR. FURSTENAU: Thanks. Margie, related to that question, what do you see that staff as doing to be ready for the advanced reactor concepts that we see coming along in the future?

MS. DOANE: So some of the things that the staff is doing, and you can speak better than me, Ray, so it might toss this back to you if we're

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allowed to do that. I'll touch on it and then I am, I am going to hand it back to you.

But one thing that the NRC is really good at is we put plans together. In fact, we put plans together so much that we have an acronym IAP that applies to several different plans, Integrated Action Plan, Implementation for Non-light Water Reactors, and so we have a lot of planning.

So, we've put plans in place, they have milestones to make sure -- like I've talked about throughout this session, we were looking at making sure we have the skills that are necessary, that we have the resources that are necessary, but also that we have the tools, the codes and things like that, that will be necessary for us to be successful with advanced reactors.

And we'll have to use the strategic workforce planning that I was talking about to make sure that we have the skills that are necessary.

And I'm going to toss this back to you but one thing that we're looking at to make sure that we're thinking broadly is this futures assessment that has four scenarios, and we're really thinking about how you get prepared for technology that you've never licensed before and will bring really new and

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challenging issues.

It's a very exciting time but it does take a lot of planning. So, Ray, what did I forget?

MR. FURSTENAU: I think that pretty well covered it. I know in working from the research perspective -- remember, this is my boss up here.

But from a research perspective and working with the new reactor office as well, I think our goal is to be ready for whatever is coming down the line.

It's hard to predict exactly what technology might come first but really, our goal is to be ready.

CHAIRMAN SVINICKI: And I think from the outside it may be hard to understand why the things that we've talked about even this morning in this session, how they all come together.

But as Ray's talking about, different technologies for advanced reactors. Margie talked earlier about centers and Centers of Expertise.

The Agency is looking at that as one opportunity to house experts or expertise together, and in the morning someone from that center could be reviewing a safety aspect of a molten salt reactor design that's been submitted for certification.

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And in the afternoon they could be supporting the operating reactor fleet and reviewing some safety dimension of a license amendment request that's come in.

And so when we talk about agility and putting people on the work as it comes in, that's why I talked about reinvesting and investing strongly in the workforce that we have to make sure that we give them that kind of fungibility across different technologies.

MR. FURSTENAU: Margie, I think I'll hand this question to you. The NRC's open to new ideas, as stated in the discussion. How are you monitoring or assessing those at the lower staff levels at the NRC?

MS. DOANE: So I'm not sure if it's talking about how my monitoring the staff at all levels of the Agency get their ideas up to senior management? I'll just take that and maybe sort of talk about this.

So, some of the things that we're doing, we have something called Innovate NRC. So we have a lot of different ways of surfacing your ideas but we have something called Innovate NRC which was a grassroots effort by my predecessor, Vic McCree, and

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it was at first only out in other offices and out in the region.

And it's kind of a collection of good ideas and so if you had a good idea, a good way that we could maybe streamline our work or maybe some things that we shouldn't be doing anymore, all kinds of things, anything you could think of that would help the Agency move forward in this January, you could put it into these collection boxes.

And these were being handled at the different organizations, but then we figured out that you couldn't resolve all problems at the organizational level and so we then did an Agency Innovate NRC and so that now is providing an opportunity for our staff, staff all over the Agency, to put in ideas for innovation.

And so that's I would say the way we're harnessing the ideas and then what we have is we have a pairing of executives with the innovation team to make sure that we're getting back to those individuals who have suggested the ideas and that we're trying to bin them.

And we have already taken some examples and already put them in place.

MR. FURSTENAU: Chairman, next question

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is how do you see the use of modern technology extending the life of current power-plants in the context of decision-making and zero risk mentality?

CHAIRMAN SVINICKI: Well, Margie's mentioned the futures assessment a few times and one of the things that I found really interesting about it is it does have what we call four scenarios or four stories, as we've called them, of what the nuclear industry may look like in the United States over a longer period of time.

But one of the strengths I think of the futures assessment that we've had done is that there are certain takeaways and things that NRC could think about doing that make sense no matter which of those visions of the future ends up being true.

And I think that some of the resiliency that we need and maybe that's the humility of learning from ten years ago when I joined the Commission, when there was such a rapid upsizing of our capacity and our staffing and everything else.

What I appreciate and enjoy is the prudence of some of these new thoughts. They benefit you no matter what the future throws at you and so I think that's an aspect of what the futures assessment has us thinking about.

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If you have a lot of remote sensing devices in nuclear power-plants and they're feeding back surveillance data in a fundamentally different way than sending out a human operator or employee to go and check out the functioning of some plant component, of course the operator of the plant is going to use that new remote technology in a different way.

But then transformation for us is how can we take that on board on our side of the safety ledger? How can that be a benefit for, as I said earlier, being able to provide the American public an even greater assurance of the knowledge of safety at a plant?

And so I think that as the technology uses new artificial intelligence, new data analytics, what we're looking at through our futures assessment is what might that mean for us, how might that show up on our side of the safety mission?

And that's part of what we're exploring for the future.

MR. FURSTENAU: Thanks. I've got a question for you, Margie, on workforce. With the statistics that were presented on aging workforce, et cetera, what's the NRC doing in decreasing budgets to

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look at new hires?

MS. DOANE: So we're just beginning to take a different kind of look. We've been reducing the size of the Agency and that's really made sense because a lot of our work has gone away.

Like the Chairman had said in her opening, we had a COL coming in once a year or sometimes twice a year, and so that has really changed. And so we've been reducing the size of the Agency and we've gone down about 25 percent.

And so in that time period when we were reducing the size of the Agency, we were very carefully doing this and monitoring our work, making sure we could get the work done for the day.

We were not able to do new hiring like we had done for the last I'd say decade and a half with something that we called the -- well, I won't go through. But it was a new hiring process.

CHAIRMAN SVINICKI: The NSCDP, yes.

MS. DOANE: Right. And so we had this process that we put in place and it was very effective, but we stopped utilizing that process as we were bringing the Agency down.

We did this through attrition, we've come down, like I said, almost a quarter of our size, which

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is really tremendous, probably the size of many of your organizations.

And so we didn't do the new hiring, and then when we started thinking about this we thought, well, we need to continue because all Government Agencies, my prediction would be, are going to be leaner just because of the aging federal workforce.

They're going to be leaner and we need to work smarter, and so we need the new thinking that new entry hires will bring in.

And so what we're doing is we're looking at how to continue to bring the Agency down appropriately, but also to bring the new hires in and to reinvigorate that process that we already had that was very successful.

So, it's not a whole wholesale turn, it's just a little turn around the corner because we already had this process. And like I said, I'm hoping that we through this session are sparking interest in the Agency.

MR. NIEH: Thank you, Ray, and thank you, Chairman and Margie. I want to give you 40 seconds to see if you have any final thoughts here.

We're going to conclude the session but anything you'd like to add, Margie, on the overall

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new and different thing we did here?

MS. DOANE: So I'm hoping that this has really energized all of you for the week and that we'll get really good input and discussions during our sessions, and that we'll continue at the Agency to think big.

And then I just want to re-emphasize it really is a great place to work, I'm so appreciative of all the efforts that the staff has given me to help me to be successful in this new leadership role.

And I'm looking forward to being on this journey and to change one decision at a time.

MR. NIEH: Thanks, Margie. Chairman, the final, final word? Any new book you read or show you're watching you want to talk about? We always love hearing about that.

CHAIRMAN SVINICKI: I have a painful commute, which I've probably mentioned in the past. But I listen to a lot of podcasts as a result and I thought a lot of different things.

I did know that you'd offer me an opportunity to just kind of have some final thoughts but I listen to Oprah Winfrey because she is an amazing interviewer and she interviews a lot of really interesting things leaders and scholars and

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other people like that.

But it was noteworthy to me when she named the toughest question she was ever asked and she said -- I don't know what the context was but she had to actually go back to the moderator like the next day and catch him or her in the hallway and go, I've had time to think about it and I have an actual answer to your question.

But it's intriguing as people, if they're thinking about right now what would be the toughest question that Oprah Winfrey who's interviewed thousands of people, what was the toughest question she was ever asked? And the question was what do you know for sure?

And it's an interesting thing to think about, particularly for me having a technical background and then coming to the NRC and thinking about the fact that we have a lot of focus on uncertainty.

And that's appropriate because we're trying to come to levels of confidence that we need to come to on various decisions we have to make.

But we know a lot for sure and I think that it's good sometimes to pull back and think about, yes, this problem seems intractable, it has a lot of

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tentacles into other things and it can be really complicated.

But to pull back and go, but what am I absolutely sure about when it comes to this? So I think for me, I'm sure that change is possible, I'm sure that NRC has a lot of dazzling ideas and concepts and I know that we can bring that forward.

I don't know what we'll choose to do and I don't know what form it will take. I don't think it'll be a top-down thing and I think, as Margie said, if done well it'll become part of a mindset of how we go about doing things.

So, maybe as each of you go about and have conversations at the RIC this week, you'll challenge each other. As you're talking about something that seems unsolvable, you'll say, but what do we know for sure about this?

And at this point, given all of the work of the pioneers in the nuclear enterprise, all of the people who have come before us, our regulatory counterparts from around the world that are here, a lot of things have been tried, a lot has been learned over the course of decades in this very, very young technology in a historic sense.

But we know a lot, we are blessed to know

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a lot more than our predecessors knew, and so I think that it's a great foundation for us to build on moving forward, not just for regulatory but for the nuclear enterprise as a whole.

MR. NIEH: Okay, well, thank you for that final note. I know for sure that I'm no Oprah Winfrey. So big round of applause for Chairman Svinicki and Margie Doane, our EDO.

(Applause)

And now we'll be transitioning to Commissioner Baran.

(Whereupon, the above-entitled matter went off the record at 9:32 a.m.)

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