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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING TO DISCUSS THE PART 53 RISK-INFORMED, TECHNOLOGY INCLUSIVE REGULATORY FRAMEWORK FOR ADVANCED REACTORS RULEMAKING

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TUESDAY,

MARCH 29, 2022

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The public meeting took place via Video Teleconference, at 1:00 p.m. EDT, Robert Beall, Meeting Facilitator, presiding.

PRESENT:

ROBERT BEALL, Meeting Facilitator; Rulemaking Project Manager, Office of Nuclear Material Safety and Safeguards

CYRIL DRAFFIN, Senior Fellow, U.S. Nuclear Industry Council

STEVEN LYNCH, Acting Chief, Advanced Reactor Policy Branch, Office of Nuclear Reactor Regulation

MARCUS NICHOL, Senior Director, Nuclear Energy Institute

WILLIAM RECKLEY, Senior Project Manager, Office of Nuclear Reactor Regulation

ADAM STEIN, Director for Nuclear Energy and Innovation, The Breakthrough Institute

ROBERT TAYLOR, Deputy Office Director, Office of Nuclear Reactor Regulation

NANETTE VALLIERE, Technical Lead, Office of Nuclear Reactor Regulation

P-R-O-C-E-E-D-I-N-G-S

1:02 p.m.

MR. BEALL: Good afternoon everyone. I want to welcome everyone, and thank you for participating in today's public meeting to discuss the Risk-Informed and Technology Inclusive Regulatory Framework for Advanced Reactors, or the Part 53 rulemaking.

My name is Bob Beall, and I'm from the NRC's Office of Nuclear Material Safety and Safeguards. I'm the Project Manager for the Part 53 rulemaking and will be serving as the facilitator for today's meeting. My role is to help ensure that today's meeting is informative and productive.

This is a comment gathering public meeting to encourage active participation and information exchange with the public to help facilitate the development of the Part 53 rulemaking. The feedback that the NRC receives today is not considered a formal public comment, so there will be no formal response to any of today's discussions.

Once again, we are using Microsoft Teams, to support this public meeting on the Part 53 rulemaking. We hope that the use of Microsoft Teams will allow stakeholders to participate more freely

during the meeting.

Next slide, please.

This is a continuation of a series of topical public meetings on the Part 53 rulemaking. The agenda for today includes a discussion of a number of select topics such as QHOs and ALARA, on the preliminary proposed rule language in Part 53.

We will also have a 15-minute break this afternoon.

Slide 3, please.

I would now like to introduce Rob Taylor. Rob is the Deputy Director in the Office of Nuclear Reactor Regulations. Rob will give opening remarks to today's meeting.

Rob?

(No audible response.)

MR. BEALL: I think you're on mute, Rob.

MR. TAYLOR: I didn't unmute, thought I did.

MR. BEALL: Okay.

MR. TAYLOR: My apologies.

MR. BEALL: We can hear you now.

MR. TAYLOR: Can you hear me now, Bob?

MR. BEALL: Yes, sir.

MR. TAYLOR: Excellent. Good afternoon.

We'd like to thank all the stakeholders joining us today for taking time out of your busy schedules to participate in this discussion about one of NRC's important efforts related to the regulation of future commercial nuclear plants.

For those of you who have already provided feedback on the Part 53 rulemaking effort, we appreciate your participation today.

The NRC staff remains committed to developing a technology inclusive, risk-informed regulatory framework for future reactors, in accordance with the Commission approved schedule. Part 53 establishes a transformative regulatory framework that provides at least the same degree of protection of public health and safety, and the common defense and security, that is required for the current generation of light-water reactors under Part 50 and 52. While achieving greater operational flexibility when warranted, based on increased safety margins.

In developing this rule, you will see different requirements than what is included in Parts 50 and 52. Some may be perceived as to be the staff's intent to add regulatory burden or increase requirements. This couldn't be further from the truth. In developing the new regulatory framework,

old approaches must be reevaluated and transformed into a new risk-informed, performance-based framework. Just because something has or hasn't been included in a prior regulation, is not a reason in and of itself, to continue the same approach. One cannot reasonably argue that building a new regulatory framework cannot revisit prior decisions and approaches.

To that end, you will find that numerous Part 50 and 52 proscriptive and deterministic regulations do not appear in the preliminary Part 53. These have either been eliminated or subsumed into more streamlined performance-based and risk-informed requirements.

Instead of counting the number of regulations, we should instead look holistically at the safety profiles of Parts 50, 52, and 53, to determine if they each provide a reasonable assurance of adequate protection of public health and safety.

The staff has been implementing a novel approach of releasing preliminary proposed rule language to facilitate discussions. Reflecting on internal and external stakeholder feedback, and releasing additional iterations as the rule language is refined. The staff is still in the preliminary rule language development phase and is in-taking

input, but not providing formal responses to all the input. That part of the process comes later.

Nevertheless, the input received has resulted in numerous changes already to the rules, which have been transparent in our public engagements. For example, last month we released a consolidated version of the preliminary proposed rule language developed to date, noting areas where the rule language has evolved since previous releases. In that version, the staff made changes and responses to stakeholder input, and has publicly communicated those changes in public meetings such as these, Commission meetings, RIC sessions, and other forums. We will continue to use forums and discussion like today, to gather additional feedback in our efforts to provide a proposed Part 53 rule to the Commission for their policy deliberations.

We will look to provide options to the Commission where appropriate, and recognize that all public stakeholders, including those who have had less opportunity to participate in this rulemaking, are afforded an opportunity to provide and receive written responses to their comments during the formal public comment period. We have said this at nearly every meeting because it is vital to our (audio

interference).

The staff remains committed to a regulatory framework that achieves the Commission's advance reactor policy statement and the NRC's principals of good regulations.

Today's meeting will cover some key topics, for which the agency has received considerable feedback. This meeting will take the next step in our engagement with stakeholders recognizing the changes that have already been made to the preliminary rule language. There remain some topics where the staff continues to have different perspectives, than some stakeholders. Today's meeting will be yet another opportunity to discuss these topics and others.

I look forward to a productive, constructive, and cordial meeting today.

Thanks, Bob.

MR. BEALL: Thank you, Rob.

I would now like to introduce Steve Lynch. Steve is the Acting Branch Chief of the Advanced Reactor Policy Branch in the Office of Nuclear Reactor Regulations.

Steven has some additional comments for today's meeting.

Steve?

MR. LYNCH: Hey, good morning, everyone. As Bob said, my name is Steve Lynch. I'm the Acting Chief for the Advanced Reactor Policy Branch, here at the NRC. I just wanted to reiterate some of the points that Rob made and offer myself up as a direct point of contact for anyone that has questions about the rulemaking process or the status of the NRC's work on this effort.

So, I'll include my email in the chat at the conclusion of my remarks. But what I do want to emphasize this morning, is that establishing a technology-inclusive rulemaking for advanced reactors, is an ambitious undertaking. And the NRC staff remains focused on the timely completion of the rulemaking that meets the needs of advanced reactor developers, and future licensees.

As part of the NRC's commitment to the open and transparent communication, we will continue to engage the stakeholders on the development of this preliminary proposed rule text and throughout the rulemaking process.

Our goal for our meeting today, and in future meetings, is to make sure that our positions on key technical topics are clearly understood and ensure that stakeholders have an opportunity to make

themselves heard.

Because the NRC staff must consider the impact of Part 53 on a variety of stakeholders, including members of the public, other U.S. government partners, the international community, and perspective developers and licensees, we expect that there may be differences in opinion, on what constitutes an optimal rulemaking. We also recognize that it's not possible for any one person or organization, to anticipate all of the impacts of a rulemaking. That is why the dialogues that we are facilitating today, are so important.

The NRC staff values the feedback perspectives that are provided in writing, conversations, and presentations as they're develop a rulemaking intended to accommodate a diverse set of technologies. While ensuring at least the same level of safety at currently operating reactors.

And (audio interference) please keep in mind that this is not your last chance to engage with the NRC on this rulemaking. There will be future meetings on the NRC's rulemaking process and the contents of this rule that will afford additional opportunities to provide presentations, ask questions, and submit formal written comments.

Thank you again for everyone that has engaged with us today and showing your interest in the support and activity, and with that, I'll turn it back to Bob.

MR. BEALL: Okay, thanks, Steve.

I would now like to introduce the NRC staff who will be leading today's discussions of the topics.

Myself as the meeting facilitator and from the Office of Nuclear Reactor Regulations we have Nan Valliere, and Bill Reckley. In addition, we have members of the public who have requested time to make a presentation on one or more of today's topics from the Nuclear Energy Institute, the U.S. Nuclear Industry Council, and The Breakthrough Institute.

If you're not using Microsoft Teams to attend this meeting and would like to view or have a copy of the presentation slides, they are located in the NRC's ADAMS document database, on regulations.gov, and I've also placed a link to all the slides in the Teams chat window for today's meeting. The ADAMS accession number for the staff's presentation is ML22082 alpha as in A, A as in alpha, 022.

Next slide, please.

The purpose of today's meeting is to

exchange information, answer questions, and discuss the Part 53 rulemaking. Today's meeting will focus on preliminary proposed rule language related to select topics in the Part 53 rulemaking. I have placed a link in the Teams chat window for this meeting, to the consolidated Part 53 preliminary proposed rule language also.

This a comment gathering public meeting, which means that the public participation is actively sought as we discuss the regulatory issues. Because of the number of attendees, we may need to limit the time for an individual question or discussion on a topic to make sure everyone has a chance to participate. After everyone has had a chance to ask their questions, we will circle back and allow people to ask additional questions, if we have time.

Today's meeting is using a workshop format to allot more time for open discussion, on the various topics. This will require all of us to continuously ensure that our phones are muted when we are not speaking, or and do our best to not speak over each other.

In addition, please turn off your camera when you are not speaking to the staff. This will minimize any internet bandwidth issues during the

meeting.

To help facilitate the discussion, we request that you utilize the raised hand feature in Teams, so we can identify you would like to speak next. The staff will then call on the individual to ask their questions. The raised hands button, which is shaped like a small hand, is along the top row of the Teams display area. You can also use the chat window to alert us that you have a question. Please do not use the chat window to ask or address, any technical questions about the Part 53 Rulemaking. The chat window is not part of the official meeting record and is reserved to identify when someone has a question or for handling any meeting logistical issues.

To minimize interruptions, the staff will call on participants who have used the raised hand feature or chat window to identify when someone has a question or a comment.

If you joined the meeting using the Microsoft Teams Bridge Line, you may not have access to these features. If you would like to ask a question or provide a comment, you would need to press the *6 button to unmute your phone. The staff will pause at the end of each topic to ensure all

participants have an opportunity to ask questions, before moving on to the next topic. After your comment has been discussed, your phone line would be muted again. If you want to ask additional questions, you have to press *6 to unmute your phone.

If there is a particular topic you would like to discuss, please send me an email after the meeting, and we will try to include it in a future public meeting.

This meeting is being transcribed, so in order to get a clean transcription and to minimize distractions during the meeting, we ask everyone to please mute their phones when they're not speaking, and to identify themselves and the company or group you may be affiliated with. A summary and the transcript of today's meeting will be publicly available on or before April 29, 2022.

Finally, this meeting is not designed nor intend to solicit, or receive comments on topics other than this rulemaking activity. Also, no regulatory decisions will be made at today's meeting.

Please note, towards the end of the presentation slides, there are slides containing acronyms and abbreviations that may be used during this meeting and a set of backup slides that contain

additional information about the Part 53 rulemaking.

Slide 5, please.

Before we begin the discussion on select Part 53 topics, I want to provide an overview of the process the staff has been using to request public comments.

Since the November 6, 2020, Federal Register notice, the staff has been encouraging stakeholders to provide comments on the Part 53 preliminary proposed rule language. This is different from the normal format rulemaking process to prepare a draft proposed rule for Commission review.

The staff feels that comment submittals and public meetings are highly useful and provide information insights from external stakeholders to inform the proposed rulemaking activity. The comments that are received by the NRC staff are reviewed and considered but this activity should not be confused with the formal Part 53 proposed rule comment period that will occur after the Commission review.

Today's public meeting will be on select topics related to the publicly released Part 53 consolidated preliminary proposed rule language, or Framework A rule language. The staff will hold another public meeting later this year to discuss the

preliminary proposed rule language on Framework B, or what was called Part 5X.

I'd now like to turn the meeting over to Cyril from USNIC and I think Cyril, you have some comments on general approach?

MR. DRAFFIN: I do. And, perhaps you could pull up my slides for that. For the questions.

MR. BEALL: Yes, please, Libby, can you swap them out?

(Pause.)

MR. BEALL: Okay, we can see you, Cyril.

MR. DRAFFIN: Thank you, I appreciate that, Bob.

My name is Cyril Draffin. I'm Senior Fellow for Advanced Nuclear at the U.S. Nuclear Industry Council, and I appreciate the opportunity to have this discussion today, on these variety of topics.

So, in the next slide, which is just a placeholder to show that we're talking about general approach in Part 53 issues, we do recognize that the NRC has addressed some of the preliminary proposed rule language issues in their slides, which are just maybe still coming up. They listed that they've done a number of things and we appreciate that. And, you

know, including limiting two-tiered approach.

Because of the staff has been thinking about Part 53 language and approach for over a year and released the complete rule language over three months ago, we look forward to hearing today a good and robust responses to the questions I will be asking.

Those responses can provide an understanding of NRC's rationale and for the language you have seen so far, and so I welcome the opportunity to have a dialogue today rather than just a series of back and forth presentations.

So, in keeping with that, I had three questions and I'd like to pause after each one to get NRC's response. The first is, has the NRC evaluated whether Part 53 reduces, increases, or has the same regulatory burden as Part 50 and 52 to achieve a similar level of safety. Now, we heard from Rob that there's a couple areas that they, they think they may be adding more and a couple areas they think may provide flexibility. But overall, I'd be interested in their assessment now that they've looked back, they've proposed the rule, at least as a draft, what their impressions are because that might be helpful to us looking at the big picture to start the today's

discussion.

MR. TAYLOR: Okay, I'll start. Thanks for the question, Cyril. This is Rob Taylor.

So, as we continue to go through this activity, we are continually reassessing whether we are drawing the line in the same place as we were for Part 50 and 52 with regards to reasonable assurance of adequate protection and safety. So, if we're proposing preliminary language, we believe that it is meeting that threshold at this time.

Of course, we welcome feedback on that, and ultimately, the Commission will be the arbiter of what is necessary for adequate protection as they decide what is included in the rule. But the staff would not be proposing things if we felt that we were ratcheting up the requirements or reducing them in either way.

Our goal is to achieve the same level because it has been from the beginning, and it will continue to be that way.

MR. DRAFFIN: Okay, thanks.

Has the NRC provided the estimates for the efficiency of Part 53? You mentioned earlier that you've streamlining the process in terms such as the duration of licensing reviews, or annual fees. Or

another way of saying it, what elements of proposed Part 53 language will make the licensing process more predictable and timely for design, to achieve regulatory acceptance and approvals, and for projects to be able to achieve their desired outcomes, and for deployment?

MR. TAYLOR: I'll go ahead and respond to that, as well, Cyril.

Thank you.

I think we're still in the preliminary stage. Our goal would be of course, to hope that this would ultimately result in streamlined reviews of licensing applications. But there are factors beyond the NRC's control relative to those, including the quality of the application that's submitted to the NRC, the robustness of the testing, analysis and data collection, that is done by applicants.

So, there's factors that go into establishing a schedule and resource estimate for reviews, that are not within the NRC's purview and control. So, we will establish for every single review, at the beginning of that review in discussion with the applicant, a schedule and resource estimate for that review.

And, the applicant is more than willing,

or more than capable to discuss and express concern if they think that takes too long or is going to cost too much. But we'll do that on a case-by-case basis as we do reviews.

MR. DRAFFIN: And, would you have different process for Part 53 as you're doing for 50 and 52?

MR. TAYLOR: For establishing schedules and resources?

MR. DRAFFIN: Correct.

MR. TAYLOR: No. We have the same process for establishing schedules and resources as is done at the acceptance review stage.

MR. DRAFFIN: Okay.

And, then there's been the kind of questions as to will Part 53 be used. We had gotten survey results from industry back last year, looking at it saying based on what they'd seen so far, would they use it or not. And, only about 25 percent thought they might. So, I'd be interested in your perspective from people who are really practitioners and seeing the application to come in, your assessment of the last question.

If Part 53 is not more efficient, at least as seen from the developer's vantage point, then Part 50/52 to achieve similar levels of safety, does the

NRC think that Part 53 will be used?

MR. TAYLOR: Thanks, Cyril, and I'll go ahead.

Efficiency, as we said, one of our goals is the principals of good regulation. And, included in the principals of good regulation is the efficiency standard. So, as we build this rule, in trying to establish performance-based risk-informed approaches, the hope is that we can align with applicants at the very beginning of reviews on what's risk or safety significant in their designs and how they're going to go about their performance-based demonstrations.

If we have that early alignment at the beginning of reviews, it's very likely these reviews will be very much more streamlined and focused on what needs to be done to achieve success. But having this performance-based approach allows flexibility for the variety of designs that are going to come in to the NRC for them to demonstrate their safety profile to the NRC.

We recognize there's a lot of potential for safety enhancements in these advanced reactor designs, and the developers themselves are doing a lot of work to prepare for their applications to the NRC. And, as we've engaged in topical report reviews, we're

seeing substantial and very high-quality work out of a number of the vendors.

And, we have noticed a number of the vendors have included, have indicated their intent to use an LMP-like process for seeking initial licensing, even though Part 53 won't be available.

So, we think there's a lot of benefit in this rule that will be realized when it's applied. And the PRA approaches in the variety that we're considering for the review, rule, will be available to those applicants to demonstrate their safety case for their facility. So, we do think it will be an efficient rule at the end of the day.

MR. DRAFFIN: Okay, thanks for those state setting perspectives. That's all I had for the general approach.

MR. BEALL: Okay, thank you, Cyril.

Marc Nichols, from NEI.

MR. NICHOL: Actually, Bob, I think our slides would be more appropriate at your slide 10 where you have a stakeholder presentation discussion. That follows the framework discussion. I think our slides would make more sense at that point.

MR. BEALL: Okay, will do.

Thank you, sir.

Okay, with that then, can we go back through our set of slides?

Thank you.

So, next slide, please.

So, with that, I'd like to turn the presentation over to Bill Reckley and he'll start us off with the discussions of the select topics.

Bill?

MR. RECKLEY: Okay, thank you, Bob.

Yes, as Bob mentioned in the previous slide, although the focus of today, we want to keep on Framework A, which is basically the previously released text in February, it is necessary just for context, to talk about the two frameworks we're preparing.

So, this slide is a variation of a slide that we used at the March 16 stakeholder meeting. And, it basically shows our current thoughts on how the two frameworks would be organized within Part 53. With Framework A being again, the Subparts that we previously released, including the consolidated package in February, and it's organized basically through using Subparts B through K at the moment. And, Framework B, and we'll talk about the differences in the next slide, but Framework B would be arranged

within Part 53, basically using a series of Subparts organized using the second half of the alphabet.

So, if we can go to slide 7. This slide is trying to make the distinction between the two Frameworks. And, there has been quite a few previous discussions on the organization of Part 53, and whether or not distinctions needed to be made between methodologies, that are used to formulate a safety case for NRC review.

The staff, and obviously here, the staff continues to see a need for such distinctions. One important thing to keep in mind is that from our point of view, the staff's point of view, we're looking at this from the perspective of what is needed to make regulatory decisions. And, that's somewhat different than how a designer looks at things, and the tools they use to make design decisions. And, then also decisions on how to formulate and present a safety case for NRC review.

A foundational assumption within the current regulatory structure, and one that we're carrying into Part 53 development, is that there has to be sufficient detail within the regulations, to support the subsequent regulatory findings we make for applications.

Within the current structures of Part 50 and 52, the collective requirements of the general design criteria, specific technical regulations, and requirements in the contents of applications, have been found to support our findings. In this slide, that construct is shown on the left, and we used an IAEA figure for convenience just because it basically shows that structure. The emphasis on that kind of traditional approach, is on the design criteria such as what's in Appendix A of Part 50.

And, within those regulations are also key assumptions or design approaches, like using the single failure criteria, assuming only safety-related equipment are available to address design basis events, which in the traditional case, refers to anticipated operational occurrences, design basis accidents and selected external hazards. These requirements have evolved over time and the NRC has found that when met, can be presumed to provide adequate protection of public health and safety.

That's even though we don't have, and have not developed and don't plan to develop, an actual definition of adequate protection, in technical terms. So this goes to what Rob was mentioning earlier. Our traditional approach of doing a review, comparing the

applications to a predetermined set of design criteria, ensuring that those design criteria are met by the various structure systems, and components.

Now as shown in the, in the top figure, we acknowledge that within that traditional framework, risk insights can play a role. But the emphasis as shown on the slide, continues to be whether the design meets a traditional, preestablished set of design criteria.

Framework A, the, represented by the licensing modernization project traditional slide on, on the right, differs from that in that the emphasis is on defined risk metrics. Higher-level criteria. And, so under this approach, applications and NRC reviews will focus on how design features and programmatic controls, ensure that a commercial nuclear plant continually meets the performance measures, the risk metrics. The designers, other potential applicants, have flexibility in how they're going to meet the metrics.

This is why we consciously use different terminology within Framework A and describe the requirements in terms of design features and functional design criteria, that would be established for those design features. And again, applicants have

flexibility on what design features they want to include, which ones they want to credit, for what functions, and so forth. But in that context, those design features are a means to the end of meeting the risk-informed metrics.

And, that is a distinction between Framework A and, and the traditional approach where principal design criteria, or general design criteria, and other proscriptive design rules, are preestablished, and an applicant is showing they meet those in order to, to show their safety case.

And, so one of the comments that we'll see later, is that the principal design criteria are the same as the design features and functional design criteria in Framework A. And, we would say they're very similar, and when it comes down to a component level, they might have the same impact in terms of the specifications on a particular component. But how they play into the framework is different.

And, one case that design criteria is the acceptance criteria, and in the other, the design feature and related functional design criteria, are a means to show that you're meeting the higher-level risk metrics that form the basis of Framework A. So, there is a difference. One important point within

Framework A, is that similar to the traditional approach and what will ultimately be in Framework B, and as Rob mentioned, our plan is to show and provide to the Commission, that the various performance measures in Subparts B and C, and the implementation requirements in all the other Subparts, provide a comparable level of safety, and can be presumed to provide adequate protection to public health and safety.

But just as in the traditional approach, we're not going to define what that is. It's presumed to be achieved through meeting the collective set of requirements, whether you're in Parts 50 and 52, whether you're in Framework A within Part 53, or ultimately, whether you're using Framework B that is being developed for Part 53. So, just once again, the PRAs, there's a lot of focus on that as if that is the primary distinction between these discussions, as we have said in previous meetings.

It's a part of the discussion, but it's not, it's not the whole discussion. There is kind of a higher philosophical difference between the Frameworks. And, where PRAs can be used within either, again they've traditionally been used to provide risk insights within Parts 50 and 52, that can

continue. And, obviously the PRAs will play a more central role in Framework A, because it is at least currently, the available tool to show you meet the risk metrics that are included there.

So, it's important to keep that in mind, but that's not the only thing to talk about, is the role of PRA. It is again, this higher-level discussion of how a safety case is developed, and how the NRC would make a regulatory finding. So, just ask people to keep that in mind as we, as we continue through the, through the discussions today.

So, with that, if we can go to the next slide, slide 8.

As has been mentioned, and we have a lot to talk about today so I'm going to through these pretty quickly.

We have been as Bob mentioned, since late 2020, having interactions, listening to stakeholders. And, taking those into account. We have, as part of this process and as we've described before, not kind of formally dispositioning comments as we do in a proposed rule, but we've listened. We've looked. We've made changes where we think has been appropriate. So, within the first row, the programs area, we did consolidate the QA requirements in

Subpart K. And, in terms of potential duplication, we provided an avenue just to say basically, whenever an applicant believes there is duplication, they are free to combine programs as appropriate.

The manufacturing license is an area we're continuing to look at. We would still very much appreciate any insights on how the infrastructure, and the business models, are being developed for these. Especially when it comes to the loading of fuel at a factory, and the transport.

As you can imagine, it's a real challenge to develop a rule when you, when there's so much, so many remaining questions about if, and how those processes would actually work.

We did include changes early on in the iterations of Part 53 Framework A, to replace the original two-tiered approach. And, as part of that, we included separate requirements, or separated the requirements between unplanned events, and normal operations.

One of the changes that we made late last year, was to start using the word commercial nuclear plant instead of advanced nuclear plant. And, then we've talked about that in previous meetings. One of the comments that we did get, was the potential to

expand Part 53 to other production and utilization facilities, including those in a potential research and test reactors licensed under Section 104 of the Act. We're not actively working on that right now, thinking that it will remain for commercial nuclear plants.

So, if we go to slide 9.

So, the top row we just talked about in terms of providing alternatives to Framework A. We're currently developing Framework B to support a more traditional approach, to developing a safety case for applications. Then, the remainder as Bob laid out, are just the topics we planned to talk about in a, in a little more detail as we go forward.

So, Libby, I think we can go to slide 10 and pull up either NIC or NEI slides, whichever is appropriate.

MR. NICHOL: So, Bob, Bob, can you hear me? I think my internet went out for a second.

MR. BEALL: No, we can hear you, Marc. Go ahead.

MR. NICHOL: Okay, thank you.

And, thank you Bill, for that explanation. A lot of information and understanding that we didn't hear before today. So, I'll touch on, you know, some

of the key insights that I think I took away from that as I go through here. So, yes, just some general remarks as we get started with this, this meeting.

Next slide, please.

So, first I really want to appreciate what the NRC is doing with, with Part 53. We fully recognize how hard the staff is working, and how much time and effort they put into it. And, how innovative they're trying to think, and develop things that are better for the future. And, there really are some new and beneficial approaches in Part 53, and specifically in Framework A because we haven't seen most of Framework B yet.

And, you know, we really think that those beneficial features should be available for any type of licensing approach. And, we'll talk about the technology inclusive requirements for safety functions, design criteria, design features. They really when you read them, they do not, they're independent of what type of rule PRA plays. So, we think those should be available for everyone.

We also appreciate the helpful clarity that the NRC has made to date, on Part 53. Examples include eliminating the two-tier structure, appropriate treatment of, for normal operations,

addressing the overlapping redundant, duplicative QA requirements. Those really do help to improve the rule.

And, we're very excited and looking forward to engage the NRC on other improvements, as you share them. You talked about manufacturing license. We also know that operations and security continue to be developed.

We do still have some concerns that Part 53 is including significant regulatory burden, as compared to Part 50 and 52. And, that that burden doesn't result in an increase in safety. We're going to talk about some of those topics today. The QHOs, beyond design basis events, ALARA, facility safety program.

There's others that we're not going to talk about today and that's okay, but we look forward to discussing those in a future meeting. New safety standards, the increased regulation of non-safety-related SSCs and in society requirements.

Next slide, please.

I want to talk, as we talk about the Framework A and B, I just want to give a little bit of history from industry's perspective, because I think it's helpful to understand how we got here.

And, so the NRC's first proposal of the leading enhanced PRA approach, which would only allow that approach was back in October of 2020. And, soon after, we did advocate for single framework that allows a range of PRA uses. So, we've been consistent in that, in that viewpoint. And, at that time, the concern really was the QHOs in the rule, and we'll discuss those in detail later.

The NRC in December of 2020, released additional information, or rule text. And, we provided some more details on why we thought a leading enhanced-only PRA framework was problematic. Our concern, and this was around the PRA, we supported a requirement for a PRA. It was just the details of the PRA requirement that, that we had concern with. Not the fact that there was a requirement for a PRA.

And, then around, I think it was around February of 2021, the NRC first proposed that well, if you don't want to use the leading enhanced only PRA, you can just use Parts 50 and 52. We expressed some concerns with that, so then that goes to the next slide. And, so we appreciate the NRC hearing our concerns.

And, back in probably October of last year, started down the path of developing Part 5X,

which has now become Framework B, in Part 53. And, so this is our understanding of where the NRC is going, is that Framework A remains the leading enhanced PRA only approach, the original Part 53. Framework B is the Part 5X, and it allows the traditional supporting PRA rules. Now, what we heard in the March 16 meeting and personally here at this meeting, is that Framework B, being based on Part 50, will not include a lot of the elements of Framework A. Those would include some of those performance-based requirements, that are independent of the use of PRA.

In fact, the NRC said that its unclear right now what, if anything, will be similar between the two Frameworks. And, even I asked about QA requirements and they said well, those might not be the same between the two Frameworks. So, we do still remain concerned about a two framework approach to Part 53. That it might be less efficient, it could result in more challenges, that sort of thing. And, we did propose in detail, what a single framework approach would look like for Part 53, that would enable a full range of PRA uses. And, we think that that's a lot easier to achieve.

Only minor changes to QHOs and PRA requirements. That it would be, provide more

regulatory and stability to have a single framework, rather than two frameworks. And, would be a lot less resources to develop and implement.

So, while we do appreciate the insight, Bill, that you provided here, we're still not really sure why the NRC's not pursing a single framework, and why a two framework approach is better. So, maybe that's a discussion for a future meeting, because I know we have a lot of topics to cover today. But just to get into some of the details and better understand that.

Just so the insights that I took away from what you shared, Bill, is that while both Framework A and Framework B have requirements related to principal design criteria, or functional design criteria, the different name for the exact same definition, and single failure criteria. And it may be a little bit applied differently under Framework A. And, even though those are not dependent on the PRA, that the way that they're used within the frameworks are different, and so they may be different. So, that's one thing that I think I heard today.

I would say that, you know, I wonder what the NRC thinks about in Framework A. Is the focus of Framework A these risk-based performance metrics? Is

that why it's, it operates differently? And Framework B is more dose-based performance metrics? So, I would have that question.

And, then I was really interested here that the NRC's path forward, is to just presume that Framework A and B arrive at a similar level of safety, but you won't actually demonstrate how that's the case. So, just some things, and you don't have to answer them today. We can talk about them in a future meeting.

MR. BEALL: And, Marc, I think, oh, go ahead, Rob.

MR. TAYLOR: Yes, so Marc, today's purpose is a discussion, so I definitely want to provide some prospectus. Because I want to clear up any potential misunderstandings that may be occurring. And, if you drew those conclusions from the last meeting, relative to Frameworks A and B, then certainly want to clarify. So, and the staff can certainly jump in and help me with this.

There are things that will be in Framework A, that we believe can be carried forward into Framework B, and used as they are now. We don't believe everything in Framework A will likely be able to be carried forward, because you won't have the same

pedigree of capability with the PRA, that you do in Framework A to demonstrate certain things. But we're going to look to leverage the items in Framework A to the maximum extent possible, in Framework B.

So, there are lots of things I think as you indicated, that can come over. And, there will be some things that we think don't reasonably come over. So, the intent is not to say -- Framework B is not going to be Part 52 over again, is maybe the best way to say that. I hope that helps and I'll let others jump in here, as well.

MR. SHAMS: Thanks, this is Mo Shams with the NRC. I'll just follow off on Rob's point and I'll take particularly the point related to the QA requirements.

Marc, you're correct. Last time in the meeting we were not committing to the similarity of the requirements. But there's no reason for them not to be. We're going to find our way to get there. But I just wanted to make sure that, to sort of put perspective or color, to your bullet about it doesn't look like it's going to be the same. I don't think that's what we intended to say, or did say. There's a good chance they'll be the same, but we need to get there. We're still developing the Framework.

MR. NICHOL: Thank you, I appreciate that.

MR. SHAMS: Sure.

MR. BEALL: Okay, thank you, Marc.

Let's go back to Bill, Bill Reckley. Go back to the slides.

MR. RECKLEY: Yes, did we want to see if anybody else had discussions --

(Simultaneous speaking.)

MR. BEALL: Any other comments?

MR. RECKLEY: -- yes, before we jump into the QHS?

MR. BEALL: Right.

(Pause.)

MR. BEALL: Yes, Ed Lyman?

MR. LYMAN: Yes, hi, Ed Lyman from the Union of Concerned Scientists. I was wondering and kind of this must have flown past me, but could you explain how that you've evolved away from the, the two-tier safety criterium. Because I mean, aren't the two tiers, the design basis accidents and everything else, and how has that, that hasn't changed, right? You're still going to have requirements for each of those categories. Different requirements.

MR. RECKLEY: Those elements remain, if you go to the very first proposal that we had back in

early 2021, the tiers that we defined were, were described in terms of the Atomic Energy Act, and adequate protection, and then the second tier was minimize danger. And, we used the word tiers because it came out of the, the court case on backfit from whenever that was. UCS was a player in that.

MR. LYMAN: Yes.

MR. RECKLEY: So, what we had then from stakeholders and internal discussions, was to move away from that. And, so yes, what we replaced it with was a first criterion or objective of addressing imminent threat to public health. And, then a second one of just a general risk reduction measure. And, then use the design basis accident and licensing basis events, other than design basis accidents to kind of carry through on that objective.

But those things are no longer directly tied to the Atomic Energy Act. And we described this back when we released that iteration a year ago. That the language from the Act, we would still use it as we do now as a finding when we do a review, but it's not defined as I mentioned earlier. It's nowhere defined in technical terms.

So, yes, there's similarities. A lot of the implementing details like the licensing basis

event structure, and the acceptance criteria for them, is the same. But we moved away from tying it directly to the Atomic Energy Act.

MR. LYMAN: Right. So, you're just saying that the design basis accidents and it's just including distinction between adequate protection, and what's beyond adequate protection is no longer (audio interference).

MR. RECKLEY: Yes, that's no longer there. We would no longer say the design basis accidents are adequate protection.

MR. LYMAN: Right.

MR. RECKLEY: And other events don't contribute to adequate protection. We would now say they all contribute to our finding of adequate protection.

MR. LYMAN: Right. But that was never true anyhow, right?

MR. RECKLEY: We came, we skirted it.

MR. LYMAN: Yes, okay.

MR. RECKLEY: Anyway, it didn't last long, so it's no longer the case anyway.

MR. LYMAN: And so one other question. So, in Framework B, you're still going to have a design basis accident, so it will have to meet the current

50.34, dose criteria, right?

MR. RECKLEY: Yes.

MR. LYMAN: Okay.

MR. BEALL: Okay, thank you, Ed.

Any other questions?

(No audible response.)

MR. BEALL: Okay, seeing no more hands, let's move on to Subpart B, QHOs.

MR. RECKLEY: Okay, thanks, Bob. So, we can go to the next slide. So, this slide is just showing the current language, and this is in our working copy, so it's slightly different than was released in February, and I'll get to those differences in a second, but we can go to the next slide.

I just wanted to kind of reiterate some of our thinking on the inclusion of the QHOs. So, this is maybe in a future bullet, but, you know, along with the rule text, we are preparing the supporting material that will explain the rationale for the rulemaking and that will be part of the package that goes to the Commission. Traditionally, we call it the statement of considerations, for example.

But there's a lot of other presentations on the use of the QHOs, so I'll try to go through

this. Again, most of this we had provided in previous meetings in terms of the discussions. And it starts with wanting to have a performance-based approach with, as I mentioned, a risk management approach using risk metrics within Framework A to make a distinction between the traditional approach. So, a performance-based approach requires measurable or calculable metrics, and we are proposing to use the NRC's safety goals as one of several risk-informed metrics to support regulatory decisions for an applicant or subsequent licensee that has chosen to use Framework A.

We believe that the safety goals, and more specifically, the quantitative health objectives or QHOs, are well established. They've been used for many, many years. They're used routinely in risk-informed applications using Reg Guide 1.174 for the operating fleet. We use them in our internal processes, referred here as NUREG/BR-0058, to do our regulatory analyses when assessing things like proposed rulemakings.

The QHOs, given that they have been around a long time and are well established, provide a predictable and stable metric that is familiar and predictable for both the staff and potential

applicants. You know, before coming to my current job, my previous job was in the Agency's response to the Fukushima accident, and in that particular case, this is, you know, from personal experience, the QHOs played a key role in supporting our decisions on matters such as whether or not we should require expediting the transfer of spent fuel from pools to dry casks, and then again, a major part of the decisions on whether or not to install engineered filters on the vents from boiling water reactors, and the staff's ability to perform calculations and the industry's ability to perform calculation using the same metrics, being the QHOs, was an important part of that process and the resolution of those issues.

So, if we can go to the next slide? So, continuing on with this, the methodologies, we believe, are readily available for doing this. Again, they've been used in various applications and in both outside and inside the NRC. One example of this recently is that the use of the safety goals as a performance metric is included in the non-light water reactor PRA standard which was recently endorsed by the NRC in Reg Guide 1.247 for trial use.

One measure that we're going to include in the discussions largely out of an ACRS interaction is

for applicants who would prefer to use a surrogate measure, and a surrogate measure would be, an example of that would be core damage frequency that's used for light water reactors as a surrogate for the QHOs, to the degree they can develop such a surrogate, then we would be amenable for them to use it in the development of their safety case and the rest of the application.

Going back to the highlighted text, there were two changes we made in the working copy since the release in February, and one was that we added the words -- Libby, if you could just go back just two slides? There we go. So, the first one is the highlighted in yellow part, licensing basis events, other than design basis accidents, and we analyzed in accordance with Section 53.450(e), and then where it talks about risk, we clarified that that meant the calculated risk coming out of those analyses. So, Libby, I'm sorry, could you go back to 14 now?

But so that is a change that we made and that was really in regards to concerns we've been hearing for a while that the QHOs introduce kind of theoretical or almost scientific issues because of uncertainties and questions about health effects and so forth. And so, by adding analyzed in accordance

with Section 53.450(e), we tie that back to a particular analysis methodology, and that then can be the subject of additional guidance.

I mentioned the Reg Guide 1.247. That lays out their use. It doesn't go into a lot of detail on actually assessing the QHOs. That's done through codes, like the NRC uses MELCOR for the transient and MACCS to do the radiological assessment and the comparison to the QHOs. So, we'll acknowledge that guidance in this area might be useful, but it would be -- once that guidance would be developed, then that would be the way to meet this requirement in terms of tying it back to the analytical requirement in Section 53.450(e).

The other highlighted text was we added life threatening to health effects, and that was in response to an observation that health effects was too general a term and could in theory include minor health effects. That wasn't the intent, so we added life threatening to the rule text to align it with the policy statement that uses the language prompt fatalities and latent cancer fatalities. The intent would be that life threatening health effects are basically the same as fatalities, and that would especially be the case when you look at the way the

calculations are done and the estimations of dose conversion factors and so forth within the codes.

So, that's the changes we made. Libby, if we can go to the next one? We'll just turn it over again. I think we have a couple of presentations on this.

Just as you go forward, one question that we've repeatedly asked in terms of risk metrics, if you're not going to use the QHOs, what would be an alternative?

And the second here is, again this goes back to we see a distinction between something like the principle design criteria, which is pre-established, and what we have within Framework A, which is a top-down determination of the requirements on SSCs where you start with the safety criteria, so in this case, it would be the QHOs, the identification of what functions are necessary to meet that, what design features would be relied upon to perform those safety functions, and then the functional design criteria to show that equipment will have the capabilities and the reliability that's needed to meet the risk metrics. So, we just kind of ask people to keep those in the presentations by others. So, Bob, I think maybe -- who did we have going first?

MR. BEALL: Adam, Dr. Stein was supposed to be in here, but he sent me an email that he may be late, unless he's online. I don't see his name in the attendees list currently signed in.

DR. STEIN: I am here.

MR. BEALL: Oh, I'm sorry. Hi, Adam. Okay, so if you're ready, we can bring your slides up.

DR. STEIN: Yes, thank you. Thank you for the opportunity to present today. I appreciate the time and effort that everybody has put into this rulemaking thus far. I'm going to talk mostly about the quantitative health objective as a performance metric.

Next slide, please.

A brief background, The Breakthrough Institute is an independent research center. We represent the collective interests of society and we do not receive funding from industry.

Next slide, please.

This slide is probably very well understood by the NRC staff and many here, but for background for those not familiar with risk-informed, performance-based regulation, the Congress directed the NRC in the Nuclear Energy Innovation and Modernization Act to develop a technology-inclusive,

risk-informed, performance-based licensing pathway which has become Part 53. There are general criteria for being risk-informed, performance-based, and I list them here from the SRM, SECY-98-144. Two important ones to note here are the establishment of objective criteria, and as Bill Reckley already mentioned, develop a measurable and calculable parameter. Next slide, please.

The Commission had repeatedly stated that the Safety Goals are guidance on acceptable society risk, and they are for the NRC staff to use to understand and develop how new regulations should be considered. They're not in currently licensing regulation frameworks Part 50 and 52. The Commission previously chose not to include surrogate metrics in a revision of the Safety Goals. My question that could be answered for this presentation is has the Commission changed the position of the NRC on the use of Safety Goals or QHOs in a different SRM?

Next slide, please.

This slide is taken from the presentation by the NRC staff earlier this month in the Advanced Reactor Stakeholder meeting. The two frameworks being discussed are Framework A and Framework B. As indicated here, all include some form or consideration

of the QHOs in regulatory decision making.

Next slide, please.

To be a viable performance metric, the metric should be either calculable or measurable as previously stated. Health outcomes can be estimated with a multitude of consequence models. However, the projected consequences are not directly calculations or conclusions and contain significant uncertainty. An uncertainty can be addressed in multiple ways, but not eliminated.

And just to tie back to what Bill Reckley previously said, tying this to Part 50 specifically does define a consequence model or method to calculate the QHOs, which has eliminated some of the uncertainty previously in the rule text. However, I believe he specifically said, and Bill is more than welcome to correct me later, that this would tie into the use of MACCS, and in a previously ACRS meeting, the ACRS asked the staff how MACCS actually calculates the QHOs and staff was not able to provide a direct answer at that time. They may have since provided an answer that I'm not aware of.

Next slide, please.

Of the multitude of consequence models, the NRC uses the Linear No Threshold [LNT] model to

estimate health outcomes. The NRC has recently confirmed the use of LNT by denying a petition for rulemaking to use other models. In that decision, the NRC and other agencies stated clearly that the NRC model remains uncertain. Therefore, it is not a direct calculation of risk or health effects.

Next slide, please.

These are some specific quotes from that denial for the petition of rulemaking that describe that LNT contains significant uncertainty that is likely not possible to eliminate. I'll leave it to you to read these if you so wish at a later time.

Next slide, please.

For information, background cancer rates are used, were used to develop the safety goals. The NRC assumes a background cancer rate of two latent cancer fatalities per 1,000 people in the Safety Goal Policy Statement. Observations of actual background cancer rates are not consistent geographically from state to state as shown here on the right. They are also not static. There is generally downward trends. Most are about 20 percent below the assumed NRC rate or the rate that's defined in the Safety Goal Policy Statement at this time. This provides a changing and non-uniform basis for regulation if the actual

background rates are used. Therefore, the assumed rate is inconsistent with actual observations.

Next slide, please.

As shown here, the age adjusted rate of all cancer deaths in the U.S. between 2014 and 2018, which is the most recent data, for each state. Once again, the NRC assumes two latent cancer fatalities per 1,000 in the Safety Goal Policy Statement. You can see that indicated as 200 per 100,000 people on the far right, the QHO assumed rate.

On a state level adjusted quantitated health objective as indicated on the chart, using the description in the Safety Goal Policy Statement of one-tenth of one percent that was used to originally define the two latent cancer fatalities per one million people in the policy statement, if I readjust that to state level policies, one-tenth of one percent different than the base background. You see that indicated here with orange diamonds. A confidence interval on the background data is provided around each center mean. A 95-percent confidence interval of the total cancer death rates is generally about four deaths per 100,000 people, although you see that changes from state to state, and the readjusted QHO in the orange diamond is within that statistical

confidence interval for each state. Next slide, please.

A fundamental issue regarding estimation of risks for this study is statistical power. Statistical power is the probability that a study of a specified size and design can detect a predetermined difference in risk in the absence of significant bias. If the power is too low, the study is unlikely to find a difference or it could provide a false negative, so that means it shows there is no effect when there is, in fact, an effect. If the statistical power is low but the P value is high showing a statistically significant result, it is very likely to be a false positive, and the false positive risk estimate is likely to be much larger than or exaggerated from actual risk. Next slide, please.

The primary way to improve statistical power is by increasing sample size. A large sample size is needed to observe a small fraction of population. To obtain a sample size in the population that would be sufficient to have a high enough statistical power, it would require many years of study, which is not useful for real time oversight.

On the graphic in the right, you will see that with the dotted vertical line on the left side is

set at one rem. At one rem, you need between five and six million cases in your sample to be statistically significant, not statistically significant, of statistical power I should say. Next slide, please.

Further challenges with real time observation is a long time response of some latent cancers that can develop and become evident many years or decades post-exposure. Therefore, substantial time would be needed to conduct a study that produces statistically meaningful results. It changes with time. Various factors are hard to factor out of ongoing long-term studies and they end up being confounding or covariates. Next slide, please.

New language proposed today by the NRC, as just discussed, it still has some challenges. A licensing basis event includes AOOs, which are generally low-dose, high-probability events. The low dose, as previously shown two slides ago, would require a very large sample size to see any sort of effect. There is no truncation of low doses or a cutoff limit in any sequence, event sequence due to the use of LNT. This is not just limited to the safety case analysis.

The interpretation of this text, my interpretation of this text is that the licensee must

show performance throughout the operation, and to show performance, you would need to show that you are complying with that level of QHO. So, this new rule text does not mitigate all concerns, although it does mitigate some concerns, that the licensee could be required to show the performance to a level of risk that is not actually observable in the population in a reasonable time frame.

Next slide, please.

The conclusion being that the QHOs are not a viable performance metric. They are not calculable directly or observable in a meaningful time frame. I do want to note that there is a difference between using a risk metric to risk inform a regulation or regulatory decision and using it as a performance criteria or performance metric as a requirement in the regulation. This is not currently designed, in my view, to use the risk metric as a screening criteria, for instance, for event sequences as it was intended in LMP.

It is used actually as a line in the sand as it were to say that licensees would have to maintain that level of performance and it would not be able to actually show directly that they are maintaining that level of performance.

Next slide, please.

This first bullet point was already touched on by other speakers. The QHOs are not in existing regulations. Risk analysis is useful for risk informing a performance-based rule. Performance metrics and programs are useful to determine if the design and operation is performing to an acceptable level of safety. The question should be if the QHOs are necessary in this regulation to achieve that level of performance.

A measurement of a first order variable should be used when possible. QHOs are a second order variable. They're a derived variable. This quote is taken from NUREG/BR-0303. Performance parameters should be identified as high level as practicable. Dose, a first order variable, leads to health effects such as QHOs, a second order variable. You don't get QHOs without dose, and QHOs are extrapolated with uncertainty from dose. So, if a metric must be used to provide adequate performance, then dose provides a more objective and measurable option. Part 20, for instance, already provides a performance basis, and that allows a licensee to meet that specified dose limit in a manner that they deem most appropriate.

However, finally, a performance-based

approach would set a performance objective taken from, once again, BR-0303, a diesel for reliability, diesel backup generator reliability at 95 percent as a performance objective, just as an example, and allow the licensee considerable freedom in how to achieve that reliability objective. Thank you.

MR. BEALL: Okay, thank you, Adam. Cyril, you're the next up, please. Are you ready?

MR. DRAFFIN: I'm ready. I just wonder is there anybody from the NRC who wanted to comment on The BreakThrough's presentation?

MR. BEALL: I think we're going to have questions at the end.

MR. DRAFFIN: Okay, well, this is Cyril Draffin from the U.S. Nuclear Industry Council, and you can go onto the next slide.

To date, it's unclear what the need for QHOs are in the rule, so I'm going to have a series of slides and I'm going to pause for questions during them because the idea is to have a dialogue session, so each slide will kind of be by topic, and so this is why -- should they be in the rule?

QHOs have been in the policy statement for decades, and as Bill mentioned earlier, they've been used. Beyond design basis events is addressed by

mitigation requirements, and the NRC slides that were just presented provided a basis for using QHOs, but not why QHOs need to be included in the rule language, so that's what I'd like to raise here.

So, the first question for discussion now would be why is including the QHOs in the Part 50 rule language, because we heard from BreakThrough that said it wouldn't be a good performance metric, but would be good for objective, but, so why, from the NRC's vantage point, is including QHOs in the Part 53 rule language, rather than the policy statement where it currently is, needed for the staff to make their safety findings?

MR. RECKLEY: Well, this is Bill Reckley. I guess I can weigh in that risk-informed approaches, and this again goes to all of them that we've developed since the 1990s, have included a cumulative measure, and the QHOs are the most-used cumulative measure of risk. You can look at individual event sequences, and we do within Framework A look at those as well, but in addition to looking at individual sequences, part of a risk-informed approach, be it Reg Guide 1174, LMP, going back to the '80s, the MHTGR proposals, they have all included a cumulative measure of risk.

And I believe they've all used the QHOs because it was the most readily available and having been developed as part of long discussions with the NRC and the ACRS during the development of the policy goals, the Safety Goal Policy Statement, they are just the most traditional and well-established metric. So, it really goes in my mind to needing a cumulative or aggregate measure, and so, but --

MR. DRAFFIN: So, but, and the reason why it's in the rule rather than --

MR. RECKLEY: Because we think --

MR. DRAFFIN: -- in the policy statement as a reference?

MR. RECKLEY: Because as a risk-informed approach, we think it is important that the assessments include a cumulative measure.

MR. DRAFFIN: And have you provided a written comparison of the benefits of putting it in, the disadvantages? There's clearly some disadvantages here and we've heard from developers. Is that something that NRC has done in a written manner?

MR. RECKLEY: Again, we'll write this up. This will be within the statement of considerations, the rationale for its inclusion assuming it stays in, but right now, from the staff's point of view, at

least what we're writing right now, it will stay in and the statement of considerations will be provided to the Commission along with the rulemaking package to consider.

MR. DRAFFIN: When the QHOs were first put into the rule language way back, I guess, in February or so of last year, at the same time, you had introduced Framework A which had to be using an LMP approach. Was it put in the rule initially because it was a risk-based performance metric, and if not, why couldn't you achieve some mitigation through beyond design basis events analysis?

MR. RECKLEY: Well, again, the mitigation of various events across a wide range, including, we'll just use the term here, the beyond design basis event category, contributes. The fact that you need to mitigate those events as individual sequences contributes to meeting the cumulative measure, but it's not a substitute for a cumulative measure.

MR. DRAFFIN: Thank you for now. I appreciate at least those insights, and certainly reading the statement of consideration, and the justification, and the pros and cons for understanding consequences would be helpful to understand. Okay, thank you.

Next slide.

So, QHOs have traditionally been used to assess whether design improvements would make a substantial difference in the risks associated with the operation of a nuclear plant on the operations side, but my understanding is that they have not been used to determine the acceptability of licensing of a nuclear plant, and that's the way QHOs are used by Commission direction. Could you elaborate on why you think such a transition is needed for Part 53?

MR. RECKLEY: Well, again, it's kind of hard. I mean, you're basically saying you want it done the same way it's always been done, so we're introducing risk-informed approaches as an alternative to that traditional framework. As part of that, we are including risk metrics and a risk-informed approach that borrows from what has evolved over the last 30 or 40 years in terms of approaches, and they have included cumulative measures which -- and again, all of them have used the QHOs since it was established by the Commission in the Safety Goal Policy Statement.

In terms of why now, again, it's because we think it's appropriate to have a cumulative measure in this framework. In terms of Commission, the

Commission will get a shot at this. They are the ultimate decider. We are going to send up a proposal to the Commission for a proposed rule. It will include the QHOs, so whatever they decided 30 years ago, they can revisit.

MR. DRAFFIN: So, it will be a Commission policy judgment as part of --

MR. RECKLEY: Well, the rulemaking is another Commission policy decision.

MR. DRAFFIN: Sure, okay, thank you.

Next slide.

These are -- I'll just -- I won't do them one by one, but I will pause at the end. Has the NRC considered the impact on hearing contentions if the QHOs are in the rule? That would be, you know, a potential downside for applicant, or litigation, or delay in deployment later. And were they included in the rule to justify the enhanced use of PRA? That was what I mentioned before in terms of the original framework, which is now called Framework A.

Will the PRA need to be part of the licensing basis submitted for NRC approval or subject to NRC control if they're a formal requirement, whether it's in Framework A or B? So, and perhaps you could elaborate on that and particularly whether you

think QHOs are going to be put into Framework B. I know it's evolving, but what's your current thinking?

MR. TAYLOR: Let me take the first one, Cyril. So, of course in building a rule of this substantial nature, we partner very closely with our general counsel colleagues, so they are fully involved in the entire process. In accordance with our Principles of Good Regulation, openness is part of our process, and hearing rights do come with the licensing of advanced reactors, as well as any other reactor design, so those are included in the Part 2 requirements of the regulation.

So, we would neither prepare a rule that dissuades public involvement or puts limitations on the ability of the public to be involved in that process, so we are continuing to develop a rule that we believe is balanced and allows for all stakeholders to participate in the licensing process.

MR. DRAFFIN: Yeah, that was -- at least I would support that the stakeholders should be involved in the licensing process. I was referring more to the questions that ACRS had on whether there could be litigation because QHOs were in the rule, so I was actually responding to the comments they made at the meeting in December.

MR. TAYLOR: I think it would be hard to speculate on how future contentions would be litigated. That would be speculative in how they would be addressed because we don't know what form they would take, so I think we need to be careful about intending to prepare a rule that would in any way inhibit stakeholders' ability to file contentions and then to be considered as part of the process.

MR. RECKLEY: Okay, and then just quickly going through the rest, were QHOs included to justify the use of the PRA? Again, I come at it from a different direction. PRA is the tool, the metric we've talked about. So, no, we're not using the QHOs to justify the PRA. We're using the PRA as a tool to show you meet the performance metric. Will the PRA need to be part of the licensing basis? To some degree, and more than perhaps it is under 52. All of that is being worked out with the submission of NEI 21-07 that the NRC is reviewing and plans to address in the regulatory guide, and that specifically will talk about the level of detail associated with the PRA that should be in applications, be they in Part 50, 52, or 53. And ultimately, will QHOs be a requirement for Framework B? We'll put that off until we have a future meeting on Framework B.

MR. DRAFFIN: Okay, thanks.

Next slide.

This deals with the language of the QHOs and the language that was just released for this meeting. So, I'd be interested in your perspective. Maybe just kind of a little background, my understanding is there's a big difference between health effects and fatalities. The meaning of a prompt fatality, someone died, is clear, which is probably why NRC used it for back in the 1980s.

The term immediate life-threatening health effects is not defined and, you know, Bill said one advantage of QHOs is they're familiar and predictable. Well, if you change the language, they might become -- would they become unfamiliar and less predictable? So, in other words, what does that mean if immediate life-threatening health effects is not defined? Does it include cancers which are treated and cured? Does it include any observable change in human tissue? Is immediate one hour, 12 hours, a day, 30 days?

There may be some background documentation, but clearing -- first of all, it should be clarified what is intended, and second of all, because it's new language, it could create ambiguity and decreased clarity, and so what I've included here

as the QHOs from 1986, the Safety Goals Policy Statement, and then the most recent, today's safety criteria down at the bottom of the page. So, could you give us background on why the NRC changed the terminology from the 1986 version to the one that's currently being discussed today?

MR. RECKLEY: We believe that adding life threatening would make it basically synonymous, but, you know, there's a point to be made here. We didn't have a strong feeling that this language was better. There is -- you know, I guess you have a good point. There's no doubt that the inventory of a nuclear reactor can kill people and you need design features and programmatic controls to prevent that. And so, I don't think we feel strongly about not using the word prompt and latent fatalities, and if it makes it more clear to people, then we could put it in those terms.

Maybe we were just being too cute by half trying to avoid the word fatality. So, if the consensus is that we put it in terms of deaths and fatalities, I think that is definitely something that we can consider as we change the text.

MR. DRAFFIN: Being predictable is helpful and new terminology, you know, it's a matter of interpretation. Unfortunately, if someone goes to a

hospital and they die, they've died, but a lot of people go to the hospital with life threatening things and they come back out fine, and so there's a difference there and, you know, what is life threatening to one and how does one interpret that? So, I think sticking with the clearer and more traditional language might be better. Thank you.

And then on the next slide, which I believe is the last one, I think it is a numerical target around the percentages provides more certainty and that could improve regulatory stability. And you already talked about your -- you had a question for the stakeholders. What's the proposed performance metric for Framework A? Well, mitigation of design basis events is performance based and it's been used, and having QHOs which are important as a policy statement that people use is also beneficial. So, our initial reaction with the question is stay with something closer to what you have, which is performance based, which is what you want the rule to be.

So, I think that that's the end of my slides for this topic, and if anybody else has any comments, perhaps NEI could be next.

MR. BEALL: Okay, thank you, Cyril.

MR. DRAFFIN: And I do appreciate Bill's comments. Thank you for the explanation.

MR. BEALL: Okay, Marcus?

MR. NICHOL: Yeah, thanks, Bob. Go ahead to our first slide.

So, this slide is a table of the comments that we provided to the NRC over time. Some are concerns about the approach, some may be questions, and others are recommendations on alternatives that we think would be better. You can see when we first identified our comments going all the way back to November of 2020. You know, we were hoping to get the NRC's response on these types of concerns and recommendations since we thought the concerns were significant and the alternatives were worthy of consideration.

So, next slide.

Because the NRC didn't discuss any of those, we really don't know where you stand on those or to what extent you've considered them as you've, you know, evaluated whether to continue with QHOs in the rule or take a different approach. You know, something very enlightening happened to me in this meeting. The explanation, Bill, that you gave on QHOs was extremely helpful, things that I hadn't heard

before, and, you know, it really gets to this issue about well, now I think I understand why you're asking the question if not QHOs in the rule, what else then? Because we've always proposed back well, if not QHOs, you can do mitigation --

(Audio interference.)

MR. NICHOL: -- but as I now understand it, the purpose of the QHOs in the rule is that it's a risk-based acceptance method, and so as I look at it, I do wonder if that really is the NRC's intent is that Framework A is a risk-based approach to regulation, and I can certainly see that that's the spirit of Framework A is it's a risk-based rule between the QHOs and risk-based metrics for the individual contributors.

Now, there are two, I would say there's two deterministic aspects in the safety. One is that there's still mitigation of beyond design basis events. The other is that for design basis accidents, which is a subset of design basis events, you have to do a conservative analysis. So, I would say it's like a risk-based rule with deterministic buttressing on it, so I don't know if that's really the NRC's intent, but I can see that that's the spirit of Framework A if not the impact.

MR. TAYLOR: So, Marc, I do want to take that on. This is why you have to look at the rule in its entirety, right? So, the QHOs, as Bill explained, are what the QHOs are for this rule, but the rest of the -- there are lots of pieces of this rule that make the entire rule a risk-informed rule. So, I do not agree with your premise that this is a risk-based requirement. So, I respect that we can have different perspectives, but to lay that out there as if that's a factual statement is looking at one piece and trying to carve it out from the rest of the rule.

So, you have to look at the rule holistically, which includes defense-in-depth, which includes safety margins. Those things can be used in the context of providing operational flexibilities in other approaches to demonstrate that you have a risk-informed approach to the safety of the facility. So, I don't think we're going to agree with you that it's a risk-based rule.

MR. NICHOL: And that's okay. We don't have to agree. I know there's some members of the ACRS who have called Framework A a risk-based rule. I would wonder then, if it doesn't need to be risk-based, then why the NRC would not consider a non-risk-based performance metric?

So, going on, the other question the NRC asked on their slide was whether that top-down approach of safety criteria, safety functions, design features, design criteria was the right approach. And I'd say that's really the best part of Part 53, Framework A, that we look at it and we see that it's independent of how you use the PRA, and so we're hoping that the NRC includes that in Framework B as well.

And one of the comments that we had made in our November 5 letter is that because the definition of functional design criteria is virtually the same as principal design criteria, that that sort of be recognized. And then in the flow of those top-down requirements, the functional design criteria should actually be after the safety function and before design features.

Because if you think about it, design features are specific things to SSCs, structures, systems, and components, the functional design criteria applied to SSCs, human feature, sorry, human actions, and programmatic controls, so it's a higher-level thought that is, you know, unifies different components, so that would be one suggestion that we propose to that, and that's all of my

comments.

MR. BEALL: Okay, thank you, Marcus. Does the staff have any questions?

MR. RECKLEY: No. Again, I think you have to be careful. There's a distinction, and if you go back to some of the discussions that we had on NEI 21-07 on TICAP, a lot of these involved the differences between the pre-established principal design criteria and the functions and design features to perform those functions that are derived as part of the LMP process, and so, I know it's a subtle distinction.

Again, when you get down to buying a particular piece of equipment, maybe it doesn't matter the specifications and how they work or from where they came, but from a methodology and a development of safety case as it's presented, there's a significant difference between the principal design criteria as they're laid out in Part 50 and how they're used and the functions and design features that are identified as part of the approach within Framework A, which again looks, not surprisingly, the same. A way to meet that process is to implement the licensing modernization program out of NEI 18-04, but I see we have a hand up, Bob.

MR. BEALL: Yes, Ed Lyman? Thank you for

waiting.

MR. LYMAN: Yeah, hi, Ed Lyman from the Union of Concerned Scientists, so a couple of comments. So, I actually do agree with Cyril on the language, immediate, life threatening, the health effects. I think that could get you into trouble because of the interpretation. It wasn't clear to me are you talking about an LD 50/30 dose, because my question, whether that's an immediate life-threatening effect or not. So, I can see even disputing what that means, so it probably shouldn't be in the rule.

I'd like to just give my brief response to your questions. So, as I said before, I also agree that I don't think the QHOs should be in the rule, but that's because as stated, they are not conservative enough. And as I've pointed out in previous meetings, they are consistent with a core damage frequency that's closer to ten to the minus three if you assume that reasonably low conditional containment failure probability, so that those are higher values than the average for the existing fleet.

So, I don't think they're meeting the intent of maintaining a level of safety comparable to operating reactors, and that's one objection. The second is the uncertainties that Adam Stein pointed

out as well as others. When you go from a release, a radiological release and translate that into health effects, that introduces a lot of subjectivity.

So, I haven't written this up yet, but my thinking is that it would make more sense for the rule to reference core damage frequency, large early release frequency, and large latent release frequency with quantitative limits on those rather than -- so instead of those being surrogates, those should be fundamental, and I think that's probably a cleaner way to do this. And as far as what those values should be, I'd suggest that maybe at the time of application, they should be tied to the core damage frequency of the existing fleet. So, for instance, the 95th percentile core damage frequency across the fleet at the time of the application would be a snapshot of the safety of the operating fleet, and so today, what that is, it's somewhat less than two times ten to the minus fifth maybe.

So, that would be a way where you could capture the level of safety of the existing fleet, but not necessarily freeze the level of safety in 1980s standards. So, and if you include both CDF, LERF, and large late release frequency, then you're going to address latent cancers, acute fatalities, as well as

land contamination. So, in my view, I think that would be preferable to referring to QHOs, and I'll probably write that up in the near future. Thank you.

MR. RECKLEY: Thank you, Ed. And Dennis Henneke?

MR. BEALL: Yeah, he's next. Go ahead, Dennis. You're on mute, Dennis.

MR. HENNEKE: Can you hear me now?

MR. BEALL: Yes, sir.

MR. HENNEKE: Oh, sorry, I hit my button twice. Dennis Henneke with GE-Hitachi. I'm also the ANS chair for the JCNRM, which oversees issues of the PRA standard.

I did want to take a little bit of issue with Bill's response to why we need the QHOs. Simply because we're a risk-informed, performance-based rule, currently under Part 50, we can use the LMP approach without QHOs being in the rule, right? So, the use of QHOs for the PRA is a metric that supports the analysis underneath all of the LMP. Now, one thing that people don't realize is at the end of the LMP process, you go through the independent decision of the panel, you apply deterministic requirements above what the PRA says, look for issues of uncertainty, and then you perform and support the outcome of that with

deterministic safety analysis.

So, there is still, under the LMP process, a required deterministic safety analysis, and that by itself should stand on its own two feet. You know, it's supported by a risk-informed framework, but there's still deterministic safety analysis required. And we're talking about the same sort of framework here, a risk-informed, you inform the deterministic safety analysis with the PRA, and the outcome still has to stand on its own two feet.

Framework B, which is similar to the IAEA approach, has a very similar type of allowance other than a safety classification which is purely set by deterministic, but the LBE evaluations and the evaluation for defense-in-depth is supported by the PRA if you want to go through a risk-informed process under the IAEA approach. So, the point of all that saying is at the end, we have a deterministic safety analysis in either framework and that the current LMP approach utilizes QHOs without requirement to be in your license. It's supported underneath the analysis.

We could easily under Part 53 accept a similar risk-informed, performance-based approach with QHOs supporting either framework, but not have it in the rule, which opens up all of these questions that

you heard about statistical, questions about health effects, and then us having to put all of that PRA information into the SAR and so on. There's just no need for it. So, the fact that we were saying we have to have QHOs because it's a risk-informed approach, then no, we don't. We can go and remove it and still apply LMP under Part 53 and be a risk-informed, performance-based approach. Appreciate it.

MR. BEALL: Okay, thank you, Dennis. Jeff Semancik?

MR. SEMANCIK: Yeah, hi, I'm Jeff Semancik. I'm with the Conference of Radiation Control Program Directors. Just a few comments, and I appreciate Dr. Stein's input on this.

You know, just to kind of talk through the ambiguity of what we're talking about, you know, prompt fatality from acute radiation exposure is not really the correct terminology, right?

You know, you have a prompt -- you will typically have an acute exposure that will result in a fatality, but it's generally never prompt unless you have very high levels of radiation. So, you know, Ed mentioned at LD 50/30. We would typically use an LD 50/60. So, that terminology leaves a lot to be desired. And even more importantly, I would tend to

support -- and I'm relatively new to watching through Part 53 here, but it would seem to me dose makes -- if you're going to use some health objective, a dose criteria would make more sense because I think you're going to confuse features and safety functions for the reactor with methodologies for dosimetry and radiobiology, and your intent isn't to modify those.

I don't think the intent is to make improvements in calculational methods of dosimetry and radiobiology, but really into making, you know, calculations on performance of the reactor and the associated safety systems and improving those functions vice improving, you know, the features and the calculations associated with all of the uncertainties that Dr. Stein mentioned, so I would tend to support his conclusions. Thank you.

MR. BEALL: Thank you, Jeff. Cyril, you have your hand up.

MR. DRAFFIN: Yes, I just wanted to give NRC an opportunity to respond to Mr. Henneke's comment. You know, LMP was developed for Part 50, not for Part 53, so I'd be interested in NRC's response to his ideas.

MR. RECKLEY: Well, again, under the LMP and the inclusion of cumulative risk measures,

including the QHOs, is a key aspect of that methodology. The question as to whether that needs to get carried into the rule obviously is a matter of judgment. Our thought was that the cumulative measure is important and should be captured within the requirements, so.

MR. BEALL: Okay, thank you, Bill. Steve Kraft, you had your hand up very early in this presentation. Did you still have something to say, but you took it down? Okay, so I'm not hearing from Steve. Oh, Anne?

MS. LEIDICH: Yes, hi, this is Anne Leidich from Pillsbury. And, you know, Cyril had on his presentation earlier a brief reference to litigation, and I think it's telling that you have a lot of different people from different backgrounds and different groups that have weighed in here, and they all have different interpretations of this rule and sometimes they are wildly different interpretations of this rule.

Ed Lyman says it's too permissive. The industry says we're not sure how to meet it. The radiation experts say it's difficult to meet it or it's open to interpretation how you meet it. And I think that the litigation risk here and what the

takeaway is from this potentially is that the D.C. Circuit is going to decide how you meet it and how it's interpreted, and that it's not going to be the NRC that makes that decision because it's so broad and so difficult to interpret that there is no interpretation. So, I just wanted to weigh in on that point because I think that was the intent of what Cyril was saying in his presentation and it may have gotten lost.

MR. BEALL: Okay, thank you, Anne. Any final questions? Okay, so it's 3:00 now. Let's take a ten-minute break, so let's come back at ten minutes after 3:00 East Coast time. So, we're going to take a ten-minute break and then we'll start up with discussions on beyond design basis events, okay? Thank you very much.

(Whereupon, the above-entitled matter went off the record at 2:59 p.m. and resumed at 3:10 p.m.)

MR. BEALL: Okay. Welcome back, everyone.

Before we move on to the Subparts B and C, I see two more hands up. Ernie, you have your hand up. Do you have a question?

ERNIE: Yes. Sorry. I tried to raise my hand at the end there, but we went to break too quickly.

So, I want to say I've made comments on the website or regulations.gov. And but I have some questions related to those comments. First of all I want to say, okay, I'm representing the public, myself. I'm not representing anybody but myself. But one of my comments was recently I was -- talked about the problems with PRA, that a very significant problem, in my view, is that unexpected events will occur. I know this because I worked in nuclear power effectively my entire career.

And what we see is events that come up that nobody expected. And it requires a root cause investigation and corrective action. I don't believe that PRA as it's substantiated in regulations has sufficient credibility, let me say, with regard to events that will unfold, especially in new technology. And there's some technical reasons. I mean, you can apply some technical arguments to this that have to do with the set algebra. But I mean, it's, it's more practical. We just don't know what's going to face us.

And so, I can give examples. But I think the NRC in this performance space, or maybe this is the meaning of performance space regulation, I think the focus should be on, first of all, design

constraints, the prescriptive regulations that have been there -- I have a comment on that -- and root cause and corrective action

And I wonder, I guess my question is will the NRC require PRA in regulations? And this is my first question. I have two more -- well, one more. And, if so, will the technical issues related to shortcomings in PRA be addressed somehow in a academically, well, let's says academically academic foundation?

MR. RECKLEY: This is Bill Reckley.

So, currently we are planning to require PRAs. And then much of the discussion that we've been having goes to how they're used, whether they're kind of confirmatory and supporting, or deterministic or prescriptive approach as you described it, or whether they are more simply to making the safety case. In either case, current requirements and what we're talking about today, Framework A, will require a PRA to be available.

ERNIE: Yeah, so I think that it -- well, I hope that the questions that I've raised on the comments will be addressed. And I think they're very difficult to answer. And so, I think the NRC should think very carefully about substantiating such

quantitative risk assessment, let me put it that way, in regulations.

I think that PRA certainly has a useful purpose in terms of disclosing scenarios and so forth. But when you go the quantification, that's quite another, another piece of work. So, I've also early on -- probably my comments are kind of long-winded and maybe not that clear -- but I believe that core damage is basically a commercial problem. There is no such, first of all, there is no such thing as a frequency of core damage. You only get one. I mean, that's been the history; right? And then, and then you're done. And, again, against history of these events that we've had, from let's say Generation 1 to Generation 2 reactors, if we go back 50 years to the events that have happened, they all resulted in radioactive release, some of it unmonitored.

I think the most successful, let's say, mitigation of a core damage event was the Three Mile Island. And I think that's a credit to the, to the Nuclear Regulatory Commission and the requirements that they put on the plant that probably were not present at, say, Fukushima, and certainly not at Chernobyl. But the, but the -- but what we want to get, this was a comment early on someone made, if we

want to get the efficient regulation, I think that containment and the source term, how do you get the source term, for instance, maintaining power level, criticality, these kind of issues. Those are the -- the containment and the source term are the important things.

And to date, the cont -- you know, we can say you overlooked in a core damage frequency. And I agree that you shouldn't have a lot of what they call shots on goal. But if we want to get to an efficient framework, I think containment -- I mean, that's what the NRC really wants to do is prevent people from getting exposed to radiation from events from the failure of the technology. And in my opinion, containment's the best way to do that. And I think if we focused on the source term and the efficacy of containment rather than spending a lot of time on worrying about frequency of core damage which -- of which there is just one core damage, and what we have seen, actually, is that we get release every time so far. That's the evidence. I think we should, I mean, I think we would be more efficient to go in the direction that I just said: source term and containment. I'm just curious if the NRC would -- is giving any consideration to reducing the scope of any

kind of risk assessment to a containment and source term.

Yep, that's it. Thank you. Thank you for having this meeting, actually. It's very helpful.

MR. RECKLEY: Okay, thank you.

And, yeah, to some degree if you look at some of the supporting material for Framework A, be it the development of the LMP and the functional containment discussions that preceded it, I think that does remain the focus. Right? Control, cool, contain. So, that is the, that is and will remain the focus, so.

Dr. Denning?

DR. DENNING: Yes. I'd like to make some quick comments on QHOs. Because historically I think we've looked at QHOs for large light-water reactors. We satisfied them really easily. We saw that in NUREG-1150 where we satisfied them by orders of magnitude, including large uncertainties. I think that there, that we really do have a need for QHOs for the future reactors. And I think they're going to be smaller. They're going to be fundamentally safer, probably, than the light-water reactors are. We're going to have a lot of them, hopefully. We're going site them close to people.

I think that there's nothing wrong with the, with the qualitative safety objectives we have. The problem with the quantitative objectives that we integrate over too large of an area, I think that in these cases what we ought to do is we ought to pull those areas in from the quantitative when we do the QHO analysis.

And I think the real reason that we really need them gets down to things like seismic events of very low frequency. I don't think that the current approach adequately handles the treatment of things like very low frequency seismic events and other events of that nature. So, that's why I see a need to keep the QHOs. But I would, I would make the analysis to be given them more demanding than we currently do. Because, once again, even for light-water reactors we satisfy them so easily, they don't really represent any design constraint.

Thanks.

MR. RECKLEY: Thank you, Dr. Denning.

Bob, we have one more? You want to take it?

MR. BEALL: Yeah.

MR. RECKLEY: And then let's go. We've got to start watching the clock.

MR. BEALL: Yep. Kalene Walker.

MS. WALKER: Hi. I am a member of the public who is just now interested in how this all works. I'm fascinated that the industry is so involved in NRC's regulations, and that the word efficient regulations rather than effective regulations is thrown around so much.

I was under the impression that these new technologies are going to have significant technological improvements. So, when you say quantitative health objectives, and the NR -- the nuclear industry, you know, says we have zero carbon emissions. You know, that's their talking point. And so, when you say quantitative health objectives, I'm wondering why you don't say our objective is zero radiological emissions? Why hasn't that even been considered a consideration?

MR. RECKLEY: Well, I think that, no, I think that would be a great performance goal. As a regulator, I think we have to set out the minimum requirements as opposed to the ultimate goal. But I think most people would agree that a perfect record would be, would be best.

MS. WALKER: I mean, if the system is functioning properly, I would think that the NRC would

require that a properly working system has zero emissions, radiological emissions. But it just sounds so wobbly, it's amazing to me. I mean, if you're designing a car, you know, you could say, well, brakes, we might not have brakes sometimes. Or, you know, the rate -- no, a car manufacturer must have a car that the brakes work, you know. I mean, otherwise it's -- Anyway, that's just a voice from the public amazed at this process.

Thank you.

MR. RECKLEY: Okay, thank you.

MR. BEALL: Okay, Bill, let's go on to the next set of presentations. So, let's move on to Subpart B and C, beyond design basis events.

MR. RECKLEY: Okay. I'll try to pick up the pace a little bit.

So, so this slide lays out the subject as it was requested: beyond design basis events. And there's a fair amount of other slides to come.

This will be interesting. It's interesting in part because under Framework A we don't use any of this language. So, we're kind of going to speculate here a little bit about what people want to talk about. And we acknowledge that the whole concept of beyond design basis events has, you know, has been

an ongoing discussion for decades. So, the basic structure as it's laid out here, 53.210, 53.220 would be proposed to provide the safety criteria for design basis accidents and licensing basis events other than design basis accidents. And 240 would require everyone to identify the licensing basis events. And then in the details of the analysis section 53.450(e) is where we propose to go down one level and actually talk about the event categories. And the language used within Framework A is anticipated operational occurrences, unlikely event sequences, very unlikely event sequences.

And so, we have intentionally not used the words "design basis events" and "beyond design basis events" because of the possible confusion with how those terms are used in Part 50. We acknowledge they are used within NEI 18-04, but just maybe adds difficulty in following the discussions.

We also mentioned here in the footnote that Framework A, we don't use the term "design basis" for important to safety, which is also terms that are used throughout Part 50. And we've avoided using them in Part 53 thus, thus far, at least in Framework A.

So, if we can go to the next slide.

This just lays out, again, the event

categories, just overlaying the Part 53 language with the, with the LMP frequency consequence target figure. And we're not really proposing that anyone would need to change anything other than the names of the categories.

One point, going back to the topic of beyond design basis events, and that's we've done an LMP-type process. The inclusion of the very unlikely event category it's integral, it's integral to the whole process. And so I'm not sure we need to talk very much about whether we need to have that or not. Maybe we'll just wait for the discussions to see if there is suggestions that we wouldn't need such a, such a category.

And, lastly, just on this slide, you know, we're continuing to acknowledge that there is one additional licensing basis event category, and that's the design basis accidents that are used to really establish what the functional design criteria are for safety-related SSCs.

So, if we can go down one, Bob.

Just reusing that IAEA approach in talking about the same kind of topics within the traditional approach, you, you do have beyond design basis events. Examples of those have traditionally been station

blackout, anticipated transience without scram, where you have an assumed failure of the safety-related equipment, and then are looking at what else is available to address those sequences. By and large, we have allowed non-safety-related equipment to be credited for those scenarios.

Then on the next point on this graph, the severe accidents, as we call them in the acts and policy statement and require applications under Part 52 to address, under the IAEA approach they are just design extension conditions with core damage. But the point is, within our traditional approaches, Parts 50 and 52, the beyond design basis event categories have been there and have served the purpose

So, if we go to the next one, again trying to speed it up a little bit here. And maybe I could skip the history a bit. But I think it's maybe important to the discussion. The need to include a beyond design basis event discussion largely arose out of operating experience and risk studies. The terminology has probably been confusing from the start. But its derivation is relatively simple. Design basis events were defined in Part 50. And those are the events that define the requirements for safety-related equipment. And those are the design

basis events in traditional space, anticipated operational currents, design basis accidents, and selected external hazards.

When it was determined that safety concerns needed to be resolved in matters such as station blackout or anticipated changes without scram, working out those issues led to, again, the notion that they could be addressed using non-safety-related equipment and there, therein invented the term beyond design basis events. That, that terminology was continued and, basically, set up how we handle future issues under Part 50 and 52, including the severe accident policy statement, aircraft impact assessments, and more recently, the mitigation of beyond design basis events that's included in 50.155.

Now, one caution on this last one. The title might lead some to think that that rule, mitigation with beyond basis events, is broader than it actually is. That's a resolution of a particular beyond design basis event, and it's a scenario to address the post-Fukushima concerns of an extended loss of power related to external hazards. The broader use of beyond design basis events still includes things like ATWS and station blackout, prevention and mitigation of those kinds of accidents,

as well as some specific things for specific designs.

And then one last confusion here is just the term "design basis." And I would just caution people that you need to be careful or clear -- maybe this is a request as people get into the next set of presentations -- to be clear what you mean when you say "design basis," because there's the event categories we just talked about -- design basis events, beyond design basis events -- and then there's design basis as it's defined in 50.2, which relates to specific system structures and components and the functions they need to carry out.

And as it's been historically treated, the design basis of a particular structure, system, and component can address both what it needs to do for design basis events, and also what it needs to do for beyond design basis events. And that only makes sense if you're designing a specification for a particular SSC that it would include everything it needs to do, whether it needs to do it as a safety-related function for a DBE, or it needs to do it, perhaps a non-safety-related function as a beyond design basis event. But the guidance, again, has been around for decades. We endorse NEI 97-04 and our regulatory guide 1.186 that basically laid out this, this concept that the DB,

that design basis of an SSC can include and should include its function for beyond design basis events.

So, Bob, I'm sorry, let me go to the next slide.

This just basically reiterates, I think, what we've talked about in earlier meetings. An important aspect of considering unlikely or very unlikely event sequences, or beyond design basis events using the old terminology, is important. And a key part of that is to lay out the ability to define what the special treatment requirements are for the SSCs that are credited within the analysis and Framework A. One subtle point is the second bullet that the traditional approach by putting an emphasis on the design basis accident is able to some degree to say that that is intentionally so conservative that it addresses events of lower frequency. And that's been a traditional argument.

That, in turn, has required the DBA to be a very conservative assessment. And when you have a category below that, so to speak, if you have a lower frequency range category, you are able to have a less, you have less reliance on the DBA to provide your primary safety argument. It really is an integrated approach where you're looking at all of the event

sequences across the whole range to provide the safety of the plant. And you do have some set of DBAs to help you clarify the performance requirements for safety-related systems. But you can be a little less reliant on that DBA than you are in the traditional approach.

So, if we'd go to the next slide.

Just the questions, again, trying to keep the focus on Framework A, and realizing we don't even use these terms, what alternatives might -- if people are thinking there are alternatives to not considering very unlikely event sequences, what would they be under Framework A?

So, with that, Bob.

MR. BEALL: Okay. So, Cyril, if you can bring up USNIC's slide.

MR. DRAFFIN: Okay. This is Cyril Draffin, U.S. Nuclear Industry Council. And I'll be relatively brief and maybe give a little more time to NEI.

If you can go to the next slide.

I appreciate that background, Bill. It is sometimes confusing and we're putting languages in the 18-04. But we're interested and concerned a little bit on the system structure and components, you know, what's -- and how you regulate non-safety systems.

And not only for Framework A, which we're focused on, but also the unfolding Framework B. So, I'll just touch on some of these questions. You can answer as you wish.

The inclusion of design basis versus the licensing basis, the degree to which the LMP guidance needs to be codified, and particularly if 18-04 has different terminology in it. And then just clarifying when the, at the Commission when they said that 53, back in December, would not include design basis events and the design basis -- I know you're not using those terms, but the general concept was not being included. So, maybe just a little clarification of those would be helpful.

MR. RECKLEY: Again, I would just recommend people go and look at, in large part, the guidance that exists now. So, the inclusion of beyond design basis events into the design basis of SSCs exists now. And, again, I'll refer you to NEI 97-04.

And the Framework B, I think we'll just put off those discussions. Those will be as we develop that Framework and we release text, that will be a much more efficient way to talk about what would ultimately be in Framework B.

And in regards to your last question, I

think, again, you need to go back and look at that particular proposal in that SECY paper, which was to -- it wasn't so much that it was a beyond design basis event, it was putting a, it was putting an additional requirement on new reactors as opposed to what was being proposed for the operating fleet. And that's what the Commission came back and ruled on. So, it's not as the Commission was saying, I think which the bullet implies, that beyond design basis events wouldn't be in the design basis of SSCs, it was more simply that the requirements on new reactors would be consistent with what was being imposed on the operating fleet. But if you go back and look at the paper, and the proposal, and the SRM, I think that would, that would clarify that.

MR. DRAFFIN: Okay, thank you.

And I just want -- it doesn't really apply here -- but some months ago you had a listing of what guidance would be referred to in Part 53. At some time, you might want to upgrade that. And, again, a listing of which guidance you've been relying upon would probably be helpful. I'm not, I'm not focusing on just this particular topic, but really across the board for Part 53.

MR. RECKLEY: Yes. That's good. That's

something we are constantly working on in trying to keep track of what guidance is being developed. So, yeah, we can. And the ACRS has an interest in that, too, so.

MR. DRAFFIN: Okay. And I don't think I have too much to add on the next slide in terms of, you know, understanding why, what needs to be changed for Part 53. So, I'll probably just pause there and turn it over to the next stakeholder.

MR. BEALL: Okay. Can we bring up NEI's slide.

Marc.

MR. NICHOL: Yeah, thank you, Bob.

Go ahead to my first slide. Thank you.

So, on this topic of beyond design basis events or very unlikely events, this table shows the comments that we've provided in the past, many concerns, some recommendations for alternative approaches. We've provided these as early as December of 2020. And we're still unsure what the NRC's response is to any of these.

Go to the next slide, please.

So, with that, not knowing what the NRC's response is to the concerns or recommendations, I'm not going to repeat them again today. But it doesn't

appear through the NRC's slides and some of the discussion that the NRC doesn't believe or has not yet identified or believes that nobody else has identified an alternative for beyond design basis events. So, Part 50 and 52 use mitigation to address design basis events.

And, Bill, I know you talked about some other beyond design basis events like ATWS, SBO. Let's sort of put them off to the side because they're, they're sort of special, special ones. They may not even apply, they likely don't even apply to any of these events, reactor designs that we're talking about. So, we're really left with the scope of beyond design basis events which the NRC addresses through mitigation. And, Bill, I would disagree with your interpretation of the SECY. I think it was suggested all of us to go back and refresh ourselves. It did talk about not having design requirements for it.

So, in that you could ask, Bill, what is our definition of beyond design basis event or design basis. And, basically, the design basis is that part of the facility that has to be designed and built to withstand without loss to the systems, structures, and components necessary. And so, within that definition,

the most important thing is that they have to be designed against, to withstand. They have to be designed to withstand. Which is different than the mitigation of beyond design basis that's currently done, which is the design event doesn't have to -- it isn't designed to withstand, it's designed to be able to mitigate. And so, there is an important consideration there.

The NRC's requirements in Part 53 apply the requirements for design features, design criteria, design requirements. And they're applied to beyond design basis events almost identically as to how they're applied to design basis. The difference mainly is in the quality requirements. But, nonetheless, they're largely the same. That's why we talk about so much being pulled into the design that wasn't before.

Now, we do agree that beyond design basis events should be included in the licensing basis. They absolutely should be considered and addressed, just that they should be addressed in mitigation. So, and I had a similar reaction to Cyril, is that this, this presentation the NRC presented is very clearly saying that it isn't -- it is the intent to include beyond design basis in the design basis. And that is

not consistent with what I thought I heard the staff say at the Commission briefing on December 9th.

So, thank you for the opportunity to speak.

MR. BEALL: Okay. Thank you, Marcus.

Can we bring up the slide, please, again. Okay. Are there any questions on this topic? Any responses from the staff?

MR. RECKLEY: Well, I would, in regards to the Commission meeting. Again, go back and look at the whole transcript. The second sentence in what, in what was said was that -- just give me a second.

(Pause.)

MR. RECKLEY: "The equivalent within these events" -- and the topic was beyond design basis events -- "are not in the tech steps. So, they're treated essentially the same as they're treated now in the current regulatory Framework." And that was referring to beyond design basis events and the treatment of what we do now for ATWS and station blackout. So, again, the transcript's available for that on the Commission's webpage, so you can go back and look at it.

MR. BEALL: Okay, thank you, Bill.

Before we move on to the -- Oh, we have

one question. Jeff, you have your hand up.

MR. SEMANCIK: Yeah. Again, Jeff Semancik, from Conference of Radiation Control Program Directors representing the state radiation program.

Just a question on the approach that you're using. Is it envisioned, again relatively new to the language here, is it envisioned as a living program through the life of these plants, or would you identify a high-risk scenario later in the PRA that is it a living design basis or is a static design basis from the time of licensing?

MR. RECKLEY: As the Framework A is currently written, the PRA would have to be updated. And that would include bringing in any insights on new events or changes in things that would affect the outcomes. So, no, it's intended to be living throughout the life of the facility.

MR. SEMANCIK: So, if that's the case, then you don't really have beyond design basis events; right? If you identify an event that now rises to that threshold, then you bring it into the PRA. And then is there an option to mitigate it or is it rule-based?

In other words, if I have a -- let's say let's use the ATWS example, only because we can

reference that. You know, if we were running a similar event to ATWS, can I bring it in and then say, hey, look, I'm either going to mitigate it through a safety-related system that's going to have a lower frequency of failure, or I choose to mitigate it through two diverse and redundant systems that aren't safety-related but you've got a higher failure probability, but because I'm using more of them I can still reduce it to reasonable, you know, to meet the performance metrics.

MR. RECKLEY: Yeah, that would be the intent. As long as it was identified as a very unlikely event sequence. And, again, this is, this is why within Framework A we don't use this terminology. We basically say it's a very unlikely sequence. And but it's a licensing basis event and it needs to be addressed through the identification of whatever safety functions are controlling that event, and then whatever special treatment needs to be put on that equipment to make sure it's capable and reliable to perform that function. And so, again, we were trying within Framework A to avoid this by not using the terminology that's proving to be confusing in Part 50 and 52.

MR. SEMANCIK: Thank you.

MR. BEALL: Okay, thank you, Bill.

I'm not seeing any other questions. Before we move on to the next topic, which is ALARA, I'd like to point out to everybody that we're getting very close to the schedule time for this meeting to end. But, we're having some very good conversations and exchange of information and insight between the staff and the stakeholders. So, the staff is willing to continue with this meeting on. And we'll see how far we can get, hopefully within the next 30 minutes to an hour time frame. If we can get to the next couple topics, that would be great.

So, so let's just go to the next slide. And, Bill, if you could start up with the discussions for the ALARA, please.

MR. RECKLEY: Okay. So, this discussion lists the -- this is the current language we have on normal operations in the 53.260, in the preliminary language. Since the focus of the discussion was on as low as reasonably achievable, you know, we'll focus on paragraph B. The change we made in the working draft, which is just a slight change from the February version, is we set a combination of design features and programmatic controls. That's a matter of emphasis, that's all is what was present by just

saying design features and programmatic controls. But as a matter of emphasis, we want to make sure that people are considering these things in combination.

So, if we go to the next slide.

Just talking about the basis for including as low as reasonably achievable. And the controversy seems to focus not so much on the obligations of an ultimate licensee for an operating facility, but on the responsibility of designers. So, that's, that's where I'm going to focus the discussion. Again, as just a little background and history. The need to consider design elements in maintaining doses as low as reasonably achievable has been in Part 50 since the days of the Atomic Energy Commission.

They are included in 50.34(a), the title of which is "Design Objectives for Equipment to Control Releases of Radioactive Material and Effluents." And they're also in Appendix I to Part 50, which is "Numerical Guides to Design Objectives for Limiting Conditions for Operation," and to meet the criterion as low as reasonably achievable for light-water reactors. These requirements were initially in that time period supporting construction permits and operating licenses because it was pre-Part 52. Given it was a -- given those requests for

specific facilities, that would have also brought in Part 20 as applicable -- as an applicable rule. And so those applicants at some point would have needed to address the programmatic controls associated with ALARA that are in part 20, as well as in that time frame they would have talked about the design elements since it was a, it was a application for a construction permit.

With the introduction of Part 52, the NRC specifically changed their requirement to add paragraph E to 50.34(a), which is addressing design certifications and design approvals, and basically holding them to the same standard as was applied to applicants for construction permits. And if you look at the text in the colored box there, that is right out of 10 CFR.

In addition to that, or maybe not in addition, if you want to see how this has been done, maybe the easiest place to go is just to go to the design certifications that the NRC has reviewed and approved in Chapters 11 and 12, which are the radiation protection-related chapters and the waste system chapter, you will see that the applicants for those design certs, whether they be NuScale or AP1000, ABWR, take your pick, have included material in

Chapters 11 and 12 to address ALARA. So, you know, if it would be useful, we can call those up and go through. The applicants, as they usually do, do a pretty good job of starting the sections with what regulatory requirements they're including the material to fulfill. So, we can go there if there's a desire.

I would also add, just as an additional requirement, since it was a more recent change to Part 20, when we added Section 20.1406, it specifically calls out -- it's one of the few places in Part 20 that it goes beyond licensees for applicability -- but it specifically calls out design approvals and design certification and requires designers to describe how the facility will minimize contamination. And this is ultimately to support the decommissioning of the facility. So, there's somewhat of an ALARA kind of idea there. But it's basically to support the ultimate termination of the license.

So, if we want to go to the, to the next slide.

Just quickly go through this then. What's the --

MR. SEGALA: And, Bill. Bill, John Segala from NRC. And there's a regulatory guide that supports the 20.1406 review that talks about using

double-walled piping underground and all sorts of adding design features for 20.1406.

MR. RECKLEY: Right. Well, and there's regulatory guides for meeting the ALARA principles, you know, for the design in Chapters 11 and 12. And that is one, but the 8.8 I think is one. There's a couple.

So, in any case, so the basis for including ALARA, including it being considered at the design stage is that it recognizes that the plant design plays an -- in controlling the releases and protecting plant workers, the language is consistent with previous Commission actions, including the Part 20 rulemaking in the 1990s.

I know NEI might cite that rulemaking, or one sentence out of it. It's interesting. NEI at that time was proposing to take ALARA out of Part 20 and the Commission decided to keep it in. The rulemaking related to 50.34(a) and 52 from the Atomic Energy Commission days up to present time, the inclusion of design certifications, design approvals in 50.34(a). And it's consistent with the advance directive policy statement which specifically calls out that ALARA principles, as well as most other matters, are most effectively dealt with at the

design, the design stage of the project.

So, we've pointed this out many times. We are developing guidance. We recognize that there's been some history, and there might be some ability to improve the efficiency of these reviews, both what's in applications and how NRC reviews it in terms of the physical plant and the role of programmatic controls, including monitoring, to perhaps come up with a more efficient way to do the reviews. That guidance is being developed. A draft of that guidance, early draft was released, a year ago probably, as a White Paper. And the actual draft of the regulatory guide associated with that we expect to issue in the near future. And we will just continue to point to that as being a vehicle to try to improve the efficiency of the review process.

So, with that, Bob, we can -- the next slide is just our questions. And for the sake of time we can just go into the NIC and NEI presentations.

MR. BEALL: Sounds good.

Okay, Cyril. Liz, if you can bring up the USNIC slide, please.

MR. DRAFFIN: Hi. Cyril Draffin, U.S. Nuclear Industry Council. That's helpful to have built the background. I'll just jump into the

questions.

If the safety goals are met -- and we certainly understand that there's been language in the past to kind of minimize, particularly as you're going for decommissioning, and ALARA would be considered for -- as an obligation for operations which we deal with. There's still the question of why is it in the rule?

It's one thing to have as an objective, it's another thing to have it in the rule language. So, could you, is there anything more you'd like to add of why it's in the rule, the design, the schedule further than the individual items you spoke to earlier?

MR. RECKLEY: Well, I guess I'll go back to we do not think it's any different. So, the reason it's in the rule is the same reason the Atomic Energy Commission put it in the rule. It is important to keep doses as low as reasonably achievable. The designers play an essential role in doing that. Simple as that.

MR. DRAFFIN: And that has been, plus and I think our continued designers would want to do that, it's a question of how formally it is included in the rule and the language, which is perhaps broader than it has been in the past. And you referred to the reg

guide on this that John did, the reg guide is fairly deterministic in adding additional piping and things of that sort. Is the goal that we're putting this language in as a design requirement to increase the cost of design by putting more requirements in than are apparently needed?

MR. RECKLEY: Of course not. The goal is to protect people from radioactive material.

MR. DRAFFIN: And so, understanding how the actual language -- the various piece parts, but they're a little bit hard, at least for me to follow, all the various piece parts in terms of interpretation. I think the guidance certainly might be helpful in describing what is -- what is going to be required or accepted. So, I think that your proceeding with the guidance has merit to it.

So, you've touched on some of these. I won't circle back on this considering the time. So, in the next slide, how does the NRC envision meeting the language? I assume that will be described in the guidance and the reg guide that you're planning?

And then this second one is, it's actually two and three, is consistent with past regulatory decisions, do you think this will require a change from regulatory policy? Or your belief is that it's

not a change? So, there's two parts to the question.

MR. RECKLEY: Yeah, our belief is it's not a change. I mean, there is existing guidance on how to meet this. We, again, point to the guidance being developed as part of the advanced reactor content application project that we think might or could improve the efficiency of these reviews. And, again, that will be out, that will be out for public comments in the relatively near future.

MR. DRAFFIN: And are you thinking of doing, of putting these requirements in for Frameworks A and B? Or is that still coming?

MR. RECKLEY: Again, I can't speak to Framework B, but I believe it would be because, again, it's been there since before the Nuclear Regulatory Commission existed. So, I don't believe that we see it as, as controversial as you guys seem to think it is. And I think our plan would be that it will stay.

MR. DRAFFIN: On the next slide you could guess the response, so it's unexpected that you would probably refer to what's been done in the past. And it wasn't quite clear, is the NRC proposing the ARCAP guidance be codified in Part 53 requirements? What do you have in mind for that?

MR. RECKLEY: Well, I think that the

wording in either the existing language or Part 53 can support the kind of performance-based approach where you look at the design and look at the later programmatic controls as working together and potentially supporting us doing less review at the design stage, and relying on the programs, including monitoring for example, that will be done in any case once the plant goes into operation. And so that, that's the thought. It doesn't change the underlying requirements. It's primarily aimed at trying to come up with a more efficient application and NRC review than actually changing the technical requirements.

MR. DRAFFIN: Okay. I'll turn it over to NEI then for comments. Thank you.

MR. BEALL: All right. Thank you, Cyril.

Okay. Marcus.

MR. NICHOL: Yeah, thank you, Bob. So this table shows the comments that we've provided on this -- this topic, as low as reasonably achievable, or ALARA. These nine comments here have been our concerns and our recommendations on alternative approaches. They date back all the way till -- to November of 2020. We have not yet heard the NRC's response on our concerns or recommendations. I would actually disagree with the point that Bill made. He

had said that the information that was provided today had been provided over and over again many, many times. Actually, most of it is -- this is the first time I've ever heard it, and I've attended every single Part 53 meeting. The little bit that I had heard before was actually first revealed in the December 2021 ACRS meeting, excuse me, when we were presenting our concerns to them. And the ACRS asked if the NRC had a response, and we heard at that time, in the December 17 meeting, that actually ALARA is intended to be part of the design basis, as it was before.

Next slide, please.

So you know, largely we don't understand what the NRC's response is to our concerns and recommendations. But I would point out that it was very clear from the slides in today's presentation the NRC believes ALARA as a design requirement is consistent with what currently is in place today. We actually disagree with the NRC's legal interpretation in that regard. I'll just state two pieces. Bill went through a bunch of different supporting evidence. I'll just take two that I think are the most important.

He talked about 50.34a. And so what I'm

about to say is that the ALARA design requirement in Part 53 is of a very different nature than -- than what Bill described is currently available. So 50.34a is a -- related to the design of equipment for the -- sorry, I'll find it here for a second to go back. So it's equipment to control releases of radioactive material and effluents. What Part 53 has is a requirement for design features and programmatic controls to achieve ALARA. That's a very different thing. That could include additional wall thicknesses, more concrete, it could include things like that. Not just the equipment to monitor and control releases.

The other requirement that Bill mentioned was 20.1406. And if you look at that requirement, it's actually a minimization of contamination. And minimization of contamination, again, is very different than ALARA. Contamination is the actual material getting out. ALARA could just be direct doses, you know, doses not from releases of materials. So the nature of the Part 53 requirements very, very different than what's in place today, and that's -- that's what we're concerned about. It's clear to me that that's not the NRC's intent, and so we'd like to work with you on alternative language to -- to achieve

what is currently in place and not go beyond that. I would say that, though, what is in the design certifications that was mentioned we believe is inconsistent with the requirements. And so it shouldn't be that what has -- what has been adopted by certain designs in excess of what regulatory requirements should be the standard for Part 53.

So just as a way of providing some suggestion today, the Part 53 requirements are framed as design -- design features and programmatic controls must be provided to achieve ALARA. It would be much easier just to model it after the dose criteria, which is -- said that licenses must ensure radiological doses consistent with Part 20. You could just say licensees must achieve ALARA consistent with Part 20. Take out the design features (Audio interference.) the current requirements is all you need. And that would be much more consistent. So we'll leave you with that.

MR. STUTZCAGE: Hey, Bill, if you don't mind, I'll just say something here quick. This is Ed Stutzcage with the NRC Radiation Protection.

So I understand your last comment there. We're, you know, I think like Bill tried to mention, we're not trying to add additional requirements. So

that's a point taken, I think, you know, I could talk to Bill about that later. But I'll just say, you know, you're right that 50.34a is for the effluents, it's not about shielding and stuff. I think that, you know, the point is is that ALARA was covered by, you know, several different regulations and, you know.

And then beyond just the initial comment about, you know, why can't we just say meet the dose limits. Well, in Part 50, Appendix I gave -- gives specifically lower dose objectives, which -- which aren't necessarily the -- Appendix I is a kind of a unique regulation. It's -- they're not necessarily requirements, but it gives lower dose values that you should meet to meet ALARA.

And you have 50.34a, which does provide ALARA for the -- for the rad waste system. So that is beyond, you know, the dose, you know, the Part 20 dose limit. So, and I don't want to, you know, keep going on, get into everything here, but I just wanted to make that point. So I do appreciate the comments, though.

MR. NICHOL: Yeah, thanks. And you know, in 50.34a, the way it's written or, you know, some dose, lower dose criteria like Appendix I needed to be included in order to be consistent. That, you know,

that -- that's okay. I think our -- our concern is that the phrasing design features and programmatic controls is pretty broad. And it could cause you to, you know, I've got a design under Part 50 and I, when I design my wall, I'm meeting the dose criteria, I'm fine. But when I get into Part 53, because the phrasing of this requirement design features must be provided, then the NRC is saying, well, meeting the dose criteria is not good enough, you need to thicken your wall until we get down to what's reasonable for a even lower dose. So, I think that's -- that hopefully that helped to clarify our concern.

MR. BEALL: Okay, thank you, Marc.

Liz, can we go back to our slides, please. So, any other questions or comments on the ALARA topic? Please raise your hand or hit star 6.

Yes, Frank, you have your hand up.

MR. AKSTULEWICZ: Yeah. So this last discussion about Appendix I was particularly interesting. The -- and I think the rebuttal that Marc gave was also right on point. The question is, you know, has always been how much is going to be good enough. And the one thing that Appendix I did, and I went back and looked at it, because it is directly referenced in the language that Bill put up. You

know, he cut off the paragraph before it got to the back. It said, Design objectives for ALARA are outlined in Appendix I. Well, Appendix I gave a process for how to determine how much was good enough. It codified the measure test, which is dose per dollar, or dollar per dose, that you could say is sufficient. And you can make that test and prove it.

So how much -- how much of that cost-benefit test is the staff planning to put in Part 53 or reference to, to provide a baseline that, you know, will provide the measure for how much is good enough?

MR. RECKLEY: Well, it -- it comes in because the definition of ALARA is basically the same. And it includes the economic considerations. So it's -- it's no longer $1,000 per person-rem like it was back then. But the notion is that that same assessment -- that same assessment would be -- would be used. It's the same language for ALARA. And so that's.

MR. AKSTULEWICZ: Well, I think, and I think that's part of the -- that's part of the question, you know. And I don't expect you guys to have the answer today, so I don't want to put anybody on the spot. But I think that goes to the baseline about, you know, how much is good enough, the scope of

the reach of this particular phraseology.

And then, you know, if you get into looking at just effluents, how do you determine, you know, what the bang for the buck has to be before, you know, it's good enough. And I, you know, that -- that was probably, and I don't have a history of Part -- of Appendix I.

But I'm going to guess that the reason there's that language in the rule was because there were ongoing arguments with respect to how much is good enough, right. So we don't recreate history. And if, you know, it's not $1,000 a man-rem, or whatever it is, I don't know, I don't have the criteria in front of me, but I'm guessing it's something like that, you know, what is going to be the standard. And is regulatory language also going to be required just because it was required in Part 50.

I think that's -- that's kind of, you know, sitting on the back of some people's minds about, you know, you had to put that in Part -- Appendix I because there was a regulatory need for it. Why all of a sudden in Part 53 is that regulatory need not also necessary. So it's just something to consider. And I know Ed's been on, I heard him talk. There's a big history to Appendix I. There's a lot of

anxiety over ALARA given, you know, previous licensing activities and interactions with staff on, you know, some of those matters. So this is -- this is an area that is particularly a concern for designers and ultimately future licensees. So I think clarity in this area would really be beneficial. And I think I've made my point and I'm not going to repeat myself.

So thanks for the opportunity.

MR. RECKLEY: Okay, thanks, Frank. I think much of that, just as it is now, will come through the guidance. But point taken.

MR. BEALL: Okay, are there any other questions or comments on ALARA? Okay, next -- uh, Kalene Walker, you have your hand up.

MS. WALKER: Hi. In December of 2020, the ACRS went before the Commissioners with a NuScale design. And the design was passed, the design certificate and standard design approval of -- approval of SBA was -- it was approved with four outstanding potentially risk-significant items to be reviewed at the COL stage and updated in the PRA. Those potentially risk-significant items were the steam generator integrity, the emergency cool -- core cooling system, combustible gas monitoring, and recovery strategies to prevent reactivity insertion

accidents associated with boron dilution event sequences.

And the -- so the -- soon after that, this was in December of 2020, soon after that I read in the paper that the NRC approved the NuScale design certificate. And then the funding starts coming in.

So I'm wondering if this the standard NRC process for approving design certificates, to allow these outstanding, potentially risk-significant items to be allowed. So somehow that's within ALARA. I know it's not really ALARA, but.

MR. BEALL: Yeah, that's --

MS. WALKER: That one really, that one really baffles me.

MR. RECKLEY: And I'll just, I'll take a quick shot. I know it's not within the scope, but --

MR. BEALL: Right.

MR. RECKLEY: All's I'll say in response to that is that it's not as -- having identified those issues, it's basically saying they -- the resolution of them can be deferred. It's not as if they won't be resolved, it's just they're going to be resolved at the next stage in the process, which would be the COL stage, so.

MS. WALKER: Yeah, but you're talking

about all these design-basis events or whatever, and it just seems like that was really poor precedent, frankly.

Anyways, that's all. Thanks.

MR. RECKLEY: All right, thank you. All right, Bob.

MR. BEALL: Okay, let's move on to the next topic. This is a final today. This has to do with facility safety programs in Subpart F.

So, Bill.

MR. RECKLEY: So this just shows the current language. Actually, being in Subpart F under programs we haven't actually made many changes to this since it was first -- first issued a year ago, probably. But in any case, this just lays out the current language that was in the February release. And the primary point is that the Facility Safety Program concept in this was really to include something that addresses that part of the risk management process for the routine monitoring and assessing of new information or revised information related to the risks.

If you look at a risk-management process, they're always circular and they always include monitoring and taking action to address new insights.

So that's -- that was the thought.

If we go to the next slide.

The -- one of the reasons to give thought to such a program was the potential that you would actually have a kind of significant change in the overall landscape associated with how commercial plants were going to be deployed. And when I say a change, the current model for both the licensing and the oversight is based on the fact that you have a relatively small number of large facilities. That then is accompanied by a near-constant presence of NRC inspectors.

The rule set under Part 50, as we talked about before, is a fairly -- Part 50 or 52 -- is a fairly prescriptive way of establishing the roles for a regulator. And the process includes basically the NRC doing the assessing of operating experience, new information, and doing the evaluation of whether that new information affects compliance with existing rules, warrants research as a generic safety issue, or potentially warrants the imposition of new requirements. The potential model could be a larger number of smaller plants. And along with that, we could foresee people trying to justify less NRC inspection of those facilities. As we've talked about

today, our intent is to move to a more performance-based set of rules.

And thought that the Facility Safety Program was an opportunity then for licensees to assess new information, revised hazards, as part of their routine updating of the risk assessment models, which is -- was going -- which is currently included within the framework A requirements anyway. And then determining if risk reduction measures would be appropriate. So you know, the regulatory models for such a program where you give more flexibility, but albeit, also more responsibility to the licensees, is available in literature. I think I mentioned a book by SPARROW on the slide. The -- it's also available in, or has counterparts in, other NRC regulations, in particular Part 70 for fuel cycle facilities. And really used even more so at some other agencies, such as the Department of Energy and the Department of Transportation. So the thought was just to develop a program and we did that, like I say, about a year ago and included it. So we've heard the -- the feedback.

We have questions on the next slide as to trying to turn -- turn the question around as opposed to, you know, why shouldn't you have a program to be more -- if a program were in place, then how could it

be used to -- as part of a broader look at both the licensing and regulating of future plants.

And then we did have performance criteria in the -- in the proposal. And really, history would show that -- that actually even with the metrics we had included, once a plant's designed, it's fairly, fairly rare for the revised hazards to -- to result in significant plant changes.

But in any case, we had asked whether the particular measures that we had in -- in the first preliminary language had been -- had been looked at, so.

With that, Bob.

MR. DRAFFIN: Okay, can we bring up the next slide please, Liz. Okay, Cyril.

MR. DRAFFIN: I don't see the slides. Now I do. The -- I'm not doing a detailed count, but it looks like, I just put out some of data to find a number of areas where there's new requirements for programmatic controls, and we'll look into that in a moment.

The first question would be does NRC look at the Facility Safety Program and the Integrity Assessment Program, the interplay with each other and other proposed operational programs.

And kind of an adjunct to that is are there things that would be -- should some of the other programs be dropped and replaced with this, or is it just possible to use some of the current operational programs and, you know, look at them and utilize them to efficiently and effectively review these kinds of new advanced reactors.

So a little bit more on the interplay between these two programs and the ones that currently exist and whether the other programs that can exist can serve some of the same function rather than putting these new programs in place.

MR. RECKLEY: Yeah, I guess the primary thinking was that the operational programs for specific areas including integrity assessment programs were primarily aimed at ensuring you were staying within the bounds that were predefined, so that things were behaving as you thought they would behave. So in the integrity assessment space, maybe that's degradation mechanisms and so forth.

The Facility Safety Program was really aimed at looking at new information. So I understand there's a -- there's a bit of an overlap there. It warrants some little additional thought, I think. Again, we hadn't looked at the Facility Safety Program

for a while to see how -- how it might interplay with some of the other operational programs.

MR. DRAFFIN: And indeed some of the operational programs can probably have mechanisms to look at and consider new information. And you know, whether if you want degradation of equipment, whether it's under 53 or 52 or advanced reactors, some of the same mechanisms would probably apply. So the question is it is possible to tweak, or you know, find a little guidance on the current programs to make them provide some of the same capabilities you're hoping these new programs will do. And but in the context of an established program.

And maybe put just a little bit of guidance on the established programs, rather than putting this extra, or we see this layer on top that might be confusing. So that's something just to ponder as you -- as you go forward. And then could you find a little more clarity on programmatic controls, at least as you have envisioned here. What's the -- what are the regulated ones, what are the licensee's responsibilities. And it receives as an expansion of scope and regulatory control by the NRC. So could you maybe elaborate on what you had in mind on programmatic controls?

MR. RECKLEY: Well, in general, the programmatic controls in Subpart F say you to have a program and provide a fair amount of flexibility. And those would be in, and this is similar to the way they're handled now, licensee-controlled programs, which the licensee can change, up to a point. And then the point at which they might require approval is addressed in Subpart I. And that, again, that was intended to be generally the same as what exists now for those programs and when a change might trigger NRC review.

MR. DRAFFIN: Okay, so three is really kind of a suggestion of talking to resident regional inspectors who are familiar with the operational programs. Maybe they've reviewed your current language or your intent, maybe not. But at least to get them to think, well, how could we take the current programs and the current programmatic controls that we -- already exist and use them.

So that really circles back to the same point I made before that they may be, you know, you and they may be creative in saying how can we use the existing programs rather than having to put a new one on. And so just something to consider.

And on the last question, it seems not --

it wasn't quite -- could you maybe elaborate on why this is consistent with a risk-informed approach and why you couldn't get the same kind of results by using the current licensing programs?

MR. RECKLEY: Well, there is no currently existing equivalent to the Facility Safety Program. That's assigned to licensees. That those functions are primarily performed by the NRC under the current structure.

So we'll tie it -- in terms of one size fits all, I would just go to -- really, that's the case of the performance criteria that we built in, which -- which are technology-inclusive, if you will. And so I don't believe that they would need to be tailored in any way to address different technologies. That whole -- the whole program is -- has throughout Framework A we tried to write as in a technology-inclusive -- in the technology-inclusive way, so.

MR. DRAFFIN: All right. On the next slide, which is the last one, not surprisingly we're not supportive of the program. We think it increases regulatory burden should be removed and rely upon existing programs. And maybe use a variant on some of the existing programs to allow a little bit more licensee involvement and less NRC involvement, in

particular for the smaller facilities.

So, something to consider as you go forth and consider updating it. But we don't have any -- not much support for this program because they think it's duplicative.

That's all I had for this topic.

MR. BEALL: Okay, thank you, Cyril.

Can we bring up the NEI slides, Liz? Okay, Marc.

MR. NICHOL: Yeah, thanks, Bob.

This first slide is a table of the comments we provided, concerns, questions, some recommendations. You can see the input we provided goes all the way back to January of 2021. We hadn't heard back from the NRC on any of our concerns or recommendations, so we don't know what the NRC's perspective is on those, so I won't reiterate them.

The next slide, please.

So we -- we believe that when the NRC initially presented the Facility Safety Program, it was presented, if I -- if my memory is correct, it was presented as, hey, this is a concept we're thinking of. We haven't -- we haven't decided specifically if we will or will not include it. We want to get some feedback and then, you know, evaluate it from there

and then make a decision. That's how we thought it was presented, anyway. And so that was perfectly fine. And you know, the idea of the Facility Safety Program that was presented then, and also that you talked about here today, Bill, was presented as, well, is there a paradigm where the NRC -- I'm just going to put it in my own words, this isn't what the NRC said. But sort of recognize that the licensees are capable of having additional control. And the Facility Safety Program would be the mechanism of trying to allow the licensees to have a little bit more -- more control over their -- their plant. And we support that. We think that that's a good goal to have.

When we discussed it with the NRC originally, we did identify, well, the Facility Safety Program itself comes with some regulatory burden just to be able to implement it, develop it, implement it, and operate it. So if, you know, our concern and feedback was if we're -- if there were a Facility Safety Program that's increasing regulatory burden, it should have a commensurate offset by reducing regulatory burden in another area. Especially under the thought process that the NRC is achieving the same confidence just by relying on the licensee's capabilities through the Facility Safety Program and

the controls that the NRC would have over the Facility Safety Program.

So that was our concern and feedback. We had said -- suggested to the NRC that really what's needed for a stakeholder to evaluate the merits of a Facility Safety Program is for the NRC to articulate the clear benefits. And we, as industry, we want to understand the benefits to industry. Obviously other stakeholders will want to understand the benefits in their perspectives. And that the benefits should be clarified by providing examples.

So back then in the initial reveal of it, the NRC had said perhaps one of the benefits of a Facility Safety Program is that the NRC review, initial review of the design, might not have to be as rigorous because there's some confidence that downstream processes would be -- would have some controls so that that review might be a little bit more streamlined. And so -- or the NRC had said, well, perhaps even in this meeting, some of the benefits that were mentioned were perhaps less inspectors, perhaps the NRC wouldn't have to do -- evaluate experience. For example, the Generic Issue Program or reporting under, that's under 50.72 and 50.73.

So if those were sort of things that were obviated by a Facility Safety Program, we said, well, it'd be helpful to give an example, show how -- how an issue would currently be addressed and show how it would be addressed if there's a Facility Safety Program so we can evaluate sort of the merits and differences between the two. So we are hoping to get that, the benefits and examples. We still haven't gotten it. I do understand that the NRC has conceptualized the potential benefits, but it --the NRC hasn't described exactly, yeah, so Facility Safety Program would obviate these -- these things, and we will not have those things under Part 53. So to be more clear would be helpful.

So in -- in lacking any of that and recognizing the Facility Safety Program was increasing burden, in November we came out with the position that we recommend that the Facility Safety Program not be included in Part 53 as a (audio interference.) appear to maybe -- appear to imply that the Facility Safety Program is a foregone conclusion. We're just discussing what might be the details of the requirements. I don't know if that's the case or if the NRC's still evaluating whether the Facility Safety Program will be included at all. But really, I think

articulating the benefits and having examples would -- would really be important in this area.

Thank you.

MR. BEALL: Okay, thank you, Marcus. Prasad, you have your hand up.

MR. KADAMBI: Okay, thank you. Can you hear me?

MR. BEALL: Yes, sir.

MR. KADAMBI: In terms of finding benefits out of the Facility Safety Program, it seems to me that one has to take into account the fact that when you start with a design, especially for advanced reactors and new designs and new technologies, you begin with certain estimates of what are the margins available. And it would be up to perhaps the Facility Safety Program to assess the magnitude and the confidence you can have in the margins. And as part of the Facility Safety Program, it should be possible to then decrease operational requirements, you know, if you find that a, you know, you actually underestimated or you -- you have more margins than you thought you had.

So I guess I'd ask, you know, is that considered as part of the scope of what the Facility Safety Program could include.

MR. RECKLEY: That's a good question, Prasad. I -- so my off-the-cuff response would be that some of what you mentioned would be addressed through the routine updating of the analysis. So, and that may improve your margins. Within the -- within the Facility Safety Program, the way that would play out is if you identified new information, or let's say a revised hazard, with those available margins, the likelihood that you would trip the threshold that would warrant taking, you know, to implementing a risk reduction measure would -- would be decreased.

And so yes, the margins could be routinely updated, not through the Facility Safety Program but through the periodic updating of the analysis. But that could in turn play into the Facility Safety Program. Because the more margins you have, the more ability you have to then address potential increases in risk that are identified from new information.

MR. KADAMBI: Well, would the rule language include that this possibility exists?

MR. RECKLEY: We'll have to go back and look at the specifics. So yeah.

MR. KADAMBI: Okay, thank you.

MR. BEALL: Okay, are there any other questions on the Facility Safety Programs? Okay, not

seeing any.

Let's go to other topics. Can you bring up the USNIC slides please, Liz.

Okay, Cyril.

MR. DRAFFIN: Cyril Draffin, U.S. Nuclear Industry Council.

First three, and then I'll do the last one separately. The special treatments for QA is a graded QA for safety-related SSCs allowed for earthquake engineering. Why did the staff single out earthquakes for more rigorous treatment beyond NEI-1804?

And then it seems like the fire protections -- seem like deterministic, and how does that fit into a risk-informed approach?

I mention these just because they are recent in the language, and I just wanted to see if I had any initial reactions on any of those first three questions.

MR. RECKLEY: Yeah, in terms of graded QA, if you look at Subpart K, you are able for the safety-related equipment to implement whatever the applicable criterion are out of Subpart K. The traditional use of the term graded QA, it really would derive under Framework A through the anticipation that the implementation of the -- of that process results in

you having less safety-related equipment than you do under the deterministic approaches.

And so the grading comes in that you have less safety-related equipment, or you can have less safety-related equipment. And then you -- then you apply only those portions of Subpart K that are necessary. And that comes, and you guys have mentioned earlier, and this comes as part of that. You do end up having special treatment requirements then defined for the non-safety-related but safety-significant SSCs. And that would be basically a process that looks a lot like the -- that developed under 5069 for grading the treatment of SSCs. So I guess the short answer is we think that it does. Maybe not quite as you have it framed in the bullet.

In terms of earthquake engineering, seismic issues have always been especially challenging. And yes, other hazards are also challenging, but the earthquake engineering presents special challenges when you just imagine what an earthquake is doing to a site and to the -- to the equipment within the site. And so that is the reason that we picked out earthquake engineering to have special discussions. Some of that might ultimately lead to similar treatment for other hazards. The

other reason to pull out earthquake engineering is it's the furthest along in taking risk-informed approaches. And so what we're proposing in Part 53 really should enable the use of LNP NEI 18-04 if you pull it. Taking it to the full potential as it stands now, which would be the implementation of ASCE 43, the standards code for considering seismic risks in the design. So that is the reason that we brought in earthquake engineering in particular.

Fire protection, I'll be honest, I don't understand your question. The current requirements for fire protection are about 20 lines and they're fairly high level, saying you need basically to have systems in place that should prevent -- you should minimize combustible material. You have fire detection and suppression that's appropriate and so forth. So I think it's pretty high level. You'd have to be more specific as to what --

MR. DRAFFIN: I think Section F I thought was pretty specific in terms of deterministic. But that's probably not a key point. So we'll end, if there's no other items that were raised back in November.

But the one I'd end with was the Part 53 licensing framework. We appreciate the fact that NRC

is considering the approach of a more traditional use of a PRA. And as you pointed out, it's a spectrum. We thought that your slide on -- slide 7 showing the spectrum made a lot of sense, because that's what outfits usually use, a combination of both. And even if you have an A and a B, there may be situations where an applicant -- we use -- want to use some of both, which may make it even more complex.

So the question would be as you go forth in the next month in writing Framework B to think about and can the rule language have a single framework that is performance-based and high level. And then with the details on the licensing approaches, including A, B, and maybe even a combination thereof for special cases, be provided in the guidance.

So, interested in your current thinking of that. I know you're evolving as you go. But rather than just going for sure it's going to be an A and a B, is it a way of having a higher-level approach, a single framework in the rules, that's the question.

MR. RECKLEY: And again, I'll just reflect on our current thinking as we described it earlier. The challenge with taking it up a level to try to have a single framework that can address either A or B is that it -- in our assessment, and we've looked at this

quite a bit, it ends up having to be at such a high level that -- that you end up not having sufficient meat on the bones of the regulations to ultimately support the regulatory findings that we need to make.

So that -- that's -- that's, you know, we're continuing to look at it, but our view right now in developing the two frameworks, two different frameworks would be when we looked at how one might combine it, we didn't think it was practical.

MR. DRAFFIN: Okay, as you come up with the language on Framework B, you might mull over whether it's possible to, you know, have some intermediate step from where you are to a simple framework.

On the last slide, just as a summary of some of the materials that we've sent in the past, so I guess I'd like to close by saying to the NRC staff, thank you for having this meeting. We have kind of been waiting for this for a long time, to have some feedback on some of the comments we've made. And I thought I heard some helpful background, which I hadn't heard before, on QHO. So ALARA for Bill, so that was a helpful addition. But I do think this dialog is better than we've had in the past, so I appreciate you scheduling and holding the meeting.

MR. BEALL: Okay, thank you, Cyril.

Can we bring up the slides for NEI, please. Okay, Marcus.

MR. NICHOL: Yeah, thank you, Bob.

So this slide, I wanted to highlight the input that NEI's provided to date on the Part 53 rulemaking, because we've provided many hundreds of pages of comments, concerns, recommendations through letters, papers, White Papers, and presentations. And that was produced through thousands of hours of effort since August 2020.

Next slide, please.

So I -- but I think where we are is in a place where we need timely, explicit, meaningful NRC response to significant adverse comments that have been made. This table shows a list of topics, many of them that we talked today, a few additional ones, I'd say are pretty much the critical concerns that NEI has on the rulemaking. And I included just for convenience the date when the NRC first proposed their approach and the date when NEI first identified our concerns with that approach. And then it was helpful to see when did the NRC provide a basis. And for many of them it was today, some of them still not yet. And so this has been the most productive Part 53 meeting

we've had in the entire rulemaking scope. So we really appreciate the NRC finally providing rationale for what they're doing.

But we do note that the NRC has not responded to significant concerns, you can refer to my earlier slides. And so just to -- the point being is that NEI and industry has really tried our best to be timely in providing input to the rule so that it can meet the schedule. We know it's an aggressive schedule. We want to make sure that we're providing input to the NRC as quickly as possible.

This shows that we provided with between one and 21 days, and that 21 days was over end-of-year holidays. And we've provided detailed comments with substantive concerns, our basis for that. We provided proposed alternatives which we think are viable, alternative approaches. Even alternative rule language and explained why we thought the alternatives are better.

We don't really understand the NRC's perspectives on our comments. You know, it's taken a long time to finally get the basis for what the NRC is doing. As I mentioned, we haven't heard the concerns -- or the responses to our concerns.

We do really appreciate this meeting

because this has been one of the probably only meetings the NRC has actually responded to our comments and provided justification and basis. You know, it's very different than other meetings we've had where we've been told the NRC has already decided how this is going to be and they're not going to change. And sometimes years ago they decided this. And we've been told we don't understand what the NRC is doing, or just wait and it'll get better, you'll see. Next slide, please.

So we -- we do believe that the Part 53 is not on a path to success at this point in time. There is a lot of good stuff in Part 53. We think that it can be successful, and we want it to be successful. But we've heard from our members there are few if any potential applicants that would desire to use Part 53 due to the substantial concerns we're raised. The benefits of Part 53 we think are outweighed by substantial increases in regulatory burden. And the approaches that we're concerned with have not been meaningfully modified.

So we do have some thoughts on how we can work together to go forward. So we think the stakeholder engagement process, it hasn't really achieved the common understanding of Part 53. Today's

meeting went a long way toward that. But still we don't understand the NRC's response to our significant adverse concerns that we think challenge the fundamental premises of the approaches on the topics I discussed. We don't understand why the NRC doesn't adopt proposed alternatives that we think would protect the public health and safety more efficiently and effectively with greater clarity and predictability. We, as I mentioned, we're spending significant resources to reiterate the substantive concerns because we don't understand the NRC's views on it.

So we think that this schedule extension that we believe goes to August should be used to work more toward the common understanding. So one area we think congressional clarification on the intent and goals of NEIMA would actually align expectations.

One of the things we've noticed is that industry has been focusing on efficiency and technology inclusiveness as highest priority in achieving safety. And it appears to us anyway that the NRC is putting risk informed as the highest priority. So, you know, just differences in that could lead to different perspectives and different understandings. The alternative approaches that have

been either proposed or others that haven't been thought of should be evaluated so that there can be an evaluation of which approach best meets the goals of NEIMA.

And then finally, a detailed comment response document would, for the significant adverse concerns, would really go a long way to helping stakeholders understand the NRC's perspectives on that. So we thank you for your consideration of this and look forward to working with you more.

MR. SHAMS: Bill, can I -- can I respond? Bob, excuse me.

MR. BEALL: Yes, please do.

MR. SHAMS: Thank you. Yeah, nothing lengthy or anything, I'm actually just grateful for the thoughts and the points that USNIC and NEI provided and others as well. But just to NEI's last set of points in there.

We do know that this rulemaking has been a, you know, it's been a journey for both sides and as far as developing the positions and offering them out and providing -- providing your thoughts and responding to them. And I'm not surprised that there's a degree of dissatisfaction of how things have gone. It's just, it's been a tough process.

But I just to, even just one particular point, Don, is your thought about it's taken us 500 and plus days to respond. I would see it differently. It took us that time to actually develop an entire draft rule. You know, the date you've quoted was actually the first time we just put a thought out.

And since that, we've focused our efforts on responding to comments, reiterating on the rule in many areas that as we've been presenting. And also developing new options for different areas as well. But also to just put together a full proposed draft rule such that -- or a draft of the rule such that yourself and others can actually see what we're doing.

I take a lot of comfort in what USNIC and NEI said about this meeting was very productive and there's plenty of good information provided. That's probably the best goal that we can get out of meeting like this is to actually get to understand, you know, these difficult topics better. And I think I'll just go from here and say let's just build on that as opposed to litigating, you know, how did we get here. It's probably not productive.

So with that, thank you again for -- for all the comments and the thoughtful exchange that was provided today.

Bob, back to you.

MR. BEALL: Okay, all right, thank you, Mo.

Can we go to the next slide, please.

So the staff is planning to host additional topical public meetings on the Part 53 rulemaking. All new and revised preliminary proposed rule language will continue to be posted in ADAMS and on regulations.gov under our Part 53 docket ID, which is NRC-2019-0062, prior to the public meetings.

The staff is also continuing to meet with the Advisory Committee on Reactor Safeguards to receive feedback on the Part 53 rulemaking. You can also stay up to date on the activities related to Part 53 by subscribing to the gov delivery system at the link shown on this -- on this slide.

Next slide, please.

I'd like to see if there's any final questions from the public before we move to closing remarks. Okay, not seeing any.

Can we go to the next slide, please.

So I'd like to introduce, re-introduce Steve Lynch. He has some final closing remarks and comments about today's public meeting.

Steve.

MR. LYNCH: Hey, good afternoon, everyone. I'd like to reiterate the NRC's staff's appreciation on the engagement today from stakeholders. I hope that today's dialog achieved our objective of clarifying the NRC's approach to addressing several key ethical topics associated with Part 53, including QHOs, ALARA, beyond-design-basis events, and facility safety programs.

For the benefit of members of the public in attendance today, I'd like to clarify how the NRC staff is approaching responding to feedback received today on Part 53. Prior to formal publication of the proposed rule, the NRC will not be dispositioning individual comments received on rulemaking. Instead, as we have done today, the NRC will communicate how it is iterating on the preliminary proposed rule language as it broadly considers input received in writing, or in discussions like we are having today.

While the NRC remains an independent regulator, we will continue to demonstrate our commitment to the principles of good regulation by ensuring that we are open with our processes and clear in our expectations. We hope that everyone in attendance today will continue to engage with us as we further develop the proposed rule language of Part 53.

Thank you.

MR. BEALL: Okay, thanks, Steve.

If you have any additional input or suggestions for future topics related to the Part 53 rulemaking, please send an email to Nan Valliere and I at the email address in this slide. Your interest and comments will improve our rulemaking effort.

I also encourage you to monitor the Part 53 rulemaking docket ID, again, which is NRC-2019-0062, on the regulations.gov website for updates and important documents related to this rulemaking.

Finally, we're always looking for ways to improve our public meetings, and your feedback is important to us. At the end of the meeting please go to the NRC public meeting website, click on recently held meetings button, and look for this meeting. The feedback meeting form will be at the bottom of the meeting announcements.

I'd like to thank everyone for participating in today's meeting and allowing these very important discussions to extend beyond the schedule meeting closing time.

I hope everyone has a good evening, and this meeting is now closed. Thank you very much.

(Whereupon, the above-entitled matter went

off the record at 5:07 p.m.)